

Corsentino Dairy Farms, Inc.											
Profit and Loss											
	2015 to 2016				2014 to 2015						
	2016	% of Tot	2015	% of Tot	Change	% Change	2014	% of Tot	Change	% Change	Comments
Income											
Milk Sales	2,173,570	92.9%	2,144,762	95.4%	28,808	1.34%	1,840,502	88.5%	304,260	16.53%	
All Other (Cull Cow Sales/Calves/Govt)	166,389	7.1%	103,631	4.6%	62,758	60.56%	238,403	11.5%	-134,772	-56.53%	
Total Income	2,339,959	100.00%	2,248,393	100.00%	91,566	4.07%	2,078,905	100.00%	169,488	8.15%	
Expenses											
802 Bank Charges	525	0.0%	525	0.0%	0	0.0%	708	0.0%	-183	-25.8%	
803 Building Repairs & Maintenance	10,982	0.6%	11,673	0.6%	-691	-5.9%	10,909	0.5%	764	7.0%	
804 Landscape Maint & Repair	9,840	0.5%	12,411	0.6%	-2,571	-20.7%	2,736	0.1%	9,675	353.6%	
806 Dairy Equipment Repair & Maint	5,421	0.3%	4,462	0.2%	959	21.5%	0	0.0%	4,462	0.0%	
Total Repair & Maint	26,243	1.3%	28,546	1.4%	-2,303	-8.1%	13,645	0.7%	14,901	109.2%	
812 Feed Purchased	996,663	50.0%	999,161	49.2%	-2,498	-0.2%	1,217,897	60.4%	-218,737	-18.0%	
813 Fuel & Oil	46,747	2.3%	49,956	2.5%	-3,209	-6.4%	47,733	2.4%	2,223	4.7%	Lower fuel prices that I am sure will not last long.
825 Insurance (Crop/Vehicle)	40,283	2.0%	39,300	1.9%	983	2.5%	39,845	2.0%	-545	-1.4%	
825.3 Insurance-Worker's Comp	13,684	0.7%	13,449	0.7%	235	1.7%	11,882	0.6%	1,567	13.2%	
827 Interest Expense	54,668	2.7%	54,054	2.7%	614	1.1%	57,950	2.9%	-3,896	-6.7%	Equipment, CBOC Farm Loan
841 Lease (Int Exp) - Cows	43,921	2.2%	46,032	2.3%	-2,111	-4.6%	46,032	2.3%	0	0.0%	Began paying principal on loan Jan 2016
827.1 Late Payment Penalties - Payroll Taxes	0	0.0%	0	0.0%	0	0.0%	20,000	1.0%	-20,000	-100.0%	
828 Equipment Rental	0	0.0%	750	0.0%	-750	-100.0%	733	0.0%	17	2.3%	
845 Vehicle/Equip Machine Repair & Maint	51,383	2.6%	60,451	3.0%	-9,068	-15.0%	24,018	1.2%	36,432	151.7%	Some replacement equipment purchased
855 Office Expense	3,084	0.2%	3,379	0.2%	-295	-8.7%	2,716	0.1%	664	24.4%	
856 Dues & subscriptions	1,050	0.1%	1,049	0.1%	1	0.1%		0.0%	1,049		
860 Payroll Taxes	30,514	1.5%	30,379	1.5%	135	0.4%	28,549	1.4%	1,830	6.4%	
861 Property Taxes	10,501	0.5%	9,500	0.5%	1,001	10.5%	9,500	0.5%	0	0.0%	
862 Professional Services	94,395	4.7%	127,497	6.3%	-33,102	-26.0%	26,189	1.3%	101,308	386.8%	Reduction in attorney fees
868 Seed & Fertilizer	12,005	0.6%	10,385	0.5%	1,620	15.6%	1,289	0.1%	9,096	706.0%	
869 Supplies/Parts	78,243	3.9%	87,494	4.3%	-9,251	-10.6%	55,467	2.8%	32,027	57.7%	New Dairy Equipment - improved efficiency
872 Travel	3,750	0.2%	4,043	0.2%	-293	-7.3%	423	0.0%	3,620	856.4%	
875 Utilities	115,528	5.8%	114,668	5.7%	860	0.7%	87,979	4.4%	26,689	30.3%	
880 Veterinary	31,351	1.6%	31,990	1.6%	-639	-2.0%	22,312	1.1%	9,679	43.4%	
891/892 Wages	338,932	17.0%	316,830	15.6%	22,102	7.0%	299,756	14.9%	17,074	5.7%	MMJ/RMJ in county has driven up labor
899 Miscellaneous	0	0.0%	0	0.0%	0	0.0%	126	0.0%	-126	-100.0%	
Total Expenses	1,993,470	100.0%	2,029,438	100.0%	-35,968	-1.8%	2,014,748	100.0%	14,690	0.7%	
Net Operating Income	346,489		218,956		127,534	58.2%	64,157		154,799	241.3%	

An
Appraisal Report
of the
Corsentino Dairy Farm
located northeast of
Walsenburg, Huerfano County, Colorado
RIMS Project No. 15-001986-01-1

Effective Date
November 7, 2015

Requested By
Mr. Mike Hohmann, MAI
NBH Bank, N.A.
11111 West 95th Street
Overland Park, Kansas 66214

Prepared By
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SERVING THE AGRICULTURAL REAL ESTATE INDUSTRY SINCE 1990

November 12, 2015

Mr. Mike Hohmann, MAI
NBH Bank, N.A.
11111 West 95th Street
Overland Park, Kansas 66214

RE: Corentino Dairy Farm
2689 State Highway 10 East
Walsenburg, Colorado 81089
RIMS Project No. 15-001986-01-1

1,018.78 Acres of land out of: Section 31, T27S, R65W; Sections 35 and 36, T27S, R66W; and Sections 1 and 2, T28S, R66W; 6th P.M.; Huerfano County, Colorado.

Dear Mr. Hohmann:

In accordance with your request, I have prepared an appraisal of the property referenced above. The appraisal problem to be solved is to support and form and opinion of the "as is" market value, as defined in the accompanying report, of the fee simple interest in the subject property as of the effective date of the appraisal. The intended use of the report is to provide the client, NBH Bank, N.A., with the market value of the property for internal accounting purposes and collateral loan monitoring.

The effective date of this appraisal is November 7, 2015, and is based on data and market conditions prevailing on that date. The research and analysis contained herein was conducted during the month of November, 2015.

By reason of my investigation and analysis of data contained in this report, other information in my files, and my experience in the real estate and appraisal profession, it is my opinion that the market value of the fee simple interest in the subject property, "as is", as of November 7, 2015, is as follows:

Final Value Opinion of Subject Property Corsentino Dairy Facility on 1,018.78 Acres of Land	
Subject Property	Market Value Opinion
Value of Real Property and Attached Milking and Sprinkler Irrigation Equipment	\$1,455,000
Contributory Value of Attached Milking and Sprinkler Irrigation Equipment	\$80,000
Contributory Value of Real Property	\$1,375,000

The value opinion is subject to the assumptions and limiting conditions as set out herein. In my opinion, this appraisal report conforms to the Standards of Professional Practice of the Appraisal Institute, the American Society of Appraisers, and the Uniform Standards of Professional Appraisal Practice as promulgated by the Appraisal Standards Board of The Appraisal Foundation, and to the extent that the available market data will allow.

It should be noted that, to my knowledge, no environmental hazard was known to be located on the property, as of the effective date of this appraisal. The value concluded in this **Appraisal Report** assumes that no hazardous building materials are in place in the building improvements and that no hazardous conditions affect the subject site.

I do not warrant that the improvements meet the specifications established by the Americans with Disabilities Act. Furthermore, as a result of our analysis, I have concluded that the property has no scientific, natural, cultural, or recreational value.

Critical Issues, Extraordinary Assumptions and Hypothetical Conditions:

According to USPAP, the appraiser must address Extraordinary Assumptions and Hypothetical Conditions. An Extraordinary Assumption is defined as an assumption, directly related to a specific assignment, as of the effective date of the assignment results, which, if found to be false, could alter the appraiser's opinions and conclusions (example: a value in the future on the date a proposed project is expected to be completed).

A Hypothetical Condition is defined as a condition, directly related to a specific assignment, which is contrary to what is known by the appraiser to exist on the effective date of the assignment results, but is used for the purpose of analysis (example: a value of a proposed project as of the effective date of the appraisal or the date the property was inspected).

The following Critical Issues are addressed and Extraordinary Assumptions are made:

A. Permitted Use

The subject dairy does not operate with a Confined Animal Feeding Operations (CAFO) Permit or a Use By Special Review Permit for confining livestock and managing wastewater. The subject dairy legally operates under the Animal Feeding Operation (AFO) rule issued by the Colorado Department of Public Health and Environment. Under the AFO restriction a dairy in Colorado may confine up to 699 mature milking cows and 999 heifers without a CAFO Permit or Use By Special Review Permit. The subject dairy does have a Nutrient Management Plan filed with the USDA Natural Resource Conservation Service (NRCS) which is necessary for its legal operation.

The subject dairy pens and feed lanes will support approximately 1,079 mature dairy cows, 309 heifers, and numerous small heifer calves. The Double 12 Herringbone milking parlor has a maximum output of 1,000 to 1,200 head. Based on the current improvements and the AFO restrictions, the efficient milking capacity of the subject dairy is approximately 594 head, the dry cow capacity is approximately 105 head, and the replacement heifer capacity is approximately 689 head. A small calf barn and numerous calf hutches are available for small baby heifer calf confinement.

According to the Colorado Department of Public Health and Environment, the dairy is currently in compliance and there were no known environmental violations as of the appraisal date. The appraised value in this report is subject to maintaining all of the County, State, and Federal permits necessary for the legal operation of the dairy. It is noted that the dairy does not retain a full time environmental consultant-engineer.

The appraised value is subject to maintaining all on-site and off-site solid waste, slurry, and wastewater agreements necessary for the normal function of the dairy. This includes adjacent or non-contiguous land, owned or leased, used for solid waste, wastewater, and slurry application.

This appraisal assumes that any off-site waste application land, required by AFO restrictions, excluded from this analysis, will be available for solid waste, wastewater, and/or slurry application for the life of the subject dairy facility.

B. Organic Certified Use

The subject dairy and land as defined in this report are Certified Organic. The dairy operates as an organic dairy facility and the land is certified for the production of organic forage for the dairy cows. The organic milk is transported to Denver and sold. The Organic Certificate is issued from Indiana Certified Organic, LLC, 3914 Clarks Creek Road, Plainfield, Indiana 46168, Phone 317-839-9700. The certificate numbers include t1048-US1101z1 and t1013-US1101z1.

The time period to convert an existing commercial dairy and its cattle to an organic certified operation is one year. Pasture or grazing land that has never had fertilizer or chemicals applied to it will usually be allowed to be certified organic without a waiting period. Cropland that has had consistent use of fertilizers and chemicals, has to go through a three year period of no fertilizer or chemical use to obtain an organic certification.

Other than the organic certification and some additional land for grazing, which is part of the organic rules, an organic dairy facility basically has the same type of construction and equipment as a commercial dairy facility. Converting from commercial to organic is purely a business decision made by the dairy operator.

There are very few sales or leases of organic dairy facilities. Because of a lack of organic dairy sales and organic cropland sales in the market, the older age of the subject dairy improvements, the remote location of the subject dairy as compared to other dairy facilities, the lack of demand for an organic dairy facility or a commercial dairy facility, high operating costs for all dairies, no additional value was given to the subject dairy for its organic certification. In this appraisal report, the subject will be analyzed and valued as a typical commercial dairy facility with associated land. Organic leases are included in the appraisal for review.

C. Environmental Condition Critical Issue

Excerpts from Letter fro John D. Faught, Attorney for Corsentino Dairy Farms, Inc. to the Colorado Oil and Gas Conservation Commission (COGCC) dated January 29, 2010.

Corsentino Dairy raises irrigated corn and other forage to feed their dairy herd. Irrigation water for the farm land is diverted from the Cucharas River under high-priority, adjudicated water rights dating back to the early 1900's. Approximately 135 acres of the farm land is irrigated through ditch irrigation which is diverted directly from the Cucharas River to the fields. Approximately 215 acres of the farm land is irrigated through pivot irrigation systems with water stored in a reservoir, known as Holita Reservoir, which is filled with water diverted from the Cucharas River. Water from the Cucharas River also is used as drinking water for the dairy herd.

From approximately 1999 to 2007, Petroglyph Energy, Inc. discharged produced water from its CBM Operations into the Cucharas River, upstream of Corsentino Dairy. The produced water is groundwater pumped from deep coal seams to depressurize the system and allow the desorption of methane gas from the coal. During the eight-year period, Petroglyph discharged up to 6.5 million gallons per day of produced water to the Cucharas River. The largest volume of produced water discharged by Petroglyph occurred from 2003 to 2007.

Deep groundwater from CBM de-watering operations is typically high in sodium (Na). The produced water from Petroglyph's CBM Operations had a sodium content of approximately one ton per acre-foot (up to 39,896 lbs/day).

Petroglyph stopped its CBM Operations and ceased discharging produced water into the Cucharas River in July 2007 following meetings with COGCC staff regarding the potential threats to public health, safety, and welfare, and the environment related to the presence of methane gas in domestic water wells.

The Director of COGCC issued a Cease and Desist Order on October 16, 2007 shutting down Petroglyph's CBM Operations. Subsequent orders were issued by the Director in November 2007 and January 2008, extending the Cease and Desist Order and requiring Petroglyph to implement a Methane Investigation, Monitoring and Mitigation Plan. This matter remains pending before COGCC.²

Petroglyph holds a point source water discharge permit issued by the Colorado Water Quality Control Division ("CWQCD") of the Colorado Department of Public Health and Environment ("CDPHE"), Permit No. CO-0048020, for the discharge of produced water. Petroglyph has applied for a renewal of the permit. In considering Petroglyph's renewal application, the CWQCD recognized the adverse impacts to agricultural uses, and specifically those suffered by Corsentino Dairy, by allowing the discharge of untreated produced water from Petroglyph's CBM Operations because of the high sodium concentrations and high sodium adsorption rate ("SAR"). The discharge permit held by Petroglyph during its discharge of produced water to the Cucharas River from 1999 to 2007, and during the high-volume discharges from 2003 to 2007, did not provide any limitations or standards for the quality of the water discharged related to sodium or the SAR.

First, the continued practice of discharging the untreated produced water (i.e., high Sodium Adsorption Rate, SAR, values and high sodium concentrations) into the Cucharas River, under specific hydro-logic conditions, creates a known threat to the beneficial agricultural use of this state water by impairing the suitability of this river water when diverted for agricultural uses. This threat is heightened when there exists minimal upstream flow in the river to dilute the effluent entering from several tributaries.

Specifically, there has been damage to corn fields, soils, and dairy cattle when water was diverted (Holita Ditch) from the Cucharas River to a storage pond (Holita Reservoir) and then routed to the Corsentino Dairy for these agricultural uses. The damage was first reported in 2006 and has been confirmed by soil scientists from Colorado State University and USDA's National Salinity Team. ***

Third, the CBM operator [Petroglyph] has been aware of the SAR and high sodium problems in the produced water for several years and has taken steps to identify and characterize treatment technologies that will be evaluated for use in addressing this problem. The application for the renewal permit identifies a site for the treatment facility with a design capacity of 10 MGD [million gallons per day]. [emphasis added].

To address the serious adverse impacts of the discharge of untreated produced water from CBM Operations, the CWQCD has adopted a narrative standard for Agriculture Use Protection. In the renewal water discharge permit recently issued by CWQCD, Petroglyph is required to treat its produced water prior to discharge and is subject to water quality limits relating to electric conductivity and SAR levels.

As a result of Petroglyph's discharge of untreated produced water, Corsentino Dairy has suffered devastating financial losses and hardships, including lower milk production, increased mortality rates and decreased herd pregnancy rates. During the period of Petroglyph's discharge of untreated produced water, Corsentino Dairy's milk production dropped in half, from 84 lbs. per cow to 42 lbs. per cow. In the year following the cessation of Petroglyph's produced water discharges in 2007, milk production recovered to 62 lbs. per cow.

During the period of Petroglyph's discharge of untreated produced water, Corsentino Dairy also suffered increased herd death loss and a decrease in pregnancy rate. After Petroglyph stopped its discharges into the Cucharas River, Corsentino Dairy's herd death loss improved 64% and its pregnancy rate increased from 39% to 59%. There is a clear and direct correlation between Petroglyph's discharge of CBM produced water to the Cucharas River and the adverse impacts on Corsentino Dairy's milk production, herd death losses, herd pregnancy rates and other operational losses.

In addition, when used for irrigation of crops, the high sodium content of the produced water reduced crop yield and lowered the nutrient value of the silage. The result to Corsentino Dairy was reduced crop yield and increased reliance on alternative feed sources. Use of sodium-contaminated irrigation water from Petroglyph's produced water discharges impaired the soils of Corsentino Dairy's fields for the production of feed for the dairy herd.

Site investigations conducted in 2008 and 2009 indicated that soils on the farm have higher SAR levels than is considered optimum for agricultural soils, and also exhibit characteristics of sodic soils. The soils in these fields have accumulated Na as a result of high-Na irrigation water from the Cucharas River. Combined with low Ca and Mg, the Na accumulation causes poor soil physical conditions as well as stunted crop growth. The soil Na concentration in some areas of the Corsentino's farm is higher than that which corn, the most salt-sensitive crop grown on the farm, can tolerate.

Corsentino Dairy has repeatedly demanded that Petroglyph compensate them for their losses. Petroglyph has refused to make any restitution or otherwise compensate Corsentino Dairy for the losses directly caused by Petroglyph's discharges of produced water from its CBM Operations.

As a result of efforts of Executive Director Neslin, and the COGCC staff, Petroglyph has agreed to a Form 27 Site Investigation and Remediation Work Plan, approved on November 30, 2009. The Form 27 requires Petroglyph to conduct sampling and analysis of the Corsentino Dairy farm soils and to undertake certain remediation activities pursuant to a Work Plan. However, a final Work Plan has yet to be completed and approved.

Additionally, a Supplement to the Form 27 requires Petroglyph to reimburse Corsentino Dairy for the costs of the purchase and delivery of supplemental feed for the dairy herd in amounts and quality necessary to meet the feed requirements of the herd over and above the feed that can be supplied from its crop production during 2009 and 2010. The agreement to reimburse Corsentino Dairy for such supplemental feed costs extends only through the end of 2010. It is anticipated that the remediation of the Corsentino Dairy fields will not be completed until a much later date. Reimbursement payments have been made to Corsentino Dairy by Petroglyph under this Supplement to Form 27.

The delay, however, in undertaking the remediation activities has been costly to the Corsentino's. The lack of production of corn and silage from Corsentino Dairy's farmland as a result of the damage caused by the Petroglyph discharges has taken a heavy toll on the Corsentino family and their operations. Until the soils are fully remediated, the losses continue to mount.

Corsentino Dairy does not expect that all of its losses suffered as a result of Petroglyph's discharge of untreated produced water be mitigated by the Response Fund. Essentially, Petroglyph is a recalcitrant operator that has failed to meet its obligations to protect the public health, safety, and welfare from its operations. Corsentino Dairy has limited options available to correct this wrong. Under such circumstances, we submit, it is appropriate to use monies from the Response Fund to afford mitigation of the impacts from Petroglyph's CBM Operations.

Rather than present a specific dollar amount request, Corsentino Dairy offers to work with COGCC to determine what could be an appropriate response to the circumstances presented by this request.

Excerpts from Letter from the Colorado Oil and Gas Conservation Commission (COGCC) to John D. Faught, Attorney for Corsentino Dairy Farms, Inc. dated October 19, 2011.

Under the Form 27 and Supplement, Corsentino Dairy, Petroglyph and the Commission reached a voluntary agreement for reclamation of Corsentino Dairy's property. The agreement avoided the need for the parties to resolve many complex and contested issues before reclamation could proceed, including whether and to what extent Petroglyph's discharge permit was a defense to any such action, and the nature and extent of the harm allegedly caused by Petroglyph's operations.

Given these considerations, Corsentino Dairy, Petroglyph and the Commission entered into the Form 27 and Supplement and Petroglyph implemented the resulting work plan promptly.

Based on our investigation, the Staff believe that Corsentino Dairy has not made a sufficient showing that further enforcement action by the Commission against Petroglyph is warranted at this time. Further, the Staff believe that Petroglyph has satisfied its obligations under the Form 27 and Supplement. Accordingly, the Staff will not seek to compel Petroglyph to take further action as you have requested.

As of the effective date of value of November 7, 2015: According to the Corsentinos's and the USDA NRCS in Huerfano County, Colorado, only the elements of time with adequate rainfall and snowfall will leach the saline out of the subject irrigated ground and return it back to normal. The leaching process has been slow due to the droughts of 2011, 2012, 2013, and 2014. A significant amount of snow melt and rain occurred in 2015 helping to leach out the land and return it to normal, however, drought is common for this part of Colorado and it is expected to be ongoing into 2016 and beyond.

There is no measurable effect on value related to the subject's saline contaminated irrigated land. The land value, as if vacant, and the value of the property, as improved, stated in this report, assumes no negative impact on value due to the saline contamination.

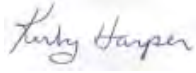
D. Dairy and Irrigation Water Adequacy

Water for the dairy livestock, the milking operation, and domestic use is obtained from onsite water wells and the City of Walsenburg through an underground water line. Irrigation water for the cropland is legally obtained through owned water rights from the Holita Ditch Reservoir, the Holita Ditch Enlargement, the Walsenburg Ditch No. 4, and the Ballejos Ditch No. 7. Water quality and quantity are assumed to be adequate for the operation of the dairy, the dairy livestock, domestic use, and irrigation purposes, based on animal capacities and irrigated land acres stated in the report.

The following pages of this report and addendum contain the pertinent data gathered in the course of my investigation and sets forth the methods employed in completing the value opinion.

I thank you for the privilege of serving you and trust that you will find this report satisfactory.

Sincerely yours,

A handwritten signature in cursive script that reads "Kirby Harper". The signature is written in dark ink on a light-colored background.

Kirby Harper, SRA, ASA-RP

Texas General State Certification No. TX-1331201-G

New Mexico General State Certification No. 03440-G

Colorado General State Certification No. CG-40042526

Expiration Date July 31, 2016

Expiration Date April 30, 2017

Expiration Date December 31, 2016

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ADDENDA

1. Assumptions and Limiting Conditions
2. Definitions
3. Subject Information
4. Appraiser Qualifications

Summary of Salient Facts, Data and Conclusions

Property Appraised:	Corsentino Dairy Facility and Farm. RIMS Project No. 15-001986-01-1
Property Type:	Commercial Dairy converted to an Organic Dairy Operation.
Milking Cow Capacity	Approximately 594 head (legal and efficient, limited by AFO restrictions)
Total Facility Capacity	1,079 mature head, 309 heifers, plus space for small calves
AFO Permit Restrictions	Regulation 81, 699 mature dairy cows plus 999 heifers
Land Size	1,018.78 deeded acres
Land to Milking Cow Ratio	1.72 acre per milking head
Location:	The property is located approximately 1.65 miles east of Interstate Highway 25 and the City of Walsenburg, along the north and south sides of State Highway 10, in Huerfano County, Colorado. The physical address is 2689 State Highway 10 East, Walsenburg, Colorado.
Interests Appraised:	Unencumbered fee simple.
Legal Description:	Being 1,018.78 Acres of land out of: Section 31, T27S, R65W; Sections 35 and 36, T27S, R66W; and Sections 1 and 2, T28S, R66W; 6 th P.M.; Huerfano County, Colorado.
Appraisal Problem To Be Solved:	The problem to be solved in this appraisal is to support and form an opinion of market value of the fee simple interest of the subject property.
Effective Date of Valuation:	November 7, 2015
Intended Use and User of the Appraisal:	The intended use of the Appraisal Report is to assist the client, NBH Bank, N.A., with the market value of the property for internal accounting purposes and collateral loan monitoring. No other use or user is intended.

Land Data:**Size**

1,018.78 acres plus or minus.

Shape

Irregular overall.

Frontage

The subject property has approximately 0.7 mile of frontage along the north side of Colorado State Highway 10 and approximately 2.0 miles of frontage along the south side of Colorado State Highway 10. The property boundary starts approximately 1.65 miles northeast of Interstate Highway 25 and the City of Walsenburg, Colorado.

Zoning:

Huerfano County, Colorado is zoned. The subject property is zoned (A) for Agricultural usage. There is no Use By Special Review Permit assigned to the property by the Huerfano Planning and Zoning Commission. The dairy legally confines dairy cattle under the AFO Rule in Regulation 81 provided through the Colorado Department of Public Health and Environment. A Nutrient Management Plan has also been filed with the USDA NRCS in Huerfano County, Colorado.

Flood Zone:

According to the USDA NRCS Soil Survey, there are occasionally flooded soils associated with the subject tract. According to Flood Source Flood Scape Flood Hazzard Map 0802060062B, dated October 1, 1986, the subject site is affected by a Zone A, 100 year flood zone along the Cucharas River. The appraiser has estimated that 25 to 35 percent of the subject site is located in the flood plain of the Cucharas River. A current survey is required for exact determination.

Improvement Data:

The Corsentino Dairy Farm is located on 1,018.78 acres of deeded land. Based on current AFO regulations, the dairy can legally confine up to 699 mature dairy cows plus 999 heifers. The restrictions are placed on the dairy facility by the Colorado Department of Public Health and Environment through Regulation 81. The dairy does not operate with a CAFO Permit. The dairy has a total mature cow capacity of approximately 1,079 head and a heifer capacity of approximately 309 head. Small calves are confined to a small calf barn and calf hutches.

The most efficient capacities of the dairy based on actual space and legal restrictions is approximately: 594 milking cows, 105 dry cows, 689 various size heifers, and additional space for small calves. It is noted that the dairy currently milks under 500 milking head.

The dairy improvements include a Double 12 Herringbone milking parlor with attached covered holding pen; open concrete feed lanes and pens for approximately 1,079 mature head; open concrete feed lanes and pens for approximately 309 heifers; 1 x steel construction quonset cattle barn; 1 x steel construction large compost barn; 1 x steel construction maternity barn; 1 x steel construction special needs barn; 1 x older pole and tin construction compost barn; 4 x older pole and tin heifer barns; 1 x steel construction hoof trimming shed; 1 x steel construction cattle shade; 1 x wood frame and tin construction calf barn; 1 x wood frame, tin, and concrete construction commodity barn with attached concrete loading apron; 1 x steel construction farm storage utility barn; 1 x steel construction shop building; 1 x older wood frame and tin construction equipment shed; 1 x wood frame main dwelling with basement and attached garage; 1 x wood frame employee dwelling with attached basement; 2 x double-wide manufactured dwellings; and 1 x single-wide manufactured dwelling. Please see statements in the appraisal about the value of mobile homes.

The milking equipment includes a Germania Double 12 (24 units) Herringbone milking system with Germania milking stalls (24) and aftermarket components; Surge pulsation system with Surge large capacity pulsation control; automatic take-offs; milk pump and receiver; steel discharge lines; PVC vacuum lines; Pacemaker Surge Com-Pak milk pump receiver panel; Surge Electrobrain Auto Pipeline Washer; Spray Boss sanitizing spray teat dip system; DeLaval Auto Flush Control System; DeLaval Smooth Operator milk transfer control; Universal Kleen-o-Matic Plus acid detergent sanitizer control; Mueller Gentry refrigeration control and cleaning system; Mueller acid and detergent control system; Mueller Matic auto wash system; Gardner-Denver air compressor system; Curtis-Toledo air compressor system; two DeLaval vacuum pumps with vacuum on demand; one additional vacuum pump and system (DB 235 Plus); one Mueller 6,000 gallon milk storage tank; one DEC Dairy Equipment Company Dairy-Kool 4,000 gallon milk storage tank; one Mueller 2,500 gallon milk storage tank; one 120 gallon Mueller commercial hot water heater; one 110-120 gallon older commercial hot water heater; one RayPack hot water boiler; one Boiler Mate hot water system; three stainless steel wash vats; Dairy-Kool 5HP and 10HP milk cooling compressors; one 125 KW emergency power plant with a Waukesha engine; two Maytag heavy duty commercial washers; and one Auto-Crowd gate.

Associated equipment includes a hydraulic trimming chute, a manual working chute, a 10' x 70' truck scale, and a mechanical manure separator. The irrigation equipment includes one 1995 T-L 9 Tower sprinkler irrigation system, one 1985 Valley 7 Tower sprinkler irrigation system, and one 1993 Lockwood 7 Tower sprinkler irrigation system.

Housing on the dairy includes one main owner-occupied wood frame dwelling with a basement and detached garage; one employee wood frame dwelling with a basement; one owner-occupied double-wide manufactured home; one employee-occupied double-wide manufactured home; and one employee-occupied single wide manufactured home.

The manufactured dwellings were not valued in this appraisal.

The site is improved with livestock fencing, gravel drives and parking, buried water lines and irrigation lines, irrigation flood gates and ditching, above ground gated irrigation pipe, septic systems, dairy lagoons, water wells, and public utility connections. Excavation and dirt work for buildings and drainage are also considered to be part of the site improvements.

Non-functional and obsolete features in poor to fair condition on the dairy which have no contributory value include five (5) Harvestore silos (2 corn units and 3 silage units); one upright feed commodity tank; and one upright molasses tank.

Year of Construction: 1960 to 2010.

Current Use: Commercial Dairy Facility on 1,018.78 acres of land converted to an Organic Dairy Operation.

Highest and Best Use:

As Vacant

A land tract consisting of 385.2 acres irrigated land, 623.58 acres of native and improved pasture land, and 10.0 acres of roads and waste, ready to be improved with a commercial or organic dairy facility.

As Improved

Commercial or organic dairy operation on 1,018.78 acres of deeded land.

**Nuisances, Hazards and
Detrimental Influences:**

The value concluded in this **Appraisal Report** assumes that no hazardous building materials are in place in the building improvements and that no hazardous conditions affect the subject site.

There is oil and gas production in the regional area, but none noted on the subject site. The oilfield and gas improvements in the area appear to be well maintained and the presence of the equipment and structures does not appear to impact the value properties in the region.

**Natural, Recreational,
Cultural Or Scientific Value:**

None

Indicated Land Value by**Sales Comparison Approach:** \$1,300,000 - As If Vacant Without Sprinklers**Indicated Property Value by****Cost Approach:** \$1,630,000 - As Is**Indicated Property Value by****Sales Comparison Approach:** \$1,455,000 - As Is**Indicated Property Value by****Income Approach:** \$1,445,000 - As Is

Final Value Opinion of Subject Property Corsentino Dairy Facility on 1,018.78 Acres of Land	
Subject Property	Market Value Opinion
Value of Real Property and Attached Milking and Sprinkler Irrigation Equipment	\$1,455,000
Contributory Value of Attached Milking and Sprinkler Irrigation Equipment	\$80,000
Contributory Value of Real Property	\$1,375,000

Marketing and Exposure Time: 12-24 Months



Property Identification

The property is identified as *Corsentino Dairy Farm*.

The property is located approximately 1.65 miles east of Interstate Highway 25 and the City of Walsenburg, along the north and south sides of State Highway 10, in Huerfano County, Colorado. The physical address is 2689 State Highway 10 East, Walsenburg, Colorado.

The Corsentino Dairy Farm is located on 1,018.78 acres of deeded land. Based on current AFO regulations, the dairy can legally confine up to 699 mature dairy cows plus 999 heifers. The restrictions are placed on the dairy facility by the Colorado Department of Public Health and Environment through Regulation 81. The dairy does not operate with a CAFO Permit. The dairy has a total mature cow capacity of approximately 1,079 head and a heifer capacity of approximately 309 head. Small calves are confined to a small calf barn and calf hutches.

The most efficient capacities of the dairy based on actual space and legal restrictions is approximately: 594 milking cows, 105 dry cows, 689 various size heifers, and additional space for small calves. It is noted that the dairy currently milks under 500 milking head.

The dairy improvements include a Double 12 Herringbone milking parlor with attached covered holding pen; open concrete feed lanes and pens for approximately 1,079 mature head; open concrete feed lanes and pens for approximately 309 heifers; 1 x steel construction quonset cattle barn; 1 x steel construction large compost barn; 1 x steel construction maternity barn; 1 x steel construction special needs barn; 1 x older pole and tin construction compost barn; 4 x older pole and tin heifer barns; 1 x steel construction hoof trimming shed; 1 x steel construction cattle shade; 1 x wood frame and tin construction calf barn; 1 x wood frame, tin, and concrete construction commodity barn with attached concrete loading apron; 1 x steel construction farm storage utility barn; 1 x steel construction shop building; 1 x older wood frame and tin construction equipment shed; 1 x wood frame main dwelling with basement and attached garage; 1 x wood frame employee dwelling with attached basement; 2 x double-wide manufactured dwellings; and 1 x single-wide manufactured dwelling.

The manufactured dwellings were not valued in this appraisal.

The milking equipment includes a Germania Double 12 (24 units) Herringbone milking system with Germania milking stalls (24) and aftermarket components; Surge pulsation system with Surge large capacity pulsation control; automatic take-offs; milk pump and receiver; steel discharge lines; PVC vacuum lines; Pacemaker Surge Com-Pak milk pump receiver panel; Surge Electrobrain Auto Pipeline Washer; Spray Boss sanitizing spray teat dip system; DeLaval Auto Flush Control System; DeLaval Smooth Operator milk transfer control; Universal Kleen-o-matic Plus acid detergent sanitizer control; Mueller Gentry refrigeration control and cleaning system; Mueller acid and detergent control system; Mueller Matic auto wash system; Gardner-Denver air compressor system; Curtis-Toledo air compressor system; two DeLaval vacuum pumps with vacuum on demand; one additional vacuum pump and system (DB 235 Plus); one Mueller 6,000 gallon milk storage tank; one DEC Dairy Equipment Company Dairy-Kool 4,000 gallon milk storage tank; one Mueller 2,500 gallon milk storage tank; one 120 gallon Mueller commercial hot water heater; one 110-120 gallon older commercial hot water heater; one RayPack hot water boiler; one Boiler Mate hot water system; three stainless steel wash vats; Dairy-Kool 5HP and 10HP milk cooling compressors; one 125 KW emergency power plant with a Waukesha engine; two Maytag heavy duty commercial washers; and one Auto-Crowd gate.

Associated equipment includes a hydraulic trimming chute, a manual working chute, a 10' x 70' truck scale, and a mechanical manure separator. The irrigation equipment includes one 1995 T-L 9 Tower sprinkler irrigation system, one 1985 Valley 7 Tower sprinkler irrigation system, and one 1993 Lockwood 7 Tower sprinkler irrigation system.

The site is improved with livestock fencing, gravel drives and parking, buried water lines and irrigation lines, irrigation flood gates and ditching, above ground gated irrigation pipe, septic systems, dairy lagoons, water wells, and public utility connections. Excavation and dirt work for buildings and drainage are also considered to be part of the site improvements.

Non-functional and obsolete features in poor to fair condition on the dairy which have no contributory value include five (5) Harvestore silos (2 corn units and 3 silage units); one upright feed commodity tank; one upright molasses tank; four (4) silage pits with a 5,000 ton capacity located south of State Highway 10.

Legal Description

Being 1,018.78 Acres of land out of: Section 31, T27S, R65W; Sections 35 and 36, T27S, R66W; and Sections 1 and 2, T28S, R66W; 6th P.M.; Huerfano County, Colorado.

Appraisal Problem to be Solved

The problem to be solved in this appraisal is to support and form an opinion of market value of the fee simple estate of the Corsentino Dairy Farm on 1,018.78 acres of land located approximately 1.65 miles northeast of Walsenburg and Interstate Highway 25, along the north and south sides of State Highway 10, in Huerfano County, Colorado, “as is”, subject to the assumptions and limiting conditions set forth in the appraisal.

Effective Date of the Appraisal and Date of the Report

This appraisal has an effective date and an inspection date of November 7, 2015. The value is based on data and market conditions prevailing on that date. This **Appraisal Report** was written during the month of November, 2015, and was completed on November 12, 2015.

Intended Use and User of the Appraisal

The intended use of the **Appraisal Report** is to assist the client, NBH Bank, N.A., with the market value of the property for internal accounting purposes and collateral loan monitoring. No other use or user is intended.

Property Rights Appraised

Real property includes the interests, benefits, and rights inherent in the ownership of physical real estate. In an appraisal, a particular set of real property interests—not the real estate—is what is valued. Real estate in and of itself has no value; the rights, or interests, in real estate are what have value.¹

¹ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 4

In this particular appraisal, the property rights appraised consist of the fee simple interest in the subject. A fee simple interest is defined as: Absolute ownership unencumbered by any other interest or estate....subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power, and escheat.² My investigation revealed no significant limitations imposed on the fee simple interest.

History of Subject Property

The present owner of record of the subject property is Corsentino Dairy Farms, Inc. The principals of the ownership are Joe C. Corsentino and Brett J. Corsentino. The property has not changed ownership in the three years prior to the effective date of value of this appraisal. The property has been under the Corsentino Family ownership for many years.

The property was operated as a commercial dairy and farm for many years and it changed to an organic dairy and farming operation in January 2011. The subject dairy farm is owner-operated and not leased.

According to the Corsentino's and information from a prior appraisal, John Stroh, a Real Estate Broker with Southern Colorado Land and Livestock Company in Walsenburg, Colorado, presented an offer of \$3,000 per acre for the subject irrigated land only and \$400 per acre for the subject pasture land lying south of State Highway 10. The offer was made in the Spring of 2011. At the time the offer was made to the Corsentino's, the property was not listed for sale. The offer was subsequently turned down by the Corsentino's. John Stroh, the Broker, had performed past appraisal work for the Corsentino's and was very familiar with the subject property. The buyer stated at the time that his main interest was the water rights.

According to Huerfano County Recorded Documents, Corsentino Dairy Farm filed for Bankruptcy Protection in June 2006. No other known transactions or ownership changes of the subject property were noted as of the appraisal date. As of the appraisal date, the subject property was not listed for sale or under contract for sale.

Prior Appraisal History

I have performed services, as an appraiser, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of the assignment. An additional statement relating to the appraisal history of the subject property is located in the Certification of the report. I appraised the subject property on February 11, 2013 and July 13, 2014, for Community Banks of Colorado for internal accounting purposes. No other prior appraisals have been completed on the subject property by this appraiser.

² The Appraisal of Rural Property, Second Edition, Appraisal Institute and ASFMRA, 2000, page 47.

Market Value Defined

MARKET VALUE is defined as the most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently, knowledgeably and assuming the price is not affected by undue stimulus.³ Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

- 1) Buyer and seller are typically motivated;
- 2) Both parties are well informed or well advised, and acting in what he or she considers his or her own best interest;
- 3) A reasonable time is allowed for exposure in the open market;
- 4) Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and
- 5) The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

Scope of Work of the Appraisal

The scope of this appraisal provides for the preparation of a fully documented **Appraisal Report** in a manner consistent with the Standards of Professional Practice of the Appraisal Institute, the American Society of Appraisers, and the Uniform Standards of Professional Appraisal Practice of the Appraisal Foundation. In this particular assignment, the value opinion requested is market value of the fee simple interest in the property. The following steps of the investigative process are described below.

1. The property is identified as ***Corsentino Dairy Farm.***

The property is located approximately 1.65 miles east of Interstate Highway 25 and the City of Walsenburg, along the north and south sides of State Highway 10, in Huerfano County, Colorado. The physical address is 2689 State Highway 10 East, Walsenburg, Colorado.

The Corsentino Dairy Farm is located on 1,018.78 acres of deeded land. Based on current AFO regulations, the dairy can legally confine up to 699 mature dairy cows plus 999 heifers. The restrictions are placed on the dairy facility by the Colorado Department of Public Health and Environment through Regulation 81.

³ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 59.
The Appraisal of Rural Property, 2nd Edition, Appraisal Institute and ASFMRA, 2000, Page 27.
USPAP Advisory Opinions 2012-2013 Edition, The Appraisal Foundation, Page A-72.
USPAP Definition of Market Value Page A-72 References Title XI FIRREA Definition.

The dairy does not operate with a CAFO Permit. The dairy has a total mature cow capacity of approximately 1,079 head and a heifer capacity of approximately 309 head. Small calves are confined to a small calf barn and calf hutches.

The most efficient capacities of the dairy based on actual space and legal restrictions is approximately: 594 milking cows, 105 dry cows, 689 various size heifers, and additional space for small calves. It is noted that the dairy currently milks under 500 milking head.

The dairy is improved with a Double 12 Herringbone milking parlor with attached covered holding pen and milking equipment, and all support structures and dwellings necessary for its current organic dairy operation.

2. Being 1,018.78 Acres of land out of: Section 31, T27S, R65W; Sections 35 and 36, T27S, R66W; and Sections 1 and 2, T28S, R66W; 6th P.M.; Huerfano County, Colorado.
3. The Intended User is NBH Bank, N.A.
4. The intended use of the **Appraisal Report** is to assist the client, NBH Bank, N.A., with the market value of the property for internal accounting purposes and collateral loan monitoring. No other use or user is intended.
5. The types of value indicated in the report are market value and disposition value.
6. General data collection and analysis - This involved research into national, regional and local economic influences on the property being appraised.
7. The primary sources used to develop the area and neighborhood analysis was the U.S. Census Bureau; the State Employment Commission; and the Colorado State Government offices. A physical inspection of the neighborhood was also conducted to determine predominate land uses, occupancy levels and development trends.
8. Specific data collection and analysis - Similar to the above, more detailed information was assembled and confirmed with respect to the subject and comparable properties.
9. The investigative process utilized in the preparation of this report included use of the appraiser's personal database, an in-house source of confirmed sales and rentals; commercial and agricultural real estate brokers; area property owners; and property management companies. Sales and rentals that were most comparable to the subject were selected. All of the comparable sales and rentals used in the appraisal were inspected either physically or by plats and photographs. A review of these sales and rentals was conducted and the data such as price, terms, market conditions, conditions of the properties and income and expense were verified with either the principals, brokers or management companies.

Deed records pertaining to the comparable sales were cross checked at the County Clerk's Offices of each County Courthouse. The results of this research are further discussed in the applicable sections of this report.

The following individuals, government offices, and data sources were also contacted pertaining to the subject property and area land and improved sales.

The Huerfano County Assessors Office	Jennifer Stites, Senior Appraiser, Farm Credit of Southern Colorado
The Huerfano County Deed Records	Larry Mapes, Appraiser, Broker, Reata Realty
The Las Animas County Assessors Office	James W. Roberts, Broker Associate, Southern Colorado Land and Livestock Company
The Las Animas County Deed Records	Brett Corsentino
Agri-Data Aerial Photo, Soils, and Topo Software	Ken Sutter, Appraiser, Rabo AgriFinance
Colorado Department of Public Health and Environment	Huerfano County Planning and Zoning Commission
USDA NRCS, Huerfano County, Colorado	Brink, Inc. Environmental Consulting

10. Site and improvements description and analysis - The subject was physically inspected and the property and street scenes were photographed. The legal description was checked at the Huerfano County Courthouse and Huerfano County Assessor's Office. The current ad valorem tax information was obtained from the Huerfano County Assessor's Office.
11. Highest and best use analysis - Based on the data gathered, a conclusion was reached concerning the land as if vacant and as improved.
12. Land value opinion - Comparable vacant land sales were located, adjusted for dissimilarities with the subject site, and utilized to estimate a current market value estimate for the subject site as if vacant and put to its highest and best use.
13. Application of the three approaches - The three traditional approaches to value were completed; the Cost Approach, the Sales Comparison Approach and the Income Approach.
14. Reconciling the values - Reconciling the values indicated by these three approaches is necessary to provide the final indication of value for the property appraised.
15. Report the defined value - The appraisal report conveys the results of the investigation and analysis performed in the appraisal process.

Appraiser Competency

Kirby Harper is a Designated SRA Member of the Appraisal Institute. Mr. Harper is also a general Associate Member (MAI Candidate Path) of the Appraisal Institute.

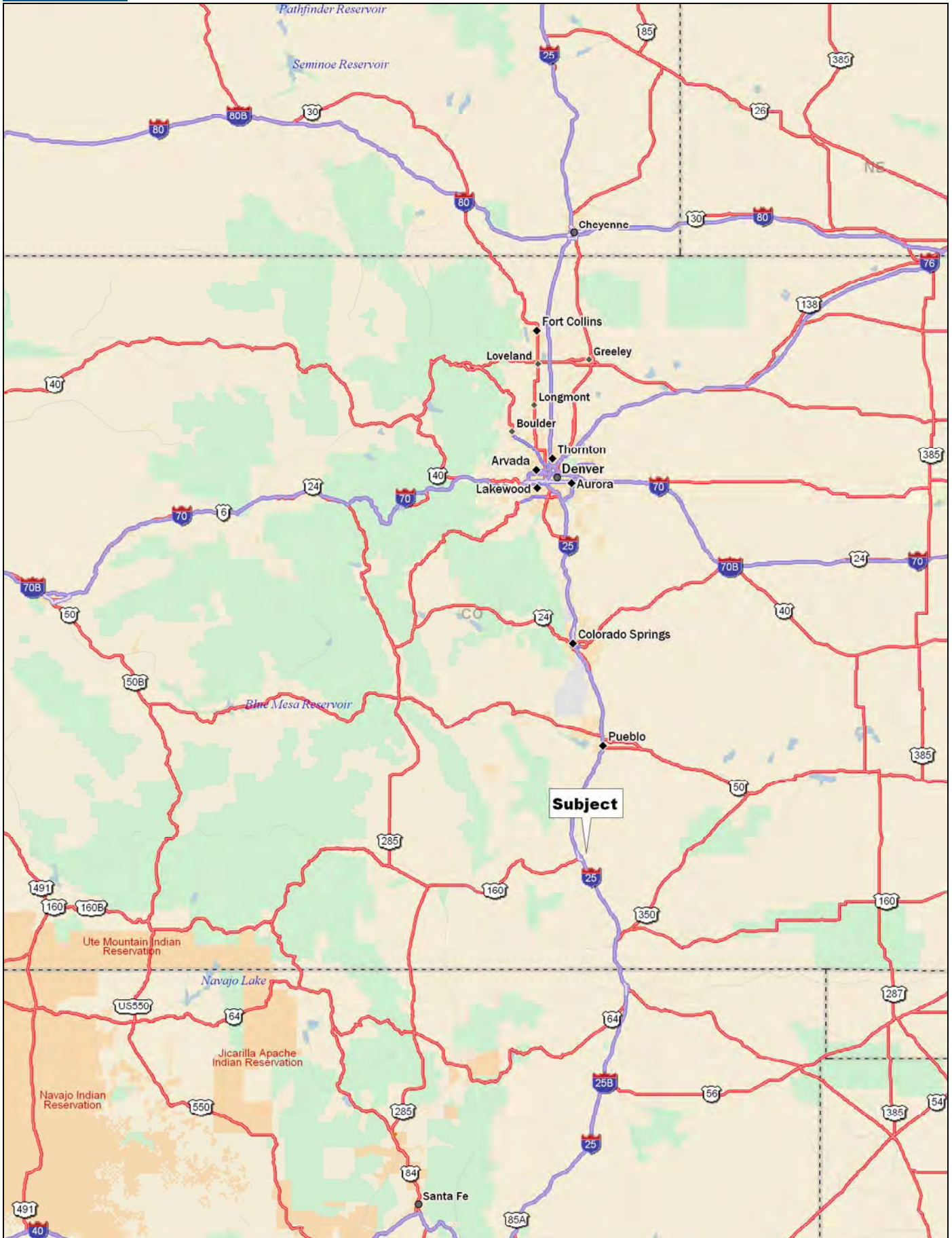
Mr. Harper is an Accredited Senior Appraiser (ASA) with the American Society of Appraisers. Mr. Harper is a Designated Member with a Real Property Rural Principal, a Real Property Urban Principal, and a Real Property Residential Principal.

Mr. Harper is a General State Certified Real Estate Appraiser with the State of Texas, Certificate No. TX-1331201-G, a General Certified Real Estate Appraiser with the State of New Mexico Certificate No. 03440-G, and a General Certified Real Estate Appraiser with the State of Colorado Certificate No. CG-40042526.

Mr. Harper is a Texas Real Estate Broker, License Number 0399634 and a Qualifying New Mexico Real Estate Broker, License Number 19375.

Mr. Harper has held temporary and full certifications in Texas and other states for the appraisal of dairy facilities, feedyards, farms and ranches. The appraiser has appraised numerous agricultural, as well as, industrial and commercial properties within the States of Texas, New Mexico, Colorado, Wyoming, Nebraska, Mississippi, Florida, Georgia, Idaho, Oregon, and Kansas during the past twenty-one years. The appraiser specializes in dairies, feedyards, ranches and farms.

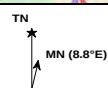
The appraiser was self employed in the farming and ranching business for several years prior to becoming an appraiser. The appraiser is considered to have the professional competency to appraise the subject property.



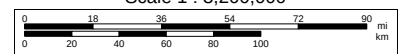
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Scale 1 : 3,200,000



1" = 50.51 mi

Data Zoom 6-0

Walsenburg and Huerfano County Market Area Analysis

Market Area Analysis

Market areas are defined by a combination of factors— e.g., physical features, the demographic and socioeconomic characteristics of the residents or tenants, the condition of the improvements (age, upkeep, ownership, and vacancy rates), and land use trends.⁴

“A *market area* is the geographic or locational delineation of the market for a specific category of real estate, i.e., the area in which alternative, similar properties effectively compete with the subject property in the minds of probable, potential purchasers and users. A *neighborhood* is a group of complementary land uses; a congruous grouping of inhabitants, buildings, or business enterprises. A *district* is a type of market area characterized by homogeneous land use, e.g., apartment, commercial, industrial, agricultural.”⁵

Value Influences in Real Estate Markets

The four forces that influence value (i.e., social, economic, governmental, and environmental forces) interact in the marketplace, creating unique combinations of factors. Careful study of general data related to a real estate market’s character is a prerequisite to the more formal application of market analysis, highest and best use analysis, and the approaches to value.⁶

Social, economic, governmental, and environmental forces influence property values in the vicinity of a subject property. As a result, they affect the value of that property. Therefore, to conduct a thorough analysis, the appraiser must delineate the boundaries of the area of influence. Although physical boundaries may be drawn, the most important boundaries are those that identify factors influencing property values.

Social Forces Influencing Value

Population

According to the U.S. Census Bureau, the City of Walsenburg had a July 2015 population of 3,233 and Huerfano County had a November 2015 population of 6,520.

⁴ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 166.

⁵ The Appraisal of Real Estate, 13th Edition, Appraisal Institute, 2008, Pages 54 and 55.

⁶ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 166.

Population		
Year	Huerfano County	Walsenburg
2001	7,941	4,046
2002	7,981	4,032
2003	8,141	3,947
2004	7,855	3,858
2005	7,978	3,834
2006	7,974	3,837
2007	7,808	3,819
2008	7,938	3,830
2009	7,558	3,645
2010	6,711	3,068
2011	6,672	---
2012	7,151	2,977
2013	6,519	2,927
2014	6,462	3,097
July-November 2015	6,520	3,233

Economic Forces Influencing Value

Labor Force

Huerfano County's unemployment rate has spiked 4 percent in the last ten years. As of April 2015, Huerfano County's unemployment rate was 8.7 percent.

The labor force participation rate indicates the degree to which a population is working or actively seeking employment. A low rate might indicate a significant prison population, reliance on other forms of income or a significant number of discouraged workers. A higher rate may indicate a tight labor market. As of November 2015, the Colorado Labor Participation Rate was 63.7 percent. Huerfano County and Las Animas County together had a Labor Participation rate for 2012 was 64.9 percent.

Huerfano County has a per capita personal income of \$31,380 while adjacent Las Animas County has a per capita personal income of \$31,961.

Huerfano County Correctional Facility

Corrections Corporation of America, a private prison operator, announced in January 2010, that Huerfano County's second largest employer, the Huerfano County Correctional Center (HCCC), would be closed in April 2010.

The HCCC, a level III state facility housing medium custody offenders, and with a capacity of 752 beds, housed offenders for the Arizona department of Corrections. With the closing, the County lost 188 of its highest paying jobs in the closure effecting virtually every business including real estate, restaurants, health care facilities, schools, retail, etc. According to Corrections Corporation of America, 77 of the 188 employees lived in Pueblo but their trade with Huerfano County businesses was lost, in addition to the loss of jobs for more than 100 Huerfano County residents, and an estimated annual loss to the county of \$300,000 in utility sales and property taxes.

Wind Energy

In recent years, the Huerfano County area has become more and more attractive to wind generation companies. The prevailing winds in the county are from the west coming from a gap in the Rocky Mountains that has been cut by the Huerfano River. This gap creates a strong wind flow that can be harnessed by wind turbines to create electrical power.

A small five-tower wind farm dubbed the Huerfano River Wind Farm is currently being built to provide power to San Isabel Electric. The wind farm is located approximately 10 miles north of Walsenburg along Interstate 25 and will be completed in the summer of 2013. The project will sell power to San Isabel Electric, which will provide that power to 23,000 customers in seven southern Colorado counties.

The Busch Ranch Wind Project, partially owned by Black Hills Energy, was completed in October 2012. The wind farm currently includes 16 wind turbines which serve 94,000 customers in Southern Colorado. Construction of this site provided 55 jobs during construction and will continue to provide approximately full-time positions post-construction as well as added revenue to the county both during and after construction. Plans are currently being discussed to expand the number of turbines at this location in the future.

Black Hills spent more than \$1 million locally during construction and also provided the Community Development Fund with a check for \$178,000. Huerfano County officials say the project will also provide Huerfano County with \$8,000 to \$120,000 annually in tax revenue.

Huerfano County Agriculture

As of 2012, Huerfano County had 580,907 acres of agricultural land comprising 407 farms with an average of 1,427 acres per farm. According to the USDA's 2012 Agricultural Census, Huerfano County's largest harvested crop is forage and the top livestock production is in cattle and calves. The USDA conducts its Agricultural Census every five years.

Out of the sixty-four Colorado counties, Huerfano County ranked second in nursery stock and woody stocks and third in Christmas trees. Huerfano County ranked sixth in bison and tenth in llamas. The market value of agricultural products sold according to the 2012 USDA Agricultural Census was \$11,255,585, or \$27,655 per farm, of which 72 percent was from livestock sales and 28 percent was from crop sales. Huerfano County has 107 irrigated farms consisting of 11,651 irrigated acres. According to the USDA Census, Huerfano County has approximately 8,109 beef cows with calves.

Governmental Forces Influencing Value

Utilities

Utilities for the area are provided by Xcel Energy Electric and Gas Service Company, San Isabel Electric Association, Atmos Energy, AmeriGas, Navajo Western Water District,

Communication Companies include Time-Warner Cable, Comcast, Qwest Communications, Sprint, and AT&T. There are telephone systems, city water and sewer systems, septic systems, and private well water located throughout the county.

Education

Education in the Huerfano County consists of 2 public school districts. One school district is located in Walsenburg and one in La Veta with a total of 6 schools and approximately 874 students currently enrolled.

Government

Under broad policy direction from the Board of County Commissioners, the County Administrator serves as the chief administrative officer of the county, and serves as the direct manager for departments reporting to the board.

The County Administrator carries overall responsibility and authority for the business and service delivery aspects of Huerfano County government. In matters of governance and public policy, the Administrator oversees the implementation and administration of board-established policies, and assists the board in developing and managing public policy matters and issues such as budget, land use, natural resources, transportation, environmental protection, social services, park development, county facilities and the subsidiary functions within each of those broad areas.

The City of Walsenburg has a home rule city council system with councilmen and a mayor. Local law enforcement includes a Police Chief and nine officers in Walsenburg, and volunteer fireman in Walsenburg and La Veta. The county is served by a County Sheriff's department and the Colorado State Police.

Environmental Forces Influencing Value

Geographic Location and Size

Huerfano County is located in south central Colorado east of the Sangre de Cristo Mountains. Walsenburg, the county seat, is located approximately 51 miles south of Pueblo, along Interstate 25. The average elevation of Huerfano County is 6,600 feet above sea level.

Huerfano County is surrounded by Pueblo County to the northeast, Las Animas County to the southeast, Costilla County to the southwest, Alamosa County to the west, Custer County to the northwest, and Saguache County to the northwest.

Huerfano County has a total area of 1,593.24 square miles of which 1,590.87 square miles is land and 2.38 square miles is water on the Huerfano mesa. Other cities and towns in Huerfano County include Badito, Calumet, Cuchara, Farista, Gardner, La Veta, and Navajo Ranch.

The two major rivers in the county are the Huerfano and the Cucharas. They originate high in the Sangre de Cristo Mountains and descend to the plains. Near the northeast border of the county, the Cucharas flows into the Huerfano, which in turn joins the Arkansas River in eastern Pueblo County. Most of the county's population lives in these two river valleys, with most residing in the city of Walsenburg, La Veta, and the unincorporated towns of Gardner and Cuchara. The Cucharas River, a 75-mile long tributary of the Huerfano River, flows from a source southwest of the Spanish Peaks in San Isabel National Forest. The river passes through La Veta and Walsenburg before flowing into the Huerfano River.

Its location makes Huerfano County a gateway to the sights and natural wonders of the region. Interstate 25 runs north / south and borders the mountains to the west and the high plains on the east. Highway 160 stretches from the eastern plains of Colorado to the west over several scenic mountain passes. Highway 12, also known as the Highway of Legends, moves south from Highway 160 to La Veta, Cuchara, ending at Trinidad.

Huerfano County History

Huerfano County was one of the original seventeen counties in Colorado and was established in 1861. Huerfano is Spanish for orphan. The county was named for the Huerfano River, which takes its name from the Huerfano Butte, an isolated cone-shaped butte near the river.

The City of Walsenburg traces its history back about 150 years. The settlement was first established as La Plaza de los Leones which was named after the Leon family on the north side of the Cuchara River by Don Miguel Antonio Leon and a family named Atencio. In 1870, Fred Walsen settled nearby and opened up a large mercantile store, making the town an attractive location for settlers. After Fred Walsen assisted in the incorporation of the town's 320-acre site, it was suggested that he be honored by formally naming the new town "Walsenburg".

In 1876, Walsen also opened the area's first coal mine, and the development of the town was influenced for a century by coal mining in the region. An estimated 500 million tons of coal was mined until a combination of corporate mergers, environmental regulations, and enforcement of mine safety regulations led to the closure of virtually all mining in the area.

Natural Resources

The soils and topography of the survey area can be considered its most important natural resource. They sustain an extensive, well developed agricultural economy. Irrigation water is generally plentiful in the area.

Pinon-juniper woodlands abound in this region. Also found is Gambel (scrub) oak, Douglas fir, mountain mahogany, ponderosa pine, lodgepole pine, spruce, aspen, and kinnikinnik. An area of native grassland can be found in the Badito area along the Huerfano River and another area can be found in the Walsenburg area near River Ridge Ranch. Sod-forming grasses such as buffalo grass and blue gramma are found in the grassland areas.

Wildlife species found in the area include pinon jays, canyon towhee, lark sparrow, common raven, great horned owl, red-tailed hawk, golden eagle, prairie falcon, and American kestrels. Also found are the side-blotched lizard, collared lizard, whipsnake, bullsnake, red racer, western rattler, ringtail cats, pack rats, squirrels, rabbit, gray fox, coyote, bobcat, black bear, mountain lion, pronghorn antelope, mule deer, and elk.

The chief mineral resources are coal, sand and gravel, petroleum, and gas. These resources form a minor part of the economy at present, but they could have a strong economic impact in the future.

Irrigation and Water Resources

The Huerfano-Cucharas Irrigation Company provides irrigation water to farmers in the Arkansas Valley. The company was organized in 1944 and owns and operates the Cucharas Reservoir, which is located east of Walsenburg. The dam has a capacity of more than 35,000 acre feet, is a 145 feet high rock-fill dam that has been enlarged several times since its original construction in 1914.

In May 1987, while the reservoir was full to the spillway crest the dam developed extensive seepage. Immediate action was taken to lower the water level and avoid a complete failure. It was determined that some of the upstream concrete had failed and was allowing large quantities of seepage flow to occur through the embankment. Portions of the concrete facing were repaired in 1987-88, but seepage again occurred and the reservoir was drained to its present restricted height of 100 feet or 7,500 acre feet of storage capacity.

The dam has performed adequately at this level of restriction and has only had moderate seepage since that time. A deadline was put in place of October 1, 2010, to either rehabilitate the dam or replace it with a new one. Failing to implement either of these solutions would have caused the dam to be placed in a “zero no-storage restriction” status followed by an order to breach the dam and remove it as a hazard.

Phase I of the rehabilitation project, at a cost of just under \$27 million, was completed in early 2012 with Phase II was scheduled for completion in August 2013. According to Two-Rivers Water Company out of Denver, Colorado, who owns the majority interest of the shares in the Huerfano-Cucharas Irrigation Company, as of July 2014, Phase II has not been completed and the estimated completion date is unknown. The estimated cost of Phase II is approximately \$10 million. The rehabilitation project involves lowering spillway, replacing outlet gates, installing a satellite monitoring system, and updating the dam’s Emergency Action Plan. Without the 1987-88 restriction, the reservoir has a capacity of 35,395 acre-feet to the spillway crest elevation of 5,766.0 feet, gauge height 120.5 feet.

According to the Colorado Division of Water Resources (CDWR) District 14 and 15, 719-250-1657, the Cucharas Reservoir Project Phase II must be completed by December 2014 or the current dam structure at the reservoir which is now owned by Two Rivers Water Company must be torn down or demolished. According to the CDWR, if the dam is demolished, it will only affect Two Rivers farming operation and no one else would be negatively affected. The CDWR stated that Corsentino Dairy’s water rights were senior to Two Rivers water rights, therefore, there is no negative affect on value related to potential irrigation water for the subject property.

Climate and Elevation

Walsenburg receives an average of 16 inches of rain each year with an average annual snowfall of 85 inches. The number of days with measurable precipitation annually is 71. On average there are 272 sunny days per year. Walsenburg is located 6,198 feet of elevation above sea level. The July high temperature is around 87 degrees and the January low is around 21. The area is periodically hampered by blizzards of short duration.

Transportation

Walsenburg and Huerfano County are linked by Interstate 25 to Albuquerque and El Paso to the south and to Denver and Cheyenne, Wyoming, to the north. Interstate 25 links with Interstate 40 in Albuquerque and to Interstate 76 in Denver, providing excellent interstate truck service to business and industry. Burlington Northern Santa Fe and Union Pacific rail access enhances access to the West Coast, the Midwest and Gulf Coast markets as well as international markets. Spanish Peaks Municipal Airport provides local air service to Walsenburg and is located approximately five miles north of town. Pueblo Memorial Airport is located approximately 58 miles to the north, Denver International Airport is located approximately 165 miles to the north, and Albuquerque International Sunport is located approximately 295 miles south of Walsenburg. Other small, one runway, private and ranch airports are scattered throughout the area. Amtrak service is provided to Trinidad, approximately 40 miles south of Walsenburg.

Recreation

Lathrop State Park, located 2 miles west of the Walsenburg city limits, is the State of Colorado's first State Park, and is over 1,600 acres in size. Two lakes, Martin Lake and Horseshoe Lake, offer fishing, water skiing, boating, jet skiing, hiking, and camping, and Lathrop is the only State Park in Colorado with a golf course.

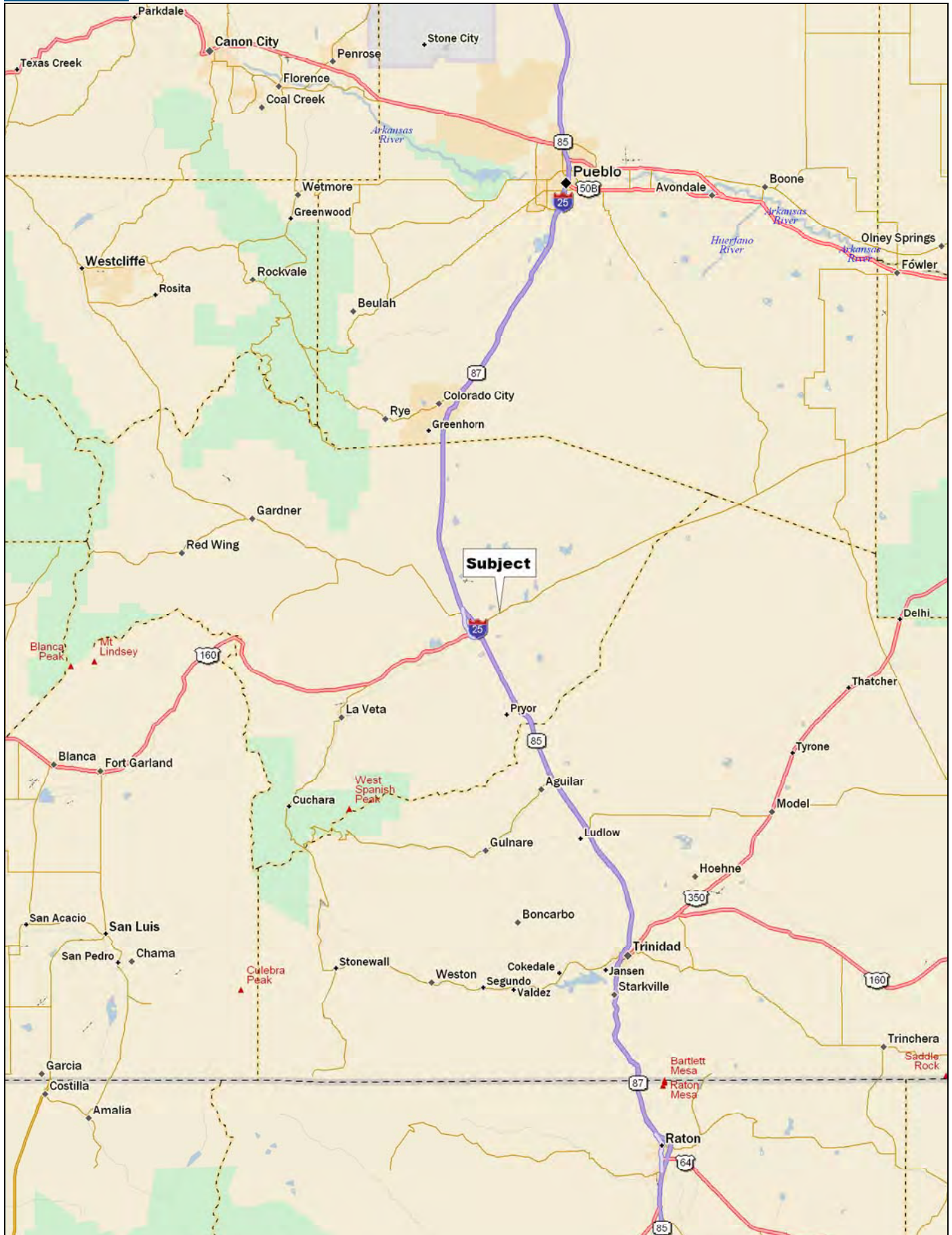
The nearby Spanish Peaks are a national landmark and named one of Colorado's Seven Wonders by the Denver Post. The Highway of the Legends, connecting Walsenburg with La Veta, other historic mining town, and Trinidad, is a National Scenic and Historic Byway. The Walsenburg golf course is a nine hole public golf course open for play year round. The City opened a two-million dollar water park, "Walsenburg Wild Waters", in May of 2007.

Market Overview and Summary

In conclusion, the economy of this area is based primarily upon agriculture and recreation for economic growth and stability. Huerfano County is primarily an agricultural area with a number of family owned cattle operations, farms and ranches that have been in operation for a number of years.

The future growth of the area relies heavily upon recreation and the stability of the agricultural sector and the Colorado economy, as well as the strength of the real estate market, which influences future growth. Several irrigated farms and ranch properties with water rights are being purchased in the subject area. The subject property is well located within the defined market area and should benefit from any growth experienced by the immediate area.

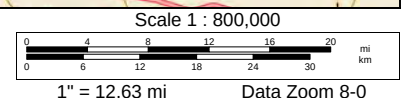
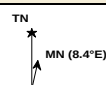
Segments of the agricultural sector have stabilized. However, there is always a touch of uncertainty in agriculture since the industry is so dependent on the weather and can be dramatically affected by government policy. In meeting with local businesses and realtors it seems that the local economy will experience above average growth in the immediate future.



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Site Data and Analysis

Land and Site Description

In valuing any type of property, the appraiser must describe and analyze the site. Site description consists of comprehensive factual data, information on land use restrictions, a legal description, other title and record data, and information on pertinent physical characteristics. Site analysis goes further. It is a careful study of factual data in relation to the market area characteristics that create, enhance, or detract from the utility and marketability of specific land or a given site as compared with other sites that it competes with.

One primary objective of site analysis is to gather data that will indicate the highest and best use of the site as though vacant so that land value for a specific use can be estimated. Whether a site or raw land is being valued, the appraiser must determine and evaluate its highest and best use. When the highest and best use of land is for agriculture, the appraiser usually analyzes and values the land using sales comparison. If the land is to be developed for urban use, the appraiser may use a more sophisticated technique such as subdivision development analysis.⁷

The following is a summary of the subject's site features and other relevant influencing factors. Data in this section was obtained from a personal site inspection and data gathered from the owners, the client and local government agencies.

Zoning, AFO Permitted Use, and Compliance Information

Huerfano County, Colorado is zoned. The subject property is zoned (A) for Agricultural usage. There is no Use By Special Review Permit assigned to the property by the Huerfano Planning and Zoning Commission.

The subject dairy does not operate with a Confined Animal Feeding Operations (CAFO) Permit or a Use By Special Review Permit for confining livestock and managing wastewater. The subject dairy legally operates under the Animal Feeding Operation (AFO) rule issued by the Colorado Department of Public Health and Environment. Under the AFO restriction a dairy in Colorado may confine up to 699 mature milking cows and 999 heifers without a CAFO Permit or Use By Special Review Permit. The subject dairy does have a Nutrient Management Plan filed with the USDA Natural Resource Conservation Service (NRCS) which is necessary for its legal operation.

The subject dairy pens and feed lanes will support approximately 1,079 mature dairy cows, 309 heifers, and numerous small heifer calves. The Double 12 Herringbone milking parlor has a maximum output of 1,000 to 1,200 head.

⁷ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 190.

Based on the current improvements and the AFO restrictions, the efficient milking capacity of the subject dairy is approximately 594 head, the dry cow capacity is approximately 105 head, and the replacement heifer capacity is approximately 689 head. A small calf barn and numerous calf hutches are available for small baby heifer calf confinement.

According to the Colorado Department of Public Health and Environment, the dairy is currently in compliance and there were no known environmental violations as of the appraisal date. The appraised value in this report is subject to maintaining all of the County, State, and Federal permits necessary for the legal operation of the dairy. It is noted that the dairy does not retain a full time environmental consultant-engineer.

The appraised value is subject to maintaining all on-site and off-site solid waste, slurry, and wastewater agreements necessary for the normal function of the dairy. This includes adjacent or non-contiguous land, owned or leased, used for solid waste, wastewater, and slurry application.

This appraisal assumes that any off-site waste application land, required by AFO restrictions, excluded from this analysis, will be available for solid waste, wastewater, and/or slurry application for the life of the subject dairy facility.

Organic Certification

The subject site and dairy are Certified Organic with Indiana Certified Organic, LLC which is part of the National Organic Program. The land / crops Certificate Number is t1013-US1101z1. The livestock Certificate Number is t1048-US1101z1. The subject land is used for organic forage production and grazing purposes for its organic dairy operation. It is noted that it takes three years to convert typical cropland that has had chemicals and fertilizer applied to it for crop production, to organic certified land. Native pasture that has not had fertilizer or chemicals applied to it usually does not have to go through the three year waiting period. Usually it takes one year to convert an existing commercial dairy facility and its cattle to an organic certified operation. A new construction dairy constructed on land that can be immediately certified organic usually does not have to go through the one year waiting period.

Easements, Encroachments and Restrictions

Easements - There are no known easements considered to have a major detriment to the site. It should be noted, however, that if a current survey map, or a registered surveyor determines that adverse easements do exist, these factors may impact the market value and/or the marketability of the subject property. Therefore, it is assumed that no easements exist, which would adversely affect the marketability or desirability of the site.

Encroachments - The physical inspection of the property did not reveal any adverse encroachments. Also, there are no known deed restrictions which would be detrimental to value. In order to verify these findings, a survey by a licensed surveyor and a title opinion by a reputable title company are recommended.

Deed Restrictions - No formal study of deed restrictions was conducted. However, it is recommended that a lawyer or title company be consulted regarding any deed restrictions associated with subject site.

Physical Characteristics

Location

The property is located approximately 1.65 miles east of Interstate Highway 25 and the City of Walsenburg, along the north and south sides of State Highway 10, in Huerfano County, Colorado. The physical address is 2689 State Highway 10 East, Walsenburg, Colorado.

Size and Shape

The subject farm is 1,018.78 plus or minus acres in size and it is irregular in shape. As is, the subject site is approximately 228.9 acres of Class 2 irrigated land, 156.3 acres of Class 3 irrigated land, 558.58 acres of native and improved pasture, 65.0 acres of dairy building sites and farmstead sites, and 10.0 acres of roads and waste.

If the site was vacant, it would be approximately 228.9 acres of Class 2 irrigated land, 156.3 acres of Class 3 irrigated land, 623.58 acres of native and improved pasture, and 10.0 acres of roads and waste.

Frontage and Ingress-Egress Access

The subject property has approximately 0.7 mile of frontage along the north side of Colorado State Highway 10 and approximately 2.0 miles of frontage along the south side of Colorado State Highway 10. The property boundary starts approximately 1.65 miles northeast of Interstate Highway 25 and the City of Walsenburg, Colorado.

The subject site is accessible by Colorado State Highway 10 which bisects the property. Accessibility of the subject property is considered to be good.

Topography and Flood Plain

The topography of the site is level to gently rolling sloping from north to south and draining to the Cucharas River. Drainage appears adequate.

According to the USDA NRCS Soil Survey, there are occasionally flooded soils associated with the subject tract. According to Flood Source Flood Scape Flood Hazzard Map 0802060062B, dated October 1, 1986, the subject site is affected by a Zone A, 100 year flood zone along the Cucharas River. The appraiser has estimated that 25 to 35 percent of the subject site is located in the flood plain of the Cucharas River. A current survey is required for exact determination.

Soils

According to the USDA Soil Survey of Huerfano County, Colorado, the primary soils located on the subject property are:

44, Manzanola clay loam, 0-2 percent, 130 acres
90, Wiley loam, 1-3 percent slopes, 127.3 acres
22, Glenberg sandy loam, 125.1 acres
24, Haverson clay loam, 119.3 acres
EL, Ellicott-Las Animas complex, 0-2 percent slopes, occasionally flooded, 102.6 acres
33, Limon silty clay loam, 0-2 percent slopes, 97.7 acres
77, Schamber-Midway complex, 3-25 percent slopes, 76.8 acres
46, Midway clay, 3-20 percent slopes, 62.8 acres
45, Manzanola clay loam, 2-5 percent slopes, 52.4 acres
68, Razor clay loam, 1-12 percent slopes, 42.2 acres
62, Otero sandy loam, 1-9 percent slopes
26, Kim fine sandy loam, 3-9 percent slopes, 32.9 acres
1, Apishapa silty clay, 30.9 acres
18, Fort Collins loam, 3-9 percent slopes, 9.2 acres
2, Baca loam, 1-3 percent slopes, 3.1 acres
66, Penrose-Rock outcrop complex, 4-25 percent slopes, 2.1 acres
41, Manvel silty clay loam saline, 1-5 percent slopes, 0.1 acre

Overall, the soils appear to be average for the area.

Utilities

All basic rural public utilities are available to the subject property in adequate capacity to serve most uses of legal development. Utilities are provided by:

Electric: San Isabel Electric
Sewer: Rural septic systems for each dwelling (1 septic system is shared by the main two dwellings) (the manufactured homes have 1 septic system each)
Natural Gas: None. All of the dwellings and dairy use propane.
Telephone: Quest Communications for telephone and internet service
Water: Private wells, City of Walsenburg water line, and owned water rights. See information below.

The primary water for the dairy operation comes from Well Permit Number 56793-F. The well is approved pursuant to CRS 37-90-137(2) on the condition that this well is operated in accordance with the Corsentino Dairy substitute water supply plan approved by the State Engineer on September 22, 2000.

This well shall not be operated unless it is included in a substitute water supply plan approved by the State Engineer or a plan for augmentation approved by the water court. The subject water supply plan is currently valid through December 31, 2001, and if not extended or if a court approved plan for augmentation is not in operation, this well permit is null and void and diversion of ground water from this well must cease immediately.

The well was approved for use of an existing well constructed under Permit Number 55283-F, but at a location of more than 200 feet from the location approved under the permit. Permit Number 55283-F has been canceled by order of the State Engineer.

The use of ground water from this well is limited to supplying the dairy and the maximum pumping rate shall not exceed 50 gallons per minute. The combined average annual amount of ground water to be appropriated by Well No. 56793-F and Well No. 49436-F shall not exceed 35 acre feet.

The permit was approved subject to the following change: the well location distance from the west section line was changed to being from the east section line, based on the actual well location as GPS'd by personal of the Division of Water Resources on 8-24-2001.

Water used from the well must be replaced to surface water. The replacement water comes from the Holita Reservoir. The Substitute Water Supply Plan is approved on an annual basis. The approval of the Corsentino Augmentation Plan has been in process for several years. It is unknown when the plan will be approved by the Water Court.

The primary water for the dwellings is supplied by a City of Walsenburg water line. Supplemental water for the dairy operation also comes from the City of Walsenburg water line. Livestock water for the dairy operation is assumed to be adequate.

The following is historical water well information obtained from the Colorado Division of Water Resources website.

Historical Water Well Information							
Owner Name	Well Permit Number	Receipt Number	Part of Section	Section, Township, and Range	Designated Well Use	Rate	Status
Corsentino Dairy	55283-F	0471003	NWNW	1-28-66	Commercial	15 GPM	Abandoned
Corsentino Dairy	56793-F	0482532	SENE	2-28-66	Commercial	38 GPM	Well Constructed
Corsentino Dairy	14101-AD	0414357	NWNW	1-28-66	Commercial	15 GPM	Application Denied
Corsentino Dairy	163897	0336495	SWSW	36-27-66	Stock	10 GPM	Well Abandoned
Corsentino Dairy		0498320	NWNW	1-28-66	Commercial Stock	35 AF	Application Unacceptable
Corsentino Dairy	12704-AD	0332302	SWSW	36-27-66	Stock	15 GPM	Application Denied
Joe Corsentino Corsentino Dairy	49436-F	0419445	NWNW	1-28-66	Commercial Stock	12 GPM	Well Constructed
Joe and Delphine Corsentino	162161	0330356	NESW	36-27-66	Stock	10 GPM	Well Status Unknown
John and Joe Corsentino	86643	9087495	SENE	36-27-66	Stock	10 GPM	Well Constructed

In addition to water wells, the subject dairy has priority decreed water rights. The water rights owned by the Corsentino Dairy on the stated 1,018.78 acres of land are as follows:

Surface Water Rights		
Hollita Ditch Reservoir	Priority No.	22, Atwood Decree
	Appropriation Date	March 20, 1901
	Adjudication Date	February 23, 1898 and October 15, 1901
	Type	Storage
	Total Right	540 Acre-Feet
	Owned	23,280 Shares of 25,000 Shares, 93.12 Percent or 502.85 Acre-Feet
	Incorporated Date	April 18, 1940
Hollita Ditch Enlargement	Priority No.	417 and 417C, Killian Decree
	Appropriation Date	May 23, 1910
	Adjudication Date	October 10, 1901 and October 3, 1921

	Type	Storage
	Total Right	130 Acre-Feet
	Owned	93.12 Percent or 121.06 Acre-Feet
	Junior Right	Not used at this time.
Walsenburg Ditch No. 4	Priority No.	5, Reed Decree
	Appropriation Date	April 30, 1866
	Adjudication Date	June 12, 1899
	Type	Direct Flow
	Total Right	5.65 Cubic Feet Per Second (CFS)
	Owned	500 Shares of 46,572 Shares, 1.0736 Percent or 0.06 CFS
	Incorporated Date	April 18, 1940
Ballejos Ditch No. 7	Priority No.	8, Reed Decree
	Appropriation Date	April 1, 1868
	Adjudication Date	June 12, 1889
	Type	Direct Flow
	Total Right	1.5 CFS
	Owned	75 Percent or 1.125 CFS
Ballejos Ditch No. 7	Priority No.	13, Reed Decree
	Appropriation Date	April 1, 1869
	Adjudication Date	June 12, 1889
	Type	Direct Flow
	Total Right	1.5 CFS
	Owned	75 Percent or 1.125 CFS

The Holita Ditch Reservoir provides 502.85 acre-feet of irrigation water to Field 1 being 60.5 acres of land and Field 2 being 55.8 acres of land. These fields are located north of State Highway 10 and east of the Holita Reservoir. The irrigation water is applied to Field 1 with a 7 Tower Valley sprinkler irrigation system and to Field 2 with a 7 Tower Lockwood sprinkler irrigation system. The tracts were originally cultivated cropland and then later planted in permanent grasses. Due to the drought of 2011 and 2012, available water from the reservoir has been minimal and the regrowth of permanent grasses on the tracts has been slow.

The Ditch Water Rights from the Cucharas River are used to irrigate Fields 3, 4, 5, 6, 7 and 8, south of State Highway 10. Ditch irrigation water is applied to Field 3 by a 9 Tower T-L sprinkler irrigation system. A pump and holding pond are used to supply the ditch water to the sprinkler. Irrigation water from the Holita Reservoir can also be pumped to this sprinkler by an underground pipeline. Field 3 is approximately 105.5 acres of land. Field 4 (32.4 acres), Field 5 (31.5 acres), Field 6 (13.2 acres), Field 7 (11.2 acres), and Field 8 (35.1 acres) are flood irrigated with gated irrigation pipes from ditch water. Fields 9 and 10 totaling 40 acres are available for flood irrigation pending available water.

It is noted that irrigation water was limited due to the ongoing drought of 2011, 2012, 2013 and 2014. Water availability improved some in 2015 due to sufficient rains and snow melt.

Surrounding Uses

The subject dairy is located just east of Interstate Highway 25 and the City of Walsenburg. The land east of Interstate Highway 25 is mostly level to rolling rangeland with low hills and mesas. This area is predominantly used for agricultural irrigated farms and ranching with minimal recreational or development influence. The land west of Interstate Highway 25 and the City of Walsenburg rises sharply to higher elevations of the Rocky Mountains. This land is also used for farming and ranching, but it is heavily influenced by recreational value because of the scenery and higher elevations.

The properties located within the immediate subject area included irrigated farms, ranches, and scattered rural homesites. There are no other dairies in the immediate area near Walsenburg. Most of the dairies in Colorado are located north of Denver scattered from Longmont north to Greeley and then from Greeley east to Fort Morgan and then to Yuma. There are livestock feeding operations to the east of the subject property near Rocky Ford and Lamar. Other larger livestock feeding operations are located north and northeast of Denver near Greeley, Fort Morgan, and Yuma, Colorado.

Environmental Hazards

The appraiser was not provided with an environmental study of the site with regards to possible hazardous materials. Appraisers are not experts in the field of environmental hazards or ground contamination; therefore, should any questions concerning environmental hazards or material arise, it is suggested that the client call on an expert in this field to provide further analysis and inspection. The value opinion of this appraisal assumes that there are no environmental problems which would adversely affect the marketability of the property.

Please see the Environmental Critical Issues under Extraordinary Assumptions in the Letter of Transmittal pertaining to Saline Water Contamination of the subject irrigated farmland from CBM production water discharge by Petroglyph Energy.

Summary and Conclusions

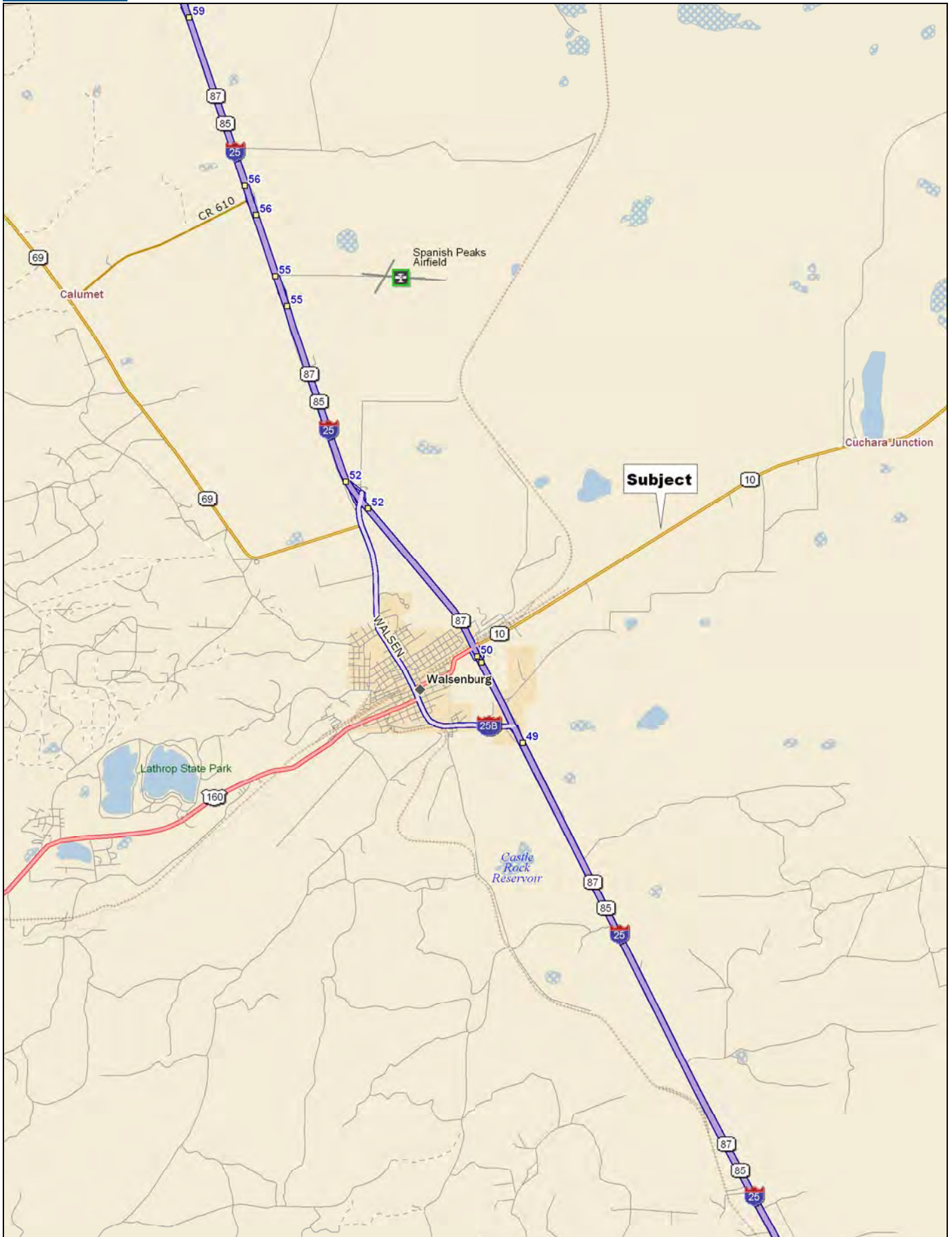
The subject site is located in an area of similar uses. The subject site is similar in size, shape, topography and productivity to other agricultural sites in the area. The subject site is irregular in shape and consists of 1,018.78 acres. The site has all necessary rural utilities which are adequate for its present use.

Based on soil and flood information, a portion the site is located in a flood hazard area of the Cucharas River. The subject land is generally level to gently rolling sloping to the south to the Cucharas River and it has typical soil types for the area.

The site is currently improved with a dairy facility designed to facilitate a milking capacity of approximately 594 head, a dry cow capacity of approximately 105 head, a heifer capacity of approximately 689 head, and numerous small calves. The current AFO restriction to the land and dairy allows for 699 mature dairy cows and 999 dairy replacement heifers. The subject land and dairy are Certified Organic by Indiana Certified Organic, LLC which is part of the National Organic Program.

The regional location of the subject site and dairy facility is considered to be fair to average with adequate supplies of local feed grains, hay and silage. The subject site is in a dry climate area and it is within a reasonable proximity to a major dairy processing facility in Denver.

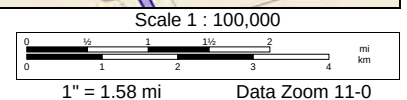
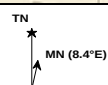
Accessibility is average to good with ingress and egress from Colorado State Highway 10. The easements that exist are typical of other sites in the area and neither restrict the use or development of the subject, nor have a negative effect on its value. Given its size and use, the site is considered relatively consistent with the immediate area and provides average to good functional utility. *The site is suitable for its current use as a Commercial Dairy Site converted to an Organic Dairy Operation.*



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Description of the Improvements

Description of the Improvements in the Appraisal of Real Estate

An important part of every appraisal is the description of the type, quality, and condition of the building or buildings on the site and the analysis of the structure's design. The process of analyzing the building improvements encompasses three interrelated tasks:

- site visit
- building description
- description and analysis of architectural style and functional utility

In the valuation process, the appraiser gathers much of the information needed to describe and analyze the improvements by personally visiting the site of the real estate. Careless or inadequate inspection of the physical characteristics and features of the subject and comparable properties can create difficulties for an appraiser in later phases of the appraisal. For example, if a structural problem is overlooked, the conclusions of the three approaches to value could be meaningless. The goal of the site visit is identifying the site and building characteristics that create value.

Accurate building descriptions are essential to all valuation assignments even in cases where the existing improvements do not represent the property's highest and best use. In the description and analysis of the site and improvements, the appraiser should address all pertinent property strengths and weaknesses, expand on any problem areas, and interpret the significance of the data to lay a foundation for the discussion of highest and best use. The appraiser needs a thorough understanding of the physical characteristics of the subject property to identify and select suitable comparables. A thorough building description helps the appraiser identify the extent and quality of building improvements, calculate their cost, and identify physical deterioration and functional obsolescence.

Therefore, the accuracy of building descriptions directly affects the opinion of value produced by applying the three approaches to value. If the scope of work of the assignment does not require a site visit, the site and building description may not be accurate, so the appraisal report must clearly and conspicuously disclose the extraordinary assumption that the site and building characteristics are as described even though the appraiser has not confirmed that information through a site visit.

Architectural style and functional utility are interrelated, and their combined effect on property value must be analyzed by appraisers. Architectural style is the character of a building's form and ornamentation. Functional utility is the ability of a property or building to be useful and to perform the function for which it is intended, according to current market tastes and standards.

Functional utility also relates to the efficiency of a building's use in terms of architectural style, design and layout, traffic patterns, and the size and type of rooms. Both architectural style and functional utility influence the lives of individuals by providing or withholding beauty, comfort, security, convenience, light, and air. They may also encourage reasonable maintenance expenditures, preserve valuable traditions, or indicate the need for change.

Considerations of style and functional utility are integral to an appraisal because they relate directly to the utility and desirability of the property in the marketplace. They are noted along with other physical characteristics during the site visit. By using comparable data, an appraiser can analyze how style and function influence a property's market value. Style and functional utility are examined in terms of (1) the use for which a particular improvement was designed, (2) its actual or contemplated use, and (3) its most productive use. These three uses may or may not be the same. The ultimate goals of the analysis of the improvements are:

- proper identification of the important building components for the appraisal analysis, i.e., what site and building characteristics create value
- sound judgment of the quality and condition of improvements and components
- convincing support for conclusions in market analysis, highest and best use analysis, and the application of the approaches to value⁸

General Description of Subject

The Corsentino Dairy Farm is located on 1,018.78 acres of deeded land. Based on current AFO regulations, the dairy can legally confine up to 699 mature dairy cows plus 999 heifers. The restrictions are placed on the dairy facility by the Colorado Department of Public Health and Environment through Regulation 81. The dairy does not operate with a CAFO Permit. The dairy has a total mature cow capacity of approximately 1,079 head and a heifer capacity of approximately 309 head. Small calves are confined to a small calf barn and calf hutches.

The subject dairy is improved with a Double 12 Herringbone milking parlor and open lot-open feed lane confinement. The most efficient capacities of the dairy based on actual space and legal restrictions is approximately: 594 milking cows, 105 dry cows, 689 various size heifers, and additional space for small calves. It is noted that the dairy currently milks under 500 milking head.

⁸ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Pages 219-220.

Milking Parlor Design

Herringbone parlors are the most common parlor type in the US for ‘small’ parlors (less than Double 12). Cows stand on an elevated platform in an angled or herringbone fashion, facing away from the operator area. This exposes enough of the back half of the cow to allow access for milking her from the side, and room for an arm type detacher and associated equipment.

Herringbone parlors are located on the end of a rectangular holding area, allowing cows to enter single file as a group directly into either side of the parlor. On completion of milking, the cows exit single file by walking straight ahead and out of the parlor. In most layouts the cows make either a 180-degree turn, head down a return lane, and back past the holding area, or the cows make a 90-degree turn and exit out a side door or across the parlor to a return lane on the other side. Parlors with more than 12 stalls on a side benefit from rapid exit stalls to speed up the exiting process. In this case the cows walk straight away from the operator area in to a wide exit area. Normal design has a return lane on either side so cows go directly from the exit area past the holding area. However, cows on the side can be directed across to a single return lane on the other side.

As the number of stalls on a side increases it becomes more difficult to keep track of each cow and milking machine. In larger parlors the two rows of stalls may be arranged in a wedge or “V” configuration resulting in a wider operator area on the end away from the parlor animal entrance. This improves the visibility of units and cows from the other side of the operator area.



Types of Confinement Facilities

Freestall barns have become very popular in Texas and around the United States because of the permitted space requirements and the cleaner more controlled environment that is provided to the cow causing less stress and greater milk production. A well designed freestall barn can provide the proper environment for a cow to produce up to her genetic potential.

Freestall housing for dairy cows offers many advantages over conventional, open housing systems. Freestall housing requires less bedding and keeps cows cleaner than conventional systems. Freestall housing also offers more manure handling options than bedded pack systems. Cow comfort is the key to successful freestall housing. The freestall platform must be more comfortable for the cow to rest than other locations in the barn. The cow must be able to rise and lie down without restrictions, so it is important to follow specific building recommendations.

The air quality inside the freestall barn must also be good to ensure healthy and productive cows. Curtain sided freestall barns provide a better environment for cows during hot weather than barns with small doors for openings. Overall, the freestall barn is designed to provide a better environment for the cow for higher milk production.

Open lot dairy facilities have been one of the most popular designs for starting a dairy operation in the past because of start-up cost. The initial cost of an open lot dairy is usually 30 to 40 percent less than a freestall barn dairy facility. Since investment is highest for freestall confinement facilities, they are built in areas where the additional cost can be justified. Open lot facilities have a higher amount of wastewater runoff than freestall barn facilities because of the larger area of contaminated ground surface that is subject to rainfall.

Space requirements per cow are more for an open lot facility verses a freestall facility. For open lot design, approximately 500 to 600 square feet per cow is necessary. For freestall design, only 100 square feet per cow is necessary for adequate cow space. Freestall barns have become very popular in Texas and around the United States because of the permitted space requirements and the cleaner more controlled environment that is provided to the cow causing less stress and greater milk production. A well designed freestall barn can provide the proper environment for a cow to produce up to her genetic potential.

There are advantages and disadvantages to open lot design dairies and freestall barn design dairies. Most producers will find it profitable to produce milk in freestall housing. Unfortunately, this is not always an obvious decision. There are benefits with freestall housing, however, for some it may be more profitable to continue with open lot housing. The decision should be based on the likelihood that advantages of freestalls would overcome problems a manager faces in open lots. It is clearly a decision to be made considering individual circumstances.

Milking Parlor and Covered Holding Pen

The dairy is improved with one 8,063 square foot, Double 12 Herringbone milking parlor with an attached covered holding pen and auto-crowd gate. The front portion of the building that houses the equipment and milk storage tanks is 2,723 square feet. The middle portion of the building that contains the Double 12 Herringbone milking equipment is 1,780 square feet. The rear of the building containing the covered holding pen is 3,560 square feet. The walls are a mix of concrete cinder block and/or poured concrete and steel panels. The roof system is galvanized frames and purlins with painted steel panels. The office, equipment room, and parlor areas are insulated. The original portion of the milking parlor was constructed in the 1960's. Additions were made to the parlor over the years with the roof being replaced in 2010.

Double 12 Herringbone System	Times Milk Cows Per Hour Per Unit	Equals Total Milking Cows Per Hour
24 Units	4.50	108
Total Milking Cows Per Hour	Times 11 Hours (2 Times Per Day)	Equals Maximum Capacity of Parlor
108	11.00	1,188

Water storage capacity for the milking parlor, dairy operation, and dwellings is an 8,000 gallon storage tank and a 14,000 gallon storage tank. The storage tanks are located north of the main dwelling and northwest of the milking parlor.

Quonset Cattle Barn

The dairy is improved with one 50' x 300' quonset cattle barn containing 15,000 square feet of space. The building is pre-engineered steel quonset style construction. The building has a concrete foundation, dirt floor, and sliding doors on each end. The building was constructed for shade and shelter for dairy cows. The building was constructed from 1985-1990.

Large Compost Cattle Barn

The dairy is improved with one 40' x 200' compost cattle barn containing 8,000 square feet of space. The building is pre-engineered steel construction with a steel frame, steel paneled walls on three sides, and a steel panel covered roof system. The building has a concrete foundation and a compost style dirt floor for cattle comfort. The building was constructed for shade and shelter for dairy cows. The building was constructed from 1988-1992.

Maternity Barn

The dairy is improved with one 30' x 75' maternity barn containing 2,250 square feet of space. The roof and framing system are pre-engineered steel. The building has doors on each end, a cow working and treatment area, vet office, and utilities including water and electricity. The building is used to manage maternity cows. The building was constructed from 1990-1995.

Special Needs and Hospital Barn

The dairy is improved with one 20' x 25' special needs hospital barn. The total square footage is approximately 500. The building is improved with a steel treatment pen, manual working chute, utilities, overhead doors, small entry doors, insulation, heating, and a small milking system for special needs cows. The structure has a pre-engineered steel frame with a steel roof system. The barn was constructed in 1985-1990. The building was designed to milk and treat special needs cows.

Hoof Trimming Shed and Cattle Shade

The dairy is improved with one 20' x 32' hoof trimming shed containing 640 square feet of space and a 14' x 18' cattle shade containing 252 square feet of space. The roof and framing systems of each building are pre-engineered steel. The buildings have steel panel roofs, open sides, and concrete and dirt floors. The hoof trimming building is improved with a hydraulic trimming chute and it is used for trimming cattle's hooves and keeping them sound. The buildings were constructed in 1988-1992.

Older Compost Cattle Barn

The dairy is improved with one 14' x 100' compost cattle barn containing 1,400 square feet of space. The building wood frame and pole construction with a tin exterior. The building has a compost style dirt floor for cattle comfort. The building was constructed for shade and shelter for dairy cows. The building was constructed in 1960-1965.

Calf Barn

The dairy is improved with one 13' x 60' calf barn containing 780 square feet. The frame is wood frame and pole construction and the exterior is steel panels. The building was constructed to confine and shelter small heifer calves. The building was constructed in 2005-2013.

Commodity Barn

The dairy is improved with one 3,294 square foot commodity barn with an attached 12,000 square foot plus or minus concrete loading apron. The apron is used for loading and mixing feed commodities. The framing is wood frame and pole construction. The exterior is steel panels. The building has five bays for separating commodities. The building was constructed from 1970-1980.

Utility / Storage Barn (Originally Designed to be a Calf Barn)

The dairy is improved with one 20' x 80' utility and storage barn. The barn was originally designed and used as a calf barn, but it is now used for storage. The building has a total area of 1,600 square feet. The framing and roof systems are pre-engineered steel. The exterior and roof are steel panels. The building has overhead doors on each end and a partial concrete floor. The barn was constructed in 1985-1990.

Machine Shop Building

The dairy is improved with one 40' x 80' shop building. The building has a total area of 3,200 square feet. The framing and roof systems are pre-engineered steel. The exterior and roof are steel panels. The building has three overhead doors and a concrete floor for equipment maintenance. The barn was constructed in 1985-1990.

Equipment Shed

The dairy is improved with one 32' x 100' equipment shed. The building has a total area of 3,200 square feet. The framing is wood frame and pole. The exterior and roof are steel tin panels. The building has one open side for and a dirt floor for equipment storage. The barn was constructed in 1965-1980.

Heifer Barns

The dairy is improved with four (4) heifer barns. Three (3) of the barns are 14' x 100' and one (1) is 14' x 80'. The buildings have a total area of 5,320 square feet. The framing is wood frame and pole construction. The exterior and roofs are steel tin panels. The buildings have one open side and dirt floors. The buildings are attached to the heifer confinement pens with feed bunk and are located west of the dairy along the south side of State Highway 10. The barns were constructed in 1965-1980.

Open Feed Lanes with Attached Pens

The dairy is improved with 2,158 linear feet of open concrete feed lanes with attached confinement pens. All of the feed lanes have attached cow lanes, pens, locking stanchions, and gates. Each pen has adequate water facilities. Adequate cattle shelters have been constructed in most of the pens. These shelters have been analyzed separately. The 2,158 linear feet of feed lanes are improved with 5 in 10 foot attached mature cow locking stanchions. The pens are steel pipe and cable construction with steel gates. The feed lanes can service approximately 1,079 mature dairy cows. The dairy currently uses the feed lanes and pens to confine milking cows, dry cows and replacement heifers.

The dairy is improved with approximately 420 linear feet of heifer feed bunk with attached pens. The feed bunk and pens are wood construction. The pens have attached 6 in 10 foot, 8 in 10 foot, and 9 in 10 foot, locking heifer stanchions. The pens with feed bunk have a total capacity of 309 heifers plus or minus. The previously mentioned heifer barns are attached to the pens for shelter. The pens are older and are estimated to have been constructed from 1965 to 1980.

Older Non-Functional Improvements with No Contributory Value

Non-functional and obsolete features in poor to fair condition on the dairy which have no contributory value include five (5) Harvestore silos (2 corn units and 3 hay / silage units); one upright feed commodity tank; one upright molasses tank; and four (4) silage pits with a 5,000 ton capacity located south of State Highway 10. These improvements are currently not being used for the dairy operation.

Milking and Associated Equipment

The milking equipment includes a Germania Double 12 (24 units) Herringbone milking system with Germania milking stalls (24) and aftermarket components; Surge pulsation system with Surge large capacity pulsation control; automatic take-offs; milk pump and receiver; steel discharge lines; PVC vacuum lines; Pacemaker Surge Com-Pak milk pump receiver panel; Surge Electrobrain Auto Pipeline Washer; Spray Boss sanitizing spray teat dip system; DeLaval Auto Flush Control System; DeLaval Smooth Operator milk transfer control; Universal Kleen-o-matic Plus acid detergent sanitizer control; Mueller Gentry refrigeration control and cleaning system; Mueller acid and detergent control system; Mueller Matic auto wash system; Gardner-Denver air compressor system; Curtis-Toledo air compressor system; two DeLaval vacuum pumps with vacuum on demand; one additional vacuum pump and system (DB 235 Plus); one Mueller 6,000 gallon milk storage tank; one DEC Dairy Equipment Company Dairy-Kool 4,000 gallon milk storage tank; one Mueller 2,500 gallon milk storage tank; one 120 gallon Mueller commercial hot water heater; one 110-120 gallon older commercial hot water heater; one RayPack hot water boiler; one Boiler Mate hot water system; three stainless steel wash vats; Dairy-Kool 5HP and 10HP milk cooling compressors; one 125 KW emergency power plant with a Waukesha engine; two Maytag heavy duty commercial washers; and one Auto-Crowd gate.

Associated equipment includes a hydraulic trimming chute, a manual working chute, a 10' x 70' truck scale, and a mechanical manure separator. The irrigation equipment includes one 1995 T-L 9 Tower sprinkler irrigation system, one 1985 Valley 7 Tower sprinkler irrigation system, and one 1993 Lockwood 7 Tower sprinkler irrigation system. The milking and associated equipment varies in actual age ranging from 1970 to 2000.

Dwellings and Manufactured Homes

The subject dairy is improved with two wood frame dwellings, two double-wide manufactured homes, and one single-wide manufactured home.

The main dwelling is wood frame construction with a composition roof. The first floor living area is 2,758 square feet and the basement is 1,748 square feet. The first floor has a living room, dining room, kitchen, 3 bedrooms and 3.0 baths. The finished basement area has 2 bedrooms. The dwelling was constructed in 1960-1965. The dwelling has an associated wood frame 390 square foot detached garage.

The employee dwelling is wood frame construction with a metal roof. The first floor living area is 2,148 square feet and the basement is 870 square feet. The first floor has a living room, dining room, kitchen, 3 bedrooms and 2.0 baths. The finished basement area has 1 bedroom and 1 recreation room. The dwelling was constructed in 1960-1965.

The double-wide manufactured home occupied by Joe Corsentino is typical manufactured home construction with a composition roof. The structure is 28' x 60' with a 16' x 16' add-on. The total area of the building is 1,936 square feet. The manufactured home has a living room, dining room, kitchen, 3 bedrooms and 2.0 baths. The structured was constructed in 1985. A small 320 square foot carport is attached to the structure.

The double-wide manufactured home occupied by an employee is typical manufactured home construction with a composition roof. The structure is 26' x 65' with a total area of 1,690 square feet. The manufactured home has a living room, dining room, kitchen, 3 bedrooms and 2.0 baths. The structured was constructed in 1990-1991.

The single-wide manufactured home occupied by an employee is typical manufactured home construction with a metal and composition roof. The structure has two add-ons and it has a total area of 1,108 square feet. The structured was constructed in 1970-1980.

It is noted that the manufactured dwellings were not valued in this appraisal.

Site Improvements

The site is improved with livestock fencing, gravel drives and parking, buried water lines and irrigation lines, irrigation flood gates and ditching, above ground gated irrigation pipe, septic systems, dairy lagoons, water wells, and public utility connections. Excavation and dirt work for buildings and drainage are also considered to be part of the site improvements. Some of the irrigation improvements are considered to be a component of the land value. Excavation work for the dairy building structures and lagoons usually is a large expense because of the type of equipment used, the hourly cost to the run the equipment, and the fuel cost.

Hazardous Materials

Although no asbestos or other hazardous materials were noted during our inspection of the property, we are not Certified Asbestos Inspectors or engineers and have no expertise in these areas. Therefore, the value provided assumes that no hazardous building materials are in place in the building improvements and that no hazardous conditions affect the subject site. It is suggested that the subject property, as with all properties of the subject's age, be inspected by a person knowledgeable in detecting any hazardous building components or conditions before any transfer of ownership is made to limit the potential liability of the client/current property owner.

Quality Of Construction

Based on the comparison of the subject dairy improvements to other dairies in the region, the quality of construction of the materials is estimated to be average to good. Using Marshall and Swift, the improvements would range from Average to Good Cost Class S to Average to Good Cost Class C. Overall the quality is considered to be average to good as is the workmanship.

Property Condition and Effective Age

Actual age, which is sometimes called historical age or chronological age, is the number of years that have elapsed since building construction was completed.⁹ The improvements were constructed between 1960 and 2010. Other improvements, updates, and repairs were made between 2010 and 2015.

The overall condition of the improvements is estimated to be fair to average as of the effective date of this appraisal. Deferred maintenance was accounted for by eliminating non-functional and obsolete structures in poor condition.

Economic Life

Effective age is the age indicated by the condition and utility of a structure, and an estimate of effective age is based on an appraiser's judgment and interpretation of market perceptions. Even in the same market, similar buildings do not necessarily depreciate at the same rate.

The maintenance standards of owners or occupants can influence the pace of building depreciation. If one building is better maintained than other buildings in its market area, the effective age of that building may be less than its actual age. If a building is poorly maintained, its effective age may be greater than its actual age. If a building has received typical maintenance, its effective age and actual age may be the same.¹⁰

The overall effective age of the subject dairy improvements was estimated to be 32 years.

⁹ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Pages 600.

¹⁰ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Pages 600.

Economic life is defined as “The period over which improvements to real property contribute to property value”.¹¹ Generally, economic life and physical life vary, with the economic life of a structure being of shorter duration. The lives of the buildings and improvements are difficult to measure. From a physical standpoint the buildings, with renovation to the short-lived items, could last for 50 years or more. However, economic changes in the market have an effect on the improvement's ability to contribute to the property value. Therefore, the life of a property is usually measured in economic rather than physical terms.

Total economic life estimates were obtained from the sales of dairy properties and observations of existing dairy structures. The economic life of the subject improvements was estimated to be 40 years. Please see the Cost Approach Section for further detail.

Remaining economic life is the estimated period over which existing improvements are expected to continue to contribute economically to property value.¹²

Since the total economic life was estimated at 40 years and the effective age was estimated 32 years, the remaining economic life was estimated at 8 years.

As the area surrounding the subject is agricultural in nature, the existing improvements are compatible with the surrounding properties. It is also noted that the improvements are older and contribute minimal value to the property overall.

Functional Obsolescence

The stated improvements are generally functional in overall design and layout. The size and physical arrangement of the existing improvements compliment the utility requirements within the subject's market. The current improvements represent the highest and best use of the site, as improved.

Deferred maintenance and functional obsolescence in non-functional improvements was accounted for by eliminating some of the non-functional an obsolete structures in poor condition. The structures that are obsolete and no longer used on the dairy were given no contributory value. These improvements were previously noted in this analysis under Older Non-Functional Improvements with No Contributory Value.

For the older improvements that are still used at the dairy, some functional incurable obsolescence exist. The obsolescence was accounted for in the Cost Approach Section.

¹¹ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Pages 600.

¹² The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Pages 604.

Natural, Recreational, Cultural or Scientific Value

It is necessary in appraisal practice to consider natural, recreational, cultural or scientific value. The criteria are as follows:

Natural Value	Properties of special significance are identified as properties with or adjacent to national landmarks, national wilderness areas, national or state parks, national or state wildlife refuges, areas identified by the U. S. Fish and Wildlife Service as "Critical Habitats" or other special natural features that include wetlands, ocean and lake shores, caves, dunes, coastal barrier islands and estuaries.
Cultural Value	Properties of cultural special significance are based on criteria established by the National Register of Historic Places.
Recreational Value	Properties of recreational special significance are identified as any property that is within or adjacent to existing public recreation areas or adjacent to rivers, oceans, or lake shores.
Scientific Value	Properties of scientific special significance are properties valued for scientific value or archaeological importance.

After consideration of the above criteria, it is concluded that the subject property does not have natural, recreational, cultural or scientific value.

Improvement Summary

The structural improvements consist of several buildings which are an important part of the subject dairy operation. The structures were constructed new from 1960 through 2010.

The overall total economic life of the subject dairy facility improvements was estimate at 40 years. The overall effective age was estimated 32 years. The remaining economic life was estimated at 8 years.

The improvements are estimated to be fair to average in functional utility as a commercial or organic dairy facility. The improvements are estimated to be in conformity, both physically and legally. The construction and materials are of overall average to good quality. *Therefore, the property is suitable for its use as a commercial dairy facility converted to an organic dairy operation.*

Property Tax Analysis

The property is located within the assessing authority of Huerfano County, Colorado. The Hartley County Assessor's Office estimates market values for all properties in the county, and these values are utilized by all taxing authorities in the county as a basis for assessing taxes.

The 2015 assessed values and the identification numbers assigned to the property by the Assessor's Office are listed in the charts below.

2015 ASSESSED VALUES				
ACCOUNT NUMBER	ACRES	ACTUAL VALUE	ASSESSED VALUE	TAXABLE VALUE
17674	120.02	\$3,606	\$1,046	\$1,046
17675	183.57	\$59,400	\$17,111	\$17,111
17676	160.00	\$10,916	\$3,166	\$3,166
17680	306.49	\$425,261	\$82,274	\$82,274
41120	6.74	\$120	\$35	\$35
411231	24.07	\$429	\$124	\$124
411653	217.89	\$3,887	\$1,127	\$1,127
Total	1,018.78			\$104,883

Account No. 5117659 is for a manufactured dwelling located on the Corsentino Dairy. The improvement is assessed for \$43,851 with a taxable value of \$2,823.30. Manufactured dwellings were not valued in this appraisal, therefore, the property taxes associated with this improvement were not calculated or used as an expense in the Income Approach Section.

All of the other account numbers under Corsentino Dairy stated in the above chart are for the subject land and dairy improvements. The annual property taxes calculated for these accounts will be used as an expense in the Income Approach Section.

2015 PROPERTY TAX ESTIMATE			
MILL RATE	ASSESSED TAXABLE VALUE	MILL RATE / \$1,000	TAXES
64.3840	\$104,883	0.06438400	\$6,752.79

Property Tax Summary

The assessed value of the subject property, based upon conclusions and the final value opinion herein, is considered to be below its market value, as defined within this report. Prudent management would not attempt to have the assessed value changed as the tax burden is currently minimized. The Huerfano County Assessor's Office is currently assessing similar properties in a consistent manner equal to the current assessed value on the subject property. As of the date of the appraisal, there were no known delinquent property taxes.

Dairy Industry Overview

History of Federal Milk Marketing Orders

The Federal Milk Marketing Order system is a regulatory function administered by the USDA. The first Federal Orders were introduced by legislation on 1937 and have evolved significantly since that time. Their purpose is to stabilize markets by placing certain requirements on the pricing and handling of milk in the 11 Order regions. Regions that are not subject to a Federal Order have a state milk marketing order, such as California, or may be unregulated. Current estimates are the seventy-two percent of all milk produced in the United States falls under the regulation of a Federal Milk Order. The Federal Milk Marketing Orders are concerned primarily with orderly marketing of raw Grade A milk from producer to processor. Classified pricing and pooling are the two key elements for the Federal Milk Orders. A major function of the Federal Orders is computing minimum prices for raw Grade A milk that handlers must pay to dairy farmers.

The Federal Orders require milk buyers in a marketing area to pay dairy producers no less than minimum prices for fluid milk. The price for Class 2, 3, and 4 milk is the same under all Federal Orders. Class 1 prices are computed each month for each marketing area based on prices released by the National Agricultural Statistics Service (NASS) for milk used in manufactured products. The Federal Orders require that a plant's usage value for milk be combined with other plant's usage value (pooled) and each producer (or cooperative) be paid on the basis of a uniform/blend/average price. This blend price represents an average of the value of milk in all uses (fluid milk, cottage cheese, ice cream, cheese, butter, etc.).

Each Federal Milk Marketing Order includes the essentials of (1) a classified price plan, (2) a system of minimum prices, (3) terms of the order, and (4) provisions for administering the Federal Order.

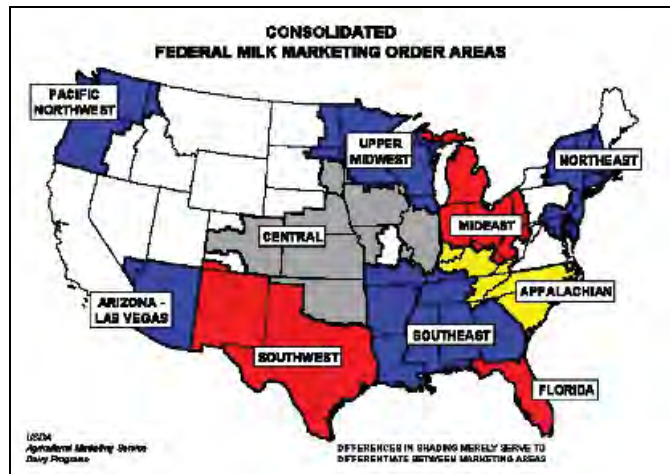
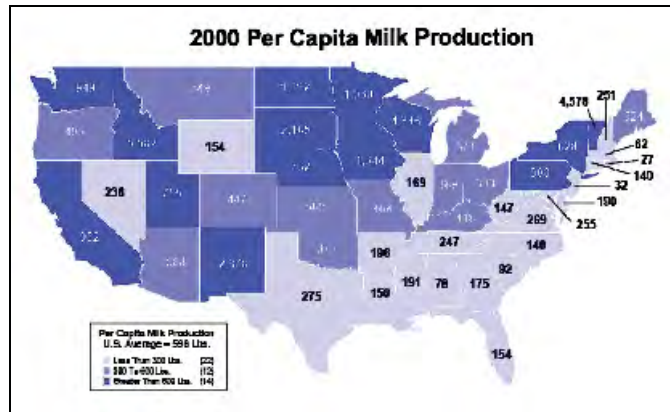
- 1) Classified price plan: A classified price plan provides different classes and prices for milk of different uses. Milk used in fluid products is placed in Class I, the highest priced class. Milk used to produce ice cream, yogurt, butter, cheese, nonfat dry milk, and other manufactured products is placed in Class 2 or other lower-priced classes.
- 2) System of minimum prices: Each Milk Marketing Order publishes minimum prices for the various use classes. Because Federal Orders are designed to reflect the surplus or deficit situations of the milk supply of a geographic region, location adjustments are included in the pricing structure. The Federal Orders provide that producers be paid a uniform or average price. The price is calculated by dividing all classified value of producer milk pooled in the Order by the total producer pounds to generate the blend price.

- 3) Terms of Federal Orders: The terms of an Order are developed through public participation in hearings held prior to issuance of the Order. Dairy programs analyze hearing records, recommend the terms and provisions of Federal Milk Marketing Orders, and describe their intent and purpose. If two-thirds of the voting producers approve a Federal Order, the Secretary then approves and issues the Order.
- 4) Administering the Federal Orders: A Milk Market Administrator administers each Order by duties specified in each Order. Each month the Market Administrator computes and publishes class and uniform prices as well as other required prices. The Administrator verifies each handler's reports and payments through an audit program, prepares statistics and information concerning operations of each Order and disseminates the information to the public. The Administrator also receives and investigates any complaints of violations of the Order.

The Federal Agricultural Improvement and Reform (FAIR) Act of 1996 directed the U.S. Department of Agriculture to consolidate Federal Milk Market Orders. The FAIR Act also authorized the Secretary of agriculture to address other related issues, such as utilization rates and multiple basing points for the pricing of fluid milk. On March 31, 1999, over two years later and after over 4,500 public comments, the Department released its Final Rule on the reform of Federal Milk Market Orders (FMMOs).

The Final Rule includes many new and innovative provisions that move the structure of the dairy industry toward market orientation and away from government intervention. Some of the provisions like multiple component pricing and the establishment of additional classes of milk, will allow the dairy industry's pricing system to become more responsive to competitive and economic conditions at both the regional and national level.

The following is the 2000 Per Capita Milk Production:



Conclusion

The future of the Federal Milk Marketing Orders (FMMOs) will be difficult to change because only producers within an order can vote on their order, the U.S. Congress votes based on people not cows or milk volume, Congress can over rule the Secretary of Agriculture's decision, there are different legal interpretations of the 1937 Act, and politics can play a major roll in decisions. Therefore, it appears that FMMOs will stay for sometime.

According to Brett Corsentino, Corsentino Dairy is located in the Southwest Milk Market Order 126.



Market Administrator's Report Southwest Marketing Area Federal Order 126



Cary Hunter, Market Administrator

Volume 41, Issue 10

October 2015

MARKET SUMMARY FOR SEPTEMBER

The Producer Price Differential (PPD) for milk delivered to handlers located in Dallas/Tarrant counties (TX) of the Southwest Milk Market Order was \$1.67 for September. Butterfat price increased \$0.4857 per pound from \$2.2674 in August to the level of \$2.7531 in September. Protein price decreased \$0.5891 per pound from \$2.5692 in August to \$1.9801 in September. The Other Solids price decreased \$0.0686 per pound from \$0.1151 in August to \$0.0465 in September. The Somatic Cell Count Adjustment rate factor for September was 0.00086 per thousand (difference from 350).

For comparison in hundredweights, producers who delivered milk to handlers located in Dallas/Tarrant counties (TX) received a September statistical uniform price of \$17.49 for milk testing 3.5% butterfat, 2.99% true protein, 5.69% other solids and 350,000 SCC. This is an increase of \$0.22 in comparison to the statistical uniform price of \$17.27 in August.

The September Class I price increased \$0.06 from \$19.28 in August to the September level of \$19.34. The Class II price increased \$0.82 from \$14.54 in August to \$15.36 in September. The Class III price decreased \$0.45 from \$16.27 in August to \$15.82 in September. The Class IV price increased \$2.18 from \$12.90 in August to \$15.08 in September.

In September, 576 producers delivered a total of 1,191,221,394 pounds of milk. On a daily basis, this represents an increase of 2.81% from the producer receipts level in August and it represents an increase of 5.06% when compared to the producer receipts level of September 2014.

Producer milk classified as Class I during September amounted to 30.49% of total producer receipts. This figure is up from 29.32% in August and is down from 32.60% in September 2014. The average butterfat test of producer milk pooled during September was 3.589%, average protein test was 3.106%, average other solids test was 5.725% and the average somatic cell count was 238,000.

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Federal Order	Statistical Uniform	Statistical Uniform	PPD		Class I	
	Sep-15	Aug-15	Sep-15	Aug-15	Utilization	Utilization
Appalachian - F.O. 5	19.44	18.37	N/A	N/A	72.35	69.20
Arizona - F.O. 131	16.80	15.88	N/A	N/A	29.65	30.28
Central - F.O. 32	16.68	16.27	0.86	0.00	33.01	34.85
Florida - F.O. 6	21.66	20.62	N/A	N/A	85.50	83.01
Mideast - F.O. 33	16.77	16.05	0.95	(0.22)	33.40	36.60
Northeast - F.O. 1	17.68	16.90	1.86	0.63	35.20	32.20
Pacific NW - F.O. 124	16.36	14.85	0.54	(1.42)	35.74	34.58
Southeast - F.O. 7	20.19	19.18	N/A	N/A	80.14	77.00
Southwest - F.O. 126	17.49	17.27	1.67	1.00	30.49	29.32
Upper Midwest - F.O. 30	16.20	16.25	0.38	(0.02)	11.90	13.90

TOP TEN TEXAS COUNTIES - SEPTEMBER 2015



County	# Producers	Pounds 2015	Pounds 2014	% Change 2014/2015
PARMER	16	98,648,388	90,397,812	9.13
CASTRO	13	85,831,251	92,775,903	(7.49)
MOORE	9	80,061,760	75,146,880	6.54
ERATH	55	78,249,321	76,477,568	2.32
DEAF SMITH	11	63,971,138	68,226,181	(6.24)
LAMB	10	62,949,135	59,149,078	6.42
HARTLEY	11	56,265,684	56,473,100	(0.37)
BAILEY	10	43,354,842	43,880,506	(1.20)
HALE	6	43,040,031	44,458,466	(3.19)
COMANCHE	<u>15</u>	<u>35,787,024</u>	<u>36,219,803</u>	<u>(1.19)</u>
Sum	156	648,158,574	643,205,297	0.77
Other Counties	<u>272</u>	<u>172,751,199</u>	<u>174,004,052</u>	<u>(0.72)</u>
Texas Total	428	820,909,773	817,209,349	0.45

TOP TEN NEW MEXICO COUNTIES - SEPTEMBER

County	# Producers	Pounds 2015	Pounds 2014	% Change 2014/2015
CURRY	28	152,765,088	157,002,817	(2.70)
CHAVES	31	143,438,961	146,289,811	1/ (1.95)
ROOSEVELT	32	123,138,109	123,842,330	(0.57)
DONA ANA	19	71,018,314	74,176,935	(4.26)
LEA	13	54,777,621	55,300,278	(0.95)
SOCORRO	8	22,518,444	22,324,669	0.87
VALENCIA	5	17,056,004	16,768,711	1.71
LUNA	3	16,915,920	16,149,712	4.74
EDDY	<u>3</u>	<u>15,067,540</u>	<u>15,461,740</u>	<u>(2.55)</u>
Sum	142	616,696,001	627,317,003	1/ (1.69)
Other Counties	<u>4</u>	<u>13,868,049</u>	<u>14,107,317</u>	<u>1/ (1.70)</u>
NM Total	146	630,564,050	641,424,320	(1.69)

1/ Revised



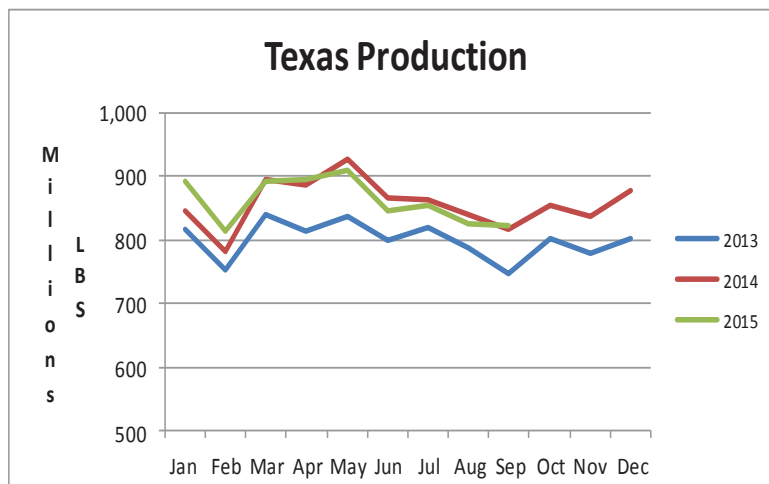
TEXAS & NEW MEXICO COMPONENT TEST

Month	Butterfat		Protein		Other Solids		S-N-F		SCC (thousands)	
	TX	NM	TX	NM	TX	NM	TX	NM	TX	NM
Sep-14	3.79	3.54	3.20	3.07	5.74	5.75	8.94	8.82	250	217
Oct-14	3.88	3.64	3.27	3.14	5.63	5.73	8.99	8.87	233	210
Nov-14	4.00	3.73	3.36	3.22	5.76	5.77	9.12	8.99	221	197
Dec-14	4.00	3.70	3.33	3.20	5.75	5.76	9.08	8.95	219	190
Avg 2014	3.81	3.55	3.23	3.10	5.75	5.77	8.98	8.87	215	182
Jan-15	4.03	3.75	3.33	3.19	5.75	5.75	9.07	8.94	256	253
Feb-15	3.94	3.67	3.28	3.14	5.74	5.74	9.03	8.88	250	238
Mar-15	3.93	3.62	3.26	3.11	5.73	5.73	8.99	8.85	261	220
Apr-15	3.82	3.52	3.21	3.06	5.77	5.77	8.98	8.82	229	188
May-15	3.79	3.47	3.21	3.06	5.76	5.76	8.96	8.82	251	193
Jun-15	3.75	3.44	3.13	2.98	5.74	5.73	8.88	8.71	271	206
Jul-15	3.71	3.43	3.12	2.95	5.74	5.72	8.86	8.67	276	225
Aug-15	3.72	3.40	3.15	2.98	5.72	5.71	8.87	8.68	279	237
Sep-15	3.78	3.45	3.21	3.03	5.73	5.72	8.94	8.76	254	217

TOTAL POUNDS MARKETING BY PRODUCERS LOCATED IN TEXAS

Month	2013 Pounds	# of Prod.	2014 Pounds	# of Prod.	2015 Pounds	# of Prod.	Percent 2014/13	Percent 2015/14
Jan	815,186,323	468	844,617,229	1/ 441	892,823,459	1/ 429	3.61	1/ 5.71
Feb	751,853,093	465	780,988,123	1/ 444	811,843,115	1/ 432	3.88	1/ 3.95
Mar	837,918,903	461	894,443,992	1/ 445	891,589,549	1/ 431	6.75	1/ (0.32)
Apr	813,654,074	456	887,281,917	1/ 443	894,417,033	429	9.05	1/ 0.80
May	837,276,897	457	926,529,943	1/ 444	909,103,216	428	10.66	1/ (1.88)
Jun	798,423,916	456	865,656,592	1/ 443	845,720,119	428	8.42	1/ (2.30)
Jul	820,815,695	1/ 453	864,141,418	1/ 440	852,902,209	428	5.28	1/ (1.30)
Aug	789,844,812	1/ 449	839,709,945	1/ 440	824,060,252	430	6.31	1/ (1.86)
Sep	747,409,239	1/ 447	817,209,349	437	820,909,773	428	9.34	1/ 0.45
Oct	801,063,437	1/ 446	855,185,736	1/ 437			6.76	1/
Nov	778,906,049	1/ 445	836,209,943	436			7.36	1/
Dec	801,359,886	1/ 442	877,624,199	1/ 436			9.52	1/
Total	9,593,712,324	1/	10,289,598,386	1/	7,743,368,725		7.25	1/

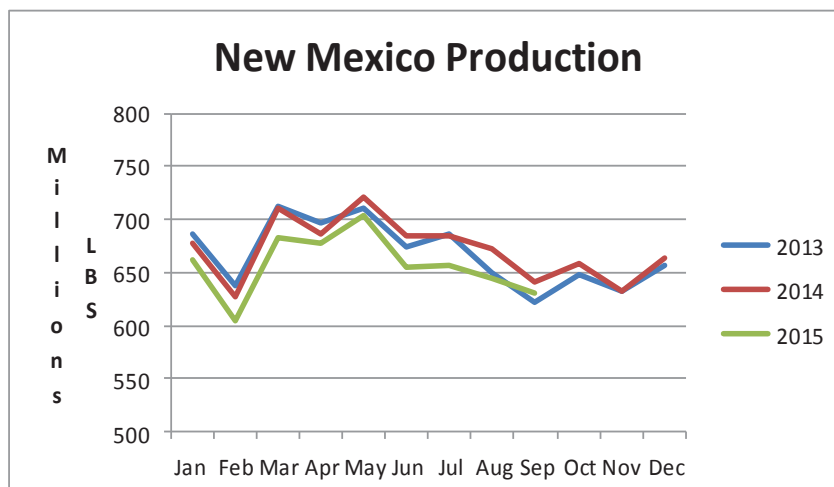
1/ Revised



TOTAL POUNDS MARKETED BY PRODUCERS LOCATED IN NEW MEXICO

Month	2013 Pounds	# of Prod.	2014 Pounds	# of Prod.	2015 Pounds	# of Prod.	Percent 2014/13	Percent 2015/14
Jan	685,707,875 1/	148	677,107,907	147	661,847,030 1/	146	(1.25)	(2.25) 1/
Feb	637,945,230 1/	148	627,152,702 1/	147 1/	603,750,641	146	(1.69) 1/	(3.73)
Mar	711,813,501 1/	149	711,010,066	146	682,710,459	146	(0.11)	(3.98)
Apr	695,977,148	150	686,163,267	145	677,457,428	146	(1.41)	(1.27)
May	710,709,847	150	721,131,107	147	702,667,025	146	1.47	(2.56)
Jun	674,240,675	149	685,138,590	147	654,860,147	146	1.62	(4.42)
Jul	685,672,220	149	684,168,540	147	655,629,143	145	(0.22)	(4.17)
Aug	648,098,565	148	672,501,235	147	644,321,980	145	3.77	(4.19)
Sep	621,748,466	147	641,424,320	148	630,564,050	146	3.16	(1.69)
Oct	647,611,433	147	658,497,505 1/	145 1/			1.68 1/	
Nov	631,922,577	147	632,669,687	146			0.12	
Dec	<u>656,050,459</u>	148	<u>662,539,938</u>	147			<u>0.99</u>	
Total	8,007,497,996 1/		8,059,504,864 1/		5,913,807,903		0.65 1/	

1/ Revised



CLASS PRICES & PRODUCER PRICE DIFFERENTIAL

Month	CLASS I PRICE a/	CLASS II PRICE	CLASS III PRICE	CLASS IV PRICE	PPD a/	Statistical Uniform
Sep-14	26.63	26.11	24.60	22.58	1.20	25.80
Oct-14	27.19	21.93	23.82	21.35	0.68	24.50
Nov-14	27.06	19.91	21.94	18.21	0.34	22.28
Dec-14	25.53	19.09	17.82	16.70	2.32	20.14
Avg 2014	26.29	23.34	22.34	22.09	1.35	23.69
Jan-15	21.58	16.18	16.18	13.23	1.30	17.48
Feb-15	19.24	14.48	15.46	13.82	1.18	16.64
Mar-15	18.56	14.50	15.56	13.80	0.76	16.32
Apr-15	18.50	14.98	15.81	13.51	0.66	16.47
May-15	18.83	14.81	16.19	13.91	0.55	16.74
Jun-15	19.14	14.77	16.72	13.90	0.49	17.21
Jul-15	19.53	14.70	16.33	13.15	0.92	17.25
Aug-15	19.28	14.54	16.27	12.90	1.00	17.27
Sep-15	19.34	15.36	15.82	15.08	1.67	17.49

a/ Subject to location adjustments

COMPONENT PRICES & AMS PRODUCT PRICES

Month	COMPONENT PRICES**				AMS PRODUCT PRICES**			
	BUTTER FAT	TRUE PROTEIN	OTHER SOLIDS	SCC ADJ RATE	GRADE AA BUTTER	CHEDDAR CHEESE	NFDM POWDER	DRY WHEY
Sep-14	3.2467	3.4991	0.4876	0.00117	2.8525	2.3472	1.4718	0.6725
Oct-14	2.8507	3.7362	0.4670	0.00115	2.5255	2.2914	1.4900	0.6525
Nov-14	2.2011	3.9018	0.4505	0.00107	1.9891	2.1305	1.3902	0.6365
Dec-14	2.0991	2.7387	0.3996	0.00087	1.9049	1.7362	1.2554	0.5871
Avg 2014	2.3792	3.7935	0.4684	0.00108	2.1361	2.1551	1.7682	0.6538
Jan-15	1.6855	2.6731	0.4001	0.00079	1.5633	1.5807	1.0202	0.5875
Feb-15	1.8296	2.4051	0.3273	0.00077	1.6823	1.5446	1.0308	0.5169
Mar-15	1.8444	2.4875	0.2918	0.00079	1.6945	1.5750	1.0217	0.4824
Apr-15	1.8940	2.5551	0.2698	0.00081	1.7355	1.6122	0.9684	0.4610
May-15	2.0599	2.5206	0.2533	0.00083	1.8725	1.6557	0.9464	0.4450
Jun-15	2.1011	2.6915	0.2322	0.00086	1.9065	1.7222	0.9283	0.4245
Jul-15	2.1125	2.6070	0.2004	0.00085	1.9159	1.6997	0.8366	0.3937
Aug-15	2.2674	2.5692	0.1151	0.00087	2.0438	1.7386	0.7443	0.3108
Sep-15	2.7531	1.9801	0.0465	0.00086	2.4449	1.7145	0.8007	0.2442

** Prices shown in dollars per hundred pounds (cwt)

COMPUTATION OF PRODUCER PRICE DIFFERENTIAL SEPTEMBER 2015

		Pounds	Price	Value
Add: Class I Differential				\$463,767.34
Class I Butterfat	60(a)	7,368,161	\$ 2.1953	\$16,175,323.85
Class I Skim Per Cwt		355,811,232	\$12.0800	\$42,981,996.84
Class II Butterfat	60(b)	8,934,949	\$ 2.7601	\$24,661,352.75
Class II Nonfat Solids		8,262,759	\$ 0.6567	\$5,426,153.87
Class III Butterfat	60(c)	23,631,923	\$ 2.7531	\$65,061,047.20
Class III Protein		20,533,722	\$ 1.9801	\$40,658,822.94
Class III Other Solids		37,922,629	\$ 0.0465	\$1,763,402.26
Class IV Butterfat	60(d)	2,824,935	\$ 2.7531	\$7,777,328.56
Class IV Nonfat Solids		5,847,652	\$ 0.6266	\$3,664,138.75
Class II, III, & IV Somatic Cell Adjustment	60(e)			\$832,394.66
Total Producer Milk- Product Pounds and Value		1,191,221,394		\$209,465,729.02
Add: Value as for 60(f) thru 60(j)				\$357,119.12
Less: Total Protein Pounds	61(b)	37,001,958	\$ 1.9801	\$73,267,577.06
Total Other Solids Pounds		68,205,678	\$ 0.0465	\$3,171,564.04
Total Butterfat Pounds		42,759,968	\$ 2.7531	\$117,722,467.92
Total Value of Somatic Cell Adjustment				\$1,141,499.34
Total Milk and Value		1,191,221,394		\$14,519,739.78
Add: Location Differential Adjustments	61(c)			\$5,425,261.96
Producer - Settlement Fund Reserve	61(d)			\$470,503.42
Total Product Milk/URSP and Value		1,191,221,394	\$ 1.71383	\$20,415,505.16
Less: Producer - Settlement Fund Reserve	61(f)		\$ 0.04383	\$522,107.88
Producer Price Differential (Dallas County)			\$1.67	\$19,893,397.28

Average Somatic Cell Count	238,000
Total Number of Producers	576

Producer Milk Utilization Percentages						
	Product		Butterfat		Skim Milk	
	Pounds	Percent	Pounds	Percent	Pounds	Percent
Class I	363,179,393	30.49	7,368,161	17.23	355,811,232	30.98
Class II	99,454,886	8.35	8,934,949	20.90	90,519,937	7.88
Class III	661,444,343	55.52	23,631,923	55.26	637,812,420	55.54
Class IV	67,142,772	5.64	2,824,935	6.61	64,317,837	5.60
Total	1,191,221,394	100.00	42,759,968	100.00	1,148,461,426	100.00

Producer Milk Components				
	Butterfat	Protein	Other Solids	Nonfat Solids
Total Pounds	42,759,968	37,001,958	68,205,678	105,207,636
Average Test	3.589%	3.106%	5.725%	8.831%

August Milk Production

Milk production in the 23 major States during August totaled 16.3 billion pounds, up 0.8 percent from August 2014. July revised production at 16.6 billion pounds, was up 1.3 percent from July 2014. The July revision represented an increase of 5.0 million pounds or less than 0.1 percent from last month's preliminary production estimate.

Production per cow in the 23 major States averaged 1,891 pounds for August, 6 pounds above August 2014. This is the highest production per cow for the month of August since the 23 State series began in 2003.

The number of milk cows on farms in the 23 major States was 8.63 million head, 43,000 head more than August 2014, but unchanged from July 2015.

August 2015 Milk Cows and Milk Production, by States

State	Milk Cows ¹		Milk per Cow ²		Milk Production ²		
	2014	2015	2014	2015	2014	2015	Change from 2014
	(thousands)		(pounds)		(million pounds)		(percent)
AZ	193	195	1,915	1,940	370	378	2.2
CA	1,779	1,778	1,940	1,875	3,451	3,334	-3.4
CO	145	145	2,135	2,220	310	322	3.9
FL	123	125	1,565	1,560	192	195	1.6
ID	579	585	2,095	2,090	1,213	1,223	0.8
IL	94	94	1,565	1,600	147	150	2.0
IN	179	181	1,830	1,840	328	333	1.5
IA	208	211	1,855	1,900	386	401	3.9
KS	143	144	1,810	1,805	259	260	0.4
MI	394	409	2,115	2,120	833	867	4.1
MN	460	460	1,660	1,740	764	800	4.7
NM	323	323	2,100	2,010	678	649	-4.3
NY	615	619	1,915	1,950	1,178	1,207	2.5
OH	266	266	1,720	1,750	458	466	1.7
OR	123	121	1,725	1,700	212	206	-2.8
PA	530	530	1,680	1,685	890	893	0.3
SD	97	107	1,855	1,905	180	204	13.3
TX	470	462	1,785	1,790	839	827	-1.4
UT	96	96	1,990	1,990	191	191	---
VT	132	132	1,725	1,700	228	224	-1.8
VA	93	91	1,580	1,595	147	145	-1.4
WA	272	274	2,060	2,035	560	558	-0.4
WI	1,271	1,280	1,865	1,940	2,370	2,483	4.8
23 State Total	8,585	8,628	1,885	1,891	16,184	16,316	0.8

¹ Includes dry cows. Excludes heifers not yet fresh.

² Excludes milk sucked by calves.



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Organic Trade Association National Hearing Request

On Monday, September 29, 2015, AMS/Dairy Programs received a formal request from the Organic Trade Association for a national hearing to amend all Federal Milk Marketing Orders (FMMO) regarding organic milk. The proponents have proposed that organic milk handlers be given an option to account to the FMMO producer-settlement fund (PSF) either as currently done, or on a basis similar to that of partially regulated distributing plants. This option would give the organic milk handler a credit against its PSF obligation for producer payments that exceed the minimum Class I price plus \$2.90 per hundredweight.

This proposal is posted on the AMS website: <http://www.ams.usda.gov/rules-regulations/moa/dairy>, or can be found directly on this page: <http://www.ams.usda.gov/rules-regulations/moa/dairy/organic-amendment>.

USDA is currently considering the petition, and has 30-days from the receipt of the proposal (September 29) to deny the proposal, to request more information from the proponent, or to issue an Action Plan.

If you have any questions, please contact the Order Formulation Branch at (202) 720-7183.

Changes to Southwest Order Website www.dallasma.com

Updates are currently being made to the Southwest Order Website – www.dallasma.com, for quicker access to monthly reports and Federal Order prices.



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Dairy Situation and Outlook, October 20, 2015
By Bob Cropp, Professor Emeritus
University of Wisconsin Cooperative Extension
University of Wisconsin-Madison

Milk prices for October will decline just slightly. The Class III price was \$15.82 in September and will be near \$15.60 for October, the result of little lower cheese and dry whey prices. But, the October Class IV price will be higher near \$16.40 compared to \$15.08 in September the result of butter prices holding up and higher nonfat dry milk prices. Sales of butter and cheese remain good holding up prices, but exports continue to decline. On a volume basis dairy exports in August declined for the fourth straight month. Butter exports were down 35%, cheese down 28%, nonfat dry milk/skim milk powder down 5% and total whey products down 18%.

During the month dairy product prices on the CME have been unsettled moving down and up. Butter started the month at a high of \$2.70 per pound, was as low as \$ 2.35 and is now \$2.44. The 40-pound cheddar cheese price was a high of \$1.80 per pound early October, and is now \$1.625. Cheddar barrels were a high of \$1.73 per pound early October, and is now \$1.58. Nonfat dry milk started the month at a high of \$1.06 per pound, but has declined since and is now \$0.86. Western dry whey prices have been at \$0.20 per pound. But, as holiday orders are filled we can expect butter and cheese prices to decline. While butter production has been lower than a year ago, 1.2% lower in August and 1.7% lower year-to-date August 31st stocks were 21.1% higher than a year ago and 9.1% higher than the 5-year average for this date. But, August 31st stocks took a big down turn from July 31st, dropping 18%, the result of lower production and strong butter sales. Cheese production remains strong with August production of cheddar cheese 3.1% higher than a year ago and 2.6% higher year-to-date. Total cheese production was 3.5% higher than a year ago in August and 2.5% higher year-to-date. Unlike butter, stocks have been increasing with August 31st stocks of American cheese up 15.5% from July 31st and were 9.3% higher than a year ago. Total cheese stocks on August 31st increased 4.7% from July 31st and were 12.1% higher than a year ago. August production of nonfat dry milk was 6.7% higher than a year ago and 8.4% higher year-to-date. Yet with exports down only 6% and increased domestic sales August 31st stocks were 14.4% lower than July 31st and 2.3% lower than a year ago. August 31st dry whey stocks were 43.1% higher than a year ago.

With the filling of holiday orders we can expect both butter and cheese prices to fall lower bring down both the Class III and Class IV price. The Class III price could be about \$15.45 by December and the Class IV price about \$14.50. And we could expect further price declines first half of 2016. How low prices may end up will depend heavily upon the level of milk production and domestic sales because much improvement in exports is not likely until the last half of 2016.

The increase in milk production is slowing. September production was just 0.4% higher than a year. Of course a year ago production was increasing strong being 4.3% higher than the year before. September milk cow numbers declined 5,000 head from August and were just 0.4% higher than a year ago. Milk per cow was up only slightly at 0.1%. Total milk production year-to-date was 1.4% higher than a year ago. USDA has forecasted milk production for the year to be 1.4% higher than 2014. But, if the growth in milk production for the last three months of the year continues at this relatively small increase, total production for the year may only be up about 1.2%.

California's production continues to decline. Milk cow numbers were down 1,000 head from a year ago and milk per cow was down 3.5% netting 3.6% less milk production. Idaho had 7,000 more cows but milk

per cow was up just 0.5% netting 1.7% more milk. Milk production in New Mexico was down 2.0% all due to less milk per cow. Texas had 8,000 fewer cows but milk per cow was up 2.3% netting 0.6% more milk. Michigan and New York had more cows and more milk per cow resulting in 4.0% and 1.1% more milk respectively. Pennsylvania's milk production was down 1.9% all due to less milk per cow. Iowa and Wisconsin had more cows and higher milk per cow resulting in 2.1% and 3.1% more milk. Minnesota's production was 2.2% higher, all due to more milk per cow. And South Dakota had 10,000 more cows with milk per cow up 2.2% netting 12.6% more milk.

Cheese prices could drop to around \$1.60 per pound, and if dry whey remains around \$0.20 per pound, by April and May the Class III price would drop below \$15.00. If butter drops to around \$1.85 per pound and nonfat dry milk stays around \$0.90 per pound, the Class IV price would be about \$13.40. While Class III and Class IV futures also show declines for the first half of 2016 they remain higher than this. If milk production continues to increase at less than 1% going into 2016, then milk prices will be higher. So much uncertainty exists as to where final prices end up. Milk prices can swing quickly in either direction with rather small changes in the level of milk production and the combination of domestic sales and exports. With expected domestic sales to remain solid and some improvement in exports for the second half of the year the Class III price could improve to the \$16's and even reach \$17 by late fall and the Class IV price could be in the \$15's.

Robert Cropp

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University of Wisconsin-Madison

Summary of Commercial Milk Price Outlook - October 20, 2015

The increase in milk production is slowing. September 2015 production was 0.4 percent higher than a September 2014. In September 2014 production was increasing strong being 4.3 percent higher than September 2013. September milk cow numbers declined 5,000 head from August and were just 0.4 percent higher than September 2014. Milk per cow was up only slightly at 0.1 percent. Total milk production year-to-date was 1.4 percent higher than September 2014. USDA has forecasted milk production for the year to be 1.4 percent higher than 2014. But, if the growth in milk production for the last three months of the year continues at this relatively small increase, total production for the year may only be up about 1.2 percent.

Cheese prices could drop to around \$1.60 per pound, and if dry whey remains around \$0.20 per pound, by April and May the Class III price would drop below \$15.00. If butter drops to around \$1.85 per pound and nonfat dry milk stays around \$0.90 per pound, the Class IV price would be about \$13.40. While Class III and Class IV futures also show declines for the first half of 2016 they remain higher than this. If milk production continues to increase at less than 1 percent going into 2016, then milk prices will be higher. So much uncertainty exists as to where final prices end up. Milk prices can swing quickly in either direction with rather small changes in the level of milk production and the combination of domestic sales and exports. With expected domestic sales to remain solid and some improvement in exports for the second half of the year the Class III price could improve to the \$16's and even reach \$17 by late fall and the Class IV price could be in the \$15's.

The above milk forecast information was obtained from the following:

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University of Wisconsin-Madison

Appraiser Summary

The price of milk and the cost of producing milk influence dairy real estate values. Historically, short term low milk prices in stable to good markets, have not shown significant decreases in dairy property values. However, the extremely low milk prices in 2009 associated with the downturn of the U.S. economy and the failing of numerous lending institutions led to numerous foreclosures of dairy operations which had a significant negative affect on dairy real estate values. Significant signs of recovery in the dairy real estate market did not appear until mid-year 2014. In early 2015 there were very significant increases in dairy real estate values mostly due to the high milk prices that dairies received in 2014. Therefore, the price of milk can have positive or negative influences on value.

As of the date of the appraisal, 2015 milk prices have been softer than 2014 prices. Operating expenses in 2015 have remained low due to low feed cost associated with soft corn prices and low fuel prices associated with soft crude oil prices. The 2016 outlook for milk prices is lower in the first quarter and then increasing by the second quarter. As of the date of the appraisal, the available dairy sale data indicates stable dairy property values, with no negative affects on value.

Organic Dairy Industry Overview

General

The following guidelines are based on the National Organic Program (NOP) final rule ([/pages/18349/national-organic-program-summary](#)) (United States Department of Agriculture [USDA], 2000). Farmers planning to make the transition to organic dairy production should consider all of the following areas, as well as the time and investment that will be required for compliance with certification requirements.

A farmer interested in making a transition to organic production should create a transition plan which includes a time line from the day that organic practices have been implemented to the day that the farm will ship organic milk. This process takes a minimum of one year and can take up to three years, depending on the farm, current farming practices, and when the last prohibited substance was applied. Fields can be transitioned to organic on a field-by field basis with each field required to be free of prohibited inputs for 36 months before the first organic harvest. Dairy animals will require a 12-month transition which may overlap with the third year of the land transition. In some situations, the farm may choose to purchase a herd of certified organic dairy animals instead of transitioning an existing herd.

Before starting the transition process, it is important to find an organic milk market and decide which organic certification agency to use. The certifier will provide an application and/or Organic System Plan as well as record-keeping forms to document the transition to and management of organic production. During the initial application process, the certifier will require one years worth of production and management documentation of the livestock and three years worth of production information for the land. Following the initial transition and first year under certification, the certifier will continue to require an annual OSP and records of management and materials used on the farm.

It is important to choose an organic certification agency early to make sure the certification process can be completed on time. The certifier can provide information about the requirements, record-keeping forms, and a list of inputs and materials allowed. All accredited certifiers are required to provide sufficient information to persons seeking certification to enable them to understand and comply with the requirements. Since there are regional differences in available inputs, climatic conditions, agronomic practices, and so forth, it is always a good idea to work with a certifier who is knowledgeable about the local conditions, practices, and inputs used.

Shippers or processors that buy organic milk may have contract or production requirements in addition to the NOP final rule. Be sure to learn about their requirements before selecting an organic milk buyer and going through the USDA organic certification process. It is important to know that certification does not assure an organic milk market. A contract with an organic milk buyer or organic milk market should be established prior to making investments in the transition and certification process.

Dairy Herd Transition Guidelines

During the 12-month transition period, all animals must be managed according to the NOP. This requires that all feed be certified organic, that all animals over the age of 6 months meet the pasture standard, and that all feed supplements, medications, health management practices, and livestock housing meet the organic standards. There is an allowance where farmers may use, in addition to certified organic feed, their own feed grown on their own land in its third year of transition. This home-grown feed may only be fed during the 12-month livestock transition period.

Once the transition is completed and the herd is certified, the standards require that all dairy animals be under organic management from the last third of gestation. For farms also seeking certification of dairy cattle for meat or slaughter stock, only those animals managed organically from the last third of gestation will qualify.

Livestock Feed

For the 12 months prior to selling organic milk, all feed must be 100 percent certified organic or harvested the farm's third year transitional land (i.e., land where a prohibited substance was last applied 24 to 36 months ago). The 100 percent organic feed ration includes forages and grains as well as any agricultural products that are used as carriers or bulking agents in feed supplements (eg., oat bran, etc.).

The provision for feeding farm-raised, third-year transitional feed is only allowed for herds in transition. Once the herd is certified and the farm is shipping organic milk, feed from transitional land cannot be fed. For this reason, it is important to time the transition to have silos, bins, and hay storage empty of transitioned crops, and full of certified organic crops prior to the completion of the transition process.

During the transition, all purchased grains and forages must be certified organic. "In-transition" organic feed (managed organically for 24-36 months) cannot be purchased from other farmers and fed to a dairy herd during transition.

All purchased grains and forages must be certified organic. "In-transition" organic feed (managed organically for 24-36 months) cannot be purchased from other farmers and fed to a dairy herd during transition. You must keep all receipts and organic certificates as documentation of your organic feed purchases, making sure that the receipts provide the seller's name, transaction date, a copy of the seller's certificate of organic status, and the amount of feed purchased.

Keep all receipts and organic certificates as documentation of organic feed purchases, making sure that the receipts provide the seller's name, transaction date, a copy of the seller's certificate of organic status, and the amount of feed purchased. These documents will be required to allow the certifier and inspector to verify that the herd has been fed only organic feed.

All feed supplements, including minerals and salt, must include 100 percent certified organic feed ingredients or materials on the National List. In addition, they must be pre-approved for use by the certifier. Antibiotics, GMO-derived products, animal by-products, artificial colors/flavors, synthetic flavoring agents, and synthetic preservatives are not permitted in any feed products. If a supplement contains soy oil, wheat middlings, or molasses, for instance, these are agricultural products and must be certified organic. The certifier may provide a list of approved products and suppliers.

The Organic Materials Review Institute (OMRI) also provides a list of approved inputs for crops, livestock, and processing. There is currently no approved organic milk replacer, so calves must be fed organic milk along with other certified organic feed.

The organic standards on pasture define pasture as a crop and require that farms have a pasture plan in their OSP. The standard requires that during the grazing season, all animals over 6 months of age must receive an average of at least 30 percent of their dry matter from pasture. Grazing season length will vary regionally. There are specific record-keeping requirements in the organic standards which relate to grazing, feeding, and dry matter intake calculations.

Livestock Living Conditions

Organic livestock producers must establish and maintain year-round livestock living conditions which accommodate the health and natural behavior of animals. These include year-round access for all animals over six months of age to the outdoors and, during the grazing season, requires pasture. When housed, the livestock living conditions require that the bedding be dry and clean, and that when roughages are used as bedding, that they be certified organic.

Outdoor areas must be managed to prevent run-off of wastes and water contamination. There are exemptions that allow producers to provide temporary confinement due to specific situations like inclement weather, risk to soil and water quality, healthcare treatment, breeding, and milking.

Organic Dairy Statistics

By Madeline Schultz, content specialist, AgMRC, Iowa State University, schultz@iastate.edu.

Revised January 2013 by Diane Huntrods, AgMRC, Iowa State University.

Overview

In 2011 nearly 2.1 billion pounds of organic milk products were sold, a 14.5 percent increase from the previous year and the second year in a row that sales increased by double digits. That amount represented nearly 4 percent of all milk products sold that year. On the other hand, the volume of total milk product sales dropped for the second year in a row. (AMS, USDA).

Before the recent recession, organic milk cost considerably more than standard milk. At its peak, the national price premium for organic milk averaged \$18.00 more per 100 pounds. In 2011 the average price of organic reduced fat (2%) milk was \$3.75 per half gallon, while the average price of organic whole milk was \$3.74 (AMS, USDA).

Organic milk first appeared in supermarkets in 1993 but is now available in nearly all retail food stores. From 2004 to 2006, the share of organic dairy products sold at supermarkets increased while the share sold at natural food stores decreased.

Production

More than 2,000 farms in the United States produced organic milk in 2008. The largest number of farms were located in Wisconsin (479), followed by New York (316) and Pennsylvania (225). Less than 100 organic dairy farms were located in California. (2008 Organic Production Survey 2010).

As of December 31, 2008, nearly 202,000 dairy cows were certified organic, up from more than 87,000 in 2005 and nearly 2,300 in 1992. The states with the highest number of certified organic dairy cows were (in order): California, Wisconsin and Texas. (2008 Organic Production Survey 2010).

During 2008, the peak inventory of organic dairy cows was more than 219,000, with nearly 40,000 cows being sold that year. Texas sold the most organic dairy cows, followed by California and Wisconsin. (2008 Organic Production Survey 2010).

Organic dairies have an average of 53 cows in the Northeast and 64 cows in the Upper Midwest, compared with 381 cows in the West (ERS 2010). The larger operations in the West account for 31 percent of U.S. organic milk cows (USDA 2010).

Organic milk production in 2008 was 2.8 billion pounds. California produced 501.8 million pounds, or 18 percent, of the organic milk. Other states producing large quantities of organic milk were (in order): Wisconsin, Texas, Oregon and New York. (2008 Organic Production Survey 2010).

The average milk yield per cow on organic dairies in the West is 2,700 pounds more than yields on organic dairies in the Upper Midwest and 4,000 pounds more than in the Northeast. While the more productive operations in the West make up only 7 percent of organic dairies, they account for 37 percent of organic milk production. (ERS 2010).

The cost of production for organic dairies is greater than the cost for standard dairies. Organic feed costs more than standard feed, and organic production uses more labor and capital. When organic milk brings premium prices, profits are higher for organic dairies. Herd size matters to organic costs. Estimated total costs drop sharply as herd sizes increase.

USDA standards for organic food were implemented in 2002. Organic dairy is raised in a production system that promotes and enhances biodiversity and biological cycles and uses only organic feedstuffs and health protocol. It is based on minimal use of off-farm inputs. Dairy cattle producing organic milk are not given antibiotics and growth hormone stimulants. In general, organic foods are minimally processed with artificial ingredients or preservatives.

Sales

Organic dairy sales contracted in 2009, shrinking about 1 percent. However, organic dairy sales still commanded 15 percent of the total organic food market. (Only organic fruits and vegetables captured a larger share of the organic food market: 38 percent.) With factors such as price drops for conventional milk, consumers trying to save money were put off by the wide price gaps between conventional vs. organic. (Organic Trade Association 2010).

The total value of organic milk produced in 2008 was \$750.1 million. California was the leading seller of organic milk, with sales topping \$133.5 million. Other top sellers were (in order): Wisconsin, Texas, Oregon and New York. (2008 Organic Production Survey 2010).

The OTA believes organic dairy sales reached \$3.2 billion in 2007. In 2006, organic dairy products accounted for \$2.7 billion in sales, according to the OTA's 2007 Manufacturer Survey (2008).

Processing

Some dairy operations bottle and sell the milk and/or other dairy products locally. For national distribution, products tend to move from the farm to a cooperative processor/bottler and then to a private distributor before reaching retail outlets.

The organic dairy market has been significantly affected by large-scale investment from food processors. The first two companies to produce and distribute organic milk on a large scale were Organic Valley and Horizon Organic. As of June 2009, Organic Valley, a cooperative established in 1988, and Horizon Organic, owned by Dean Foods and producing organic milk since 1992, were the largest organic milk processors in Wisconsin.

Competition

In general, fluid milk competes with other beverages for sales. While skim milk consumption has increased over time and whole milk consumption has decreased, overall milk intake by Americans has dropped in the last 20 years. Bottled water is now the second most consumed commercial beverage. Consumption of fruit and sports drinks has also increased over time. Nondairy milk products made with soy and rice are competing for space in the dairy case and are advertising as having comparable dairy attributes like calcium.

Other factors related to milk competition include the fact that milk is viewed as a commodity. Few branded milk products are sold; most milk is private label. Therefore, milk competes against worldwide beverage makers with well-known brands.

Milk distribution is another factor. Milk is primarily sold at the supermarket. Compared to other competing beverages, its promotion is limited due to product perishability. Milk's use of single-serve plastic containers and of new flavors are likely to become keys to innovation for branding, image improvement and increased marketing channels, according to a Beverage Marketing Corporation report.

Corsentino Dairy and Contract Organic Milk Price

Corsentino Dairy is Certified Organic and contracts and produces milk for Horizon Organic Dairy Farms. According to Horizon's website (www.horizondairy.com), Horizon contracts with over 700 dairy farmers to purchase their milk. Horizon also owns dairies in Idaho and Maryland for the production of organic milk. Horizon's owned dairies contribute approximately 7 percent to their overall organic milk supply.

According to the Corsentinos, their 2013 contract base milk price with Horizon was \$26.00 per hundred weight. Current 2015 prices for organic milk range from \$31.00 to \$35.00 per hundred weight. According to Mr. Corsentino, as of November 2015, he receives approximately \$32.00 per hundred weight for his organic milk product. Organic milk prices are currently approximately \$16.00 above commercial milk prices. According to the Corsentino's, they deliver their milk to Horizon in Denver, Colorado.

The Corsentino Dairy was converted from a commercial dairy facility to an organic dairy facility. The Corsentino land and dairy are Certified Organic with Indiana Certified Organic, LLC which is part of the National Organic Program. The land / crops Certificate Number is t1013-US1101z1. The livestock Certificate Number is t1048-US1101z1.

Organic Dairy Facility Summary

The appraiser has knowledge of organic dairy operations and has provided appraisals to lender-clients on organic dairy facilities in Colorado and Texas from 2005 through 2015. Organic milk brings a higher price than commercial milk and organic dairy facilities usually lease for a higher price per head than commercial dairy facilities. Converting a commercial dairy facility to an organic dairy facility is purely a business decision based on the owner's desire or needs. There is basically no difference in a commercial dairy facility and an organic dairy facility other than the time it takes to obtain the Organic Certification, some additional pasture land for required grazing, and some additional cost in fencing for grazing cells. The additional price received for organic milk is typically offset by higher operating costs. Some of these additional costs include: higher cattle cull rates, less production per milk cow, higher feed costs, and higher cattle purchasing costs.

Few dairies are operated, sold and leased as organic dairy operations. There are no market sales of organic certified dairy properties that show that the organic dairy properties sell for more than commercial dairy properties.

As stated in the Extraordinary Assumptions and Critical Issues in the Letter of Transmittal, the subject dairy property will be analyzed and valued as a typical commercial dairy property which is one of the highest and best uses of the property. The organic use is an alternative business decision use.

Milking Parlor Types

The first questions that must be answered in order to make rational decisions about the type and size of a milking parlor for a dairy farm include:

1. What is the desired milking routine? The amount of time required to perform the pre-milking work routine on each cow determines the number of milking units and milking stalls that each operator can use effectively. If you want excellent milking routines (teat and udder sanitation, effective stimulation, appropriate prep-lag times) practiced in the parlor, it must be sized to encourage the desired outcome. A parlor that is too big will encourage the operators to take short cuts and not implement the complete milking routine. A parlor that is too small will result in bored workers and early unit attachment.
2. Who will be operating the parlor? The skill level and motivation level of the people in the parlor will determine how efficiently the milking routine will be implemented.
3. Will the parlor be used as a place to provide special treatment to cows? Some parlor types are better suited than others in providing individual cow care.
4. What is the expected production level, milking interval, and cow grouping strategy? These factors will influence the average amount of time that milking units stay on the cows. Short milking times lend themselves to smaller parlors.
5. What sort of work environment do you want to provide for the operators? Some parlor types allow the use of support arms for milking units and milk hoses and some do not. Support arms offer several advantages for both people and cows. Support arms carry the weight of the cluster and hoses so that operators do not have to. This considerably reduces the strain on the shoulders and lower back of the operators. Even weight distribution on each quarter is also easier to achieve and promotes even milk-out while reducing the number of slips and unit falloffs that occur during milking.

Side Opening Parlor

Side opener parlors usually are located on the end of a holding area, with two entrance lanes similar to herringbone and parallel parlors. A gate at the entrance point between the holding area and the milking parlor holds the cow until an empty stall is ready. The parlor may be organized to allow the cows to exit in return lanes on either side of the operator area or cross over to a single return lane on one side. The use of a single return lane (compared to dual returns) reduces not only the cost of the parlor itself but also the facilities to catch and/or sort cows when leaving the parlor. A single return lane does not slow down cow flow in this parlor type because cows are released individually.

Side opening, tandem, and in line parlors handle cows one at a time so a slow-milking cow does not delay the completion of milking release of other cows in the parlor. These parlors are well suited to farms that take special care about observing individual cows and practice individual cow care in the parlor. The throughput of these parlors is less affected by variations in cow milk-out times and the disruptions from feeding grain in the parlor.

The number of stalls in a side-opening parlor is usually limited to 4 to 8 for one operator and 8 to 12 for two operators. Stall lengths quickly add up to excessive walking time and difficulty in keeping track of distant milking machines. These parlors have received a recent return to interest because of extra computer controlled automation. If auto detachers are used, the detacher can signal that a unit has been removed and the cow automatically let out, the gate closes and another cow is allowed to enter the stall.

This parlor type has a high stall use rate (7 to 8 cows/stall/hour) which makes it an economical choice for farms using a high level of automation and technology, and is well suited to farms with up to about 400 cows that practice a high level of management. This parlor type is not easily expandable, but if designed properly can be converted into a herringbone or parallel parlor with more milking stalls in the future.



Herringbone Milking Parlors

Herringbone parlors are the most common parlor type in the US for 'small' parlors (less than Double 12). Cows stand on an elevated platform in an angled or herringbone fashion, facing away from the operator area. This exposes enough of the back half of the cow to allow access for milking her from the side, and room for an arm type detacher and associated equipment.

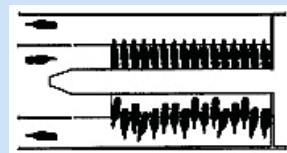
Herringbone parlors are located on the end of a rectangular holding area, allowing cows to enter single file as a group directly into either side of the parlor. On completion of milking, the cows exit single file by walking straight ahead and out of the parlor. In most layouts the cows make either a 180-degree turn, head down a return lane, and back past the holding area, or the cows make a 90-degree turn and exit out a side door or across the parlor to a return lane on the other side. Parlors with more than 12 stalls on a side benefit from rapid exit stalls to speed up the exiting process. In this case the cows walk straight away from the operator area in to a wide exit area. Normal design has a return lane on either side so cows go directly from the exit area past the holding area. However, cows on the side can be directed across to a single return lane on the other side.

As the number of stalls on a side increases it becomes more difficult to keep track of each cow and milking machine. In larger parlors the two rows of stalls may be arranged in a wedge or "V" configuration resulting in a wider operator area on the end away from the parlor animal entrance. This improves the visibility of units and cows from the other side of the operator area.



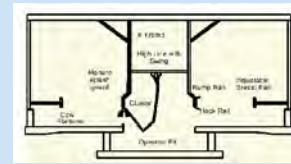
Parallel Milking Parlors

Cows stand on an elevated platform at a 90-degree angle facing away from the operator area. Access to the udder is between the rear legs, which reduces visibility of the front quarters, and can make unit attachment and udder user sanitation more difficult. This configuration makes the walking distance shorter than in a herringbone parlor. The cow platform is wider than a herringbone parlor in order to accommodate the length of the cow. Stall fronts use chutes, or small gates, to position each cow. To assure that each position is filled in order, a series of interlocking fronts prevent a position from being used until the one next to it has been occupied. Most parallel parlors use rapid exit stall fronts and use dual return lanes. The stall spacing in this parlor type is such that support arms cannot be used. It is also more difficult to balance milking units on the udder in this parlor type.



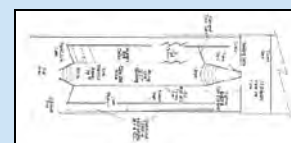
Swing Over Milking Parlors

Swing parlors often use a hybrid stall referred to as a parabone. The cows are placed at a greater angle from the operator (about 70 degrees) than in traditional herringbones, but less than 90 degrees, as in a parallel. This configuration usually eliminates the need for front positioners as used in a parallel. The sharp angle does not expose enough of the cow's body to allow milking from the side, however. Producers and equipment developed for milking between the hind legs are used. Milk lines are typically mounted as "midlines" or above the head of the operator resulting in a lift from the udder to milk line of about 1 meter. The width of the pit can vary between 5-8 feet, depending on the length of parlor, and number of operators. Cows can exit single file to the front end of the parlor or to the sides of the parlor using a rapid exit type front. Maximum cow movement efficiency is attained when cows walk straight in from the holding area and exit straight out, without turning. It is recommended that the cow platform be extended 2-3 cows beyond the pit into the holding area to position these cows behind the last cow to be milked. In many cases no back gate is used. This arrangement helps cow flow for the next loading. A pendulum gate, or chop gate, is used at the front gate location on the platform to allow quick stopping of the first cow during the next platform loading. An adjustable breast rail allows adjustment of the line of cows to position the rump up against the rump rail in order to position the udder as close as possible to the operator pit. The rump rail can be a straight rail or an "S" rail and is usually located directly above the edge of the cow platform. A hock rail is placed approximately 8 inches below the rump rail to prevent cows kicking backward and stepping off the platform. A manure splash guard can be placed above the rump rail to direct manure to the platform instead of the pit. The primary advantage of a swing parlor is that fewer milking units are needed and the stall designs are simpler, both of which reduces the initial cost of the parlor. The main disadvantage of this parlor type is the inconvenience resulting from milk hoses hanging in the operator area and the inefficiencies resulting from switching the unit from side to side (especially for a slow milking cow and/or cow requiring special attention). This parlor type is not suited to the use of support arms and automatic detachers are typically mounted above the milk line.



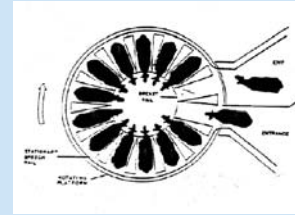
Parabone Milking Parlors

Parabone parlor is a term usually given to a herringbone parlor with cows located at less than 37 inches per cow, typically 30 to 34 inches apart. Herringbone parlors have been converted to parabones successfully, increasing cow capacity without building a new milking parlor. Parabone parlor performance is rated similar to that of parallel parlors.



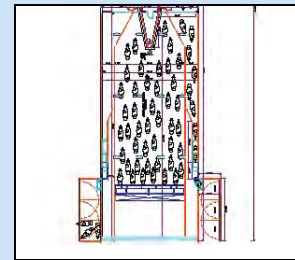
Rotary Milking Parlor

The advantage of the rotary parlor is that the cow movement functions are largely automated, freeing the operators to tasks more directly associated with milking. Rotary parlors typically require three operators: one to tend to any problems occurring while cows are traveling around (reattach units, tend to liner lips, etc.) This parlor type is not expandable. And the capital cost is usually higher per stall than for non-moving parlors. Because of these characteristics, rotary parlors are best suited to larger herds (>1000 cows). One advantage of a rotary parlor is that the work routine is very regimented and uniform. Milking procedures will in general be much more consistent and efficient in a large rotary parlor (60 - 80 stalls) than in an equivalently sized herringbone or parallel parlor (Double 30 - 35). Rotary parlors usually use a 'face-in' configuration and are subject to all of the same disadvantages of a parallel milking parlor. It is more difficult to provide any special cow care on a rotary platform than a stationary parlor.



Covered Holding Pen

The amount of time cows spend standing in the holding area of the milking parlor away from feed, water, and resting areas, should be minimized. The actual length of time will depend on number of milkings per day, climate where the dairy is located, and production level expected from the cows. Typical recommendations are 60 minutes, 45 minutes and 30 minutes for two, three, or four times a day milking, respectively, or a total of about two hours per day away from feed, water, and rest. Coordinate the size of the largest cow group and the milking parlor throughput to achieve this goal.



Highest and Best Use

Highest and Best Use Definitions

Definition 1 - The reasonably probable and legal use of vacant land or an improved property that is physically possible, appropriately supported, financially feasible, and that results in the highest value. The four criteria the highest and best use must meet are legal permissibility, physical possibility, financial feasibility, and maximum productivity. Alternatively, the probable use of land or improved property—specific with respect to the user and timing of the use—that is adequately supported and results in the highest present value.¹³

Definition 2 - The reasonably probable use that produces the most benefits and highest land value at any given time.¹⁴

Fundamentals of Highest and Best Use

The analysis of highest and best use is at the heart of appraisals of the market value of real property, but the concept has not always been well understood by practitioners and has long been a source of debate in the professional literature. The essential components of the analysis of highest and best use are contained in the following definition of the term: The reasonably probable use of property that results in the highest value. To be reasonably probable, a use must meet certain conditions:

- The use must be physically possible (or it is reasonably probable to render it so).
- The use must be legally permissible (or it is reasonably probable to render it so).
- The use must be financially feasible.

Uses that meet the three criteria of reasonably probable uses are tested for economic productivity, and the reasonably probable use with the highest value is the highest and best use.¹⁵ Conceptually, the criteria of highest and best use are self explanatory. For example, physically possible uses are land uses that are not unworkable due to some limiting physical characteristic of the land such as inadequate site size, odd shape, irregular topography, or poor soil quality. For example, a steeply sloped site tends to limit the use of the land to only a few possible alternatives. In contrast, a level plot of land with good drainage, soil with adequate bearing capacity, and other physical characteristics to the construction of improvements would likely allow a developer to build many different sorts of facilities.

¹³ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 333.

¹⁴ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 333.

¹⁵ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 332.

Based on similar logic, legally permissible uses would conform to the land's current zoning classification and local building codes along with any other relevant regulatory or contractual restrictions on land use. The test of financial feasibility narrows the number of legally permissible and physically possible uses down further through analysis of the economic characteristics of the potential alternative uses. The remaining options are candidates for the test of maximum productivity, which is the final—and deciding—criteria for the highest and best use of both the land as though vacant and the property as improved.¹⁶

Testing Highest and Best Use

To test alternative uses for the highest and best use, an appraiser usually applies the four criteria in the following order:

1. Legal permissibility
2. Physical possibility
3. Financial feasibility
4. Maximum productivity

In practice, the tests of physical possibility and legal permissibility can be applied in either order, but they both must be applied before the tests of financial feasibility and maximum productivity. A use may be financially feasible, but this is irrelevant if it is legally prohibited or physically impossible.¹⁷

Land As Though Vacant and Property As Improved

In addition to the four tests of highest and best use, the first cited definition of the term implicitly includes the idea that highest and best use analysis is viewed from two perspectives:

- the use of a property based on the assumption that the parcel of land is vacant or can be made vacant by demolishing any improvements
- the use that should be made of a property as it exists (i.e., considering the current improvements)

The highest and best use of land as though vacant and the highest and best use of the property as improved are connected but distinctly different concepts.¹⁸

The analysis of these four criteria for the property as if vacant and as improved follows.

¹⁶ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 334.

¹⁷ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 335.

¹⁸ Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 336.

Highest and Best Use As Though Vacant

Highest and Best Use of the Land As Though Vacant

Analyzing the highest and best use of the land as though vacant helps the appraiser identify comparable properties. Whenever possible, the property being appraised should be compared with similar properties that have been sold recently in the same market. Potentially comparable properties that do not have the same highest and best use are usually eliminated from further analysis. Estimating the land's highest and best use as though vacant is a necessary part of deriving an opinion of land value.¹⁹

The highest and best use of land is generally that use which, among all reasonable, alternative uses, provides the highest land value. The estimation of highest and best use, as though vacant, is accomplished by applying the four criteria previously listed.

Physically Possible Use

This criterion is dictated by the physical features of the site. Its size, shape, frontage, topography and subsoil conditions affect the uses to which it can be developed. The size of the subject site is 1,018.78 acres. The size and shape of the site is considered to be adequate to support most of the legally permissible forms of use or development. The site is level to gently rolling sloping to the south to the Cucharas River. The site has enough slope for drainage and there does not appear to be any adverse soil or sub-soil conditions. Additional soil conditions have been addressed in the Extraordinary Assumptions and Critical Issues, in the Letter of Transmittal.

A portion of the subject site along the Cucharas River is located in a 100 year flood plain. Most of the subject's irrigated farm ground is located along the river and the flood plain is not considered to have a negative affect of the value of the property. The site has good access along Colorado State Highway 10, CR 230, and CR 230.1 also known as Industrial Park Drive. The subject property has adequate right-of-way and all necessary rural utilities. The access roads are in average to good condition. The roads and the utilities are considered adequate for commercial or organic dairy usage. All these components indicate that the subject has no physical limitation that would restrict its development.

The site generally conforms with the size, shape and topography of other sites in the area. There was no market evidence that would suggest the subject is at a physical disadvantage with other properties in the area. In my opinion, there are no conditions that would physically restrict the use of the site.

¹⁹ Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 43.

Uses which are physically possible include commercial or organic irrigated cropland, commercial or organic native and improved pasture, a commercial or organic dairy site and operation, and other general commercial or organic agricultural uses. Thus, a wide variety of uses are physically possible for the site.

Legally Permissible Use

The subject property *does not* lie within an incorporated city, therefore, it is not subject to city zoning regulations. Huerfano County is zoned, therefore, the subject is under Huerfano County zoning restrictions. The subject property is zoned (A) for Agricultural Use and it operates under the AFO Rule of Regulation 81 enforced by the Colorado Department Public Health and Environment. As previously discussed under Critical Issues in the Letter of Transmittal and the Site Analysis, the subject property conforms to zoning and AFO Use, and there are no known environmental violations against the dairy.

Surrounding properties are mostly cattle ranches and irrigated farms. The predominant business activities that have developed in the immediate area consist of agricultural related businesses. Based on trends that have developed in the area, the legally permitted use that would maintain conformity would be an irrigated farm or cattle ranch, a commercial or organic dairy operation, a animal feeding operation, or a recreational ranch and homestead.

I am not aware of any private deed restrictions which would limit property type or use.

It is common for sites located within the county to be encumbered by county zoning regulations. These restrictions neither place the subject at a legal disadvantage with other competing sites, nor do they adversely affect the use or development of the site. Therefore, the subject has a large variety of legally permitted agricultural uses.

Financially Feasible Use

Financial feasibility relates to all uses that are physically possible and legally permissible which are likely to produce some income, or return, greater than the combined income needed to satisfy operating expenses, financial expenses, and capital amortization. All uses expected to produce a positive return with a satisfactory equity yield are regarded as financially feasible.

In considering the financial feasibility of the subject's most probable uses, several factors must be considered. These factors include, but are not limited to the surrounding land uses, the physical characteristics of the site itself, the supply and demand forces which influence property values, and the cost of development.

The subject property is located within a rural agricultural area. The locational attributes of the subject are considered favorable for an agricultural irrigated farm, a livestock grazing operation, or commercial or organic dairy farm use. This type use also conforms to the general make-up of the immediate area. Thus, the most feasible use of the subject site is determined to be a use characteristic of this type development.

The demand for properties in the subject's immediate area has been stable to active within the recent past due primarily to the availability of surface irrigation water, the feed commodities grown, the native range land for livestock grazing, and recreational uses.

Based on the estimated construction cost, as detailed in the Cost Approach, it would require capital expenditures of \$2,927,232 plus land costs of \$1,300,000 for a total cost of \$4,227,232 rounded to replace the existing structures. The estimated net operating income from the Income Approach was \$67,859 which is a 1.61 percent return. This is considered to be a low return and it is likely that it is not sufficient to attract investors to build a new facility such as the subject.

Based on the size of the land and the current improvements, the subject net income and return are below average. This is due to the older age of the improvements, the limitation on milking head because the subject property does not have a CAFO Permit or Use By Special Review Permit to confine and milk additional cattle, and the limitations on surface irrigation water and ground water to produce more forage and confine more cattle.

Therefore, the construction of a new facility, similar to the subject facility, is not considered to be *feasible* as of the date of this appraisal.

Maximally Productive Use

It has been concluded that the most probable use to which the subject site could be put “as if vacant” would be an irrigated farm and livestock grazing operation with a ranch headquarters. It has been shown that a new dairy facility similar to the subject dairy facility would not be feasible to construct on the site today, if it were vacant.

Therefore, in the final analysis, the highest and best use of the subject site, as if vacant, would be an irrigated farm and livestock grazing operation with a ranch headquarters. It is noted that a new modern and more functional dairy facility with a higher ratio of dairy milking cows and an approved CAFO Permit could increase the return.

Highest and Best Use As Improved

Highest and Best Use As Improved

There are two reasons to analyze the highest and best use of the property as improved. The first is to help identify potentially comparable properties. Each improved property should have the same or a similar highest and best use as the improved subject property, both as though vacant and as improved. The second reason to analyze the highest and best use of the property as improved is to decide which of the following options should be pursued:

- Maintain the improvements as is.
- Cure items of deferred maintenance and retain the improvements.
- Modify the improvements (e.g., renovate, modernize, or convert).
- Demolish the improvements.

In some situations, a property may be subject to restrictions (e.g., historic preservation) that prevent the improvements from being demolished. In this case, the highest and best use is limited by the restriction. The highest and best use conclusion should specify the optimal use (or uses), when the property will be put to this use or achieve stabilized occupancy, and who would be the most likely purchaser or user of the property (e.g., an owner-operator of the property or an equity or debt investor).²⁰

The existing dairy improvements are considered the highest and best use of a property as improved if they continue to contribute to the market value of the property and the return of modified improvements would not offset the cost of remodeling the existing improvements or constructing new improvements.

Physically Possible Uses

The subject property, as improved, is considered characteristic of the typical commercial or organic agricultural business enterprise in the area. Due to the general design and the existing use of the improvements, owner usage of the improvements is considered most applicable. For reasons related to exposure and visibility, as indicated in the analysis of the highest and best use "as if vacant," potential tenants are considered to most likely include those which would rely on good access to major traffic arteries, ground water availability, CAFO permit availability, and location and access to markets.

Based on this analysis as well as the presence of the improvements as described in the Description of Improvements section, the existing improvements on the subject site are considered well suited for a commercial or organic dairy business use.

²⁰ Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 43.

Legally Permissible Uses

The permissible uses of the existing improvements would be similar to those uses outlined within the previous analysis. Based on the presence of the current improvements, the subject property was found to be in conformity with building and use restrictions. The improvements currently conform to the physical characteristics of the area and region, as well.

Financially Feasible Uses

As indicated in the highest and best use section of the site as vacant, it would not be feasible to construct new dairy improvements similar to the existing subject improvements, as of the date of this report.

Based on the *existing use* the improvements produce a positive return and are, therefore, considered financially feasible since the positive return provides a value greater than the land as if vacant. The results of the economic analysis are presented in the income approach section of the report.

Alternate uses are likely to be less feasible than continuing the existing use, since any alternate use would require large capital outlays for physical modifications to the property which could not be recouped through income at current market levels. No alternate, legal use could economically justify the removal of the subject improvements.

Maximally Productive Uses

Of the financially feasible uses, the use that produces the highest price, or value, consistent with the rate of return warranted by the market for that use is the maximally productive use.

The existing use maximizes the value of the property and conforms to use requirements as well as the general make-up of the immediate subject area and region.

Given current market conditions, the underlying land would be improved if not improved with the subject improvements, so the current use clearly maximizes value in this case. The current dairy use is considered that use which maximizes the productivity of the site, as improved.

In conclusion, the subject has a desirable location, an average to good construction quality, fair to average appearance, adequate identification, and easy accessibility. In addition, economic profitability, feasibility, and demand conditions are concluded. These conditions indicate that the property's existing utilization is proper and feasible in Huerfano County, Colorado and the Colorado High Plains Dairy Market today. Therefore, based on the analysis of the subject site and improvements, relative to the definition of highest and best use, the subject property as improved is best suited for use as a commercial or organic dairy facility with associated land.

The Appraisal Process

The Valuation Process

The valuation process is a systematic procedure an appraiser follows to provide answers to a client's questions about real property value. It is a model that can be adapted to a wide variety of questions that relate to value. It can also be used—perhaps with some modification—to answer questions not directly related to value, as in the case of review and consulting assignments.

The valuation process begins when the appraiser enters into an agreement with a client to provide a valuation service. Generally, the terms of the agreement are satisfied when the appraiser delivers the assignment results (opinions and conclusions) that were agreed upon with the client. The objective of most appraisal assignments is to develop an opinion of market value. The valuation process contains all the steps appropriate to this type of assignment. The model also provides the framework for developing an opinion of other defined values.

The valuation process is accomplished through specific steps. The number of steps followed depends on the intended use of the assignment results, the nature of the property, the scope of work deemed appropriate for the assignment, and the availability of data. The model provides a pattern that can be used in any appraisal assignment to perform market research and data analysis, to apply appraisal techniques, and to integrate the results of these activities into an opinion of defined value. In addition to assisting appraisers in their work, models that apply the valuation process are recognized by the market of appraisal users and facilitate their understanding of appraisal conclusions.

Research begins after the appraisal problem has been identified and the scope of work required to solve the problem has been determined. The analysis of data relevant to the problem starts with an investigation of trends observed at the market level—international, national, regional, or neighborhood. This investigation (i.e., the market analysis) helps the appraiser understand the interrelationships among the principles, forces, and factors that affect real property value in the specific market area. Research also provides raw data from which the appraiser can extract quantitative information and other evidence of market trends. Such trends may include positive or negative percentage changes in property value over a number of years, the population movement into an area, and the number of employment opportunities available and their effect on the purchasing power of potential property users.

In assignments to develop an opinion of market value, the ultimate goal of the valuation process is a well-supported value conclusion that reflects all of the pertinent factors that influence the market value of the property being appraised. To achieve this goal, an appraiser studies a property from three different viewpoints, which are referred to as the approaches to value.

1. In the cost approach, value is estimated as the current cost of reproducing or replacing the improvements (including an appropriate entrepreneurial incentive or profit), minus the loss in value from depreciation, plus land value.
2. In the sales comparison approach, value is indicated by recent sales of comparable properties in the market.
3. In the income capitalization approach, value is indicated by a property's earning power, based on the capitalization of income.

Traditionally, specific appraisal techniques are applied within the three approaches to derive indications of real property value. One or more approaches to value may be used depending on which approaches are necessary to produce credible assignment results, given the intended use.

The three approaches are interrelated. Each requires the gathering and analysis of data that pertains to the property being appraised. From the approaches applied, the appraiser develops separate indications of value for the property being appraised. To complete the valuation process, the appraiser integrates the information drawn from market research, data analysis, and the application of the approaches to reach a value conclusion. This conclusion may be presented as a single point estimate of value or, if the assignment permits, as a range within which the value may fall (or as a point referenced from a benchmark). An effective integration of all the elements in the process depends on the appraiser's skill, experience, and judgment.²¹

Application of the Approaches

The valuation process is applied to develop a well-supported opinion of a defined value based on an analysis of pertinent general and specific data. Appraisers develop an opinion of property value with specific appraisal procedures that reflect three distinct methods of data analysis:

- sales comparison approach
- income capitalization approach
- cost approach

One or more of these approaches are used in all estimations of value. The approaches employed depend on the type of property, the intended use of the appraisal, the applicable scope of work, and the quality and quantity of data available for analysis. All three approaches are applicable to many appraisal problems, but one or more of the approaches may have greater significance in a given assignment.

²¹ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Pages 35-37.

For example, the sales comparison approach is usually emphasized in the valuation of single-unit residential properties. However, this approach may not be applicable to specialized properties such as garbage disposal plants because comparable data may not be available. The income capitalization approach is used to value most income-producing properties, but it can be particularly unreliable in the market for commercial or industrial property where owner-occupants outbid investors. The income capitalization approach is not typically applied in valuing homes.

The cost approach may be more applicable to new and special-purpose properties and less applicable in valuing properties with older improvements that suffer substantial depreciation, which can be difficult to estimate. Appraisers should apply all the approaches that are applicable and for which there is data. The alternative value indications derived can either support or refute one another.²²

In this appraisal, all three approaches were necessary to develop a credible opinion of value. Please see the following analysis.

²² The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Pages 44-45.

The Cost Approach to Value

Cost Approach Definition and Use

A set of procedures through which a value indication is derived for the fee simple estate by estimating the current cost to construct a reproduction of (or replacement for) the existing structure, including an entrepreneurial incentive or profit; deducting depreciation from the total cost; and adding the estimated land value. Adjustments may then be made to the indicated fee simple value of the subject property to reflect the value of the property interest being appraised.²³

In the cost approach, appraisers compare the cost of the subject improvements to the cost to develop similar improvements as evidenced by the cost of construction of substitute properties with the same utility as the subject property. The estimate of development cost is adjusted for market-extracted losses in value caused by the age, condition, and utility of the subject improvements or for locational problems. The land value is then added, usually based on comparison with sales of comparable sites. The sum of the value of the land and the improvements is adjusted for the rights included with the subject property again based on market comparisons.²⁴

The cost to construct an improvement on the effective appraisal date may be developed as either the estimated reproduction cost or estimated replacement cost of the improvement. The theoretical base (and classic starting point) for the cost approach is reproduction cost, but replacement cost is more commonly used because it may be easier to obtain and can reduce the complexity of depreciation analysis. An important distinction must be made between the terms:

- Reproduction cost is the estimated cost to construct, as of the effective appraisal date, an exact duplicate or replica of the building being appraised, insofar as possible, using the same materials, construction standards, design, layout, and quality of workmanship, and embodying all the deficiencies, superadequacies, and obsolescence of the subject improvements.
- Replacement cost is the estimated cost to construct, as of the effective appraisal date, a substitute for the building being appraised using contemporary materials, standards, design, and layout. When this cost basis is used, some existing obsolescence in the property may be cured. Replacement cost may be the only alternative if reproduction cost cannot be estimated.²⁵

²³ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 562.

²⁴ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 561.

²⁵ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 569-570.

Appraisers estimate the cost to construct existing structures and site improvements (including direct costs, indirect costs, and an appropriate entrepreneurial incentive or profit) using one of three traditional techniques: • the comparative-unit method, • the unit-in-place method, or • the quantity survey method.

Appraisers then deduct all depreciation in the property improvements from the cost of the new structure as of the effective appraisal date. (Outside the United States, the term *depreciated replacement cost method* is often used to describe the application of the cost approach in this manner.) The amount of depreciation present is estimated using one or more of three fundamental methods: • the market extraction method, • the economic age-life method, or • the breakdown method.

When the value of the land is added to the cost of the improvements less depreciation, the result is the indicated value of the fee simple estate by the cost approach.²⁶

Basic Principle of the Cost Approach

The principle of substitution is basic to the cost approach. This principle affirms that a knowledgeable buyer would pay no more for a property than the cost to acquire a similar site and construct improvements of equivalent desirability and utility without undue delay. In the cost approach, existing properties can be seen as substitutes for the property being appraised, and their value is also measured relative to the value of a new, optimal property. In short, the cost of property improvements on the effective date of the appraisal plus the accompanying land value provides a measure against which prices for similar improved properties may be judged.²⁷

Applicability

The cost approach is most applicable in valuing new or proposed construction when the improvements represent the highest and best use of the land as though vacant and the land value is well supported.²⁸

The cost approach may be used to develop an opinion of market value (or some other type of value the appraisal assignment may require such as use value or fair value) of proposed construction, special-purpose or specialty properties, and other properties that are not frequently exchanged in the market.²⁹

²⁶ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 562-563.

²⁷ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 563-564.

²⁸ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 566.

²⁹ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 566.

Procedure

After gathering all relevant information and analyzing data for the market area, site, and improvements, an appraiser follows a series of steps to derive a value indication by the cost approach. The appraiser will:

1. Estimate the value of the site as though vacant and available to be developed to its highest and best use.
2. Determine which cost basis is most applicable to the assignment: reproduction cost or replacement cost.
3. Estimate the direct (hard) and indirect (soft) costs of the improvements as of the effective appraisal date.
4. Estimate an appropriate entrepreneurial incentive or profit from analysis of the market.
5. Add the estimated direct costs, indirect costs, and entrepreneurial incentive or profit to arrive at the total cost of the improvements.
6. Estimate the amount of depreciation in the improvements and, if necessary, allocate it among the three major categories:
 - physical deterioration
 - functional obsolescence
 - external obsolescence
7. Deduct estimated depreciation from the total cost of the improvements to derive an estimate of their depreciated cost.
8. Estimate the contributory value of any site improvements that have not already been considered. (Site improvements may be appraised at their contributory value—i.e., directly on a depreciated-cost basis— but may be included in the overall cost calculated in Step 3 and depreciated if necessary.)
9. Add land value to the total depreciated cost of all the improvements to develop the market value of the property.
10. Adjust for personal property (e.g., furniture, fixtures, and equipment) or intangible assets that are included in the appraisal.
11. Adjust the value conclusion, which reflects the value of the fee simple estate, for the property interest being appraised to arrive at the indicated value of the specified interest in the property.³⁰

The indication of value by the cost approach for the subject follows in this section of the report.

³⁰ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Pages 568-569.

Land Value Analysis

Sales comparison may be used to value land that is actually vacant or land that is being considered as though vacant for appraisal purposes. Sales comparison is the most common technique for valuing land, and it is the preferred method when comparable sales are available. To apply this method, data on sales of similar parcels of land is collected, analyzed, compared, and adjusted to provide a value indication for the site being appraised. In the comparison process, the similarity or dissimilarity of the parcels is considered.³¹

Appraisers perform several tasks in developing an opinion of site value:

- Gather data on actual sales as well as listings, offers, and options based on highest and best use.
- Identify the similarities and differences in the data.
- Identify the highest and best use and other characteristics of each potential comparable sale and then choose the appropriate sales for analysis.
- Identify units of comparison that explain market behavior.
- Adjust the appropriate unit prices of the comparable sales to account for the dissimilar characteristics of the site being appraised.
- Form a conclusion as to the market value of the subject site.

The objective of sales comparison is to select the most comparable sales and then adjust the comparable sales for differences that cannot be eliminated within the selection process. Elements of comparison may include property rights, financing terms, conditions of sale (motivation), expenditures immediately after purchase, market conditions (changes over time), location, physical characteristics, available utilities, and zoning. The physical characteristics of a parcel of land include, but are not limited to, its size, shape, frontage, topography, soil conditions, location, and view. Unit prices may be expressed as price per square foot, front foot, acre, lot, dwelling unit, floor area ratio (FAR), or other unit used in the market.³²

A thorough search was made to locate recent land sales which were considered similar to the subject in use. Five land sales were used in the adjustment analysis. Additional sales were used for allocation purposes.

In forming an opinion of the land value for the subject site, these land sales were utilized in direct comparison to the subject. The market data utilized for the basis of this report is considered the best available and indicative of current market trends in the immediate subject neighborhood. The value of the component land types are typically extracted from unimproved “puritan” sales to accurately reflect the value contribution of each component land type.

³¹ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Pages 364.

³² The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Pages 366.

Class 1 irrigated cropland was estimated to be the most desired land type in the subject market. This type of land sells for the highest value, therefore, it is rated at 100 percent. Class 2-3 irrigated cropland has inferior water delivery volumes to Class 1 irrigated. Class 2-3 irrigated land was estimated to sell for 75 percent of Class 1 irrigated cropland. Dryland cropland, dryland cropland corners, dryland corners, and CRP land was analyzed in the subject area and it consistently sold for approximately 30 percent of Class 1 irrigated cropland sales. Native and improved pasture was analyzed in the subject market area and it usually sells for approximately 25 percent of Class 1 irrigated cropland. Building sites were estimated to sell for 100 percent of Class 1 irrigated land. Roads and waste were estimated at 10 percent.

The subject land is certified organic. There have been no known organic certified irrigated land or pasture land sales in the subject market area. The primary factors for purchasing irrigated land in the subject area are for the water rights and irrigation potential. The sales that are used in the following analysis are considered to be the best sales available to compare to the subject land as of the date of the appraisal.

The subject and the sales will be analyzed with the following land mix ratios.

Land Ratios - Subject Area	
Class 1 Irrigated Land	100%
Class 2-3 Irrigated Land	75%
CRP	30%
Dryland Cropland	30%
Native and Improved Pasture	25%
Farmstead	100%
Roads and Waste	10%

The subject farm is 1,018.78 plus or minus acres. As is, the subject site is approximately 228.9 acres of Class 2 irrigated land, 156.3 acres of Class 3 irrigated land, 558.58 acres of native and improved pasture, 65.0 acres of dairy building sites and farmstead sites, and 10.0 acres of roads and waste.

If the subject site was vacant, it would be approximately 228.9 acres of Class 2 irrigated land, 156.3 acres of Class 3 irrigated land, 623.58 acres of native and improved pasture, and 10.0 acres of roads and waste.

Subject Land Mix			
Subject Land - As Is		Subject Land - As if Vacant	
Land Type	Acres	Land Type	Acres
Irrigated Cropland 1	0.00	Irrigated Cropland 1	0.00
Irrigated Cropland 2-3	385.20	Irrigated Cropland 2-3	385.20
CRP	0.00	CRP	0.00
Dryland Cropland	0.00	Dryland Cropland	0.00
Native / Improved Pasture	558.58	Native / Improved Pasture	623.58
Dwelling, Dairy, Building Sites	65.00	Dwelling, Dairy, Building Sites	0.00
Roads and Waste	10.00	Roads and Waste	10.00
Total	1,018.78	Total	1,018.78

For this analysis, the subject site will be valued as if vacant.

The water wells, underground piping and utility lines, pumps, gearheads, motors, and pivot pads are considered to be a component of the land value. The contributory value of the sprinklers and structural improvements will be added in the cost analysis section. The analysis and comparison of the market information utilized follows in this section of the report.

FARM SALE NO. 1		
TRANSACTION DATA		
Property	Land Sale With Water Rights	
Location	The property is located 33.0 miles southeast of Walsenburg, 12.0 miles northeast of Trinidad, and 1.0 mile north of US-350, in Las Animas County, Colorado.	
Legal Description	The subject property is legally described as being: 229.18 acres of land out of Section 33, T31S, R62W, and Section 4, T32S, R62W, 6 th P.M., Las Animas County, Colorado.	
Grantor	Cottonwood Acres	
Grantee	Veltri Land and Cattle, LLC	
Recording / Sale Information	Book 1102, Page 924, Reception No. 715494	
Terms	Cash to Seller	
Sale Date	March 20, 2012 Closed	
Sale Price	\$343,000	
Other Contribution	\$0	
Net Sale Price	\$343,000	
Size / Acres	229.18 Acres	
Sale Price / Acre	\$1,497	
Structural Improvements	The sale included a 1925 dwelling with a first floor living area of 2,132 square feet and a basement area of 1,040 square feet. The contributory value was estimated at \$60,000 or \$262 per acre. No other structural improvements were located on the property with contributory value.	
Irrigation Improvements	None with contributory value.	
LAND BREAKDOWN		
Site Breakdown / Land Acres	Irrigated Cropland Class 1	0.00
	Irrigated Cropland Class 2-3	60.00
	CRP	0.00
	Dryland Cropland	0.00
	Pasture	167.18
	Farmstead	2.00
	Roads / Waste	0.00
	Total Acres	229.18
COMMENTS		
The topography ranges from nearly level to gently rolling with elevations ranging from 5,700 to 5,800 feet.		

Sale 1 - Water Rights				
Surface Water Rights				
The seller conveyed one (1) foot of water in the Hoehne Ditch represented by 1,872 shares of Capital Stock of the Hoehne Ditch Company and one (1) water tap represented by Membership Certificate 431-074 in the Moro-Hoehne Pipeline Association.				
Overall, the property is considered to have a Class 2-3 water right.				

FARM SALE NO. 1 CONTINUED RATIO ANALYSIS					
Land Use	Sale Acres		Land Ratio		Adjusted Acres
Irrigated Land Class 1	0.00	x	100%	=	0.00
Irrigated Land Class 2-3	60.00	x	75%	=	45.00
CRP	0.00	x	30%	=	0.00
Dry Crop	0.00	x	30%	=	0.00
Pasture	167.18	x	25%	=	41.80
Farmstead	2.00	x	100%	=	2.00
Roads / Waste	0.00	x	10%	=	0.00
					88.80
Total Sale Price Including Imp.	Land Sale Price Excluding Imp.		Adjusted Acreage		Land Price Per Acre 100 Percent
\$343,000	\$283,000	/	88.80	=	\$3,187
	Land Price Per Acre 100 Percent		Land Ratio		Adjusted Land Prices
Irrigated Land Class 1	\$3,187	x	100%	=	\$3,187
Irrigated Land Class 2-3	\$3,187	x	75%	=	\$2,390
CRP	\$3,187	x	30%	=	\$956
Dry Crop	\$3,187	x	30%	=	\$956
Pasture	\$3,187	x	25%	=	\$797
Farmstead	\$3,187	x	100%	=	\$3,187
Roads / Waste	\$3,187	x	10%	=	\$319

Land and Improvement Adjustments - Sale 1											
Sale 1	Sale Acres		Un-improved Sale Cont. Value		Total	Subject	Subject Acres		Un-improved Sale Cont. Value		Total
Irrig. Land 1	0.00	x	\$3,187	Acre	\$0	Irrig. Land 1	0.00	x	\$3,187	Acre	\$0
Irrig. Land 2-3	60.00	x	\$2,390	Acre	\$143,400	Irrig. Land 2-3	385.20	x	\$2,390	Acre	\$920,628
CRP	0.00	x	\$956	Acre	\$0	CRP	0.00	x	\$956	Acre	\$0
Dry Crop	0.00	x	\$956	Acre	\$0	Dry Crop	0.00	x	\$956	Acre	\$0
Pasture	167.18	x	\$797	Acre	\$133,242	Pasture	623.58	x	\$797	Acre	\$496,993
Farmstead	2.00	x	\$3,187	Acre	\$6,374	Farmstead	0.00	x	\$3,187	Acre	\$0
Roads / Waste	0.00	x	\$319	Acre	\$0	Roads / Waste	10.00	x	\$319	Acre	\$3,190
Total	229.18				\$283,016	Total	1,018.78				\$1,420,811
Price / Acre					\$1,235	Price / Acre					\$1,395

Land and Improvement Adjustments Sale 1	
Subject Land Value Per Acre	\$1,395
Sale 1 Land Value Per Acre	\$1,235
Adjustment	\$160
Subject Structural Improvement Value Per Acre	\$0
Sale 1 Structural Improvement Value Per Acre	\$262
Adjustment	(\$262)
Subject Sprinkler System Value Per Acre	\$0
Sale 1 Sprinkler System Value Per Acre	\$0
Adjustment	\$0

FARM SALE NO. 2		
TRANSACTION DATA		
Property	Land Sale With Water Rights	
Location	The property is located approximately 12.5 miles northwest of LaVeta along CR 530, in Huerfano County, Colorado.	
Legal Description	The subject property is legally described as being: 200.45 acres Yellowstone Parcel, 120.0 acres Bandito Parcel, Townships 27 and 28 and Ranges 68 and 69, Huerfano County, Colorado.	
Grantor	Andreatta Estate, Frank McCormick	
Grantee	Rocky Ridge West LLC	
Recording / Sale Information	Reception Number 399043	
Terms	Cash to Seller	
Sale Date	November 15, 2013 Closed	
Sale Price	\$485,805	
Other Contribution	\$0	
Net Sale Price	\$485,805	
Size / Acres	320.45 Acres	
Sale Price / Acre	\$1,516	
Structural Improvements	The sale included an old adobe dwelling in poor condition, sheds, and corrals. The improvements were not considered to have contributory value.	
Irrigation Improvements	No sprinklers. The property had 2 domestic wells, irrigation rights out of Yellowstone Creek including storage rights in the Yellowstone Reservoir for 2,677.0 cubic feet, irrigation rights with 4-5/12 ownership in Piedras Ditch Priority 82 with 4.5 days water out of a 12 day rotation.	
LAND BREAKDOWN		
Site Breakdown / Land Acres	Irrigated Cropland Class 1	0.00
	Irrigated Cropland Class 2-3	200.45
	CRP	0.00
	Dryland Cropland	0.00
	Pasture	118.00
	Farmstead	2.00
	Roads / Waste	0.00
	Total Acres	320.45
COMMENTS		
The property has hunting potential and was purchased by adjacent land owner. The hay meadows were in good condition at the time of sale. The Bandito Parcel is non-contiguous to the Yellowstone Parcel. The Bandito Parcel has no water source. The buyer had to purchase both properties to obtain the Yellowstone Irrigated Parcel.		

FARM SALE NO. 2 CONTINUED RATIO ANALYSIS					
Land Use	Sale Acres		Land Ratio		Adjusted Acres
Irrigated Land Class 1	0.00	x	100%	=	0.00
Irrigated Land Class 2-3	200.45	x	75%	=	150.34
CRP	0.00	x	30%	=	0.00
Dry Crop	0.00	x	30%	=	0.00
Pasture	118.00	x	25%	=	29.50
Farmstead	2.00	x	100%	=	2.00
Roads / Waste	0.00	x	10%	=	0.00
					181.84
Total Sale Price Including Imp.	Land Sale Price Excluding Imp.		Adjusted Acreage		Land Price Per Acre 100 Percent
\$485,805	\$485,805	/	181.84	=	\$2,672
	Land Price Per Acre 100 Percent		Land Ratio		Adjusted Land Prices
Irrigated Land Class 1	\$2,672	x	100%	=	\$2,672
Irrigated Land Class 2-3	\$2,672	x	75%	=	\$2,004
CRP	\$2,672	x	30%	=	\$801
Dry Crop	\$2,672	x	30%	=	\$801
Pasture	\$2,672	x	25%	=	\$668
Farmstead	\$2,672	x	100%	=	\$2,672
Roads / Waste	\$2,672	x	10%	=	\$267

Land and Improvement Adjustments - Sale 2											
Sale 2	Sale Acres		Un-improved Sale Cont. Value		Total	Subject	Subject Acres		Un-improved Sale Cont. Value		Total
Irrig. Land 1	0.00	x	\$2,672	Acre	\$0	Irrig. Land 1	0.00	x	\$2,672	Acre	\$0
Irrig. Land 2-3	200.45	x	\$2,004	Acre	\$401,702	Irrig. Land 2-3	385.20	x	\$2,004	Acre	\$771,941
CRP	0.00	x	\$801	Acre	\$0	CRP	0.00	x	\$801	Acre	\$0
Dry Crop	0.00	x	\$801	Acre	\$0	Dry Crop	0.00	x	\$801	Acre	\$0
Pasture	118.00	x	\$668	Acre	\$78,824	Pasture	623.58	x	\$668	Acre	\$416,551
Farmstead	2.00	x	\$2,672	Acre	\$5,344	Farmstead	0.00	x	\$2,672	Acre	\$0
Roads / Waste	0.00	x	\$267	Acre	\$0	Roads / Waste	10.00	x	\$267	Acre	\$2,670
Total	320.45				\$485,870	Total	1,018.78				\$1,191,162
Price / Acre					\$1,516	Price / Acre					\$1,169

Land and Improvement Adjustments Sale 2	
Subject Land Value Per Acre	\$1,169
Sale 2 Land Value Per Acre	\$1,516
Adjustment	(\$347)
Subject Structural Improvement Value Per Acre	\$0
Sale 2 Structural Improvement Value Per Acre	\$0
Adjustment	\$0
Subject Sprinkler System Value Per Acre	\$0
Sale 2 Sprinkler System Value Per Acre	\$0
Adjustment	\$0

FARM SALE NO. 3		
TRANSACTION DATA		
Property	Land Sale With Water Rights	
Location	The property is located approximately 11.5 miles northwest of Walsenburg, 5.0 miles west of IH-25, and 2.75 miles north of SH-69, along CR 611.1, in Huerfano County, Colorado.	
Legal Description	The subject property is legally described as being: 997 acres of land out of Sections 29, 30, 31 and 32, T26S, R67W, Huerfano County, Colorado.	
Grantor	Camp Trust	
Grantee	Huerfano County Water Conservancy District (HCWCD)	
Recording / Sale Information	Reception Number 399609	
Terms	Cash to Seller	
Sale Date	January 13, 2014 Closed	
Sale Price	\$1,775,000	
Other Contribution	\$0	
Net Sale Price	\$1,775,000	
Size / Acres	997.0 Acres	
Sale Price / Acre	\$1,780	
Structural Improvements	The sale included two (2) older homes, barns, a shop, sheds, and corrals. The improvements were in poor condition and not considered to have contributory value.	
Irrigation Improvements	No sprinklers. All flood irrigated. The surface water rights included a 6/7 interest in William Craig Ditch 2.4 cfs Priority Number 7 and Priority Number 52, and the Jose Maria Ditch 1/3 interest at 0.24 cfs.	
LAND BREAKDOWN		
Site Breakdown / Land Acres	Irrigated Cropland Class 1	95.00
	Irrigated Cropland Class 2-3	0.00
	CRP	0.00
	Dryland Cropland	0.00
	Pasture	897.00
	Farmstead	5.00
	Roads / Waste	0.00
	Total Acres	997.00
COMMENTS		
The property was purchased by a newly formed water conservancy district. The district leases and sells water for augmentation and other purposes. The pasture was over grazed, but the cropland was in fair condition at the time of sale. The seller conveyed interest in an existing gravel lease to the buyer. If the water rights were separated from the land, their market value would be between \$5,000 and \$6,000 per acre-foot. According to the selling broker, the buyer paid above market to obtain the property for its water rights.		

FARM SALE NO. 3 CONTINUED			
Standard Order of Adjustments Prior to Land Ratio Analysis and Physical Adjustments			
	Total Sale Price	Total Acres	Sale Price Per Acre
Sale Price	\$1,775,000	997.000	\$1,780
Property Rights Adjustment	(\$177,500)	997.000	(\$178)
Adjusted Sale Price	\$1,597,500	997.000	\$1,602
Financing Adjustment	\$0	997.000	\$0
Adjusted Sale Price	\$1,597,500	997.000	\$1,602
Conditions of Sale Adjustment	(\$399,375)	997.000	(\$401)
Adjusted Sale Price	\$1,198,125	997.000	\$1,202
Market Conditions Adjustment	\$0	997.000	\$0
Adjusted Sale Price	\$1,198,125	997.000	\$1,202
Adjusted Price Used in Following Land Ratio Analysis	\$1,198,125	997.000	\$1,202
Less Building Contribution	\$0	997.000	\$0
Less Sprinkler Contribution	\$0	997.000	\$0
Adjusted Unimproved Land Value Used in Following Land Ratio Analysis	\$1,198,125	997.000	\$1,202
The Land Ratio Analysis Follows. The Physical Adjustments will be applied in the Sales Comparison Approach Adjustment Chart.			

FARM SALE NO. 3 CONTINUED RATIO ANALYSIS					
Land Use	Sale Acres		Land Ratio		Adjusted Acres
Irrigated Land Class 1	95.00	x	100%	=	95.00
Irrigated Land Class 2-3	0.00	x	75%	=	0.00
CRP	0.00	x	30%	=	0.00
Dry Crop	0.00	x	30%	=	0.00
Pasture	897.00	x	25%	=	224.25
Farmstead	5.00	x	100%	=	5.00
Roads / Waste	0.00	x	10%	=	0.00
					324.25
Total Sale Price Including Imp.	Land Sale Price Excluding Imp.		Adjusted Acreage		Land Price Per Acre 100 Percent
\$1,775,000	\$1,198,125	/	324.25	=	\$3,695
	Land Price Per Acre 100 Percent		Land Ratio		Adjusted Land Prices
Irrigated Land Class 1	\$3,695	x	100%	=	\$3,695
Irrigated Land Class 2-3	\$3,695	x	75%	=	\$2,771
CRP	\$3,695	x	30%	=	\$1,109
Dry Crop	\$3,695	x	30%	=	\$1,109
Pasture	\$3,695	x	25%	=	\$924
Farmstead	\$3,695	x	100%	=	\$3,695
Roads / Waste	\$3,695	x	10%	=	\$370

Land and Improvement Adjustments - Sale 3											
Sale 3	Sale Acres		Un-improved Sale Cont. Value		Total	Subject	Subject Acres		Un-improved Sale Cont. Value		Total
Irrig. Land 1	95.00	x	\$3,695	Acre	\$351,025	Irrig. Land 1	0.00	x	\$3,695	Acre	\$0
Irrig. Land 2-3	0.00	x	\$2,771	Acre	\$0	Irrig. Land 2-3	385.20	x	\$2,771	Acre	\$1,067,389
CRP	0.00	x	\$1,109	Acre	\$0	CRP	0.00	x	\$1,109	Acre	\$0
Dry Crop	0.00	x	\$1,109	Acre	\$0	Dry Crop	0.00	x	\$1,109	Acre	\$0
Pasture	897.00	x	\$924	Acre	\$828,828	Pasture	623.58	x	\$924	Acre	\$576,188
Farmstead	5.00	x	\$3,695	Acre	\$18,475	Farmstead	0.00	x	\$3,695	Acre	\$0
Roads / Waste	0.00	x	\$370	Acre	\$0	Roads / Waste	10.00	x	\$370	Acre	\$3,700
Total	997.00				\$1,198,328	Total	1,018.78				\$1,647,277
Price / Acre					\$1,202	Price / Acre					\$1,617

Land and Improvement Adjustments Sale 3	
Subject Land Value Per Acre	\$1,617
Sale 3 Land Value Per Acre	\$1,202
Adjustment	\$415
Subject Structural Improvement Value Per Acre	\$0
Sale 3 Structural Improvement Value Per Acre	\$0
Adjustment	\$0
Subject Sprinkler System Value Per Acre	\$0
Sale 3 Sprinkler System Value Per Acre	\$0
Adjustment	\$0

FARM SALE NO. 4		
TRANSACTION DATA		
Property	Land Sale With Water Rights	
Location	The property is located approximately 27.0 miles northwest of Walsenburg and 5.0 miles west of Gardner and SH-69, along CR 550, in Huerfano County, Colorado.	
Legal Description	The subject property is legally described as being: 235.0 acres of land out of Sections 29 and 30, T26S, R70W, Huerfano County, Colorado.	
Grantor	Edna Marie Biernacki Trust	
Grantee	Joe Cardinal	
Recording / Sale Information	Reception Number 403724	
Terms	Cash to Seller	
Sale Date	July 28, 2015 Closed	
Sale Price	\$376,000	
Other Contribution	\$0	
Net Sale Price	\$376,000	
Size / Acres	235.0 Acres	
Sale Price / Acre	\$1,600	
Structural Improvements	The sale included one (1) older 2-1.0 adobe home, barn, sheds, and corrals. The improvements were not considered to have contributory value.	
Irrigation Improvements	No sprinklers. All flood irrigated. The surface water rights included an undivided 1/9 interest in Upper Huerfano Ditch Number 2 and 6 cfs adjudicated under Priorities 29 and 33, Reed Decree; and a full interest in the Raymond Irrigation System; and one (1) domestic water well.	
LAND BREAKDOWN		
Site Breakdown / Land Acres	Irrigated Cropland Class 1	0.00
	Irrigated Cropland Class 2-3	140.00
	CRP	0.00
	Dryland Cropland	0.00
	Pasture	92.00
	Farmstead	3.00
	Roads / Waste	0.00
	Total Acres	235.00
COMMENTS		
The property is located in the Upper Huerfano River Valley and it has scenic views of the surrounding mountains and valleys. The tract has irrigated and sub irrigated meadows for year-round grazing. The property is fenced and cross fenced with good access to CR 550. The owner has historically grazed 50 cows with calves on the property.		

FARM SALE NO. 4 CONTINUED RATIO ANALYSIS					
Land Use	Sale Acres		Land Ratio		Adjusted Acres
Irrigated Land Class 1	0.00	x	100%	=	0.00
Irrigated Land Class 2-3	140.00	x	75%	=	105.00
CRP	0.00	x	30%	=	0.00
Dry Crop	0.00	x	30%	=	0.00
Pasture	92.00	x	25%	=	23.00
Farmstead	3.00	x	100%	=	3.00
Roads / Waste	0.00	x	10%	=	0.00
					131.00
Total Sale Price Including Imp.	Land Sale Price Excluding Imp.		Adjusted Acreage		Land Price Per Acre 100 Percent
\$376,000	\$376,000	/	131.00	=	\$2,870
	Land Price Per Acre 100 Percent		Land Ratio		Adjusted Land Prices
Irrigated Land Class 1	\$2,870	x	100%	=	\$2,870
Irrigated Land Class 2-3	\$2,870	x	75%	=	\$2,153
CRP	\$2,870	x	30%	=	\$861
Dry Crop	\$2,870	x	30%	=	\$861
Pasture	\$2,870	x	25%	=	\$718
Farmstead	\$2,870	x	100%	=	\$2,870
Roads / Waste	\$2,870	x	10%	=	\$287

Land and Improvement Adjustments - Sale 4											
Sale 4	Sale Acres		Un-improved Sale Cont. Value		Total	Subject	Subject Acres		Un-improved Sale Cont. Value		Total
Irrig. Land 1	0.00	x	\$2,870	Acre	\$0	Irrig. Land 1	0.00	x	\$2,870	Acre	\$0
Irrig. Land 2-3	140.00	x	\$2,153	Acre	\$301,420	Irrig. Land 2-3	385.20	x	\$2,153	Acre	\$829,336
CRP	0.00	x	\$861	Acre	\$0	CRP	0.00	x	\$861	Acre	\$0
Dry Crop	0.00	x	\$861	Acre	\$0	Dry Crop	0.00	x	\$861	Acre	\$0
Pasture	92.00	x	\$718	Acre	\$66,056	Pasture	623.58	x	\$718	Acre	\$447,730
Farmstead	3.00	x	\$2,870	Acre	\$8,610	Farmstead	0.00	x	\$2,870	Acre	\$0
Roads / Waste	0.00	x	\$287	Acre	\$0	Roads / Waste	10.00	x	\$287	Acre	\$2,870
Total	235.00				\$376,086	Total	1,018.78				\$1,279,936
Price / Acre					\$1,600	Price / Acre					\$1,256

Land and Improvement Adjustments Sale 4	
Subject Land Value Per Acre	\$1,256
Sale 4 Land Value Per Acre	\$1,600
Adjustment	(\$344)
Subject Structural Improvement Value Per Acre	\$0
Sale 4 Structural Improvement Value Per Acre	\$0
Adjustment	\$0
Subject Sprinkler System Value Per Acre	\$0
Sale 4 Sprinkler System Value Per Acre	\$0
Adjustment	\$0

FARM SALE NO. 5		
TRANSACTION DATA		
Property	Land Sale With Water Rights	
Location	The property is located approximately 29.0 miles northwest of Walsenburg and 8.0 miles southwest of Gardner and SH-69, on the west side of the Town of Red Wing with frontage along CR 570 and CR 580, in Huerfano County, Colorado.	
Legal Description	The subject property is legally described as being: 176.75 acres of land out of Section 2, T27S, R71W, Huerfano County, Colorado.	
Grantor	Leslie F. Willburn	
Grantee	Dennis R. Nazelrod and Jana L. Sinclair	
Recording / Sale Information	Reception Number 403851	
Terms	Cash to Seller	
Sale Date	August 20, 2015 Closed	
Sale Price	\$750,000	
Other Contribution	\$0	
Net Sale Price	\$750,000	
Size / Acres	176.75 Acres	
Sale Price / Acre	\$4,243	
Structural Improvements	The sale included one (1) 1.5 story 2,452 square foot 4-1.5 dwelling remodeled in 1981; one (1) 2-car detached garage; one (1) machine shed; one (1) livestock barn; and pipe corrals. The improvements were estimated to have a contributory value of \$75,000 or \$424 per acre.	
Irrigation Improvements	No sprinklers. All flood irrigated. The surface water rights included Manzanaras Ditch Number 1, Priority Number 26, 6 shares out of 20, Riley Ditch Number 237, Priority Number 310 and Riley Drainage Ditch. All taking water from the Huerfano River in Water District Number 16 and Those Rights in the Slough Ditch for Gerren Lake 1 and Gerren Lake 2 as filed in Water Case Number 2 CW 59 and Montez Ditch Number 72 Priority 92 and ½ Share in Priority 26. The site is also improved with one (1) domestic water well Permit 249449 and three (3) other wells that are not used.	
LAND BREAKDOWN		
Site Breakdown / Land Acres	Irrigated Cropland Class 1	100.00
	Irrigated Cropland Class 2-3	0.00
	CRP	0.00
	Dryland Cropland	0.00
	Pasture	73.75
	Farmstead	3.00
	Roads / Waste	0.00
	Total Acres	176.75
COMMENTS		

The property is located in the Upper Huerfano River Valley. The property has a gentle slope hay meadow and Huerfano River Bottom Land. Vegetation includes native grasses, shrubs and forbes, cottonwood trees, and an apple orchard. The elevation is around 7,700 feet. The property has a seasonal residence and is used for hay production and livestock grazing. The annual property taxes are \$568.36. According to the selling broker, the property highest best use is for recreation and hunting.

FARM SALE NO. 5 CONTINUED RATIO ANALYSIS					
Land Use	Sale Acres		Land Ratio		Adjusted Acres
Irrigated Land Class 1	100.00	x	100%	=	100.00
Irrigated Land Class 2-3	0.00	x	75%	=	0.00
CRP	0.00	x	30%	=	0.00
Dry Crop	0.00	x	30%	=	0.00
Pasture	73.75	x	25%	=	18.44
Farmstead	3.00	x	100%	=	3.00
Roads / Waste	0.00	x	10%	=	0.00
					121.44
Total Sale Price Including Imp.	Land Sale Price Excluding Imp.		Adjusted Acreage		Land Price Per Acre 100 Percent
\$750,000	\$675,000	/	121.44	=	\$5,558
	Land Price Per Acre 100 Percent		Land Ratio		Adjusted Land Prices
Irrigated Land Class 1	\$5,558	x	100%	=	\$5,558
Irrigated Land Class 2-3	\$5,558	x	75%	=	\$4,169
CRP	\$5,558	x	30%	=	\$1,668
Dry Crop	\$5,558	x	30%	=	\$1,668
Pasture	\$5,558	x	25%	=	\$1,390
Farmstead	\$5,558	x	100%	=	\$5,558
Roads / Waste	\$5,558	x	10%	=	\$556

Land and Improvement Adjustments - Sale 5											
Sale 5	Sale Acres		Un-improved Sale Cont. Value		Total	Subject	Subject Acres		Un-improved Sale Cont. Value		Total
Irrig. Land 1	100.00	x	\$5,558	Acre	\$555,800	Irrig. Land 1	0.00	x	\$5,558	Acre	\$0
Irrig. Land 2-3	0.00	x	\$4,169	Acre	\$0	Irrig. Land 2-3	385.20	x	\$4,169	Acre	\$1,605,899
CRP	0.00	x	\$1,668	Acre	\$0	CRP	0.00	x	\$1,668	Acre	\$0
Dry Crop	0.00	x	\$1,668	Acre	\$0	Dry Crop	0.00	x	\$1,668	Acre	\$0
Pasture	73.75	x	\$1,390	Acre	\$102,513	Pasture	623.58	x	\$1,390	Acre	\$866,776
Farmstead	3.00	x	\$5,558	Acre	\$16,674	Farmstead	0.00	x	\$5,558	Acre	\$0
Roads / Waste	0.00	x	\$556	Acre	\$0	Roads / Waste	10.00	x	\$556	Acre	\$5,560
Total	176.75				\$674,987	Total	1,018.78				\$2,478,235
Price / Acre					\$3,819	Price / Acre					\$2,433

Land and Improvement Adjustments Sale 5	
Subject Land Value Per Acre	\$2,433
Sale 5 Land Value Per Acre	\$3,819
Adjustment	(\$1,386)
Subject Structural Improvement Value Per Acre	\$0
Sale 5 Structural Improvement Value Per Acre	\$424
Adjustment	(\$424)
Subject Sprinkler System Value Per Acre	\$0
Sale 5 Sprinkler System Value Per Acre	\$0
Adjustment	\$0

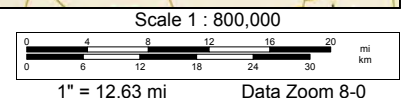
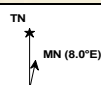
Land Sale Map



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Summary of Improved Comparable Sales

An extensive market data investigation was conducted, including a thorough search of Huerfano County and surrounding counties. The County Deed Records were searched, local real estate brokers, investors and mortgage lenders were contacted. All sales data was reviewed and the most recent and relevant sales were investigated. The basic criteria in searching for comparable sales were the date of sale, location, size, irrigation water, and existing use.

Several sales of agricultural land properties were identified within the area and the data obtained from these sales were considered to be accurate and reliable. Five sales were chosen for comparison with the subject, because of their location, size and overall similarity to the subject property. Each sale was analyzed to provide an indicated value for the property appraised.

The sales used for comparison were located in Huerfano and Las Animas Counties near the subject property. The sales range in size from 176.75 to 997.0 acres. The market data included in this analysis, although somewhat diverse, is considered to be the best available in today's market and to be indicative of current market trends.

Agricultural farm and ranch properties are purchased by both owner-users who are also acting as investors. The typical user occupies the property for the purpose of conducting his or her business and the typical investor acquires the property for the production of income. The user analyzes the property based on its cost relative to other available properties (e.g., price per acre) and the investor analyzes the property based on its ability to produce income. The subject site "as if vacant" would be a mix of irrigated land and native and improved pasture. Irrigated land and ranch properties with water rights are primarily occupied by the owner-operator. In this analysis, the price per acre was considered to be the primary unit of comparison used to form an opinion of the value.

Units of Comparison

The value of the subject is calculated the price per unit (acre) method. An indication of value is provided through this approach for the property appraised, based on the attitudes and actions of typical buyers and sellers in the market. These attitudes and actions are reflected through current transactions of similar type properties. Use of this approach involves gathering market data of similar properties and verifying that the data obtained is accurate. Sufficient information was available on the comparable sales to derive a reasonable opinion of the subject's value.

Elements of Comparison

Elements of comparison generally used to estimate the value of agricultural irrigated land are numerous. The elements considered are 1) property rights conveyed and mineral interest, 2) financing, 3) conditions of sale, 4) market conditions, 5) land mix and land quality including water rights, 6) building improvements, 7) sprinkler irrigation improvements, 8) location, 9) access, 10) terrain, and 11) size.

Real Property Rights Conveyed and Mineral Interest

All of the comparable properties sold herein were based on fee interest of surface estate transactions, thus, no adjustment for this factor was indicated.

The subject is appraised as fee interest in the surface estate. Sales 1-2 and 4-5 sold either on a surface basis only or with mineral interest with little to no contributory value, therefore, no adjustments were required. Sale 3 required a negative adjustment for additional interest in a gravel mining lease.

Financing Terms

Financing terms are significant, since cash or financing often influences the consideration paid for a particular property. The transaction price of one property may differ from that of an identical property due to different financing arrangements. All of the sales were cash transactions or terms that were equivalent to cash. Therefore, no adjustments were required.

Conditions of Sale

Adjustments for conditions of sale typically reflect the motivations of the buyer and the seller. For example, a buyer may pay more than market value for a property located adjacent to one already owned for assemblage purposes or additional parking because of acting under duress. Conversely, a sale may be transacted at below market value because the seller needs cash in a hurry. A financial, business, or family relationship between the parties may also affect the price of the property. When non-market conditions of sale are detected in a transaction, the sale must be adjusted accordingly.

Sales 1-2 and 4-5 were considered to be arm's length transactions and no undue duress or non-typical motives were noted, thus, no adjustments were required. Sale 3 was purchased above market by a water conservation district to obtain the water rights. This sale required a negative adjustment for buyer motivation.

Market Conditions

Each of the previous sales have been given consideration for the market conditions between the date of sale and the effective date of this appraisal. The comparable sales occurred between March 2012 and August 2015. Due to the respective transaction dates displayed by the available market data, an adjustment for market conditions was not indicated. The rural land market appears to have been stable from January 2012 through August 2015 and through the date of the appraisal, thus, no adjustments were required.

Land Quality

This adjustment takes into consideration the overall land mix and quality of the subject property verses the comparable sales. Some of the factors that are considered are land productivity, irrigation water, and percentages of land types such as, irrigated land, dryland cropland or dry corners, pasture, farmsteads, and roads and waste. The sales were allocated into five major classes plus building sites and roads and waste. These included irrigated cropland Class 1, irrigated cropland Class 2-3, dryland cropland or dryland corners, CRP, pasture, and farmstead.

The contribution of each land class from the sales is applied to the subject land mix. Each sale is then compared to the subject property and adjusted for the excess or deficiency of each land class. The sales that are used for comparison are considered to be the best available in the market area. Sales 1 and 3 are inferior to the subject requiring positive adjustments. Sales 2, 4 and 5 are superior to the subject property, therefore, negative adjustments were required.

Building Structural Improvements and Other Significant Improvements

This adjustment takes into consideration the contributory value of structural and other improvements. The subject property is improved with dairy related structures and dwellings. The subject is assumed to be vacant for this analysis. The structural improvements will be added back in the Cost Analysis Section.

Sales 1 and 5 included structural improvements with contributory value. These sales are superior to the subject, therefore, negative adjustments were required. Sales 2, 3 and 4 are similar to the subject, therefore, no adjustments were required.

Sprinkler Irrigation Improvements

This adjustment takes into consideration the contributory value of on-site sprinkler irrigation systems. The subject property is assumed to be vacant for this analysis. The sprinklers will be added back in the Cost Analysis Section.

All of the sales are similar to the subject, therefore, no adjustments were required.

Location

This adjustment reflects the relative differences in desirability of the physical location, surrounding land uses, traffic exposure and accessibility noted between the comparable sales and the subject site.

The subject property is located in Rural Huerfano County, Colorado, just east of Interstate Highway 25 and the City of Walsenburg in a predominantly farming and ranching area. All of the land sales are located in similar rural farming and ranching areas of Huerfano County as the subject, therefore, no adjustments were required. Other adjustments were considered under terrain. The subject has frontage and public access along Colorado State Highway 10. All of the sales have frontage and access along a public road, therefore, no adjustments were required.

Terrain

The soils and terrain of an individual agricultural property are a significant determining factor in estimating the overall productivity of such property. The subject terrain ranges from level river bottom land to rolling and hilly with average elevation changes. The subject soils are a mix of sandy loam, clay loam, and rocky out-crop.

Sales 1-4 have similar terrain and soils as the subject property, therefore, no adjustments were required. Sale 5 has terrain with significant elevation changes and it is considered to be a highly recreational tract. The sale is superior to the subject property in terrain and soils from a market standpoint, therefore, a negative adjustment was required.

Size

Typically the size of a land tract can have an impact on value. Larger land tracts typically, but not always, receive lower per acre prices than do smaller tracts considering all other influences being similar. As noted previously, the sales range in size from 176.75 acres to 997.0 acres. The subject tract is 1,018.78 acres of land.

There was no significant change in agricultural land prices per acre in the subject market for irrigated farm and ranch properties ranging from 150.0 to 1,500.0 acres. This is supported by the comparable sales, therefore, no adjustments were required.

Remaining Elements

The arrays of the remaining elements indicate that no quantitative differences can be extracted from the data presented. Since additional market sales indicated quantitative differences that could not be identified, adjustments for additional elements were not necessary. A comparative chart follows.

SALES COMPARISON APPROACH - PRICE PER ACRE METHOD						
Sale No.	Subject	1	2	3	4	5
Location	E of Walsenburg	SE of Walsenburg	NW of LaVeta	NW of Walsenburg	NW of Walsenburg	NW of Walsenburg
County	Huerfano	Las Animas	Huerfano	Huerfano	Huerfano	Huerfano
State	Colorado	Colorado	Colorado	Colorado	Colorado	Colorado
Grantor	N/A	Cottonwood Acres	Andreatta Estate	Camp Trust	Biernacki Trust	Leslie Willburn
Grantee	N/A	Verltri Land and Cattle, LLC	Rocky Ridge West LLC	HCWCD	Joe Cardinal	Dennis Nazelrod
Sale Date	N/A	Mar-12	Nov-13	Jan-14	Jul-15	Aug-15
Recording	N/A	715494	399043	399609	403724	403851
Irr. Land Class 1	0.00%	0.00%	0.00%	10.00%	0.00%	57.00%
Irr. Land Class 2-3	37.00%	26.00%	63.00%	0.00%	60.00%	0.00%
CRP Land	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Dry Corners	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Pasture Land	61.00%	73.00%	36.00%	89.50%	39.00%	42.00%
Farmstead	0.00%	1.00%	1.00%	0.50%	1.00%	1.00%
Roads / Waste	2.00%	0.00%	0.00%	0.00%	0.00%	0.00%
Total Site %	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Irr. Class Rating	2-3	2-3	2-3	1	2-3	1
Water Delivery	Surface Flood Sprinkler	Surface Flood	Surface Flood	Surface Flood	Surface Flood	Surface Flood
Primary Crops Grown in the Area	Alfalfa, Wheat, Hay Meadows	Alfalfa, Wheat, Hay Meadows	Alfalfa, Hay Meadows	Alfalfa, Hay Meadows	Alfalfa, Hay Meadows	Alfalfa, Hay Meadows
Strc. / Acre	\$0	\$262	\$0	\$0	\$0	\$424
Spk. / Acre	\$0	\$0	\$0	\$0	\$0	\$0
Land Size	1,018.78	229.18	320.45	997.00	235.00	176.75
Sale Price	N/A	\$343,000	\$485,805	\$1,775,000	\$376,000	\$750,000
Price / Acre		\$1,497	\$1,516	\$1,780	\$1,600	\$4,243
Prop. Rights		-0-	-0-	-0-	-0-	-0-
Adj. Price		\$1,497	\$1,516	\$1,780	\$1,600	\$4,243
Financing		-0-	-0-	(\$178)	-0-	-0-
Adj. Price		\$1,497	\$1,516	\$1,602	\$1,600	\$4,243
Sale Cond.		-0-	\$0	(\$401)	-0-	-0-
Adj. Price		\$1,497	\$1,516	\$1,201	\$1,600	\$4,243
Mkt. Cond.		-0-	-0-	-0-	-0-	-0-
Adj. Price		\$1,497	\$1,516	\$1,201	\$1,600	\$4,243

Land and Improvement Adjustments						
Land Adj.		\$160	(\$347)	\$415	(\$344)	(\$1,386)
Imp. Adj.		(\$262)	-0-	-0-	-0-	(\$424)
Spk. Adj.		-0-	-0-	-0-	-0-	-0-
Adj. Price		\$1,395	\$1,169	\$1,616	\$1,256	\$2,433
Other Adjustments						
Location		-0-	-0-	-0-	-0-	-0-
Access		-0-	-0-	-0-	-0-	-0-
Terrain		-0-	-0-	-0-	-0-	(\$1,200)
Irr. Water		-0-	-0-	-0-	-0-	-0-
Size		-0-	-0-	-0-	-0-	-0-
Adj. Price		\$1,395	\$1,169	\$1,616	\$1,256	\$1,233

Land Sales Comparison - Price Per Acre Method - Final Value Opinion

Range of Comparable Sales				
Date of Sale	Mar-12	to	Aug-15	
Size / Acres	176.750	to	997.000	
Adjusted Value Per Acre	\$1,169	to	\$1,616	

The adjusted sales range was from \$1,169 per acre to \$1,616 per acre. The mean price per acre indicated by the sales was \$1,334 per acre and the median was \$1,256 per acre.

Approximately equal weight was given to the sales. Given the physical attributes of the subject property, including the date of sale, land mix, improvements, location, and water, the indicated market value of the subject property, as of the effective date of the appraisal, is:

1,018.78 Acres	X	\$1,275	=	\$1,298,945
Rounded To:			=	\$1,300,000

The land value opinion includes water wells, pumps, motors, gearheads, pivot pads and underground piping, but no sprinkler irrigation systems or structural improvements. The contributory value of the sprinklers and structural improvements will be added in the following cost analysis.

Replacement Cost New of the Improvements

The cost to construct an improvement on the effective appraisal date may be developed as either the estimated reproduction cost or estimated replacement cost of the improvement. The theoretical base (and classic starting point) for the cost approach is reproduction cost, but replacement cost is more commonly used because it may be easier to obtain and can reduce the complexity of depreciation analysis. An important distinction must be made between the terms:

- Reproduction cost is the estimated cost to construct, as of the effective appraisal date, an exact duplicate or replica of the building being appraised, insofar as possible, using the same materials, construction standards, design, layout, and quality of workmanship, and embodying all the deficiencies, superadequacies, and obsolescence of the subject improvements.
- Replacement cost is the estimated cost to construct, as of the effective appraisal date, a substitute for the building being appraised using contemporary materials, standards, design, and layout. When this cost basis is used, some existing obsolescence in the property may be cured. Replacement cost may be the only alternative if reproduction cost cannot be estimated.³³

The appraiser has used the replacement cost method.

There are generally three methods of estimating replacement cost. The methods include 1) extracting cost estimates from the local market by obtaining information on newly constructed buildings; 2) procuring a reproduction cost estimate prepared by a local construction company familiar with the construction of commercial Dairy improvements; or 3) using a cost service company.

Comparable Cost Estimate Sources

The appraiser has obtained cost information from several sources familiar with dairy construction costs. The following sources were surveyed:

³³ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 569-570.

Cost Source Survey		
Source No.	Cost Sources	Survey Dates
Source 1	Marshall and Swift Valuation Service cost manual has been surveyed to estimate the replacement cost of the subject improvements. Marshall and Swift has been tested against bids on other construction projects and found to be a fairly reliable indicator. However, Marshall and Swift does not have detailed cost information for specific dairy items. Information can be found in Marshall & Swift in the following sections relating to some Dairy items: Dairy Improvements: Section 17 Single Family Residences Section 12 Manufactured Dwellings Section 63 When using Marshal and Swift, consideration must be given to building and location cost multipliers, direct and indirect cost, and entrepreneurial profit. <i>Since most agricultural improvements are constructed for special purpose uses where there is no anticipation of additional profit, an entrepreneurial profit percentage would not be applied.</i>	
Source 2	Gary Cross Construction Company, Stephenville, Texas	Jan. 2002 - December 2003
Source 3	Randy Sorensen, Sam Hess, Dairy Specialist, 3309 Empire St., Evans CO 80620	Jan. 2004 - January 2010
Source 4	Chuck Gustafson, Bennie Brugman, Quality Dairy Construction, Hartley, Texas	Jan. 2005 - June 2011
Source 5	Aaron and Heather Jantz, MJE Services, Max Jantz Excavating and Miguel Dairy Services	Jan. 2008 - September 2014
Source 6	Laurens Schilderink and Dean Mason, Hemink Farms and Construction	Jan. 2007 - September 2015
Source 7	Brandon White, WTX Dairy Construction, LLC, Hartley, Texas	July 2011 - November 2012
Source 8	Trans Pecos Real Estate, Inc. Data Base	Jan. 2000 - November 2015
Source 9	Klaas Talsma, Frisia Dairy Farms, Stephenville and Hartley, Texas	Jan. 2002 - September 2014
Source 10	Clint Bumguardner, MAI, ASA, W.T. Appraisal, Inc., Abilene, Texas	Jan. 1998 - November 2015
Source 11	Bill Beam, ARA, Western Appraisal, Abilene, Texas	Jan. 1998 - November 2015
Source 12	James Vine, ARA, FRICS, San Antonio, Texas	Jan. 2007 - September 2014

The following chart contains itemized new costs estimates for dairy components.

Recent September-October 2015 Comparable Cost Information Dean Mason Dairy Construction, Amarillo, Texas			
Good to High Quality Dairy Structures	Construction Type	Total Cost Per Unit	Cost Per Unit
Conventional Milking Parlor	Concrete and Steel Construction	\$15,000 to \$20,000 Per Milking Stall	\$18,000 Per Stall Average
Cross Ventilated Milking Parlor	Concrete and Steel Construction	\$27,000 to \$36,000 Per Milking Stall	\$32,000 Per Stall Average
Natural Vent Freestall Barns	Steel Construction, Concrete Slab, Dirt Work, Water System, Freestalls, Stanchions, Open Ends, No Gables and No Roll-up Doors	\$1,500 to \$1,600 Per Head/Stanchion	\$1,600 Per Head Average
Natural Vent Freestall Barns	Steel Construction, Concrete Slab, Dirt Work, Water System, Freestalls, Stanchions, Gabled Ends, and Roll-up Doors	\$1,800 to \$1,900 Per Head/Stanchion	\$1,900 Per Head Average
Cross Ventilated Freestall Barns	Steel Construction, Concrete Slab, Dirt Work, Water System, Freestalls, Stanchions, Gabled Ends, Roll-up Doors, Fans, Cooling Coils and System, Completely Enclosed	\$2,500 to \$5,000 Per Head/Stanchion	\$4,000 Per Head Average
Open Concrete Feed Lanes	Open Concrete Feed Lanes Plus Attached Cow Stand Lanes, Steel Pipe Pens, Water Systems, Locking Stanchions, and Dirt Work	\$750 Per Milking Cow or \$375 Per Linear Foot (1 Milking Cow = 2 Linear Feet)	\$750 Per Milking Cow or \$375 Per Linear Foot
Hay Barns	Open Sided, Steel Construction, Metal Roof, Dirt Floor	\$15 to \$18 Per Square Foot	\$16 to \$17 Per Square Foot Average
Cow Shades	Open Sided, Steel Construction, Metal Roof, Dirt Floor	\$12 to \$16 Per Square Foot	\$14 Per Square Foot Average
Commodity Barns	Concrete Side and Back Walls, Concrete Partitions, Concrete Loading Apron, Concrete Loading Pit, Steel Framing and Roof System, Dirt Work	\$35 to \$40 Per Square Foot	\$38 Per Square Foot Average
Milking Equipment	Parallel or Rotary, Good Quality Equipment, DeLaval, BouMatic, GEA Westfalia Surge, Germania, Mueller, Hamby, Waikato, etc.	\$12,000 to \$13,000 Per Milking Unit/Stall	\$12,500 Per Milking Unit/Stall Average
General Dirt Work / Excavation	Building Sites, Lagoons, Drainage Areas, Sediment Ponds, Roads, Parking, Silage Pits and Pads	\$3.00 Per Yard to Move Dirt	\$3.00 Per Yard
Dirt Work / Excavation	Building Sites	All Building Prices Stated Above Assumes Land With Some Natural Slope. Flat Ground Would Increase the Dirt Work and Cost Per Building Unit	All Building Prices Stated Above Assumes Land With Some Natural Slope. Flat Ground Would Increase the Dirt Work and Cost Per Building Unit

It is noted that construction costs and equipment cost vary widely depending on the quality of the improvements. The above costs are for good to very good quality structures only. Inferior quality dairy structures would require lower prices and excellent quality dairy structures would require higher costs.

The replacement cost estimate for the subject dairy improvements include all soft costs, hard costs, and builder's profit and are based on actual costs of recent dairy construction projects. The three manufactured dwellings located on the subject property were not valued.

Please see the following chart for the estimated RCN of the subject dairy and associated improvements.

COST APPROACH SCHEDULE Current Replacement Cost New (RCN)						
Improvement	Size Per Unit	RCN Per Unit	RCN	Condition	Deferred Maintenance	YOC
D-12 Milking Parlor / Covered HP	24 Units	\$15,000	\$360,000	Fair-Avg.	\$0	1960-2010
Quonset Cattle Barn	15,000 SF	\$12	\$180,000	Fair-Avg.	\$0	1985-1990
Large Compost Barn	8,000 SF	\$10	\$80,000	Fair-Avg.	\$0	1988-1992
Maternity Barn	2,250 SF	\$12	\$27,000	Fair-Avg.	\$0	1990-1995
Special Needs Barn	500 SF	\$14	\$7,000	Fair-Avg.	\$0	1985-1990
Hoof Trimming Shed	640 SF	\$6	\$3,840	Fair-Avg.	\$0	1988-1992
Cattle Shade	252 SF	\$6	\$1,512	Fair-Avg.	\$0	1988-1992
Older Compost Barn	1,400 SF	\$8	\$11,200	Fair-Avg.	\$0	1960-1965
Calf Barn	780 SF	\$8	\$6,240	Avg.	\$0	2005-2013
Commodity Barn	3,294 SF	\$20	\$65,880	Fair-Avg.	\$0	1970-1980
Loading Apron (Apprx.)	12,000 SF	\$3.50	\$42,000	Fair-Avg.	\$0	1970-1980
Utility Barn / Farm Stg.	1,600 SF	\$10	\$16,000	Fair-Avg.	\$0	1985-1990
Shop Building	3,200 SF	\$16	\$51,200	Fair-Avg.	\$0	1985-1990
Equipment Shed	3,200 SF	\$8	\$25,600	Fair-Avg.	\$0	1965-1980
4 x Heifer Barns	5,320 SF	\$8	\$42,560	Fair-Avg.	\$0	1965-1980
Main Feed Lanes / Pens	2,158 LF	\$275	\$593,450	Fair-Avg.	\$0	1965-1995
Heifer Feed lanes / Pens	420 LF	\$150	\$63,000	Fair-Avg.	\$0	1965-1980
D-12 Milk/Assoc. Equip.	24 Units	\$12,500	\$300,000	Fair-Avg.	\$0	1970-2000
T-L Sprinkler Irr. Sys.	9 Towers	\$10,000	\$90,000	Fair-Avg.	\$0	1995
Valley Sprinkler Irr. Sys.	7 Towers	\$10,000	\$70,000	Fair-Avg.	\$0	1985
Lockwood Spk. Irr. Sys.	7 Towers	\$10,000	\$70,000	Fair-Avg.	\$0	1993
Main Dwelling Floor 1	2,758 SF	\$85	\$234,430	Fair-Avg.	\$0	1960-1965
Main Dwelling Bsmt.	1,748 SF	\$55	\$96,140	Fair-Avg.	\$0	1960-1965
Detached Garage	390 SF	\$25	\$9,750	Fair-Avg.	\$0	1960-1965
Employee Dwell. Floor 1	2,148 SF	\$85	\$182,580	Fair-Avg.	\$0	1960-1965

Employee Dwell. Bsmt.	870 SF	\$55	\$47,850	Fair-Avg.	\$0	1960-1965
Site Improvements	1	\$250,000	\$250,000	Fair-Avg.	\$0	1965-2011
Total RCN			\$2,927,232			
Efficient Legal Milking Head			594			
RCN Per Efficient Legal Milking Head			\$4,928			
Total Facility Mature Head			1,079			
RCN Per Total Facility Mature Head			\$2,713			
Total Facility Head (Mature and Heifers)			1,388			
RCN Per Total Facility Head			\$2,109			
Overall Total Economic Life			40			
Overall Effective Age Based on Main Improvements			32			
Overall Remaining Economic Life			8			
No deferred maintenance was charged to the structures in this chart. Please see Functional Obsolescence below for deferred maintenance items.						

Accrued Depreciation

Loss in value due to accrued depreciation is considered for all existing improvements of the subject property as of the date of the appraisal. Accrued depreciation is the difference between an improvement's replacement or replacement cost and its value as of the date of the appraisal.

It is necessary for an appraiser to identify depreciation due to physical deterioration, functional obsolescence, and external obsolescence by analyzing improvements and the market's reaction to their observed condition.

The five basic types of accrued depreciation are 1) curable physical deterioration which refers to items of deferred maintenance, 2) incurable physical deterioration which refers to deterioration that is not practical or currently feasible to correct, 3) curable functional obsolescence which refers to defects in design which are economically feasible to correct, 4) incurable functional obsolescence which refers to deficiencies or superadequacies which are not economically feasible to correct and 5) external obsolescence which refers to external influences which result in a loss in value to the subject.

Physical Deterioration

Physical deterioration is classified as either curable or incurable.

Curable physical deterioration - refers to items of deferred maintenance. The estimate of curable physical deterioration applies only to the items in need of repair on the date of the appraisal. It is measured by the cost of restoring to new or reasonably new condition. The subject dairy structures, equipment, and site improvements appeared to be in fair to average condition on the date of the appraisal inspection. No deferred maintenance / physical curable depreciation was noted. This is explained further under function obsolescence.

Incurable physical deterioration - is the normal wear and tear that a property has incurred. To estimate the incurable physical deterioration, a depreciation rate was extracted from market sales. The rate was estimated at 2.5 percent per year. Please see the Depreciation Extraction Charts within this analysis.

Based on market observation and from depreciation extraction from comparable sales the total economic life of the dairy improvements was estimated to be 40 years (100 percent / 2.5 percent per year equals 40 years).

It is noted that the total economic life of building structures can range from 40 to 50 years, attached milking equipment 20 to 40 years, dwelling structures 40 to 60 years, mobile homes 30 to 40 years, and site improvements 40 to 50 years. For this analysis, a rounded economic life estimate of 40 years was used for all of the improvements.

The subject dairy structures, equipment, and site improvements were estimated to be in fair to average condition with a significant amount of physical incurable depreciation. The overall effective age was estimated at 32 years.

Functional Obsolescence

The subject improvements were designed to be used for confining, feeding, growing, and milking dairy cattle. The older subject dairy improvements that are still used and contribute value to the property, suffer from functional incurable obsolescence. The obsolescence is in building and pen design and usage. Newer dairy facilities have improved milking parlor ceiling height for greater air flow, larger equipment rooms for improved maintenance, improved pen design and cattle traffic lanes for confining cattle and moving them back and forth to the milking parlor, and improved hospital and special needs facilities. A function obsolescence charge was applied to the subject improvements.

Non-functional and obsolete improvements in poor to fair condition on the dairy which have no contributory value include five (5) Harvestore silos (2 corn units and 3 hay / silage units); one upright feed commodity tank; and one upright molasses tank. These structures have deferred maintenance items, but because of their age and lack of use were given no contributory value. These stated improvements are not necessary for the current dairy operation and are not used. The improvements were given no contributory value, thus, eliminating some deferred maintenance and functional obsolescence.

External Obsolescence

The last form of depreciation observed was external obsolescence. External obsolescence is defined as: "Impairment of desirability or useful life arising from factors external to the property, such as economic forces or environmental changes which affect supply-demand relationships in the market." Traditionally, external obsolescence has always been considered to be incurable.

External obsolescence is that loss from cost new, as of the date of the report, due to influences outside the site and is incurable on the part of the owner, landlord, or tenant. External obsolescence can be caused by a decline in either the property's location, the neighborhood, the city and region, or in a decline in overall market conditions.

The greatest form of obsolescence in dairies is some softness in the related real estate market. The soft dairy real estate market has resulted from the following conditions:

1. The continuation of the overall soft U.S. economy.
2. Recovery from extremely low milk prices experienced in 2009 and 2010 which caused numerous dairy operators to either file for bankruptcy or go out of business.
3. The sensitive and volatile current and future milk prices. Although milk prices in 2014 were very good and 2015 average, numerous factors can impact the price of milk, therefore, the milk prices remain sensitive and volatile and they can have an affect on dairy real estate values.
4. The average to high operating cost associated with feed and fuel for dairy operations. Feed and fuel are currently down, however, they were extremely high from 2008 through 2013 causing higher than normal operating costs. Government policy, ethanol mandates, weather, and supply and demand factors continuously have an affect on feed and fuel costs.
5. The restricted lending and minimal available financing for high risk dairy operations and feedyard operations. Lenders remain hesitant to loan on high risk dairy operations without high down payments ranging from 35 to 50 percent. Therefore, lending remains tight for dairy milking and feeding operations.

6. There was a larger than normal amount of dairy properties closed down during the time period of 2009 through 2011 due to low milk prices, CWT buyouts, and foreclosures. The resale of most of the distressed and closed dairy property inventory was completed in 2014. As of late 2014 and 2015, dairy property values have rebounded in the prime and most desired dairy production areas, but remain soft in some of the outlying and less desired areas.

External obsolescence is present in the subject dairy improvements. Accrued depreciation which includes external obsolescence was extracted from the comparable sales. The external obsolescence as a total percentage estimate was applied to the subject's physically and functionally depreciated value of the improvements.

Based on market sales, the dairy market is stable to recovering at a very slow rate. External obsolescence due to the overall soft dairy real estate market and the subject's inferior location will be charged to the subject improvements in the Cost Analysis.

The definition and process of market extraction depreciation follows.

Market Depreciation Extraction Method

Market Extraction Method - Appraisal Institute

The market extraction method relies on the availability of comparable sales from which depreciation can be extracted. It makes use of direct comparisons with market sales. While easy to understand and explain, it should only be used if sufficient data exists and if the quality of that data is adequate to permit meaningful analysis. By considering all elements in one calculation, market extraction can be an oversimplification of the complex interplay of physical, functional, and external causes of depreciation. The technique is primarily used to extract total depreciation, to establish total economic life expectancy, and to identify other types of obsolescence or excess physical deterioration. The market extraction method includes the following steps:

1. Find and verify sales of similarly improved properties that are similar in terms of age and utility to the subject property. Although it is desirable, it is not essential that the comparable sales be current sales. They should be from the subject property's market area, but they can be from a market that is comparable (i.e., with similar tastes, preferences, and external influences).
2. Make appropriate adjustments to the comparable sale prices for certain factors, including property rights conveyed, financing, and conditions of sale. A market conditions adjustment is not made because the appraiser is estimating cost and depreciation at the time of the sale. No adjustments are made for physical, functional, or external impairments because these factors are the source of the depreciation that is being measured.
3. Subtract the value of the land at the time of sale from the sale price of each comparable property to obtain the contributory value of the improvements.
4. Estimate the cost of the improvements for each comparable property at the time of its sale. The cost estimates should have the same basis - i.e., reproduction cost or replacement cost. Typically replacement cost is used because the appraiser may not have sufficient information on all the sales to develop a credible opinion of reproduction cost. Also, the cost estimate should include all improvements.
5. Subtract the contributory value of all improvements from the current construction cost to determine the total dollar amount of depreciation of the improvements as of the date the sale occurred. The extracted depreciation includes all forms of depreciation.
6. Convert the dollar estimates of depreciation into percentages by dividing each estimate of total depreciation by the current construction cost. If the ages of the sales are relatively similar to the age of the subject property, the percentages of total depreciation can be reconciled into a rate appropriate to the subject property. This rate is applied to the subject's cost to derive an estimate of the subject's cost to derive an estimate of the subject's total depreciation.

7. If the ages of the comparable properties are different than the subject property, then develop an annual depreciation rate. This step expands the analysis to calculate annual rates of depreciation and to support an estimate of the total economic life expectancy of the subject property.

Applicability and Limitations

When sales data is plentiful, the market extraction method provides a reliable and convincing estimate of depreciation. However, the appraiser must be able to develop an accurate site value estimate for each of the comparable sales and a defensible estimate of replacement cost for each sale. Additionally, the comparable properties should have physical, functional, and external characteristics similar to the subject, and they should have incurred similar amounts and types of depreciation.

When the comparable properties differ in design, quality, or construction, it is difficult to ascertain whether differences in value are attributable to these characteristics other than age. Locational differences are assumed to be removed with the subtraction of land value. However, it is important to select sales that are subject to the same (or similar) market influences. If the sales analyzed are affected by special financing or unusual motivation, the problem is further complicated.

The usefulness of the method depends heavily on the accuracy of the site value estimates and the cost estimates for the comparable properties. If the sales are located in market areas that are not comparable to the subject's, the method may not be appropriate. Market extraction considers all types of depreciation in a lump sum and does not break down the estimate into the various components of depreciation. However, this depreciation method is truly market-based and easy to understand, and for these reasons should be considered when it can be appropriately supported.³⁴

³⁴ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Pages 605-610.

Market Abstraction of Depreciation - Appraisal Institute and ASFMRA

The market abstraction method of depreciation estimation provides the appraiser with the ability to “prove” the depreciation estimate. To extract depreciation from the market, comparable sales similar to the subject must be available and the appraiser must have sufficient data to develop an opinion of the value of the land under the comparable sales. Land value is subtracted from the sale price and the residual is the contributory value of the comparable improvements as of the date of the sale. Once the reproduction or replacement cost is derived, the contributory value is deducted from the RCN to derive a dollar amount of depreciation. This depreciation amount is then divided by the RCN to yield an overall rate of depreciation.

This method is sufficient to abstract an overall rate of depreciation for many types of farm improvements, especially when improvements in the area are homogeneous. The improvements on the subject must be very similar to the sale improvements in terms of age, utility, and market acceptance.

Most farms have multiple improvements and often these improvements exhibit varying rates of depreciation. The depreciation rate for individual improvements can be measured by first analyzing a farm that has only one improvement, such as a residence. After abstracting an annual rate of depreciation, for the single building, a farm with two buildings can be measured by using the rate for the single building and the residual for the second building. Often groups of buildings, such as, barns can be lumped together and there are always some buildings that can be eliminated from consideration due to condition, age, and etc.

Assuming an annual depreciation rate of 3 percent was abstracted from a sale that contained only one residence and other similar sales supported this indication. The depreciation rate should only be applied to physical depreciation unless all sales in the market have similar functional problems or external obsolescence is present in all of the improvements in the market. If functional and/or external obsolescence is present in some improvements but not all, the process requires additional steps to break out the obsolescence.

Using an annual depreciation rate from one sale with one improvement to analyze another sale with two improvements (one improvement being similar to the first sale) will provide an indication of a rate for the second improvement. This process can be continued for other improvements and will substantially mature with additional data. If the appraiser keeps this type of information on file, substantial support for market-derived depreciation rates will be available. As the appraiser develops additional data from additional sales, these indications can be added to the summary and provide additional support for depreciation rates for different types of buildings. If the rates change substantially, the appraiser will be alerted to changes in the market acceptance of certain types of buildings.³⁵

³⁵ The Appraisal of Rural Property, 2nd Edition, 2000, The American Society of Farm Managers and Rural Appraisers and the Appraisal Institute, Pages 217-219.

Depreciation Extraction Summary

Dairies usually have improvements that are constructed over a period of several years. Due to the difficulty in determining the exact actual ages of multiple improvements, an overall effective age was used to analyze the subject and the comparable sales and extract depreciation percentages.

Based on an analysis of the comparable dairy sales, by using the extraction method, the following depreciation rates were extracted from the market.

Depreciation Extraction Method Chart 1 - Database Comparables

Category	Extraction Comp 1	Extraction Comp 2	Extraction Comp 3	Extraction Comp 4	Extraction Comp 5	Extraction Comp 6	Extraction Comp 7
Dairy	Rising Sun	Johnston Dairy	Penn-Cal Dairy	New Frontier Dairy	Excel Dairy	Rawhide Dairy	Covenant Dairy
Location	Dublin	Comanche	Hico	Dublin	Dublin	Abernathy	Dalhart
County	Erath	Comanche	Erath	Erath	Erath	Hale	Dallam
State	Texas	Texas	Texas	Texas	Texas	Texas	Texas
Water Shed	Leon	Leon	North Bosque	Leon	North Bosque and Leon	Panhandle	Panhandle
Sale Date	May 31, 2005	May 13, 2005	January 27, 2009	December 28, 2007	February 15, 2008	July 26, 2007	February 8, 2007
Grantor	Donald DeJong	Ray Johnston Estate	Penn-Cal Dairy LLC	Aurora Dairy Corp.	Mear Trust	Rawhide Dairy Farms	DARE Investments
Grantee	Carolus Volleman	Wayne Moreman	Kuiper Dairy LLC	New Frontier Dairy	Arjen Geijssel	Warren Hettinga	James Albers
Recording	1226-716	859-367	1412-628	1365-274	1371-534	1047-2798	116-448
Dairy Type	Freestall Barn	Freestall Barn	Freestall Barn	Open Lot	Open Lot	Open Lot	Open Lot
Milking Parlor	D-20 Herringbone	Rotary 72	D-16 Parallel	3 x D-16 Herring.	D-18 Herringbone	D-35 Parallel	Rotary 72
Milking Capacity	1,760	2,000	1,280	4,000	1,700	2,400	3,000
Total Capacity	2,200	2,500	1,634	4,824	1,850	3,930	3,680
Land Acres	540.68	612.11	579.96	826.15	626.70	618.40	456.19
Acre Per Milk Cow	0.31	0.31	0.45	0.21	0.37	0.26	0.15
Sale Price	\$3,650,000	\$4,500,000	\$3,000,000	\$8,600,000	\$3,100,000	\$7,000,000	\$8,132,830
SP Milking Head	\$2,074	\$2,250	\$2,344	\$2,150	\$1,824	\$2,917	\$2,711
Land Value Acre	\$1,400	\$1,300	\$2,600	\$2,400	\$2,350	\$1,100	\$1,765
Sale Price	\$3,650,000	\$4,500,000	\$3,000,000	\$8,600,000	\$3,100,000	\$7,000,000	\$8,132,830
Land Value	\$756,952	\$795,743	\$1,507,896	\$1,982,760	\$1,472,745	\$680,241	\$805,175
Dep. Imp. Cost	\$2,893,048	\$3,704,257	\$1,492,104	\$6,617,240	\$1,627,255	\$6,319,759	\$7,327,655
RCN	\$4,400,000	\$4,600,000	\$3,840,000	\$10,800,000	\$3,910,000	\$6,400,000	\$7,500,000
Dep. Imp. Cost	\$2,893,048	\$3,704,257	\$1,492,104	\$6,617,240	\$1,627,255	\$6,319,759	\$7,327,655
Total Dep. Dollars	\$1,506,952	\$895,743	\$2,347,896	\$4,182,760	\$2,282,745	\$80,241	\$172,345
Total Dep. Dollars	\$1,506,952	\$895,743	\$2,347,896	\$4,182,760	\$2,282,745	\$80,241	\$172,345
RCN	\$4,400,000	\$4,600,000	\$3,840,000	\$10,800,000	\$3,910,000	\$6,400,000	\$7,500,000
Total Dep. %	34.25%	19.47%	61.14%	38.73%	58.38%	1.25%	2.30%
Total Dep. %	34.25%	19.47%	61.14%	38.73%	58.38%	1.25%	2.30%

Age/Effective Age	12	10	12	12	12	1	1
Annual Dep. %	2.85%	1.95%	5.10%	3.23%	4.87%	1.25%	2.30%
Physical Dep. %	2.85%	1.95%	2.50%	2.50%	2.50%	1.25%	2.30%
Functional-External Obsolescence % Annual	0.00%	0.00%	2.60%	0.73%	2.37%	0.00%	0.00%
Functional-External Obsolescence % Total	0.05%	-0.03%	31.14%	8.73%	28.38%	0.00%	0.00%
Accrued Depreciation Type	Mostly Physical	Mostly Physical	Mostly Physical and External Plus North Bosque Location	Mostly Physical	Mostly Physical and External Plus North Bosque Location	Mostly Physical	Mostly Physical
All sales used in the extraction method have been adjusted for Financing, Sale Conditions, Market Conditions, Rolling Stock, Personal Property, Excess Land, and Deferred Maintenance.							

Depreciation Extraction Method Chart 2 - Database Comparables

Category	Extraction Comp 8	Extraction Comp 9	Extraction Comp 10	Extraction Comp 11	Extraction Comp 12	Extraction Comp 13	Extraction Comp 14
Dairy	Covenant Dairy	High Country Dairy	Seven Bar Dairy	Three Star Dairy	Spring Lake Dairy	Harvest Dairy	Owego Dairy
Location	Dalhart	Dalhart	Wiggins	McCook	Spring Lake	Hartley	Salix
County	Dallam	Hartley	Morgan	Red Willow	Lamb	Moore	Woodbury
State	Texas	Texas	Colorado	Nebraska	Texas	Texas	Iowa
Water Shed	Panhandle	Panhandle	High Plains	High Plains	Panhandle	Panhandle	High Plains
Sale Date	June 1, 2010	June 29, 2010	November 1, 2007	July 31, 2008	September 1, 2010	June 1, 2011	May 24, 2011
Grantor	T. Swann and J. Albers	Capital Farm Credit	Seven Bar Dairy LLC	Three Star Dairy	Bendora Dairy LLC	Harvest Dairy	Randy Hunt
Grantee	G-2 Producers	DeVries High Country	Front Range Farms	Rams Horn Farms LLC	Hein Hettinga	G-2 Producers	Willow Dairy LLC
Recording	142-281 and 310	122-661	R-846146	2008-1169	622-326	699-663	716-4376
Dairy Type	Open Lot	Open Lot	Open Lot and Freestall Barn	Freestall	Open Lot	Freestall Barn	Cross Vent FS
Milking Parlor	Rotary 72	Rotary 60	D-30 Parallel	D-25 Parallel	D-30 Parallel	D-32 Parallel	D-32 Parallel
Milking Capacity	3,000	3,000	1,980	1,650	2,400	2,200	2,125
Total Capacity	3,680	5,140	2,880	2,100	2,775	2,610	2,784
Land Acres	1,387.18	638.60	236.56	701.84	346.22	311.05	99.68
Acre Per Milk Cow	0.46	0.21	0.12	0.43	0.14	0.14	0.05
Sale Price	\$5,750,000	\$3,760,000	\$6,048,000	\$5,300,000	\$2,550,000	\$6,852,714	\$8,600,000
SP Milking Head	\$1,917	\$1,253	\$3,055	\$3,212	\$1,063	\$3,115	\$4,047
Land Value Acre	\$1,520	\$1,600	\$3,000	\$1,550	\$1,288	\$1,600	\$3,700
Sale Price	\$5,750,000	\$3,760,000	\$6,048,000	\$5,300,000	\$2,550,000	\$6,852,714	\$8,600,000
Land Value	\$2,108,514	\$1,021,760	\$709,680	\$1,087,852	\$445,925	\$497,680	\$368,816
Dep. Imp. Cost	\$3,641,486	\$2,738,240	\$5,338,320	\$4,212,148	\$2,104,075	\$6,355,034	\$8,231,184
RCN	\$6,000,000	\$6,000,000	\$6,930,000	\$5,000,000	\$4,500,000	\$7,500,000	\$11,900,000
Dep. Imp. Cost	\$3,641,486	\$2,738,240	\$5,338,320	\$4,212,148	\$2,104,075	\$6,355,034	\$8,231,184
Total Dep. Dollars	\$2,358,514	\$3,261,760	\$1,591,680	\$787,852	\$2,395,925	\$1,144,966	\$3,668,816
Total Dep. Dollars	\$2,358,514	\$3,261,760	\$1,591,680	\$787,852	\$2,395,925	\$1,144,966	\$3,668,816
RCN	\$6,000,000	\$6,000,000	\$6,930,000	\$5,000,000	\$4,500,000	\$7,500,000	\$11,900,000
Total Dep. %	39.31%	54.36%	22.97%	15.76%	53.24%	15.27%	30.83%

Total Dep. %	39.31%	54.36%	22.97%	15.76%	53.24%	15.27%	30.83%
Age/Effective Age	4	6	8	6	9	1	4
Annual Dep. %	9.83%	9.06%	2.87%	2.63%	5.92%	15.27%	7.71%
Physical Dep. %	2.50%	2.50%	2.87%	2.63%	2.50%	0.00%	2.50%
Functional-External Obsolescence % Annual	7.33%	6.56%	0.00%	0.00%	3.42%	15.27%	5.21%
Functional-External Obsolescence % Total	29.31%	39.36%	0.01%	-0.02%	30.74%	15.27%	20.83%
Accrued Depreciation Type	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market	Mostly Physical	Mostly Physical	Mostly Physical and External Soft Market	Mostly External Soft Market	Mostly Physical and External Soft Market
All sales used in the extraction method have been adjusted for Financing, Sale Conditions, Market Conditions, Rolling Stock, Personal Property, Excess Land, and Deferred Maintenance.							

Depreciation Extraction Method Chart 3 - Database Comparables

Category	Extraction Comp 15	Extraction Comp 16	Extraction Comp 17	Extraction Comp 18	Extraction Comp 19	Extraction Comp 20	Extraction Comp 21
Dairy	Kirkman Dairy	Dyelands Dairy	Sage Brush Dairy	Omega Dairy	Kranenburg Dairy	Lariat Dairy	Rawhide Dairy
Location	Kirkman	Windsor	Snyder	Hartley	Lingleville	Muleshoe	Abernathy
County	Shelby	Weld	Morgan	Hartley	Erath	Parker	Hale
State	Iowa	Colorado	Colorado	Texas	Texas	Texas	Texas
Water Shed	High Plains	High Plains	High Plains	Panhandle	Leon	Panhandle	Panhandle
Sale Date	April 21, 2011	July 28, 2011	January 6, 2012	September 7, 2012	February 6, 2012	October 11, 2013	July 31, 2013
Grantor	Ag Real Estate Iowa I	Erin Barkey	Lane Evans	Thomas White	Lone Star PCA	M. Kloiber Receiver	T. Tyll Receiver
Grantee	Kirkman Farms LLP	Dyelands Dairy LLC	Chapin Dairy II LLC	William M. Woodie	Vander Horst Enterprises LLC	Elkje Frans Brand	B&C Dairy LLC
Recording	2011-2455	RN 3782787	RN 873646	140-861	2012-00712	100-392, 53934	2013-003119
Dairy Type	Cross Vent Freestall Dairy	Open Lot	Open Lot	Freestall	Freestall	Open Lot	Open Lot
Milking Parlor	Twin Rotary 72	D-6 Herringbone	D-7 Herringbone	D-12 Parallel	D-20 Parallel	Twin Rotary 72's	D-35 Parallel
Milking Capacity	5,100	400	400	500	2,000	6,500	2,700
Total Capacity	6,204	520	500	700	2,520	10,200	4,367
Land Acres	964.04	55.00	320.00	160.00	598.44	2,548.31	1,081.16
Acre Per Milk Cow	0.19	0.14	0.80	0.32	0.30	0.39	0.40
Sale Price	\$21,000,000	\$1,150,000	\$1,100,000	\$1,323,750	\$2,200,000	\$9,500,000	\$3,900,000
SP Milking Head	\$4,118	\$2,875	\$2,750	\$2,648	\$1,100	\$1,462	\$1,444
Land Value Acre	\$6,725	\$5,450	\$2,095	\$2,000	\$2,550	\$1,700	\$1,500
Sale Price	\$21,000,000	\$1,150,000	\$1,100,000	\$1,323,750	\$2,200,000	\$9,500,000	\$3,900,000
Land Value	\$6,483,169	\$299,750	\$670,400	\$320,000	\$1,526,022	\$4,332,129	\$1,621,733
Dep. Imp. Cost	\$14,516,831	\$850,250	\$429,600	\$1,003,750	\$673,978	\$5,167,871	\$2,278,268
RCN	\$25,000,000	\$1,450,982	\$1,610,450	\$2,500,000	\$5,620,285	\$17,871,960	\$7,083,840
Dep. Imp. Cost	\$14,516,831	\$850,250	\$429,600	\$1,003,750	\$673,978	\$5,167,871	\$2,278,268
Total Dep. Dollars	\$10,483,169	\$600,732	\$1,180,850	\$1,496,250	\$4,946,307	\$12,704,089	\$4,805,573
Total Dep. Dollars	\$10,483,169	\$600,732	\$1,180,850	\$1,496,250	\$4,946,307	\$12,704,089	\$4,805,573
RCN	\$25,000,000	\$1,450,982	\$1,610,450	\$2,500,000	\$5,620,285	\$17,871,960	\$7,083,840
Total Dep. %	41.93%	41.40%	73.32%	59.85%	88.01%	71.08%	67.84%

Total Dep. %	41.93%	41.40%	73.32%	59.85%	88.01%	71.08%	67.84%
Age/Effective Age	5	13	24	4	12	7	6
Annual Dep. %	8.39%	3.18%	3.06%	14.96%	7.33%	10.15%	11.31%
Physical Dep. %	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Functional-External Obsolescence % Annual	5.89%	0.68%	0.56%	12.46%	4.83%	7.65%	8.81%
Functional-External Obsolescence % Total	29.43%	8.90%	13.32%	49.85%	58.01%	53.58%	52.84%
Accrued Depreciation Type	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market	Mostly Physical	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market
All sales used in the extraction method have been adjusted for Financing, Sale Conditions, Market Conditions, Rolling Stock, Personal Property, Excess Land, and Deferred Maintenance.							

Depreciation Extraction Method Chart 4 - Database Comparables

Category	Extraction Comp 22	Extraction Comp 23	Extraction Comp 24	Extraction Comp 25	Extraction Comp 26	Extraction Comp 27	Extraction Comp 28
Dairy	Dream Catcher Dairy	Grand Canyon Dairy	Double T Dairy	Southern Skies Dairy	El Dorado Dairy	Crosswinds Dairy	Desert Star Dairy
Location	Dublin	Dublin	Comanche	Roswell	Clovis	Portales	Texico
County	Erath	Erath	Comanche	Chaves	Curry	Roosevelt	Roosevelt
State	Texas	Texas	Texas	New Mexico	New Mexico	New Mexico	New Mexico
Water Shed	Leon	North Bosque	Leon	High Plains	High Plains	High Plains	High Plains
Sale Date	July 19, 2013	January 4, 2012	September 25, 2013	June 8, 2012	December 17, 2014	April 4, 2014	September 30, 2014
Grantor	C. Volleman	JB Grand Canyon Dairy	Prosperity Bank	Mike Visser	El Dorado Dairy	Wayne Cunningham Representative	Desert Star Dairy LLC
Grantee	Frans Beukeboom	Circle 7 Dairy LLC	Double T Dairy LLC	Pirtle Farms	Steve Hanson and Dean Van Dam	Phillip Douma	Riverview LLP
Recording	2013-04201	2012-00202	968-324	679-1835	532-3820	2014-1106	2014-2901
Dairy Type	Freestall Dairy	Open Lot	Freestall	Open Lot	Open Lot	Open Lot	Open Lot
Milking Parlor	D-20 Parallel	D-27 Parallel	D-16 Parallel	D-24 Parallel	D-40 Parallel	D-30 Parallel	D-40 Parallel
Milking Capacity	1,760	1,450	600	2,000	3,750	2,500	4,325
Total Capacity	2,200	1,950	900	3,660	4,320	4,500	6,725
Land Acres	455.29	435.00 Allocated	265.42	182.00	632.00	1,250.00	2,451.00
Acre Per Milk Cow	0.26	0.30	0.44	0.09	0.17	0.50	0.57
Sale Price	\$2,250,000	\$2,034,141	\$815,000	\$3,500,000	\$5,000,000	\$3,304,126	\$12,038,100
SP Milking Head	\$1,278	\$1,403	\$1,358	\$1,750	\$1,333	\$1,322	\$2,783
Land Value Acre	\$2,500	\$2,700	\$2,500	\$7,000	\$2,200	\$1,450	\$1,306
Sale Price	\$2,250,000	\$2,034,141	\$815,000	\$3,500,000	\$5,000,000	\$3,304,126	\$12,038,100
Land Value	\$1,138,225	\$1,174,500	\$663,542	\$1,274,000	\$1,390,400	\$1,812,500	\$3,201,006
Dep. Imp. Cost	\$1,111,775	\$859,641	\$151,458	\$2,226,000	\$3,609,600	\$1,491,626	\$8,837,094
RCN	\$5,894,600	\$4,411,400	\$2,947,355	\$6,199,950	\$9,342,900	\$7,800,534	\$15,419,050
Dep. Imp. Cost	\$1,111,775	\$859,641	\$151,458	\$2,226,000	\$3,609,600	\$1,491,626	\$8,837,094
Total Dep. Dollars	\$4,782,825	\$3,551,759	\$2,795,898	\$3,973,950	\$5,733,300	\$6,308,908	\$6,581,956
Total Dep. Dollars	\$4,782,825	\$3,551,759	\$2,795,898	\$3,973,950	\$5,733,300	\$6,308,908	\$6,581,956
RCN	\$5,894,600	\$4,411,400	\$2,947,355	\$6,199,950	\$9,342,900	\$7,800,534	\$15,419,050
Total Dep. %	81.14%	80.51%	94.86%	64.10%	61.37%	80.88%	42.69%

Total Dep. %	81.14%	80.51%	94.86%	64.10%	61.37%	80.88%	42.69%
Age/Effective Age	18	20	10	16	12	14	11
Annual Dep. %	4.51%	4.03%	9.49%	4.01%	5.11%	5.78%	3.88%
Physical Dep. %	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%	2.50%
Functional-External Obsolescence % Annual	2.01%	1.53%	6.99%	1.51%	2.61%	3.28%	1.38%
Functional-External Obsolescence % Total	36.14%	30.51%	69.86%	24.10%	31.37%	45.88%	15.19%
Accrued Depreciation Type	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market Plus North Bosque Location	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market
All sales used in the extraction method have been adjusted for Financing, Sale Conditions, Market Conditions, Rolling Stock, Personal Property, Excess Land, and Deferred Maintenance.							

Depreciation Extraction Method Chart 5 - Database Comparables

	Extraction Comp 29	Extraction Comp 30	Extraction Comp 31	Extraction Comp 32	Extraction Comp 33	Extraction Comp 34	Extraction Comp 35
Dairy	Pallatex Dairy	Legend Dairy	Hemink Spandet 1	Hemink Spandet 2	Front Range Dairy	Double T Dairy	Grenemyer Dairy
Location	Lazbuddie	Hartley	Hart	Hart	Cactus	Comanche	Kersey
County	Parmer	Hartley	Castro	Castro	Moore	Comanche	Weld
State	Texas	Texas	Texas	Texas	Texas	Texas	Colorado
Water Shed	Panhandle	Panhandle	Panhandle	Panhandle	Panhandle	Central Leon	High Plains
Sale Date	May 22, 2014	April 6, 2015	March 2, 2015	March 2, 2015	February 6, 2015	September 25, 2013	October 28, 2014
Grantor	Pallatex	Legend Dairy LLC	Hemink Farms Ltd.	Hemink Farms Ltd.	Darwin and Robin Schmidt	Prosperity Bank	Michael Grenemyer
Grantee	Blue Sky Farms LLC	Northside Farm Land Holdings LLC	Southside Dairy LLC	Southside Dairy LLC	VYN Land and Cattle	Double T Dairy LLC	Jerrold Brethauer
Recording	105-55, 54629	105942	365-245, 63879	365-245, 63879	757-653	968-324	RN 4057616
Dairy Type	Open Lot	Freestall Barn	Open Lot	Cross Vent FS	Open Lot	Freestall Barn	Freestall
Milking Parlor	D-40 Parallel	D-35 Parallel	Rotary 60	Rotary 100	D-16, D-8 Parallel	D-16 Parallel	D-8 Herringbone
Milking Capacity	3,100	2,400	3,000	7,200	1,800	600	550
Total Capacity	3,840	3,200	3,700	16,075	2,130	900	690
Land Acres	660.00	315.92	658.00	664.00	637.36	265.42	300.00
Acre Per Milk Cow	0.21	0.13	0.22	0.09	0.35	0.44	0.55
Sale Price	\$5,250,000	\$8,600,000	\$6,613,867	\$29,500,000	\$3,950,525	\$815,000	\$2,200,000
SP Milking Head	\$1,694	\$3,583	\$2,205	\$4,097	\$2,195	\$1,358	\$4,000
Land Value Acre	\$1,800	\$2,450	\$3,250	\$3,750	\$2,500	\$2,500	\$3,667
Sale Price	\$5,250,000	\$8,600,000	\$6,613,867	\$29,500,000	\$3,950,525	\$815,000	\$2,200,000
Land Value	\$1,188,000	\$774,002	\$2,138,500	\$2,490,000	\$1,593,400	\$663,542	\$1,100,100
Dep. Imp. Cost	\$4,062,000	\$7,825,998	\$4,475,367	\$27,010,000	\$2,357,125	\$151,458	\$1,099,900
RCN	\$7,282,200	\$8,896,700	\$7,426,873	\$31,824,575	\$4,424,120	\$2,947,355	\$1,941,150
Dep. Imp. Cost	\$4,062,000	\$7,825,998	\$4,475,367	\$27,010,000	\$2,357,125	\$151,458	\$1,099,900
Total Dep. Dollars	\$3,220,200	\$1,070,702	\$2,951,506	\$4,814,575	\$2,066,995	\$2,795,898	\$841,250
Total Dep. Dollars	\$3,220,200	\$1,070,702	\$2,951,506	\$4,814,575	\$2,066,995	\$2,795,898	\$841,250
RCN	\$7,282,200	\$8,896,700	\$7,426,873	\$31,824,575	\$4,424,120	\$2,947,355	\$1,941,150
Total Dep. %	44.22%	12.03%	39.74%	15.13%	46.72%	94.86%	43.34%
Total Dep. %	44.22%	12.03%	39.74%	15.13%	46.72%	94.86%	43.34%

Age/Effective Age	8	5	10	6	8	10	17
Annual Dep. %	5.53%	2.41%	3.97%	2.52%	5.84%	9.49%	2.55%
Physical Dep. %	2.50%	2.41%	2.50%	2.52%	2.50%	2.50%	2.55%
Functional-External Obsolescence % Annual	3.03%	0.00%	1.47%	0.00%	3.34%	6.99%	0.00%
Functional-External Obsolescence % Total	24.22%	-0.02%	14.74%	0.01%	26.72%	69.86%	-0.01%
Accrued Depreciation Type	Mostly Physical and External	Mostly Physical	Mostly Physical and External	Mostly Physical	Mostly Physical and External	Mostly Physical and External Soft Market	Mostly Physical
All sales used in the extraction method have been adjusted for Financing, Sale Conditions, Market Conditions, Rolling Stock, Personal Property, Excess Land, and Deferred Maintenance.							

Depreciation Extraction Method Chart 6
Comparable Sales Used in the Sales Comparison Approach

Category	Extraction Comp 1	Extraction Comp 2	Extraction Comp 3	Extraction Comp 4	Extraction Comp 5
Dairy	Painted Prairie Dairy	Dyelands Dairy	Sage Brush Dairy	Grenemyer Dairy	Longs Peak Dairy
Location	Eaton	Windsor	Snyder	Kersey	Ault
County	Weld	Weld	Morgan	Weld	Weld
State	Colorado	Colorado	Colorado	Colorado	Colorado
Water Shed	High Plains	High Plains	High Plains	High Plains	High Plains
Sale Date	June 29, 2012	July 28, 2011	January 6, 2012	October 28, 2014	August 21, 2014
Grantor	Lester Hardesty	Erin Barkey	Lane Evans	Michael Grenemyer	Robert Tateyama
Grantee	Long Meadow Farm	Dyelands Dairy LLC	Chapin Dairy II LLC	Jerrold Brethauer	Longs Peak Dairy LLC
Recording	RN 3858486	RN 3782787	RN 873646	RN 4057616	RN 4040392
Dairy Type	Freestall	Open Lot	Open Lot	Freestall	Open Lot
Milking Parlor	D-12 Parallel	D-6 Herringbone	D-7 Herringbone	D-8 Herringbone	D-14 Herringbone
Milking Capacity	925	400	400	550	750
Total Capacity	1,485	520	500	690	1,125
Land Acres	165.00	55.00	320.00	300.00	203.00
Acre Per Milk Cow	0.18	0.14	0.80	0.55	0.27
Sale Price	\$3,500,000	\$1,150,000	\$1,100,000	\$2,200,000	\$2,956,000
SP Milking Head	\$3,784	\$2,875	\$2,750	\$4,000	\$3,941
Land Value Acre	\$5,500	\$5,450	\$2,095	\$3,667	\$6,256
Sale Price	\$3,500,000	\$1,150,000	\$1,100,000	\$2,200,000	\$2,956,000
Land Value	\$907,500	\$299,750	\$670,400	\$1,100,100	\$1,269,968
Dep. Imp. Cost	\$2,592,500	\$850,250	\$429,600	\$1,099,900	\$1,686,032
RCN	\$4,506,840	\$1,450,982	\$1,610,450	\$1,941,150	\$3,244,262
Dep. Imp. Cost	\$2,592,500	\$850,250	\$429,600	\$1,099,900	\$1,686,032
Total Dep. Dollars	\$1,914,340	\$600,732	\$1,180,850	\$841,250	\$1,558,230
Total Dep. Dollars	\$1,914,340	\$600,732	\$1,180,850	\$841,250	\$1,558,230
RCN	\$4,506,840	\$1,450,982	\$1,610,450	\$1,941,150	\$3,244,262
Total Dep. %	42.48%	41.40%	73.32%	43.34%	48.03%

Total Dep. %	42.48%	41.40%	73.32%	43.34%	48.03%
Age/Effective Age	15	13	24	17	18
Annual Dep. %	2.83%	3.18%	3.06%	2.55%	2.67%
Physical Dep. %	2.50%	2.50%	2.50%	2.55%	2.50%
Functional-External Obsolescence % Annual	0.33%	0.68%	0.56%	0.00%	0.17%
Functional-External Obsolescence % Total	4.98%	8.90%	13.32%	-0.01%	3.03%
Accrued Depreciation Type	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market	Mostly Physical and External Soft Market
All sales used in the extraction method have been adjusted for Financing, Sale Conditions, Market Conditions, Rolling Stock, Personal Property, Excess Land, and Deferred Maintenance.					

Physical Depreciation Extraction Summary Chart

2005	2007	2008	2009	2010	2011	2012	2013	2014	2015
2.85%	1.25%	2.63%				2.61%	2.55%	2.55%	2.41%
1.95%	2.30%								2.52%
	2.87%								
Mean / Median	Mean / Median	Mean / Median	Mean / Median	Mean / Median	Mean / Median	Mean / Median	Mean / Median	Mean / Median	Mean / Median
2.40%	2.14%	2.63%	0.00%	0.00%	0.00%	2.61%	2.55%	2.55%	2.47%
2.40%	2.30%	2.63%	0.00%	0.00%	0.00%	2.61%	2.55%	2.55%	2.47%

External Obsolescence Extraction Summary Chart

2005	2007	2008	2009	2010	2011	2012	2013	2014	2015
0.00%	8.73%	28.38%	31.14%	29.31%	15.27%	0.00%	53.58%	31.37%	0.00%
0.00%	0.00%	0.00%		39.36%	20.83%	13.32%	52.84%	45.88%	14.74%
	0.00%			30.74%	29.43%	49.85%	36.14%	15.19%	0.00%
	0.00%				8.90%	58.01%	69.86%	24.22%	26.72%
						30.51%	0.00%	3.03%	
						24.10%		0.00%	
						4.98%			
Mean / Median	Mean / Median	Mean / Median	Mean / Median	Mean / Median	Mean / Median	Mean / Median	Mean / Median	Mean / Median	Mean / Median
0.00%	2.18%	14.19%	31.14%	33.14%	18.61%	25.82%	42.48%	19.95%	10.37%
0.00%	0.00%	14.19%	31.14%	30.74%	18.05%	24.10%	52.84%	19.71%	7.37%

Summary of Depreciation Rates

1. Accrued depreciation rates extracted from comparable sales representing mostly physical incurable depreciation ranged from 1.25 to 2.87 percent per year. The comparable sales indicate a 2.5 percent per year physical depreciation rate. Therefore, 100 percent / 2.5 percent per year indicates a total economic life for the improvements of 40 years. Please see Data Base Sales 1, 2, 6, 7, 10, 11, 30, 32, and 35 in the Depreciation Extraction Charts. Also see Report Sale 4 in the Depreciation Extraction Charts.
2. External obsolescence as a total percentage, extracted from comparable sales for the soft real estate market and the North Bosque River Watershed location, ranged from 28.38 to 31.14 percent. Considering a portion of the indicated rates are for the soft real estate market, the other portion is attributable to the North Bosque location. An amount of 5.0 to 10.0 percent is typically applied as an adjustment for the North Bosque location. Please see Database Sales 3, 5 and 23.
4. External obsolescence as a total percentage was extracted from open lot and freestall barn dairy sales. Most of the external obsolescence is attributable to the soft dairy real estate market.

External obsolescence attributable to the soft real estate market, extracted from the database comparable sales ranged from 3.03 to 69.86 percent. Thirty (31) sales indicate external obsolescence. Nine (9) sales indicate no external obsolescence.

External obsolescence attributable to the soft real estate market, extracted from the comparable sales used in the Sales Comparison Approach in this appraisal, ranged from 3.03 to 13.32 percent. Four (4) sales indicate external obsolescence. One (1) sale indicates no external obsolescence.

Although full weight can not be placed on a rate developed from one sale, the most recent sales are indicating a significant strengthening of the dairy real estate market. Based on historical market data and supply and demand factors, dairies that are located in the Texas Panhandle and High Plains Region of the U.S. typically sale for more than dairies located in the Central, Eastern and Southern Regions of Texas.

Most of the dairies located in the Texas Panhandle and the High Plains Regions are newer and larger facilities than dairies located in the Central, Southern and Eastern Regions of Texas. Dairies located in the Texas Panhandle and High Plains Regions have a superior access to feed commodities, irrigation water, a trained agricultural workforce, dairy and cheese markets, CAFO Permits, and a dryer climate which is necessary for increasing milk production and placing less stress on the dairy cattle.

It is also noted that the dairy real estate market peaked in 2007-2008 and then declined in 2009 and 2010 due to the downturn in the economy, the extremely low milk prices, and the high feed cost. The dairy market began to rebound in 2013 and peaked again in 2014-2015 due to higher milk prices and lower feed cost. Therefore, dairy sales from the 2007-2008 time period and the 2014-2015 time period show less external obsolescence due to the soft market. Dairy sales from the 2009 to 2013 time period indicate the greatest percentages of external obsolescence due to the soft real estate market.

Based on the available data, it is the appraiser's opinion that dairies in the Texas Panhandle have a 0-10 percent external obsolescence charge in the improvements due to the soft real estate market and dairies in the Central Texas Region have a slightly higher percentage of obsolescence in the improvements due to the inferior location and soft real estate market.

It is also the appraiser's opinion that dairies in the Northern Part of Colorado have a 0-10 percent external obsolescence charge in the improvements due to the soft market and dairies in the Southern Colorado Central Texas Region have a higher percentage of obsolescence in the improvements due to the overall inferior location and the soft real estate market.

The subject dairy is an older facility in fair condition with a significant amount of physical incurable depreciation. The subject dairy property is also located in an inferior area of South-Central Colorado as compared to dairies located in the northeastern portion of Colorado between Loveland and Yuma. The Greeley, Fort Morgan, and Yuma areas of Colorado have superior irrigated land and irrigation water, greater access to numerous types of feed commodities, and superior milk processing facilities for commercial and organic milk products and cheese products. It is also noted that there are no other dairies located in close proximity to the subject. The nearest competing markets with active sales of dairy properties include:

1. Northeastern Colorado between Loveland and Yuma. Most of the dairies in Northeastern Colorado are located in Weld, Morgan, and Yuma Counties.
2. The Texas Panhandle. Most of the dairies in the Texas Panhandle are located in Parmer, Bailey, Castro, Hale, Lamb, Deaf Smith, Hartley, Dallam, Moore, Sherman Counties.
3. Eastern New Mexico scattered from Roswell to Clovis. Most of the dairies in Eastern New Mexico are located in Lea, Roosevelt, Eddy, Curry, and Chaves Counties.
4. Oklahoma Panhandle. There are a few dairies located in the area near Beaver, Texas, and Cimarron Counties.
5. Other areas include Western Kansas, Western Nebraska, and Southeastern Wyoming.

Accrued Depreciation Summary

The following depreciation amounts are applied to the subject dairy improvements. The overall effective age was estimated at thirty-two (32) years. The overall effective age estimate of the subject property, for this analysis, is based on the overall effective age of the primary dairy improvements.

Physical depreciation was estimated at 2.5 percent per year for the dairy improvements and associated improvements.

A functional obsolescence amount of 25.0 percent will be applied to the subject improvements. The functional obsolescence charge is for functional incurable deficiencies in older building structures.

An external obsolescence amount of 25.0 percent will be applied to the subject improvements. The external obsolescence is for the soft dairy real estate market and inferior location.

It is noted that physical depreciation and external obsolescence, as a percentage amount, is applied in the following analysis, exactly as it was extracted from the comparable sales.

Value Indication By Depreciation Extraction Method					
Replacement Cost New					\$2,927,232
Less Physical Curable Depreciation	1.0	\$0	\$0	\$0	
RCN Less Deferred Maintenance Physical Curable Depreciation					\$2,927,232
Less Physical Incurable Depreciation	32 Yrs	-2.5%	-80.0%	(\$2,341,786)	
Physically Depreciated Value of Improvements					\$585,446
Less Functional Obsolescence	1.0	-25.0%	-25.0%	(\$146,362)	
Physically and Functionally Depreciated Value of Improvements					\$439,085
Less External Obsolescence	1.0	-25.0%	-25.0%	(\$109,771)	
Physically, Functionally, and Externally Depreciated Value of Improvements					\$329,314
Accrued Depreciation				(\$2,597,918)	
Final Depreciated Value of Improvements					\$329,314
Add Land Value					\$1,300,000
Value Indication					\$1,629,314
Final Value Rounded					\$1,630,000
Milking Head					594
Value Per Milking Head					\$2,744
*Functional Obsolescence is 25.0% of Physically Depreciated Value (Includes Some of the Old Dairy Structures Only) *External Obsolescence is 25.0% of Physically and Functionally Depreciated Value (Includes Soft Market and Location)					

Value Indication By Depreciation Extraction Method Contributory Value of Attached Milking and Associated Equipment (FF&E)					
Milking and Associated Equipment					
Double 12 Herringbone Milking Equipment					\$300,000
9 Tower Sprinkler					\$90,000
7 Tower Sprinkler					\$70,000
7 Tower Sprinkler					\$70,000
Replacement Cost New					\$530,000
Less Physical Curable Depreciation	1.0	\$0	\$0	\$0	
RCN Less Deferred Maintenance Physical Curable Depreciation					\$530,000
Less Physical Incurable Depreciation	32 Yrs	-2.5%	-80.0%	(\$424,000)	
Physically Depreciated Value of Improvements					\$106,000
Less Functional Obsolescence	1.0	0.0%	0.0%	\$0	
Physically and Functionally Depreciated Value of Improvements					\$106,000
Less External Obsolescence	1.0	-25.0%	-25.0%	(\$26,500)	
Accrued Depreciation				(\$450,500)	
Final Depreciated Value					\$79,500
Contributory Value of Equipment (FF&E)					\$80,000
*No Functional Obsolescence in the Attached Equipment					
*External Obsolescence is 25.0% of Physically and Functionally Depreciated Value (Includes Soft Market and Location)					

Cost Approach Summary

In applying this approach, the first step is to form an opinion of value of the subject site, as if vacant. An as vacant land value opinion of \$1,300,000 was indicated for the subject 1,018.78 acres.

The total estimated cost new (RCN) of all of the dairy and associated improvements amounted to \$2,927,232. There is no physical curable depreciation. Physical incurable depreciation was estimated at 80 percent of RCN. The functional obsolescence charge of 25 percent applies to older dairy structures only, not equipment or dwellings. External obsolescence due to the soft real estate market and inferior location was estimated at 25 percent of physically and functionally depreciated value. Total accrued depreciation based on the extraction method was \$2,597,918. The accrued depreciation was deducted from RCN leaving a final depreciated value of the dairy improvements, associated improvements, and attached equipment of \$329,314.

In the depreciation extraction method, the depreciated value of the improvements of \$329,314 and the land value of \$1,300,000 for the subject site were added, resulting in a final value of \$1,630,000 rounded.

The depreciated contributory value opinion of the attached milking and associated equipment is \$80,000 rounded.

Cost Approach Conclusion and Value Breakdown

Cost Approach Value Breakdown	
Cost Approach Value Opinion	\$1,630,000
Land Value Opinion As if Vacant	\$1,300,000
Contributory Value of Improvements and Equipment	\$330,000
Contributory Value of Attached Milking and Sprinkler Equipment	\$80,000
Contributory Value of Real Property Structures	\$250,000

The Sales Comparison Approach to Value

The Sales Comparison Approach

The sales comparison approach to value is the process of deriving a value indication for the subject property by comparing similar properties that have recently sold with the property being appraised, identifying appropriate units of comparison, and making adjustments to the sale prices (or unit prices, as appropriate) of the comparable properties based on relevant, market-derived elements of comparison. The sales comparison approach may be used to value improved properties, vacant land, or land being considered as though when an adequate supply of comparable sales is available.³⁶

In the sales comparison approach, the appraiser develops an opinion of value by analyzing closed sales, listings, or pending sales of properties that are similar to the subject property. The comparative techniques of analysis applied in the sales comparison approach are fundamental to the valuation process. Estimates of market rent, expenses, land value, cost, depreciation, and other value parameters may be derived in the other approaches to value using comparative techniques.

Similarly, in applying the sales comparison approach appraisers often analyze conclusions derived in the other approaches to determine the adjustments to be made to the sale prices of comparable properties. In the sales comparison approach, an opinion of market value is developed by comparing properties similar to the subject property that have recently sold, are listed for sale, or are under contract (i.e., for which purchase offers and a deposit have been recently submitted). A major premise of the sales comparison approach is that an opinion of the market value of a property can be supported by studying the market's reaction to comparable and competitive properties.

Comparative analysis of properties and transactions focuses on similarities and differences that affect value, called *elements of comparison*, which may include variations in property rights, financing terms, market conditions, and physical characteristics, among others. Appraisers examine market evidence using paired data analysis, trend analysis, statistics, and other techniques to identify which elements of comparison within the data set of comparable sales are responsible for value differences.

³⁶ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 377.

Applicability

The sales comparison approach is applicable to most types of real property interests when there are sufficient recent, reliable transactions to indicate value patterns or trends in the market. For property types that are bought and sold regularly, the sales comparison approach often provides a credible indication of market value. When data is available, sales comparison can be the most straightforward and simple way to explain and support an opinion of market value.

Procedure

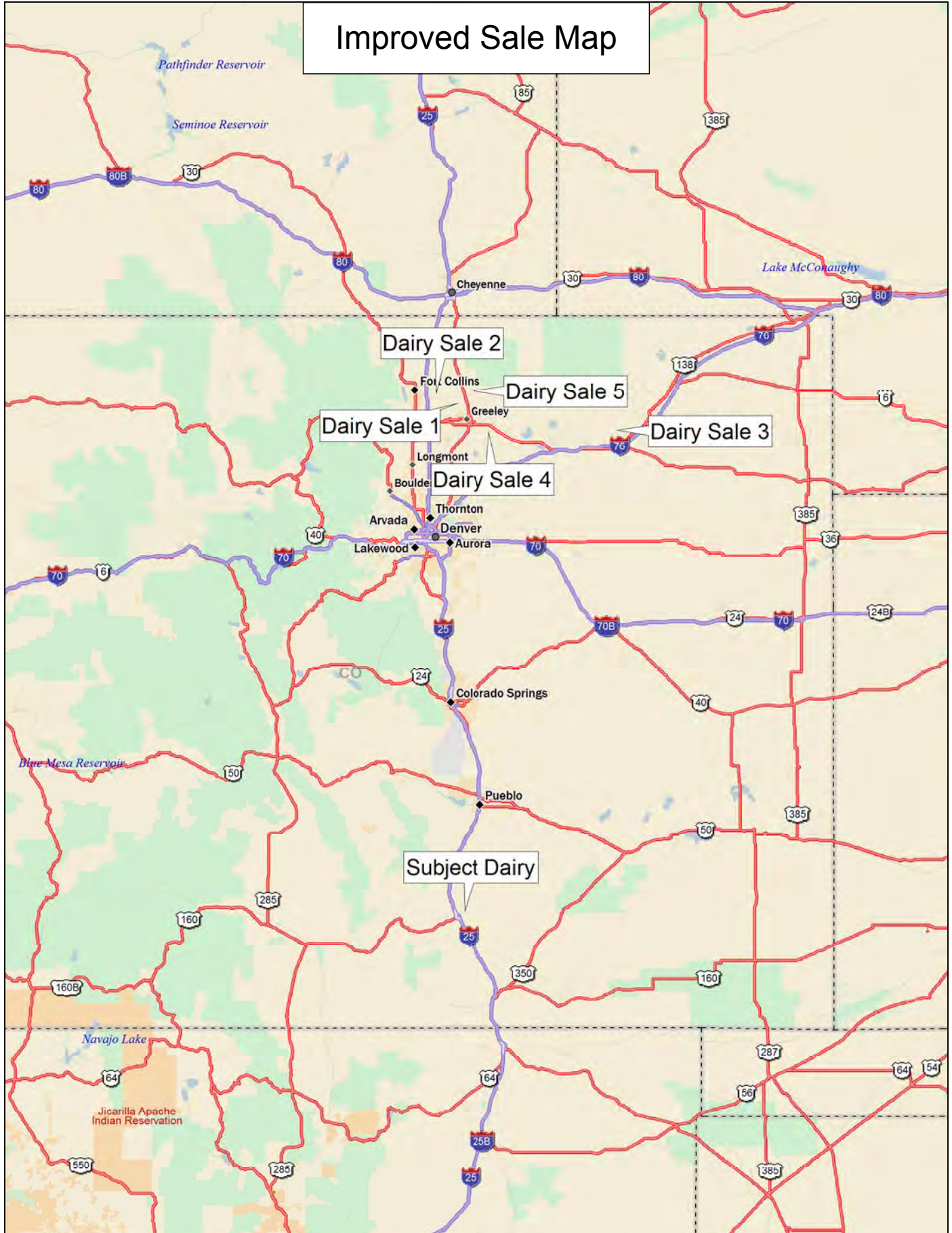
To apply the sales comparison approach, appraisers follow a systematic procedure:

1. Research the competitive market for information on properties that are similar to the subject property and that have recently sold, are listed for sale, or are under contract. Information on agreements of sale, options, listings, and bona fide offers may also be collected. The characteristics of the properties such as property type, date of sale, size, physical condition, location, and land use constraints should be considered. The goal is to find a set of comparable sales or other evidence such as property listings or contracts as similar as possible to the subject property to ensure they reflect the actions of similar buyers. Market analysis and highest and best use analysis set the stage for the selection of appropriate comparable sales.
2. Verify the information by confirming that the data obtained is factually accurate and that the transactions reflect arm's-length market considerations. Verification should elicit additional information about the property such as buyer motivation, economic characteristics (if the property is income-producing), value component allocations, and other significant factors as well as information about the market to ensure that comparisons are credible.
3. Select the most relevant units of comparison used by participants in the market (e.g., price per acre, price per square foot, price per front foot, price per dwelling unit) and develop a comparative analysis for each unit. The appraiser's goal is to define and identify a unit of comparison that explains market behavior.
4. Look for differences between the comparable sale properties and the subject property using all appropriate elements of comparison. Then adjust the price of each sale property, reflecting how it differs, to equate it to the subject property or eliminate that property as a comparable. This step typically involves using the most similar sale properties and then adjusting for any remaining differences. If a transaction does not reflect the actions of a buyer who would also be attracted to the subject property, the appraiser should be concerned about comparability.

5. Reconcile the various value indications produced from the analysis of comparables into a value conclusion. A value opinion can be expressed as a single point estimate, as a range of values, or in terms of a relationship (e.g., more or less than a given amount).

The analysis and comparison of the market information utilized in this approach is included in this section of the report. A description and analysis of comparable dairy properties follows.

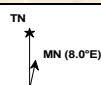
Improved Sale Map



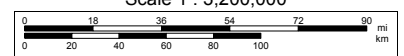
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Scale 1 : 3,200,000



1" = 50.51 mi

Data Zoom 6-0

Dairy Sale 1

Transaction Data

Dairy Name	Painted Prairie Dairy (Freestall Barn Facility)
Location	The property is located in West-Central Weld County, approximately 3.0 miles southwest of Eaton and 6.0 miles northeast of Windsor.
Sale Date	June 29, 2012 Closed
Grantor	Lester Hardesty
Grantee	Long Meadow Farm
Recording	Reception Number 3858486
Legal Description	165 acres of land out of the NW/4 of Section 10, T6N, R66W, 6 th P.M., Weld County, Colorado.
Terms of Sale	Cash to Seller
Sale Price	\$5,500,000
Financing Adjustment	\$0
Cash Equivalent Sale Price	\$5,500,000
Excess Water Taps and Permit	\$2,000,000
Excess Land Allocation	\$0
Adjusted Sale Price Per Milking Head	\$3,500,000
Dairy Milking Capacity	925
Dairy Total Capacity	1,485
Sale Price Per Milking Head	\$5,946
Adj. Sale Price Per Milking Head	\$3,784
Adj. Sale Price Per Total Head	\$2,357
Adj. Sale Price Per Acre	\$21,212

Land Data

Total Land Acres	165.000	
Excess Land Acres	0.000	
Land Acres Needed for Dairy	165.000	
Total Land Acres / Milking Cow	0.178	1.0 Milking Cow
Topography	The terrain is basically level to gently rolling. The soils are typical for the area.	
Minerals	Minimal	
Road Access	Weld CR 31 and CR 72	
Land Mix	The total site area is 165.0 acres. The land is a mix of 45.0 acres dairy site, 100.0 acres of sprinkler	

Dairy Sale 1

	irrigated land, and 20.0 acres of flood irrigated land. The land value is estimated at approximately \$5,500 per acre.
Utilities and Water	Typical rural utilities. Water is 2 x 5/8 inch North Weld Water Taps, 1 x 1.5 inch North Weld Water Tap, 2 Shares of Windsor Reservoir and Canal Company, 1 Share of Larimer and Weld Irrigation Company, and 2 Shares of Lucas Lateral Ditch Company. There are 2 irrigation ponds, 77.2 acre-feet of water / 115 acres of irrigated land = 0.67 acre-feet total.
Wastewater	Lagoon system de-waters to sprinklers.
Land Value Opinion Per Acre	\$5,500
Land Value Opinion	\$907,500

Improvement Data

Main Dairy Buildings	The dairy is improved with a concrete block and galvanized steel construction Double 12 Parallel Milking Parlor expandable to a Double 15. The parlor has an office, equipment room, milk room, chemical room, storage room, and a covered holding pen. The office, equipment and parlor areas are insulated. The parlor has fresh water storage tanks. The parlor is 6,200 square feet.
Freestall Barns	The dairy has a freestall barn capacity of 485 head. The construction is steel framed with a steel roof system and concrete floors.
Dairy Support Buildings	Dairy support buildings include one 2,050 square foot commodity barn with attached concrete loading apron; one 1,765 square foot hospital-special needs barn; 3 hay barns totaling 16,500 square feet; 1 x 1,725 square foot calf barn; cattle shades; and 2 shop buildings totaling 7,180 square feet.
Dairy Feed Lane Improvements	The dairy is improved with a feed lane capacity of 600 mature head plus 400 heifers. The pens are steel pipe and cable construction with attached concrete feed lanes and cow stand lanes. Mature cow and heifer stanchions are attached to the pens adjacent to the feed lanes. Each pen has an adequate watering system and shade.
Milking Equipment	The milking equipment includes 24 milkers with auto-takeoffs, 24 Parallel rapid-exit milking stalls, pulsation equipment, plate cooler, vacuum pumps, air compressors, hot water heaters and storage tanks, milk tank cooling units, 2 x 6,000 gallon Mueller milk storage tanks, stainless steel sanitation equipment, cooling fans in the milking and holding area, auto-crowd gate, 2 x 25,000 water storage tanks, 1 x molasses storage tanks, lighting system, and a 6 stall hospital milking system.
Associated Equipment	Associated equipment includes 1 x Cat 225 KW emergency generator, 1 x 70 foot truck scale, 65,500 square feet of open silos, 2 x 3-Tower sprinkler irrigation systems, and 1 x 5-Tower sprinkler irrigation system.
Dwellings	The dairy is improved with 1 x 3,550 square foot main dwelling at \$288,000; 1 x 1,900 square foot employee dwelling at \$67,000; 1 x 1,000 square foot employee dwelling at \$35,000; and 1 x 1,000 square foot hand dwelling at \$33,000. The total contributory value of the dwellings is \$423,000 or \$457 per milking head.
Site Improvements	The site improvements include excavation and dirt work for the dairy improvements, open pens and feed lanes, silage pads, gravel drives and parking, lagoons, water wells, and underground utilities and pipelines.
YOC	1990 with upgrades afterwards
Permit	The dairy had a Use by Special Review Permit for 1,850 dairy cattle at the time of sale. The total capacity of the dairy is 1,485 head of which 485 head are in freestall barns and 1,000 head are in open lots.

Dairy Sale 1

Comments

The property was listed with AgPro for only two days before it sold to a Michigan Dairyman, Chuck Feldpausch. Feldpausch sold his dairy on a 1031 exchange in Michigan and had been looking for a dairy in the Greeley Colorado area for two years. The buyer, Feldpausch, paid cash for the dairy. The buyer indicated that he paid a premium of \$2,000,000 for the excess permit and extra water taps.

The buyer purchased the equipment, feed, and livestock in a separate transaction for \$52 per ton for the silage and \$1,625 per head for all of the livestock. The location of the dairy was important to the buyer because his wife worked nearby in Fort Collins. The buyer indicated that the large main dwelling and good neighbors were also important factors in purchasing the dairy.

The dairy was in average condition at the time of sale. The property was occupied when it sold.

Improvement RCN Breakdown

Improvement	Units	Price Per Unit	RCN Per Unit	Total	Total RCN
Double 12 Parallel Milking Parlor	24 Milk Units	\$20,000	\$480,000	1	\$480,000
Freestall Barn	485 Head	\$1,600	\$776,000	1	\$776,000
1,000 Hd Open Feed Lanes (2,000 LF)	1,000 Head	\$750	\$750,000	1	\$750,000
Commodity Barn	2,050 SF	\$40	\$82,000	1	\$82,000
Hay Barn	16,500 SF	\$15	\$247,500	1	\$247,500
Hospital Barn	1,765 SF	\$20	\$35,300	1	\$35,300
Shop Building	7,180 SF	\$18	\$129,240	1	\$129,240
D-40 Parallel Milking Equipment	24 Units	\$12,500	\$300,000	1	\$300,000
Single 6 Hospital Milking Equipment	6 Units	\$10,000	\$60,000	1	\$60,000
Truck Scales	1	\$55,000	\$55,000	1	\$55,000
Cat 225 KW Emergency Power Plant	1	\$55,000	\$55,000	1	\$55,000
3 Quarter Mile Sprinklers (11-T)	1	\$110,000	\$110,000	1	\$110,000
4 Dwellings	1	\$676,800	\$676,800	1	\$676,800
Site Improvements Plus Silo Pads	1	\$750,000	\$750,000	1	\$750,000
Total					\$4,506,840

Depreciation Analysis

Adjusted Sale Price	\$3,500,000
Less Land Value	\$907,500
Equals Improvement Value	\$2,592,500
RCN	\$4,506,840
RCN - Imp. Value = Depreciation	\$1,914,340

Dairy Sale 1

Total Depreciation as a Percent (%)	42.48%
Effective Age Estimate (Years)	15.00
Annual Depreciation as a Percent (%)	2.83%

External Obsolescence

Total Depreciation as a Percent (%)	42.48%			
Less Physical Depreciation	37.50%	=	15	2.50% 37.50%
External Obsolescence Soft Market	4.98%			

Income Analysis

Market Rates Typical lease rates range from \$12 to \$17 per head per month for open lot dairies and \$18 to \$26 per head per month for natural ventilated freestall barn dairy facilities. Vacancy Rates are estimated at 10 percent. Lease rates are gross. Expenses range from \$25 to \$40 per milking cow.

	Milking Head	Lease Rate Per Milk Cow	Months	
Dairy Rental Income (Open Lots)	440	\$16.00	12	\$84,480
Dairy Rental Income (Freestall Barn)	485	\$20.00	12	\$116,400
Potential Gross Income				\$200,880
Vacancy and Credit Loss			-10%	(\$20,088)
Effective Gross Income				\$180,792
Operating Expense Per Milking Cow			(\$40)	(\$17,600)
Net Operating Income				\$163,192
Sale Price				\$3,500,000
Overall Rate				4.66%

Aerial Map



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map center: 40° 30' 23.26, 104° 46' 6.85

scale: 4563

Maps provided by:



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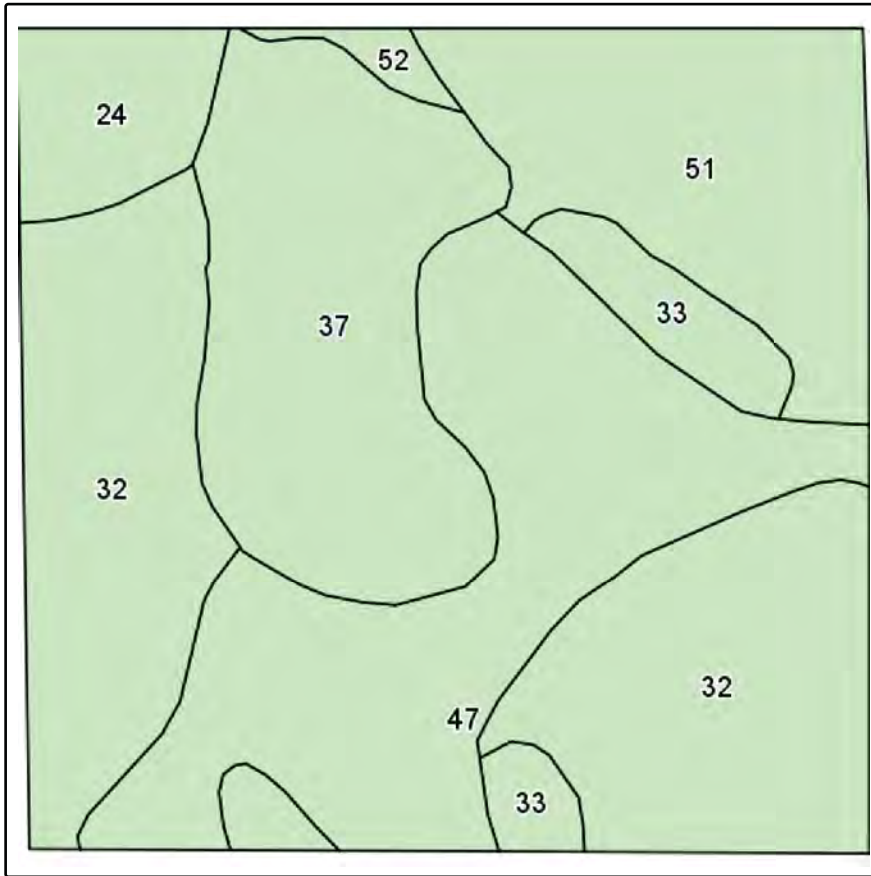
10-6N-66W
Weld County
Colorado



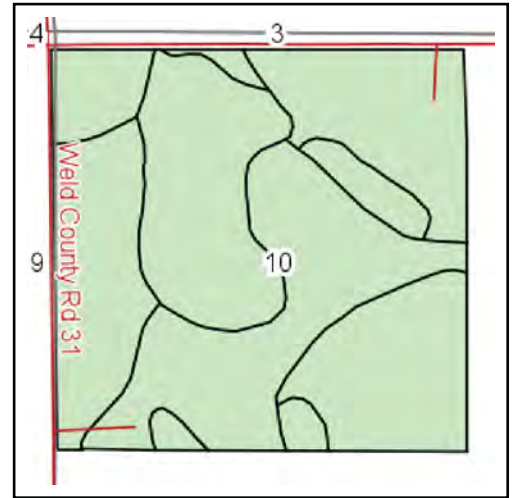
2/19/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

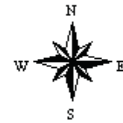
Soils Map



Field borders provided by Farm Service Agency as of 5/21/2008.
Soils data provided by USDA and NRCS.



State: **Colorado**
County: **Weld**
Location: **10-6N-66W**
Township: **Greeley**
Acres: **158.9**
Date: **2/19/2013**



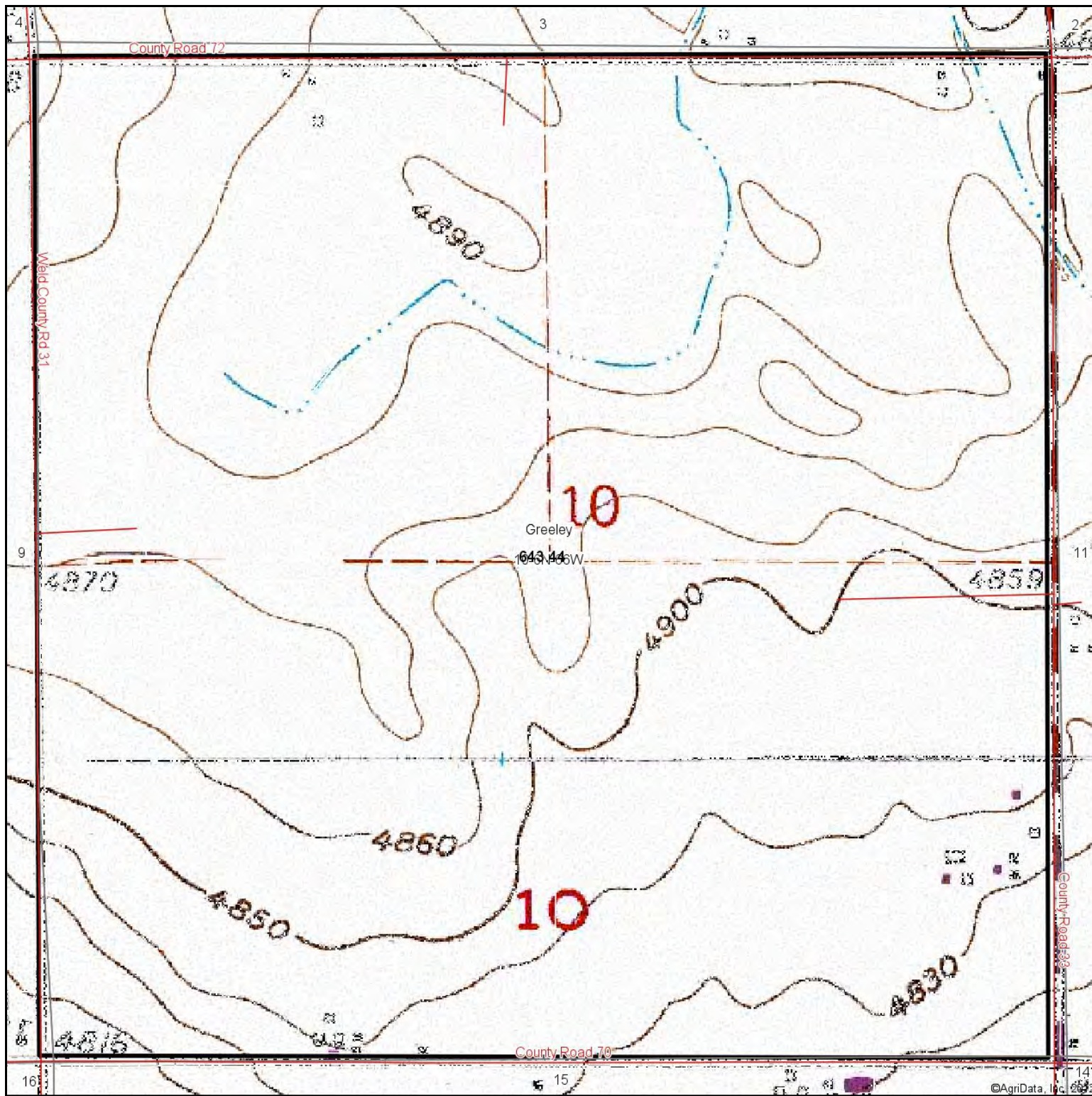
Maps provided by:



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Code	Soil Description	Acres	Percent of field	Non-Irr Class	Irr Class	Barley	Wheat
32	Kim loam, 1 to 3 percent slopes	47.9	30.1%		IVe IIIe		
47	Olney fine sandy loam, 1 to 3 percent slopes	39.7	25.0%		IVc IIIe		
37	Nelson fine sandy loam, 0 to 3 percent slopes	30.3	19.1%		IVe IVe	18	18
51	Otero sandy loam, 1 to 3 percent slopes	23.7	14.9%		IVe IIIe		
33	Kim loam, 3 to 5 percent slopes	8.3	5.2%		IVe IIIe		
24	Fort Collins loam, 1 to 3 percent slopes	7.6	4.8%		IVc IIe		24
52	Otero sandy loam, 3 to 5 percent slopes	1.4	0.9%		IVe IIIe		
Weighted Average						3.4	4.6

Topography Map



map center: 40° 30' 10.77, 104° 45' 49.11

scale: 8679

Maps provided by:



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10-6N-66W
Weld County
Colorado



2/20/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

Dairy Sale 2

Transaction Data

Dairy Name	Dyelands Dairy (Open Lot Facility)
Location	The property is located in Western Weld County, 1.0 mile from the Weld County line. The property is bounded to the south by WCR 80 and on the west by WCR 15. The property is also located 0.5 mile south of Colorado State Highway 14.
Sale Date	July 28, 2011 Closed
Grantor	Erin Barkey
Grantee	Dyelands Dairy LLC
Recording	Reception Number 3782787
Legal Description	55.0 acres of land out of Section 17, T7N, R67W, 6 th P.M., Weld County, Colorado.
Terms of Sale	Cash to Seller
Sale Price	\$1,150,000
Financing Adjustment	\$0
Cash Equivalent Sale Price	\$1,150,000
Rolling Stock	\$0
Excess Land Allocation	\$0
Adjusted Sale Price Per Milking Head	\$1,150,000
Dairy Milking Capacity	400
Dairy Total Capacity	520
Sale Price Per Milking Head	\$2,875
Adj. Sale Price Per Milking Head	\$2,875
Adj. Sale Price Per Total Head	\$2,212
Adj. Sale Price Per Acre	\$20,909

Land Data

Total Land Acres	55.000
Excess Land Acres	0.000
Land Acres Needed for Dairy	55.000
Total Land Acres / Milking Cow	0.138 1.0 Milking Cow
Topography	The terrain is basically level to gently rolling. The soils are typical for the area.
Minerals	Minimal
Road Access	Weld CR 80 and CR 15

Dairy Sale 2

Land Mix	Dairy site and associated land for wastewater application.
Utilities and Water	Typical rural utilities plus a North Weld Water Tap.
Wastewater	Lagoon system de-waters to sprinklers.
Land Value Opinion Per Acre	\$5,450
Land Value Opinion	\$299,750

Improvement Data

Main Dairy Buildings	The dairy is improved with a concrete block and galvanized steel construction Double 6 Herringbone Milking Parlor. The parlor has an office, equipment room, milk room, chemical room, storage room, and a covered holding pen. The office, equipment and parlor areas are insulated. The parlor has fresh water storage tanks. The parlor is 5,003 square feet.
Freestall Barns	No freestall barns.
Dairy Support Buildings	Dairy support buildings include one 4,500 square foot commodity barn with attached 6,000 square foot concrete loading apron; one 1,728 square foot maternity-special needs barn; one hospital barn totaling 2,880 square feet; one 800 square foot shop; two 4,500 square foot cattle shades; one 3,900 square foot cattle shade; and one 2,400 square foot machine shed.
Dairy Feed Lane Improvements	The dairy is improved with a feed lane capacity of 520 mature head. The pens are steel pipe and cable construction with attached concrete feed lanes and cow stand lanes. Mature cow stanchions are attached to the pens adjacent to the feed lanes. Each pen has an adequate watering system and shade.
Milking Equipment	The milking equipment includes 12 milkers with auto-takeoffs, 12 Herringbone rapid-exit milking stalls, pulsation equipment, vacuum pumps, air compressors, hot water heaters and storage tanks, milk tank cooling units, milk storage tanks, stainless steel sanitation equipment, cooling fans in the milking and holding area, water storage tanks, and lighting system.
Associated Equipment	The property is flood irrigated. No sprinklers.
Dwellings	The dairy is improved with 1 x 1,384 square foot 3 bedroom 1 bath main dwelling at \$42,000 or \$105 per milking head.
Site Improvements	The site improvements include excavation and dirt work for the dairy improvements, open pens and feed lanes, silage pads, gravel drives and parking, lagoons, water wells, and underground utilities and pipelines.
YOC	1980-1990 with upgrades and remodeling in 2005.
Permit	The dairy had a Use by Special Review Permit for 900 dairy cattle at the time of sale. The total capacity of the dairy is 520 head of which 400 milking head are in open lots.

Comments	The dairy was in average condition at the time of sale. The property was listed with AgPro and sold in approximately 30 days after it was listed. Terry Dye had previously sold the dairy to Barkey's in 2005 for \$676,500. The sellers reported that they were okay financially, but they decided to sell the property because of the downturn in the industry over the last two to three years.

Improvement RCN Breakdown

Improvement	Units	Price Per Unit	RCN Per Unit	Total	Total RCN

Dairy Sale 2

Double 6 Herringbone Milking Parlor	12 Milk Units	\$20,000	\$240,000	1	\$240,000
Cattle Shades	12,900 SF	\$10	\$129,000	1	\$129,000
520 Hd Open Feed Lanes (1,040 LF)	520 Head	\$750	\$390,000	1	\$390,000
Commodity Barn	4,500 SF	\$40	\$180,000	1	\$180,000
Maternity Barn	1,728 SF	\$20	\$34,560	1	\$34,560
Hospital Barn	2,880 SF	\$20	\$57,600	1	\$57,600
Shop Building	800 SF	\$18	\$14,400	1	\$14,400
Machine Shed	2,400 SF	\$18	\$43,200	1	\$43,200
D-6 Herringbone Milking Equipment	12 Units	\$12,500	\$150,000	1	\$150,000
1 Dwelling	1	\$62,222	\$62,222	1	\$62,222
Site Improvements	1	\$150,000	\$150,000	1	\$150,000
Total					\$1,450,982

Depreciation Analysis

Adjusted Sale Price	\$1,150,000
Less Land Value	\$299,750
Equals Improvement Value	\$850,250
RCN	\$1,450,982
RCN - Imp. Value = Depreciation	\$600,732
Total Depreciation as a Percent (%)	41.40%
Effective Age Estimate (Years)	13.00
Annual Depreciation as a Percent (%)	3.18%

External Obsolescence

Total Depreciation as a Percent (%)	41.40%			
Less Physical Depreciation	32.50%	=	13	2.50% 32.50%
External Obsolescence Soft Market	8.90%			

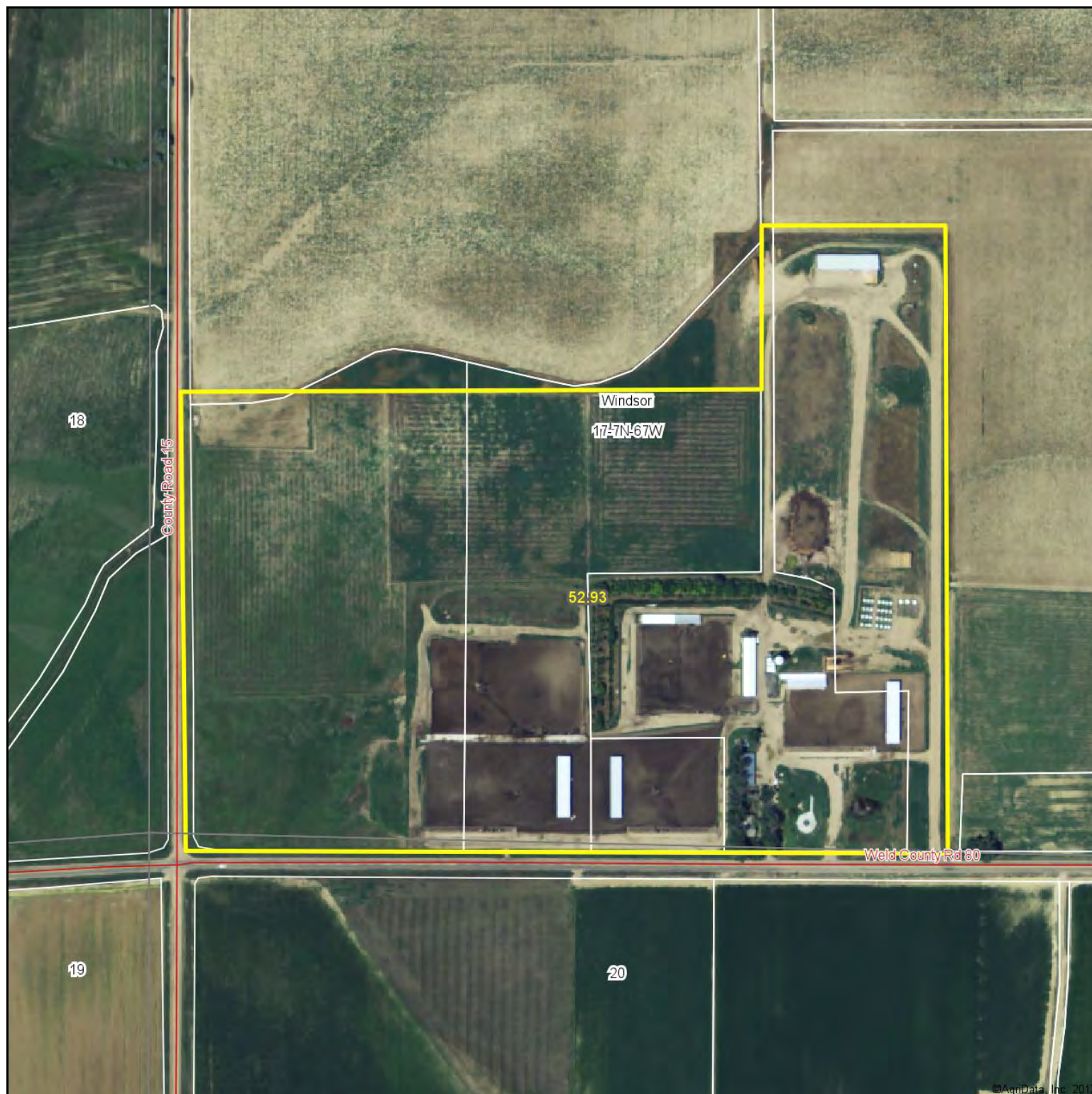
Income Analysis

Market Rates	Typical lease rates range from \$12 to \$17 per head per month for open lot dairies and \$18 to \$26 per head per month for natural ventilated freestall barn dairy facilities. Vacancy Rates are estimated at 10 percent. Lease rates are gross. Expenses range from \$25 to \$40 per milking cow.

Dairy Sale 2

	Milking Head	Lease Rate Per Milk Cow	Months	
Dairy Rental Income (Open Lots)	400	\$15.00	12	\$72,000
Other	0	\$0.00	12	\$0
Potential Gross Income				\$72,000
Vacancy and Credit Loss			-10%	(\$7,200)
Effective Gross Income				\$64,800
Operating Expense Per Milking Cow			(\$40)	(\$16,000)
Net Operating Income				\$48,800
Sale Price				\$1,150,000
Overall Rate				4.24%

Aerial Map



map center: 40° 34' 9.1, 104° 55' 24.45
scale: 4047

Maps provided by:



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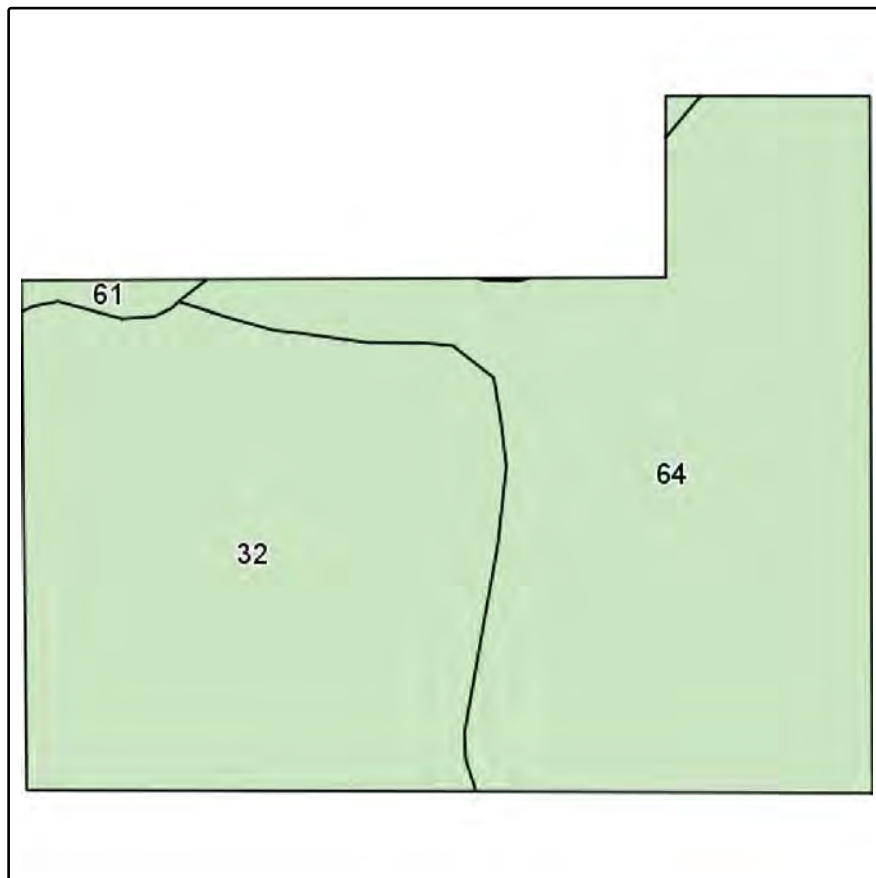
17-7N-67W
Weld County
Colorado



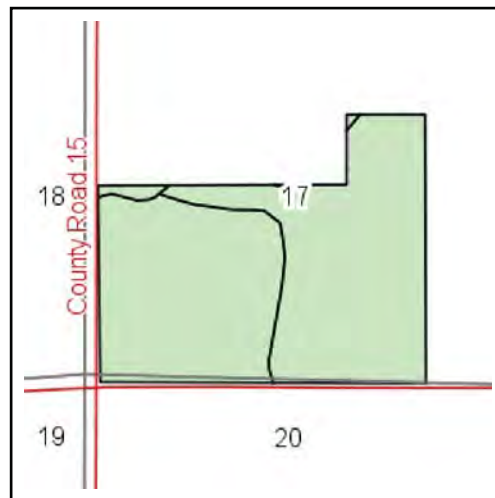
2/20/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

Soils Map



Field borders provided by Farm Service Agency as of 5/21/2008.
Soils data provided by USDA and NRCS.



State: **Colorado**
County: **Weld**
Location: **17-7N-67W**
Township: **Windsor**
Acres: **52.9**
Date: **2/20/2013**



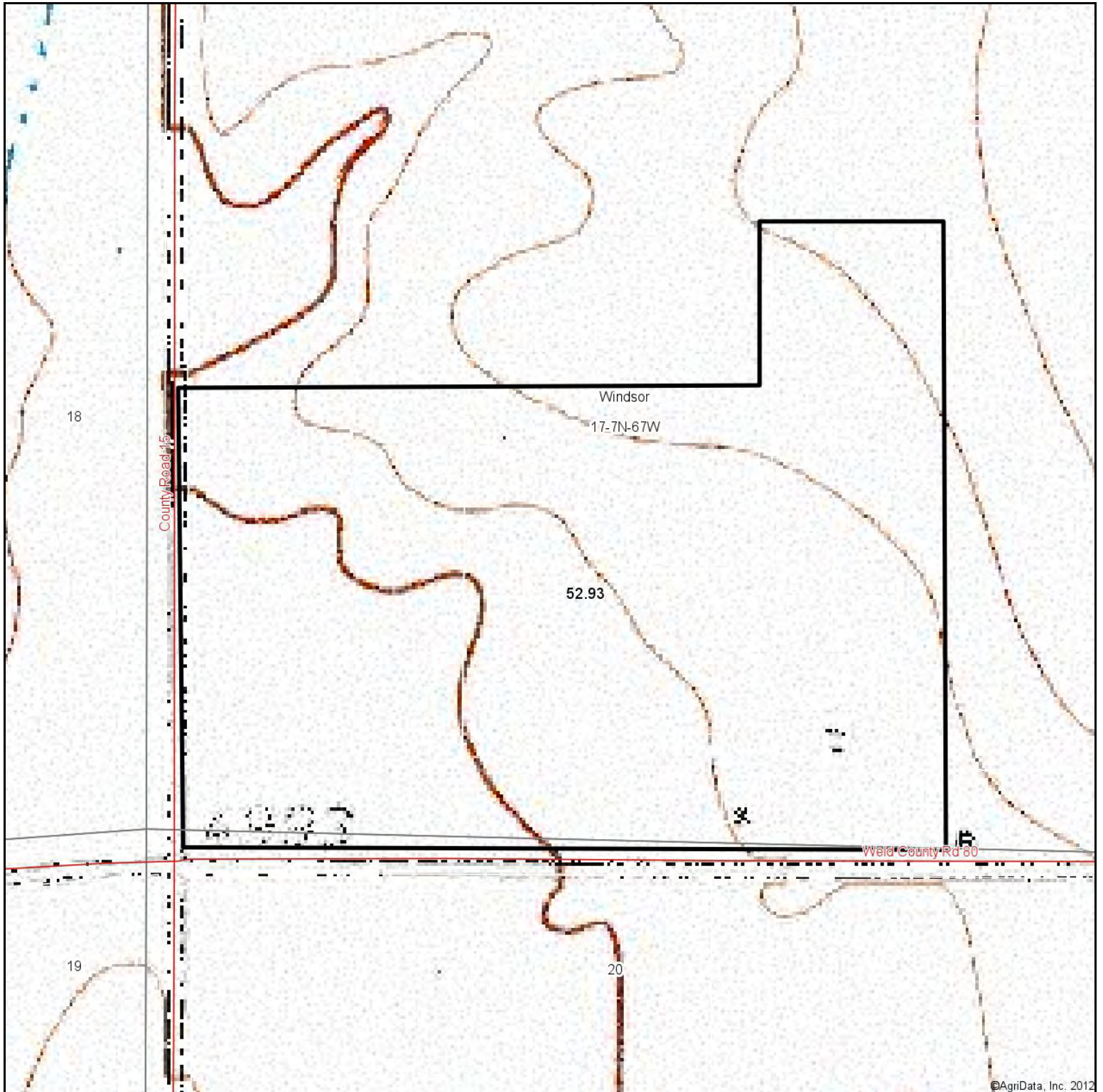
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Code	Soil Description	Acres	Percent of field	Non-Irr Class	Irr Class	Barley	Wheat
64	Thedalund loam, 1 to 3 percent slopes	28	53.1%	IVe	IVs	20	20
32	Kim loam, 1 to 3 percent slopes	24.2	45.7%	IVe	IIIe		
61	Tassel fine sandy loam, 5 to 20 percent slopes	0.7	1.2%	VIe	VIe		
Weighted Average						10.6	10.6

Topography Map



map center: 40° 34' 9.1, 104° 55' 24.45

scale: 4047

Maps provided by:



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17-7N-67W
Weld County
Colorado



2/20/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

Dairy Sale 3

Transaction Data

Dairy Name	Sage Brush Dairy (Open Lot Facility)
Location	The property is located northeast of Fort Morgan and one mile northwest of Snyder, in Morgan County, Colorado.
Sale Date	January 6, 2012 Closed
Grantor	Lane E. Evans
Grantee	Chapin Dairy II LLC
Recording	Reception Number 873646
Legal Description	320 acres of land out of the SW/4 of Section 26 and the SE/4 of Section 27, T5N, R56W, 6 th P.M., Morgan County, Colorado.
Terms of Sale	Cash to Seller
Sale Price	\$1,100,000
Financing Adjustment	\$0
Cash Equivalent Sale Price	\$1,100,000
Rolling Stock	\$0
Excess Land Allocation	\$0
Adjusted Sale Price Per Milking Head	\$1,100,000
Dairy Milking Capacity	400
Dairy Total Capacity	550
Sale Price Per Milking Head	\$2,750
Adj. Sale Price Per Milking Head	\$2,750
Adj. Sale Price Per Total Head	\$2,000
Adj. Sale Price Per Acre	\$3,438

Land Data

Total Land Acres	320.000
Excess Land Acres	0.000
Land Acres Needed for Dairy	320.000
Total Land Acres / Milking Cow	0.800 1.0 Milking Cow
Topography	The terrain is basically level to gently rolling. The soils are typical for the area.
Minerals	Minimal
Road Access	MCR Z and MCR 28

Dairy Sale 3

Land Mix	The total site area is 320.0 acres. The land is a mix of 45.0 acres dairy site, 125.0 acres of sprinkler irrigated land, 45.0 acres dryland cropland, 70.0 acres pasture, and 25.0 acres of flood irrigated land. The land value is estimated at approximately \$2,095 per acre.
Utilities and Water	Typical rural utilities. Water is 2 x 0.75 inch Morgan Water Taps, 1 x 650 gpm irrigation well on Section 27 supplies water to a reservoir which supplies water to one sprinkler. Riverside District acres on Section 26 supplies water to a second reservoir which supplies water to a second sprinkler.
Wastewater	Lagoon system de-waters to sprinklers.
Land Value Opinion Per Acre	\$2,095
Land Value Opinion	\$670,400

Improvement Data

Main Dairy Buildings	The dairy is improved with a concrete block and galvanized steel construction Double 7 Herringbone Milking Parlor. The parlor has an office, equipment room, milk room, chemical room, storage room, and a covered holding pen. The office, equipment and parlor areas are insulated. The parlor has fresh water storage tanks. The parlor is 3,150 square feet.
Freestall Barns	No freestall barns.
Dairy Support Buildings	Dairy support buildings include one 1,750 square foot commodity barn with 4 bays and attached concrete loading apron; 1 x 2,000 square foot shop building; 1 x 3,600 square foot shop building; and 10,200 square feet of cattle shades.
Dairy Feed Lane Improvements	The dairy is improved with a feed lane capacity of 500 mature head or 1,000 linear feet. The pens are steel pipe and cable construction with attached concrete feed lanes and cow stand lanes. Mature cow stanchions are attached to the pens adjacent to the feed lanes. Each pen has an adequate watering system and shade.
Milking Equipment	The milking equipment includes 14 milkers with auto-takeoffs, 14 Herringbone rapid-exit milking stalls, pulsation equipment, vacuum pumps, air compressors, hot water heaters and storage tanks, milk tank cooling units, milk storage tanks, stainless steel sanitation equipment, cooling fans in the milking and holding area, water storage tanks, and lighting system.
Associated Equipment	Associated equipment includes 2 x sprinkler irrigation systems, 2 x reservoirs, numerous pumps, and flood irrigation.
Dwellings	The dairy is improved with 1 x 2,570 square foot main dwelling; 1 x 2,100 square foot employee dwelling; and 1 x 1,300 square foot employee dwelling. The total contributory value of the dwellings is \$115,200 or \$288 per milking head.
Site Improvements	The site improvements include excavation and dirt work for the dairy improvements, open pens and feed lanes, silage pads, gravel drives and parking, lagoons, water wells, and underground utilities and pipelines.
YOC	1986 with upgrades in 2005, 2009, and 2010.
Permit	The dairy had a Use by Special Review Permit for 500 dairy cattle at the time of sale. The total capacity of the dairy is 500 head of which 400 head are milking in open lots.

Comments	The dairy was in average condition at the time of sale. The dairy farm sold at auction on \$1,100,000. The cattle and rolling stock sold separately. Little interest was shown in the dairy property at auction. The buyers are local dairy operators located several miles to the west at Weldona. The buyers purchased the property for expansion purposes.

Dairy Sale 3

Improvement RCN Breakdown

Improvement	Units	Price Per Unit	RCN Per Unit	Total	Total RCN
Double 7 Herringbone Milking Parlor	14 Milk Units	\$15,000	\$210,000	1	\$210,000
500 Hd Open Feed Lanes (1,000 LF)	500 Head	\$750	\$375,000	1	\$375,000
Commodity Barn	1,750 SF	\$35	\$61,250	1	\$61,250
Cattle Shades	10,200 SF	\$8	\$81,600	1	\$81,600
Shop Building	2,000 SF	\$16	\$32,000	1	\$32,000
Shop Building	3,600 SF	\$16	\$57,600	1	\$57,600
D-14 Parallel Milking Equipment	14 Units	\$12,500	\$175,000	1	\$175,000
2 Sprinklers	1	\$160,000	\$160,000	1	\$160,000
3 Dwellings	1	\$288,000	\$288,000	1	\$288,000
Site Improvements	1	\$170,000	\$170,000	1	\$170,000
Total					\$1,610,450

Depreciation Analysis

Adjusted Sale Price	\$1,100,000
Less Land Value	\$670,400
Equals Improvement Value	\$429,600
RCN	\$1,610,450
RCN - Imp. Value = Depreciation	\$1,180,850
Total Depreciation as a Percent (%)	73.32%
Effective Age Estimate (Years)	24.00
Annual Depreciation as a Percent (%)	3.06%

External Obsolescence

Total Depreciation as a Percent (%)	73.32%			
Less Physical Depreciation	60.00%	=	24	2.50% 60.00%
External Obsolescence Soft Market	13.32%			

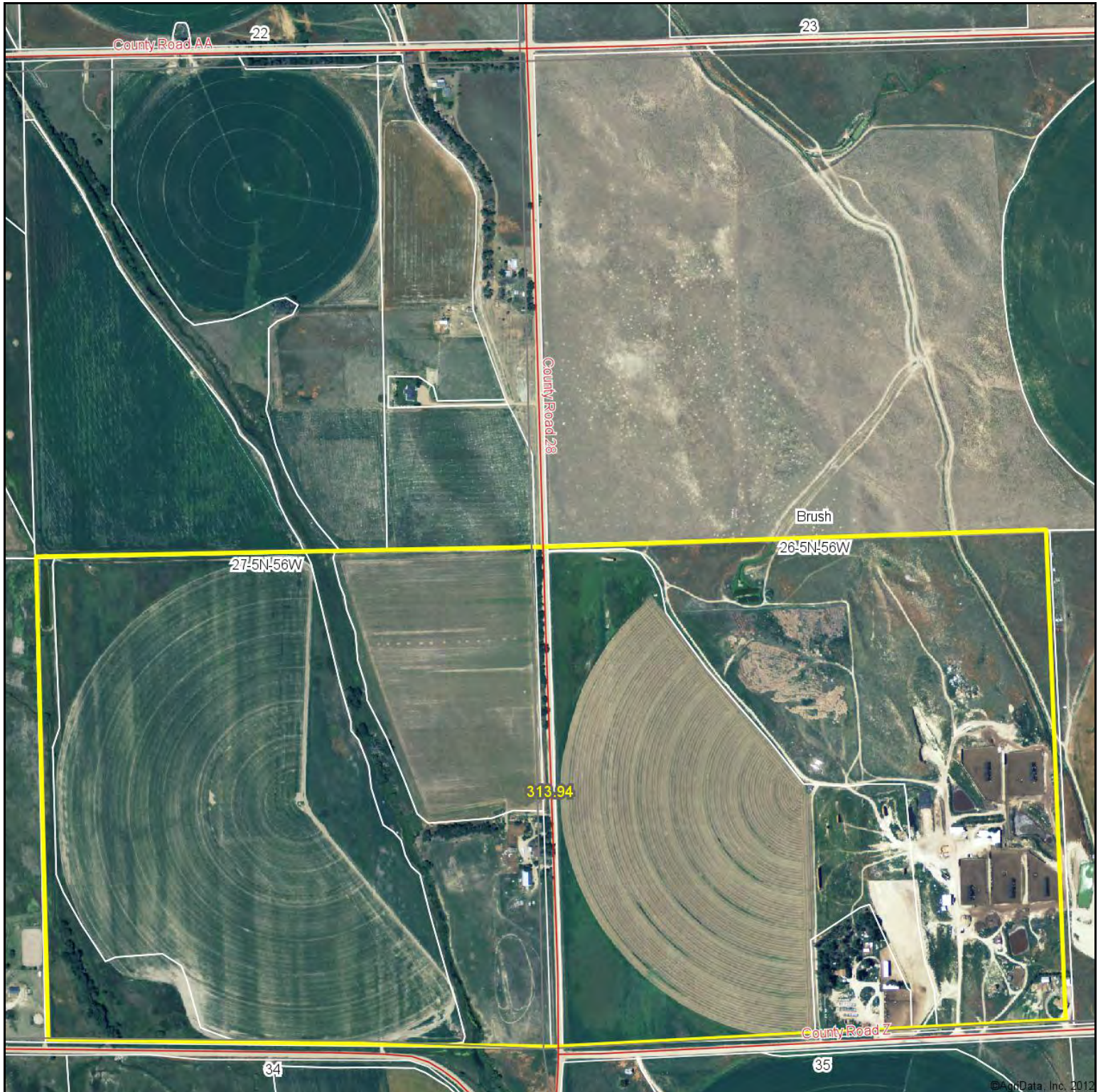
Income Analysis

Dairy Sale 3

Market Rates Typical lease rates range from \$12 to \$17 per head per month for open lot dairies and \$18 to \$26 per head per month for natural ventilated freestall barn dairy facilities. Vacancy Rates are estimated at 10 percent. Lease rates are gross. Expenses range from \$25 to \$40 per milking cow.

	Milking Head	Lease Rate Per Milk Cow	Months	
Dairy Rental Income (Open Lots)	400	\$15.00	12	\$72,000
Other	0	\$0.00	12	\$0
Potential Gross Income				\$72,000
Vacancy and Credit Loss			-10%	(\$7,200)
Effective Gross Income				\$64,800
Operating Expense Per Milking Cow			(\$40)	(\$16,000)
Net Operating Income				\$48,800
Sale Price				\$1,100,000
Overall Rate				4.44%

Aerial Map



map center: 40° 22' 11.99, 103° 37' 1.91

scale: 8630

Maps provided by:



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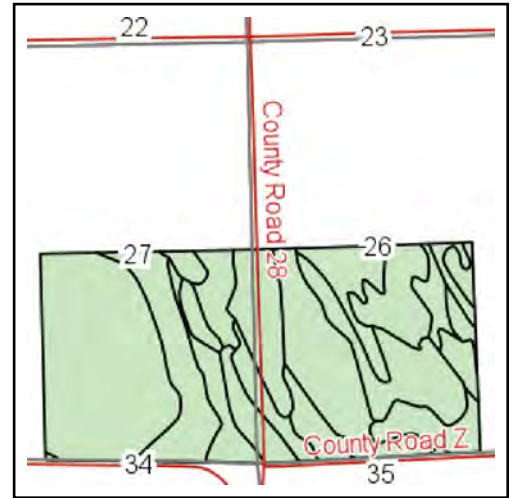
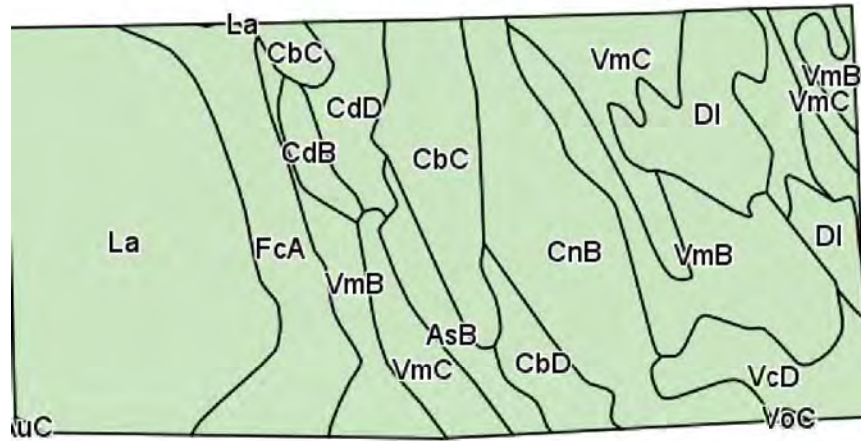
26-5N-56W
Morgan County
Colorado



5/4/2012

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

Soils Map



State: **Colorado**
 County: **Morgan**
 Location: **26-5N-56W**
 Township: **Brush**
 Acres: **313.9**
 Date: **5/4/2012**

Field borders provided by Farm Service Agency as of 5/21/2008.
 Soils data provided by USDA and NRCS.

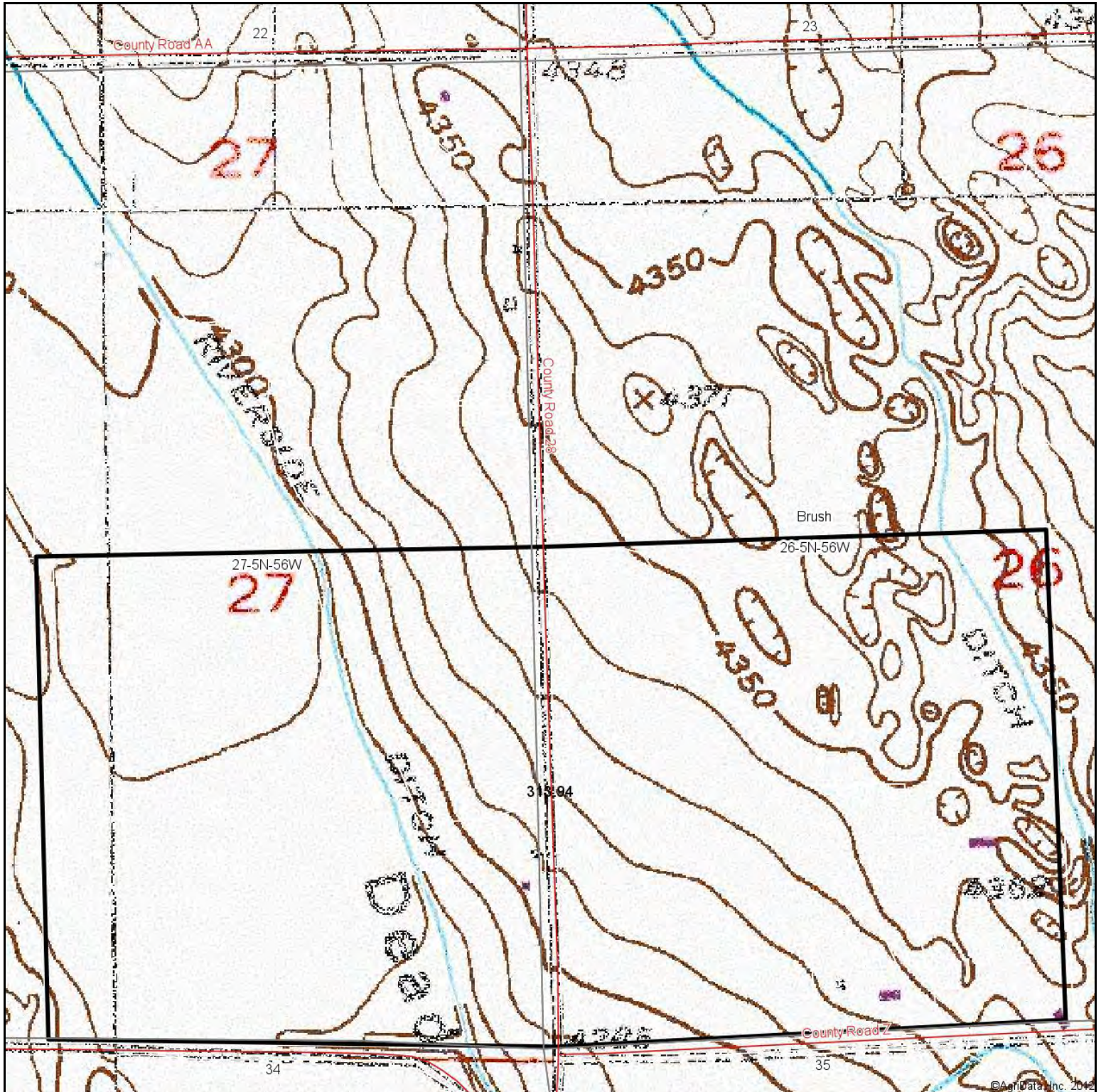


Maps provided by:



Code	Soil Description	Acres	Percent of field	Non-Irr Class	Irr Class	Alfalfa hay	Annual hay crop	Corn	Sunflowers	Wheat
La	Las loam, saline	80.1	25.5%	IVw	IIw					
VmB	Vona loamy sand, 1 to 3 percent slopes	42.4	13.5%	IVe	IIIe			30	700	18
CnB	Colby-Adena loams, 1 to 3 percent slopes	36.1	11.5%	IVe	IIIe			50	800	25
VmC	Vona loamy sand, 3 to 5 percent slopes	28.5	9.1%	VIe	IVe			30	700	18
FcA	Fort Collins loam, 0 to 1 percent slopes	28	8.9%	IVc	Ile			60	1000	35
CbC	Colby loam, 3 to 5 percent slopes	23.8	7.6%	IVe	IIIe			50	800	30
DI	Dune land	22	7.0%	VIIIe						
VcD	Valent sand, 5 to 25 percent slopes	15.4	4.9%	VIe	VIe					
CdD	Colby sandy loam, 5 to 9 percent slopes	9.9	3.2%	VIe	VIe					
AsB	Ascalon loamy sand, 1 to 3 percent slopes	8.7	2.8%	IIIe	IIIe	1.5	1.5	24	1000	25
CbD	Colby loam 5 to 9 percent slopes	8.2	2.6%	VIe	VIe					20
VmD	Vona-Dwyer loamy sands, 5 to 9 percent slopes	6.2	2.0%	VIe						
CdB	Colby sandy loam, 1 to 3 percent slopes	4.2	1.3%	IVe	IIIe			50	800	
AuC	Ascalon sandy loam, 3 to 5 percent slopes	0.2	0.1%	IIIe	IIIe	1.5	1.5	30	1000	30
VoC	Vona sandy loam, 3 to 5 percent slopes	0.2	0.1%	IVe	IIIe			35	700	20
Weighted Average						0	0	23.1	440.1	13.6

Topography Map



map center: 40° 22' 11.99, 103° 37' 1.91

scale: 8630

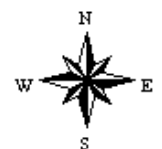
Maps provided by:



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26-5N-56W
Morgan County
Colorado



5/4/2012

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

Dairy Sale 4

Transaction Data

Dairy Name	Grenemyer Dairy
Location	The property is located 2.0 miles south of Kersey along CR 50 and CR 55, in Weld County, Colorado.
Sale Date	October 28, 2014 Closed
Grantor	Michael Grenemyer
Grantee	Jerrold Brethauer
Recording	Reception Number 4057616
Legal Description	300 acres of land out of Sections 3 and 4, T4N, R64W, Weld County, Colorado.
Terms of Sale	Cash to Seller
Sale Price	\$2,200,000
Financing Adjustment	\$0
Cash Equivalent Sale Price	\$2,200,000
Rolling Stock	\$0
Excess Land Allocation	\$0
Adjusted Sale Price Per Milking Head	\$2,200,000
Dairy Milking Capacity	550
Dairy Total Capacity	690
Sale Price Per Milking Head	\$4,000
Adj. Sale Price Per Milking Head	\$4,000
Adj. Sale Price Per Total Head	\$3,188
Adj. Sale Price Per Acre	\$7,333

Land Data

Total Land Acres	300.000
Excess Land Acres	0.000
Land Acres Needed for Dairy	300.000
Total Land Acres / Milking Cow	0.545 1.0 Milking Cow
Topography	The terrain is basically level. The soils are a mix of sandy and fine sandy loam.
Minerals	The seller retained all of the oil, gas and mineral rights.
Road Access	FM 1172 and County Roads S, T, and 25.
Land Mix	The total site area is 300.0 acres. The land is a mix of 25.0 acres dairy site, 240.0 acres of sprinkler irrigated circles, 30.0 acres of grass, and 5.0 acres roads and waste. The land value is estimated at

Dairy Sale 4

	approximately \$3,667 per acre or \$1,100,100 rounded.
Utilities and Water	Typical utilities for the area. One 3/4 inch CWCWD Tap for the dairy and a residential tap for the dwelling. Surface water rights are 35.5 shares of FRICO (Milton) = 7.77 acre-foot per share and four shares of the Bailey Ditch Company. The field water is supplemented with manure water from the lagoons which is pumped by a floating irrigation pump to two 7-Tower sprinkler irrigation systems. The farm land is also improved with irrigation ponds on both sides of CR 55.
Wastewater	Lagoons de-water to two 7-Tower sprinklers.
Land Value Opinion Per Acre	\$3,667
Land Value Opinion	\$1,100,100

Improvement Data

Main Dairy Buildings	The dairy is improved with a concrete block and galvanized steel construction Double 8 Herringbone Milking Parlor. The parlor has a small office, equipment room, milk room, chemical room, storage room, break room, and a covered holding pen. The covered holding pen has a 100 cow capacity. The office, equipment and parlor areas are insulated. The parlor has fresh water storage tanks and a recycled water storage tank.
Dairy Support Buildings	Dairy support buildings include three freestall barns with a 320 cow capacity, one 2,400 square foot hospital barn, one 1,800 square foot corn shed, one 11,000 square foot hay shed, and one 3,200 square foot shop building.
Dairy Feed Lane Improvements	The dairy is improved with 740 linear feet of open feed lane with a 370 head capacity. The pens are steel pipe and cable construction with attached concrete feed lanes and cow stand lanes. Stanchions are attached to the pens adjacent to the feed lanes. Some feed lanes are open without stanchions. Each pen has an adequate watering system.
Milking Equipment	The milking equipment includes 16 milkers with auto-takeoffs, 16 Herringbone rapid-exit milking stalls, pulsation equipment, a vacuum system, Quincy air compressors, hot water heaters and storage tanks, milk cooling units, a 6,000 gallon milk storage tank, a 1,500 gallon milk storage tank, stainless steel sanitation equipment, cooling fans, and lighting system.
Associated Equipment	Associated equipment includes 2 x 7-Tower sprinkler irrigation systems.
Dwellings	The dairy is improved with a 1,610 square foot dwelling.
Site Improvements	The site improvements include excavation and dirt work for the dairy improvements, open pens and feed lanes, silage pads, gravel drives and parking, lagoons, irrigation ditches, and underground utilities and pipelines.
YOC	Most of the improvements were constructed in 1990.
Permit	Weld County Use by Special Review Permit.

Comments

The property was not listed for sale on the open market when it sold. The property was purchased by the tenant. The lease was reported at \$13 per milking cow per month.

Improvement RCN Breakdown

Improvement	Units	Price Per Unit	RCN Per Unit	Total	Total RCN
Double 8 Herringbone Milking Parlor	16 Units	\$15,000	\$240,000	1	\$240,000

Dairy Sale 4

Freestall Barns 320 Head	320 Head	\$1,400	\$448,000	1	\$448,000
Open Feed Lanes and Pens 370 Head	370 Head	\$750	\$277,500	1	\$277,500
Commodity Barn	1,800 SF	\$25	\$45,000	1	\$45,000
Hay Barn	11,000 SF	\$10	\$110,000	1	\$110,000
Hospital Barn	2,400 SF	\$20	\$48,000	1	\$48,000
Shop Building	3,200 SF	\$20	\$64,000	1	\$64,000
D-8 Herringbone Milking Equipment	16 Units	\$12,500	\$200,000	1	\$200,000
Dwelling	1,610 SF	\$65	\$104,650	1	\$104,650
2 Quarter Mile Sprinklers (7-T)	2	\$77,000	\$154,000	1	\$154,000
Site Imp.	1	\$250,000	\$250,000	1	\$250,000
Total					\$1,941,150

Depreciation Analysis

Adjusted Sale Price	\$2,200,000
Less Land Value	\$1,100,100
Equals Improvement Value	\$1,099,900
RCN	\$1,941,150
RCN - Imp. Value = Depreciation	\$841,250
Total Depreciation as a Percent (%)	43.34%
Effective Age Estimate (Years)	17.00
Annual Depreciation as a Percent (%)	2.55%

External Obsolescence

Total Depreciation as a Percent (%)	43.34%			
Less Physical Depreciation	42.50%	=	17	2.50% 42.50%
External Obsolescence Soft Market	0.84%			

Income Analysis

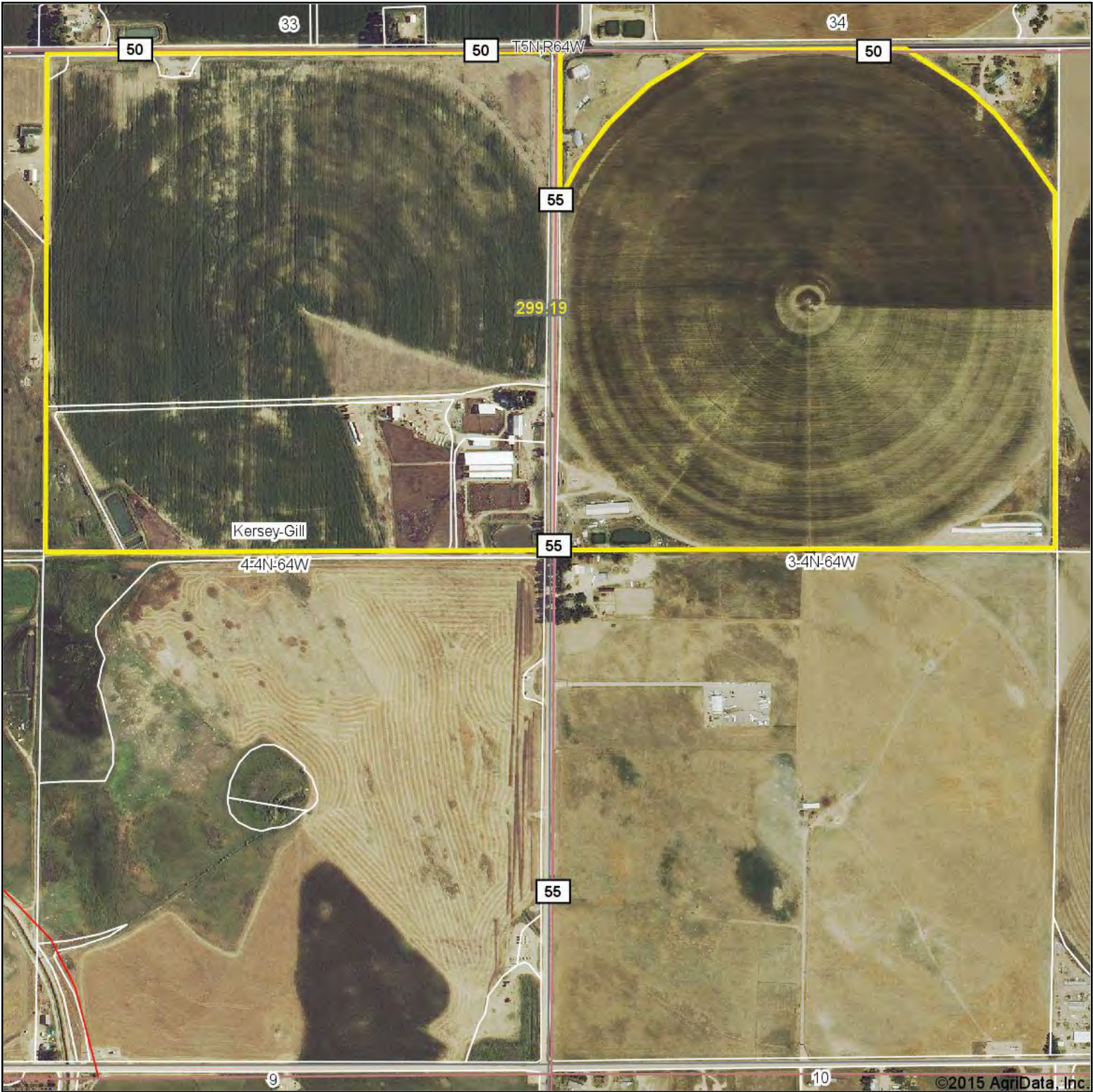
Market Rates Typical lease rates range from \$12 to \$17 per head per month for open lot dairies and \$18 to \$26 per head per month for natural ventilated freestall barn dairy facilities. Vacancy Rates are estimated at 10 percent. Lease rates are gross. Expenses range from \$25 to \$40 per milking cow.

Milking Head	Lease Rate Per Milk	Months
	Cow	

Dairy Sale 4

Dairy Rental Income	550	\$13.00	12	\$85,800
Additional Income	0	\$0.00	12	\$0
Potential Gross Income				\$85,800
Vacancy and Credit Loss			-10%	(\$8,580)
Effective Gross Income				\$77,220
Operating Expense Per Milking Cow			(\$20)	(\$11,000)
Net Operating Income				\$66,220
Sale Price				\$2,200,000
Overall Rate				3.01%

Aerial Map



map center: 40° 20' 29.32, 104° 32' 45.25



Maps Provided By:

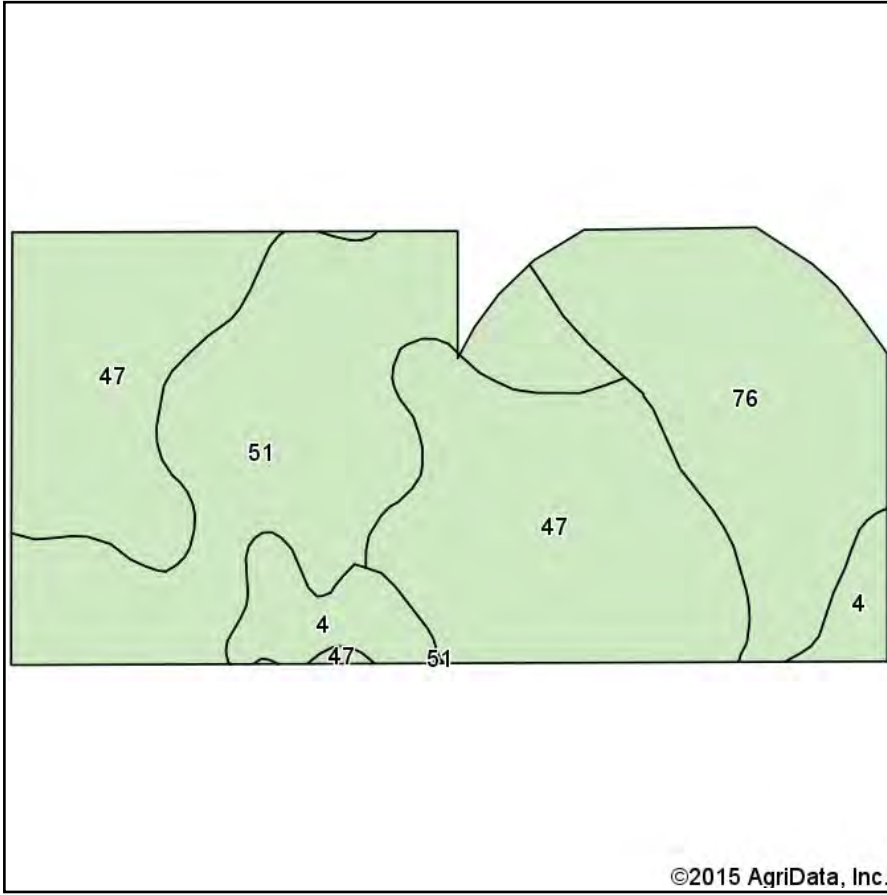
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4-4N-64W
Weld County
Colorado

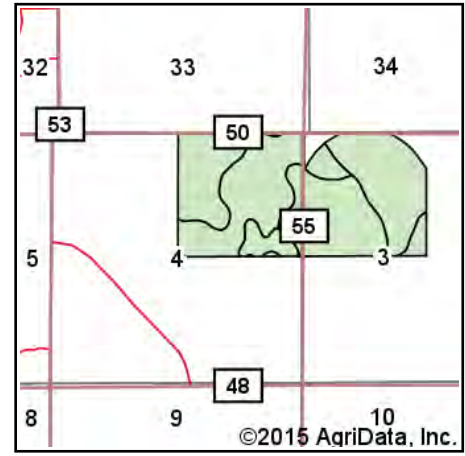


11/13/2015

Soil Map



Soils data provided by USDA and NRCS.



State: **Colorado**
 County: **Weld**
 Location: **4-4N-64W**
 Township: **Kersey-Gill**
 Acres: **299.19**
 Date: **11/13/2015**

Maps Provided By:



Area Symbol: CO618, Soil Area Version: 13

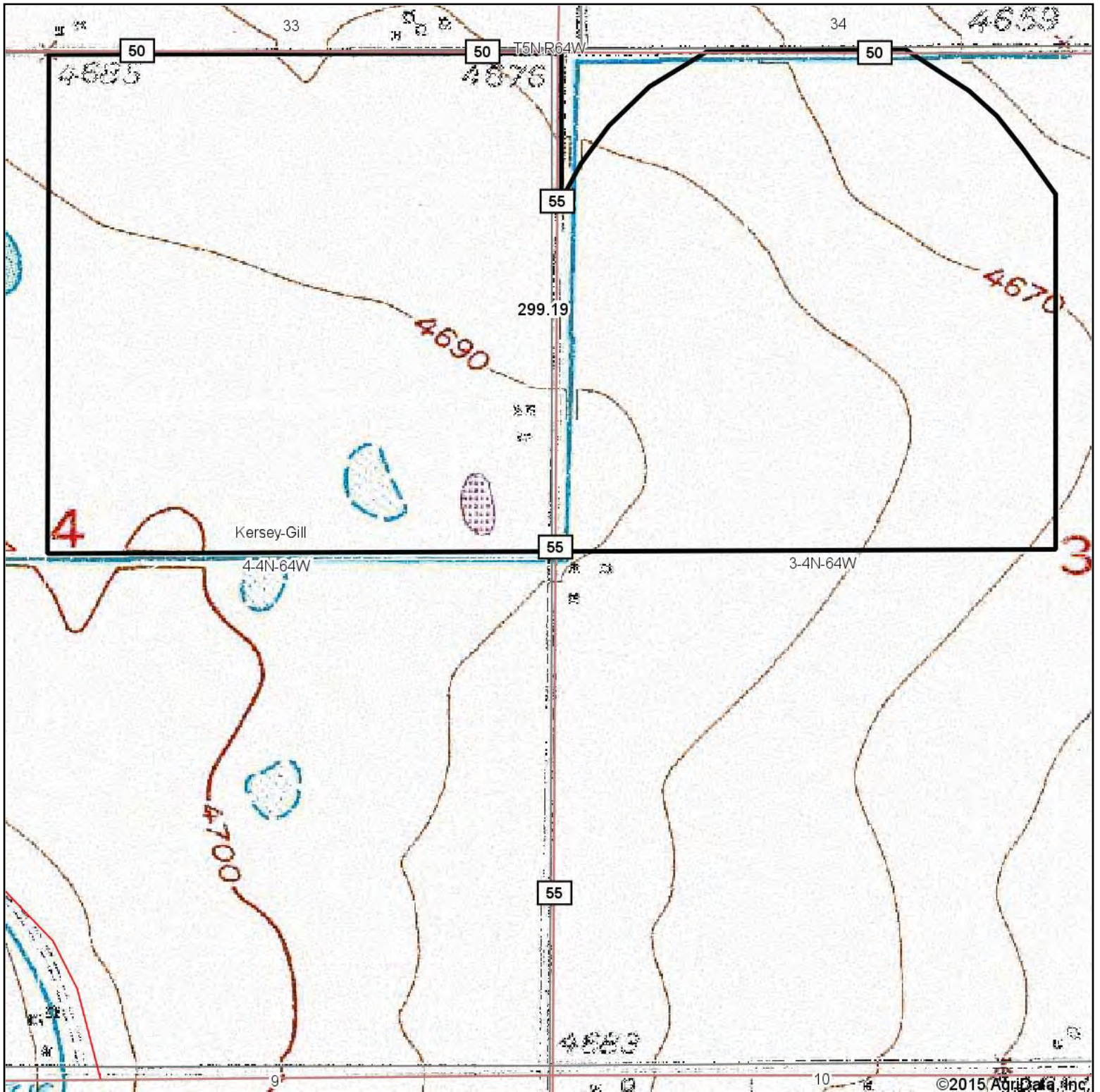
Code	Soil Description	Acres	Percent of field	Non-Irr Class *c	Irr Class *c
47	Olney fine sandy loam, 1 to 3 percent slopes	120.97	40.4%	IVc	IIIe
51	Otero sandy loam, 1 to 3 percent slopes	89.35	29.9%	IVe	IIIe
76	Vona sandy loam, 1 to 3 percent slopes	69.09	23.1%	IVe	IIIe
4	Aquolls and Aquepts, flooded	19.78	6.6%	VIw	VIw

Area Symbol: CO618, Soil Area Version: 13

*c: Using Capabilities Class Dominant Condition Aggregation Method

Soils data provided by USDA and NRCS.

Topography Map



map center: 40° 20' 29.32, 104° 32' 45.25

0ft 804ft 1608ft

4-4N-64W
Weld County
Colorado



11/13/2015

Maps Provided By:



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Dairy Sale 5

Transaction Data

Dairy Name	Longs Peak Dairy, LLC
Location	The property is located northeast of Greeley and east of Ault at 20680 State Highway 14, Ault, Weld County, Colorado.
Sale Date	August 21, 2014 Closed
Grantor	Robert Tateyama
Grantee	Longs Peak Dairy LLC
Recording	Reception Number 4040392
Legal Description	Dairy Site - 203.0 acres of land out of Sections 15-16, T7N, R65W, 6 th PM, Weld County, Colorado. Farm Site - 446.0 acres of land Sections 15-16, T7N, R65W, 6 th P.M., Weld County, Colorado.
Terms of Sale	Cash to Seller
Sale Price	\$6,900,000
Financing Adjustment	\$0
Cash Equivalent Sale Price	\$6,900,000
Rolling Stock	\$0
Excess Land Allocation Plus Imp.	\$3,944,000
Adjusted Sale Price Per Milking Head	\$2,956,000
Dairy Milking Capacity	750
Dairy Total Capacity	1,125
Sale Price Per Milking Head	\$9,200
Adj. Sale Price Per Milking Head	\$3,941
Adj. Sale Price Per Total Head	\$2,628
Adj. Sale Price Per Acre	\$4,555

Land Data

Total Land Acres	649.000
Excess Land Acres	446.000
Land Acres Needed for Dairy	203.000
Total Land Acres / Milking Cow	0.271 1.0 Milking Cow
Topography	The terrain is basically level. The soils are typical for the area.
Minerals	No minerals were conveyed.
Road Access	SH-14 and CR 43

Dairy Sale 5

Land Mix	The land is a total of 649.0 acres. Approximately 203.0 acres is allocated for the dairy and 446.0 acres is allocated as excess farm land. There is a total of 518.0 acres of irrigated cropland, 62.0 acres of pasture, 52.0 acres of dairy and building sites, 2.0 acres of irrigation reservoirs, and 15.0 acres of roads and waste. The 446.0 acres of excess land is predominantly irrigated farm land with a farmstead area. This portion of the land was valued at \$8,000 per acre or \$3,568,000 for the land plus \$376,000 contributory value of improvements for a total of \$3,944,000. The 203.0 acres allocated for the dairy site was valued at \$1,270,000 or \$6,256 per acre.
Utilities and Water	The 203.0 acre dairy site is watered with 6 shares of Larimer and Weld Irrigation Company and 6 shares of Larimer and Weld Reservoir Company. The 446.0 acres of excess farm land is watered by 11 irrigation wells, 8 shares of Larimer and Weld Irrigation Water, 7 shares of Larimer and Weld Reservoir Water, and 2 shares of Windsor Reservoir and Canal. Both sites have adequate access to water, electricity, and other public services.
Land Value Opinion Per Acre	\$6,256
Land Value Opinion	\$1,269,968

Improvement Data

203.0 Acre Dairy Site - Main Dairy Buildings	The dairy is improved with a concrete block and steel construction Double 14 Herringbone Milking Parlor. The milking parlor is 32' x 184'. The building has an equipment room, milk storage area, a small office, and a small herdsman office and restroom. The parlor was constructed in 1977 and renovated in 1996. The covered holding pen has a double cow return and an auto-crowd gate. The parlor and holding pen are flushed.
203.0 Acre Dairy Site - Dairy Support Buildings	The dairy is improved with 1 x 1,920 square foot commodity barn, 1 x 2,170 square foot hospital barn, 1 x 3,000 square foot hay barn, 1 x 7,552 square feet of shop area, 1 x 2,688 square foot Quonset barn, 21,875 square feet of cow shades, and a 2,200 square foot livestock barn.
203.0 Acre Dairy Site - Dairy Feed Lane Improvements	The dairy is improved with approximately 1,500 linear feet of open feed lanes with 750 locking stanchions attached to 6 pens for the confinement of milking cows. The dairy has an additional 500 linear feet of feed lanes and attached pens for the confinement of 250 head of mixed dry cows and replacement heifers, plus 250 linear feet of feed lane for 125 heifers. The feed lanes are concrete with attached concrete cow stand lanes. The pens are constructed with pipe and cable tension construction. Locking stanchions are attached to the pipe and cable fencing that separates the feed lane from the cow stand lane. Each pen is adequately watered and sloped for drainage. There are additional pens with shades for the confinement of small calves.
203.0 Acre Dairy Site - Dwellings	The dairy is improved with one main dwelling containing 3,372 square feet and two labor dwellings containing approximately 1,500 square feet each. The main dwelling is a modern contemporary style with 3 beds and 2 baths and a full basement. The main dwelling has a 3 car attached garage, central heat and air, a fireplace, and a central vacuum system. One labor dwelling is a 3 bed, 1 bath structure with a full basement. The dwelling has a wood exterior and a composition roof. The labor dwelling was moved onto the property in 2013 and completely remodeled.
203.0 Acre Dairy Site - Milking Equipment	The milking parlor is improved with a Double 14 Herringbone milking system including Westfalia Surge Metatron 12 milking units with automatic takeoffs and dual returns, a computer ID system, 2 Mueller free heaters, 3 hot water heaters, 2 vacuum pump systems, 2 air compressors, a Mueller D120 Chiller, a stainless steel milk transfer system with filter, 1 x 6,000 gallon stainless steel Mueller milk storage tank, 1 x 6,000 gallon DeLaval milk storage tank, 1 x 3,000 gallon milk storage tanks, 3 Mueller milk tank cooling compressors, and a stainless steel was system. The hospital barn is improved with Single 8 Herringbone milking equipment with Surge Solid State Pulsation Control.
203.0 Acre Dairy Site - Associated Equipment	Associated equipment includes 1 x set of 50 ton scales.
203.0 Acre Dairy Site - Site	The site improvements include excavation and dirt work for the dairy improvements, open pens and

Dairy Sale 5

Improvements	feed lanes, gravel drives and parking, silage pits, lagoons, water wells, and underground utilities and pipelines.
446.0 Acre Farm Site - All Improvements	The separate farm property is improved with an 1,870 square foot labor dwelling, a 1,500 square foot labor dwelling, a 1,000 square foot labor dwelling, an 1,800 square foot commodity barn, 39,200 square feet of livestock confinement pens with 250 linear feet of attached bunk space, 35,000 square feet of livestock confinement pens with 190 linear feet of attached bunk space, a 1,000 square foot labor dwelling, numerous older farm sheds, and 3 sprinkler irrigation systems. The contributory value of these structures was not considered to be part of the main dairy site structures.
YOC	The facility was originally constructed in 1977 with major updating in 1996. Other improvements were added between 1996 and 2014. The overall effective age was estimated at 18 years.

Comments	The property was moderately marketed by the seller and it was not listed for sale with real estate broker. The buyer is a local large dairy operator from the Pierce area. The buyer has purchased several local dairy operations in the past 2-3 years and paid above market prices for them to keep other dairy competitors out of the area.

Improvement RCN Breakdown

Improvement	Units	Price Per Unit	RCN Per Unit	Total	Total RCN
D-14 Milking Parlor	28 Stalls	\$17,000	\$476,000	1	\$476,000
Cow Shades	21,875 SF	\$6	\$131,250	1	\$131,250
Special Needs Hospital Barn	2,170 SF	\$30	\$65,100	1	\$65,100
Open Feed Lanes	2,250 LF	\$350	\$787,500	1	\$787,500
Commodity Barn	1,920 SF	\$30	\$57,600	1	\$57,600
Hay Barn	3,000 SF	\$10	\$30,000	1	\$30,000
Shop Building	7,552 SF	\$18	\$135,936	1	\$135,936
Quonset Building	2,688 SF	\$12	\$32,256	1	\$32,256
Livestock Barn	2,200 SF	\$10	\$22,000	1	\$22,000
Double 14 Milking Equipment	28 Units	\$12,500	\$350,000	1	\$350,000
Single 8 Hospital Milking Equipment	8 Units	\$10,000	\$80,000	1	\$80,000
Truck Scales	1	\$55,000	\$55,000	1	\$55,000
Labor Dwellings	3,000 SF	\$45	\$135,000	1	\$135,000
Main Dwelling	3,372 SF	\$85	\$286,620	1	\$286,620
Site Imp.	1	\$600,000	\$600,000	1	\$600,000
Total					\$3,244,262

Depreciation Analysis

Dairy Sale 5

Adjusted Sale Price	\$2,956,000
Less Land Value	\$1,269,968
Equals Improvement Value	\$1,686,032
RCN	\$3,244,262
RCN - Imp. Value = Depreciation	\$1,558,230
Total Depreciation as a Percent (%)	48.03%
Effective Age Estimate (Years)	18.00
Annual Depreciation as a Percent (%)	2.67%

External Obsolescence

Total Depreciation as a Percent (%)	48.03%				
Less Physical Depreciation	45.00%	=	18	2.50%	45.00%
External Obsolescence Soft Market	3.03%				

Income Analysis

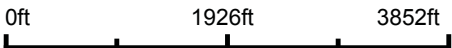
Market Rates Typical lease rates range from \$12 to \$17 per head per month for open lot dairies and \$18 to \$26 per head per month for natural ventilated freestall barn dairy facilities. Vacancy Rates are estimated at 10 percent. Lease rates are gross. Expenses range from \$25 to \$40 per milking cow.

	Milking Head	Lease Rate Per Milk Cow	Months	
Dairy Rental Income	750	\$15.00	12	\$135,000
Additional Income	0	\$0.00	12	\$0
Potential Gross Income				\$135,000
Vacancy and Credit Loss			-10%	(\$13,500)
Effective Gross Income				\$121,500
Operating Expense Per Milking Cow			(\$20)	(\$15,000)
Net Operating Income				\$106,500
Sale Price				\$2,956,000
Overall Rate				3.60%

Aerial Map



map center: 40° 34' 53.16, 104° 39' 19.34



Maps Provided By:

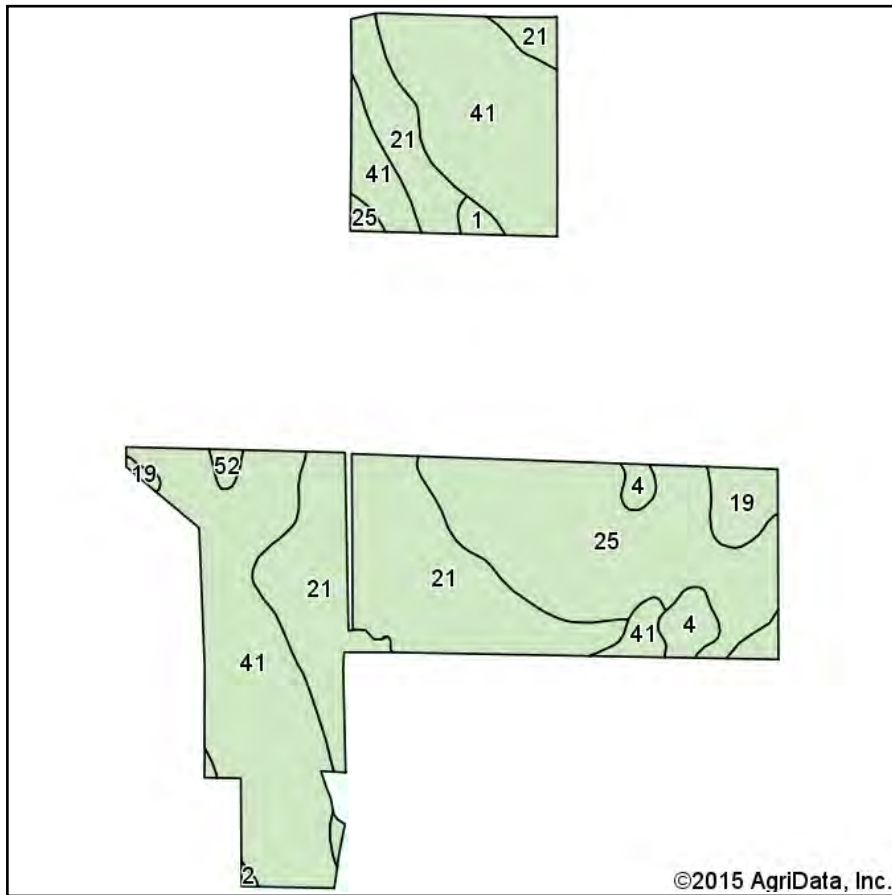
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10-7N-65W
Weld County
Colorado

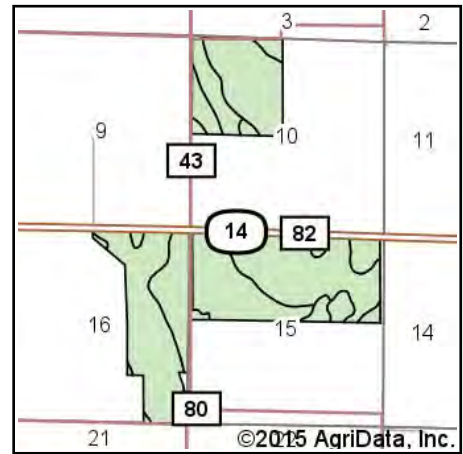


11/11/2015

Soil Map



Soils data provided by USDA and NRCS.



State: **Colorado**
 County: **Weld**
 Location: **10-7N-65W**
 Township: **Ault**
 Acres: **622.81**
 Date: **11/11/2015**

Maps Provided By:



Area Symbol: CO618, Soil Area Version: 13

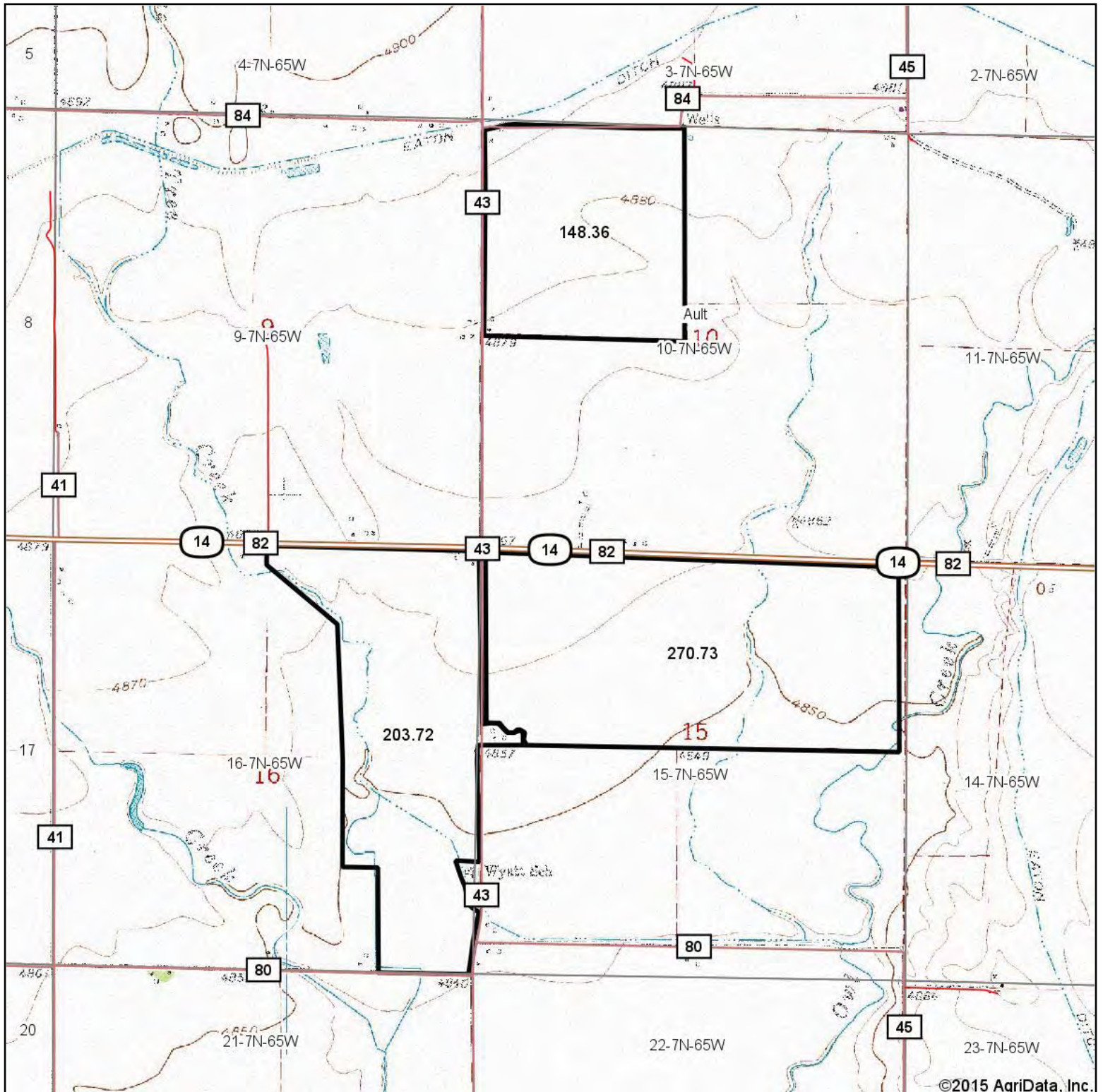
Code	Soil Description	Acres	Percent of field	Non-Irr Class *c	Irr Class *c	Barley	Dry beans	Wheat
41	Nunn clay loam, 0 to 1 percent slopes	251.24	40.3%	IVe	IIIe			
21	Dacono clay loam, 0 to 1 percent slopes	185.93	29.9%	IIIs	IIIs	25	10	20
25	Haverson loam, 0 to 1 percent slopes	141.76	22.8%		IIIw			
4	Aquolls and Aquepts, flooded	18.52	3.0%	VIw	VIw			
19	Colombo clay loam, 0 to 1 percent slopes	16.93	2.7%	IIIe	I			20
1	Altvan loam, 0 to 1 percent slopes	3.74	0.6%	IVe	IIIs			
52	Otero sandy loam, 3 to 5 percent slopes	3.20	0.5%	IVe	IIIe			
2	Altvan loam, 1 to 3 percent slopes	1.49	0.2%	IVe	IIIe			
Weighted Average						7.5	3	6.5

Area Symbol: CO618, Soil Area Version: 13

*c: Using Capabilities Class Dominant Condition Aggregation Method

Soils data provided by USDA and NRCS.

Topography Map



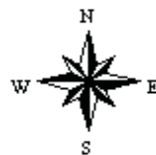
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map center: 40° 34' 53.16, 104° 39' 19.34

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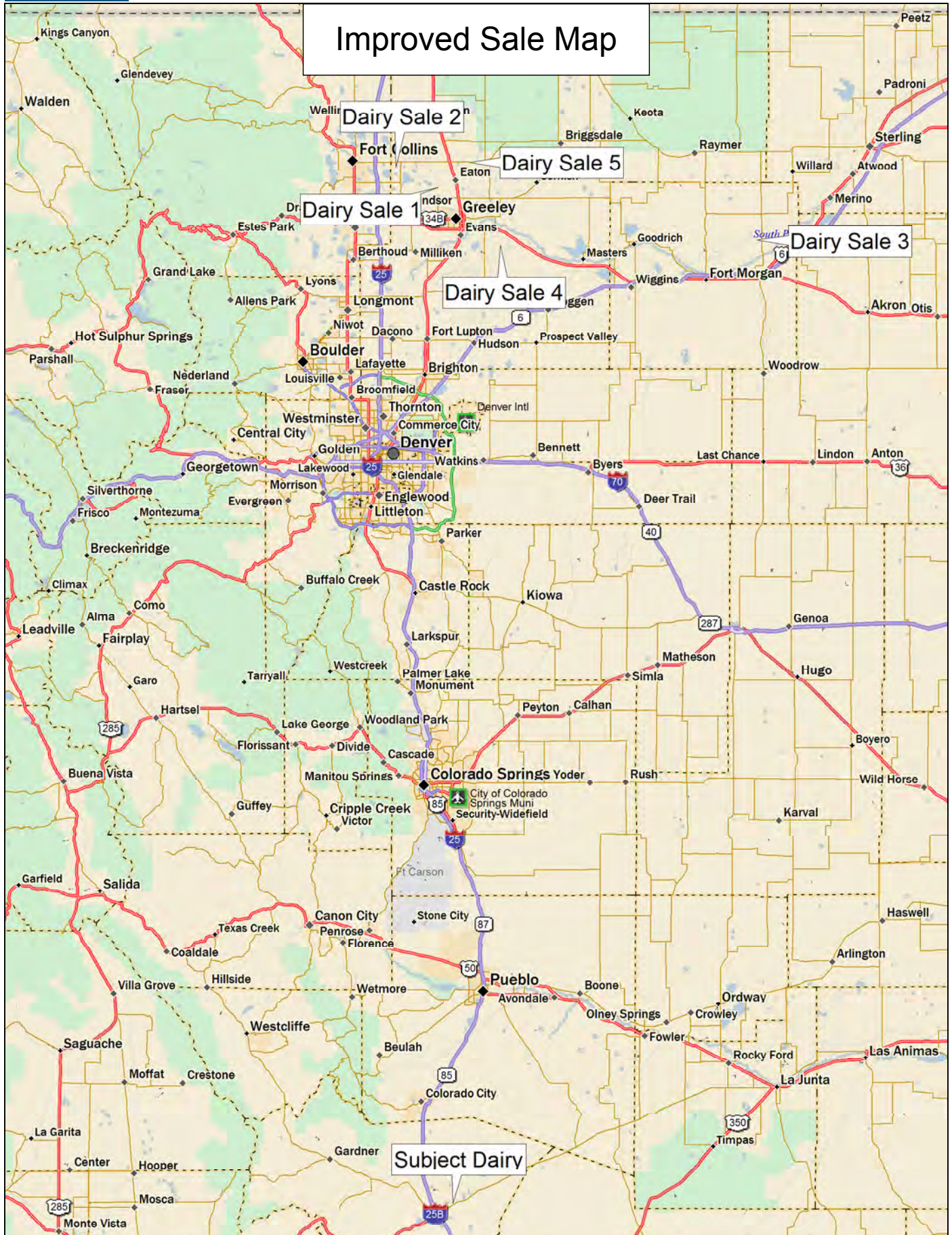
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10-7N-65W
Weld County
Colorado



11/11/2015

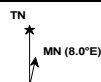
Improved Sale Map



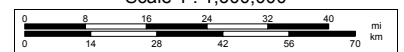
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Scale 1 : 1,600,000



1" = 25.25 mi

Data Zoom 7-0

Comparable Sale Comments

An extensive market data investigation was conducted, including a thorough search of active dairy markets in Colorado, Texas, New Mexico, and other important dairy regions of the U.S. Deed Records were searched and local real estate brokers, investors and mortgage lenders were contacted. All sales data was reviewed and the most recent and relevant sales were investigated. The basic criteria in searching for comparable sales was the date of sale, location, size, age, type of milking facility, milking cow capacity, total cow capacity, highest and best use, and existing use.

Several sales of commercial dairy properties were identified within the region. The data obtained from these sales was considered to be accurate and reliable. **Five** of the most similar sales were chosen for comparison with the subject, because of their location, size, date of sale, and their overall similarity to the subject property. Each sale was analyzed and adjusted to provide an indicated value for the property appraised.

The sales used for comparison ranged in effective age from 13 to 24 years in effective age, in milking capacity size from 400 to 925 head, and in price per milking cow from \$2,750 to \$4,000. The market data included in this analysis, although somewhat diverse, is considered to be the best available in today's market and to be indicative of current market trends.

Commercial and Organic dairy properties are purchased by users who are also acting as investors. The typical user occupies the property for the purpose of conducting his or her business and the typical investor acquires the property for the production of income. The user analyzes the property based on its cost relative to other available properties (e.g., price per milking cow) and the investor analyzes the property based on its ability to produce income. The subject dairy is an owner operated Organic Dairy Operation. In this analysis, the price per milking head capacity was considered to be the primary unit of comparison used to value dairy properties.

The improved comparable sales are indicating that dairy properties are being purchased primarily by owner-occupants. All of the sales used in the analysis were purchased by owner-occupants. When the market is dominated by purchasers who intend to occupy the property, the sales comparison approach is a strong indicator of value.

Units of Comparison

After an investigation of the market, there are a number of units of comparison that can be extracted from available sales data. The most common unit of comparison in the marketplace is the overall sales price per head of milking capacity. The milking head capacity in most modern dairy operations ranges from 80 to 85 percent of the total head capacity. Approximately 15 to 20 percent of total capacity is used for dry cows and replacement heifers.

In the following analysis, the comparable dairy sales have been analyzed with an 80 to 85 percent milking cow to total cow capacity. The milking cow capacity unit of comparison will be analyzed following the sales summary chart in order to arrive at an opinion of value for the appraised property. Dairy properties are typically purchased by owner-users and not investors.

The value of the subject, as improved, is estimated by use of the overall milking capacity of the dairy operation, rather than being based upon building square footage which is typically utilized on other types of commercial properties.

An indication of value is provided through this approach for the property appraised, based on the attitudes and actions of typical buyers and sellers in the market. These attitudes and actions are reflected through current transactions of similar type properties. Use of this approach involves gathering market data of similar properties and verifying that the data obtained is factually accurate.

There was sufficient comparable sale information available to form a reasonable opinion of value of the subject property.

*A thorough search of the regional dairy market was performed by the appraiser to try to find recent similar, **Organic Certified freestall barn and open lot improved** dairy sales. No recent sales of Organic Dairy facilities have occurred. Commercial dairy facilities are considered to be basically the same Organic Dairy facilities other than going through the waiting period of obtaining an Organic Certification. One distinct difference between the two types of facilities is the land size or land per milking cow ratio. In an Organic Operation, some additional land is necessary for running the dairy cattle on grass. According to Organic rules, Organic Certified dairy cattle that are being milked have to be on grass for a specific amount of time during the year. The cattle cannot be confined to pens and fed on feed lanes only.*

Since there were no sales of Organic Certified Dairy Properties, the appraiser has used sales of Commercial Dairy facilities for market comparison. There were no sales of commercial dairies in Southern Colorado near the subject property, therefore, the appraiser used dairy sales from Northeastern Colorado which is the nearest competing market for dairy properties.

An adequate amount of recent sales have occurred in Northeastern Colorado. The sales that are used in the following analysis are the most recent and similar comparable sales available as of the appraisal date.

Elements of Comparison

Elements of comparison generally used to estimate the value of dairy properties are numerous. The elements considered are 1) property rights conveyed, 2) financing, 3) conditions of sale, 4) market conditions, 5) location, 6) size, 7) age, 8) property condition, 9) quality of construction, 10) type of dairy facility and efficiency, 11) dwellings, 12) waste management, and 13) additional dairy amenities.

Real Property Rights Conveyed

All of the comparable properties sold herein were based on fee simple transactions, thus, no adjustment for this factor was required.

Financing Terms

Financing terms are significant, since cash or financing often influences the consideration paid for a particular property. The transaction price of one property may differ from that of an identical property due to different financing arrangements. All of the dairy sales were cash to seller transactions at market terms, therefore, no adjustments were required.

Conditions of Sale

Adjustments for conditions of sale typically reflect the motivations of the buyer and the seller. For example, a buyer may pay more than market value for a property located adjacent to one already owned for assemblage purposes or additional parking because of acting under duress. Conversely, a sale may be transacted at below market value because the seller needs cash in a hurry.

A financial, business, or family relationship between the parties may also affect the price of the property. When non-market conditions of sale are detected in a transaction, the sale must be adjusted accordingly.

Dairy Sales 1-4 were adequately marketed and sold, unaffected by non-market conditions. No adjustments were required for these sales. Sale 5 was purchased by a local dairy operator for assemblage and expansion purposes. The buyer paid above market to obtain the property, to keep down competition in the area. Based on buyer motivations, a negative adjustment was required.

Market Conditions

Comparable sales that occurred under market conditions different from those applicable to the subject on the effective date of value require adjustment for any differences that affect their values. An adjustment for market conditions is made if general property values have increased or decreased since the transaction dates.

Although the adjustment for market conditions is often referred to as time adjustment, time is not the cause of the adjustment. Market conditions that change over time create the need for an adjustment, not time itself. In other words, increases or decreases in property values in the market is the cause of the adjustment and time is the measure of the adjustment. If the market conditions have not changed, no adjustment is required even though considerable time may have elapsed.

The market sales indicate that dairy real estate prices have been stable in the subject Colorado market. In other areas such as Texas and New Mexico, dairy real estate prices decreased from 2009 through 2013 and then improved in late 2014 and early 2015. Since the subject and all of the comparable sales are located in Colorado, no adjustments were required.

Location Adjustment

This adjustment typically reflects the relative differences in desirability of the physical location, surrounding land uses, traffic exposure and accessibility noted between the comparable sales and the subject site.

The subject dairy is located along State Highway 10 just east of the City of Walsenburg, in Huerfano County, in Southern Central Colorado. The area around the subject is agricultural in nature, but there are no other dairies in within a close proximity to the subject dairy. The subject's overall location for a dairy operation is considered to be less than average based on the current locations for most dairy operations.

The appraiser has used sales of dairy properties from the most similar and competing area near the subject. The nearest competing dairy area is in Northeastern Colorado between Loveland and Yuma including the Counties of Weld, Morgan, and Yuma. The Northeastern Colorado dairy location is superior to the subject location based on the available irrigation water in the area, the irrigated land for growing feed commodities, the location of milk and cheese processing plants that purchase raw milk from dairy operators, and the location of other dairies that can be purchased or leased by dairy operators.

All of the sales are superior in location to the subject, therefore, negative adjustments were required.

Effective Age and Condition

The comparable improved sales are adjusted for age of the improvements and condition based on their relative effective age as compared to the subject. The difference in age or effective age is adjusted to the subject in relation to the age or effective age of the comparable sale. The physical life expectancy of the subject main dairy improvements is estimated to be 40 years. The overall effective age of the subject was judged to be 32 years.

Effective Age: All of the sales are superior in effective age to the subject property, therefore, negative adjustments were required.

Condition: There was no deferred maintenance noted on the subject dairy, above and beyond what is considered normal for most dairies. It is noted that there was no significant or large amount of deferred maintenance known to exist in the comparable sales, therefore, no adjustments were required.

Size

Typically the size or capacity of a dairy can have an impact on the value of a dairy facility. Larger dairies typically, but not always, receive lower per head prices than do smaller dairies with all other influences being similar.

The sales used for comparison range in milking capacity from 400 to 925 head. The subject is appraised as a 594 head milking facility. The market sales do not indicate an adjustment for size ranging 200 to 1,000 head, therefore, no adjustment was required.

Overall Dairy Efficiency

In a commercial dairy operation, it is very important to have the most efficient milking equipment and building design. An efficient operation that saves time saves money. Building design and facility layout play an important roll in the dairy business.

Subject Dairy Facility

The subject property is a commercial-organic dairy facility equipped with a Double 12 Herringbone milking parlor and open lot-open feed lane confinement. The maximum output of the milking parlor ranges from 1,000 to 1,200 milking head. The total capacity of the dairy is approximately 1,388 head. The dairy legally operates without a CAFO permit with a restricted mature dairy cow and heifer capacity. Total mature dairy cows are restricted to 699 head and total heifers are restricted to 999 head. Typically 80 to 85 percent of mature capacity are milking head and 15 to 20 percent are dry cows and replacement heifers. Because the mature capacity is limited to 699 head, the efficient milking capacity of the dairy based on parlor output and confinement capacity is estimated to be 594 milking head. All of the milking head are confined to open lots with access to adequate compost barns and shades for cow comfort. The subject dairy facility design and layout, provides for efficient confinement and feeding of the cattle and the efficient receiving, milking, and exiting of the dairy cattle from the milking parlor.

Quality of Materials and Design

The subject dairy facility is constructed of average to good quality materials and of fairly modern design. The entire layout of the dairy is estimated to be average to good in design and quality.

All of the sales are estimated to be similar in quality to the subject requiring no adjustments. Other quality adjustments were required and explained under freestall barns.

Natural Ventilated Freestall Barns, Cross-Ventilated Freestall Barns, and Saudi Barns

Freestall barns and Saudi barns are designed to confine milking cows. They can also be used for the confinement of dry cows and heifers. Freestall barns control the environment of the cow, which in turn causes less stress on the cow, increasing milk production.

The subject dairy is improved with open lot - open feed lane confinement. One dairy pen is improved with an older quonset barn for shade and two other pens are improved with three sided compost sheds for shade. The subject dairy has an efficient milking capacity of approximately 594 head. All of the milking capacity is confined to open lots.

A Paired Sales Analysis was used to extract an adjustment for the difference in natural ventilated conventional freestall barn improved dairies and open lot dairies. Cross-ventilated freestall barns and Saudi barns will also be addressed. The Paired Sales Analysis is retained in the appraisers' file.

Natural-Ventilated Freestall Barn Conclusion: New costs for natural-ventilated freestall barns ranges from \$1,400 to \$2,000 per cow depending on quality. The most recent survey indicated a new cost for natural-ventilated freestall barns at \$1,500 to \$1,900 per cow. A recent paired sales analysis between modern high plains natural ventilated freestall barn dairy facilities and modern high plains open lot dairy facilities indicated a market difference of approximately \$1,000 per milking cow. An adjustment of \$500 to \$800 per milking cow would be considered reasonable for an older dairy facility. When comparing dairies that are partially improved with freestall barns, the adjustment would be reduced.

Cross-Ventilated Freestall Barn Conclusion: New costs for cross-ventilated freestall barns ranges from \$2,200 to \$3,000 per cow. When comparing modern high plains cross-ventilated freestall barn dairy facilities to modern high plains conventional natural-ventilated freestall barn facilities, an adjustment must also be considered.

Based on the available comparable sale information, there is approximately \$1,000 per milking head difference between a 100 percent cross-ventilated freestall barn dairy facility and a 100 percent natural-ventilated conventional freestall barn dairy facility. This is supported by a paired sales analysis of numerous comparable dairy sales.

The subject dairy has open lot - open feed lane confinement for dairy cattle. All of the milking head are confined to open lots with attached open feed lanes. The dry cows and replacement heifers are all confined to open lots with attached open feed lanes.

Sales 1 and 4 have 52 and 58 percent of the milking cows confined to freestall barns. The remaining milking animals are confined to open lots. Sales 1 and 4 are superior to the subject, therefore, negative adjustment were required.

Sales 2, 3 and 5 are similar open lot facilities as the subject, therefore, no adjustments were required.

Permit Expansion

It is assumed that the subject property has the future capability to increase its capacity by obtaining a CAFO permit. The subject facility and land size are large enough for expansion. Wastewater agreements are typically used to designate additional land for wastewater application. The comparable sales vary in expansion capabilities, but are considered to be basically similar to the subject from a market standpoint, thus no adjustments were required.

Land to Milking Cow Ratio

Dairies are sold on various size land tracts. Many dairies are sold on small sites with leases and easements on adjacent properties for waste and wastewater application. Other dairies sell on larger sites with adequate land for onsite wastewater application and expansion. Both types of transactions are legal and normal market transactions.

Based on market evidence, a dairy with a significantly larger portion of land for onsite waste application and expansion purposes will usually sell for more per milking cow than a dairy located on a small tract of land with limited waste application areas and limited expansion capabilities. A dairy with a larger site area has advantages in waste management, forage production, future expansion, and grazing purposes.

The appraiser has calculated the land to milking cow ratio on the subject and all of the comparable sales. The subject has a ratio of approximately 1.72 acre per milking cow based on 1,018.78 acres of land and 594 milking head. Sales with significantly higher ratios are typically adjusted downward and sales with significantly lower ratios are typically adjusted upward.

The sales range from 0.14 to 0.8 acre per milking cow. Typical land to cow ratios in the subject market area range from 0.18 to 0.5 acre per milking cow. The subject is above the normal range for commercial milking operations.

Some of the additional land associated with the subject dairy is required for the organic milking operation so cattle can graze on grass and not be confined to pens 100 percent of the time. The amount of land associated with the subject dairy is adequate for its current organic operation, but the subject is considered to be superior overall to the comparable sales.

All of the sales are inferior to the subject in land to milking cow ratio, therefore, positive adjustments were required.

Heifer Feedyard

The subject dairy has space for milking cows, dry cows, replacements heifers, and baby calves. The total allowed capacity of the subject dairy is 699 mature head and 999 heifers. All of the milking cows are confined to open lots with attached feed lanes. The dry cows and replacement heifers are confined to open lots with attached feed lanes. Pasture is available for grazing purposes. All of the sales have typical confined space for milking cows, dry cows, replacement heifers, and baby calves and they are estimated to be similar to the subject from a market standpoint, therefore, no adjustments were required.

Feed Mill and Grain Storage Facility

The subject dairy is not improved with a feed mill or a usable large grain storage facility. The subject dairy is improved with typical commodity storage and open silo storage for silage. All of the sales are similar to the subject from a market standpoint based on these improvements, therefore, no adjustments were required.

Milk Processing Plant

Some of the newer dairies have on-site milk processing plants. Milk processing plants have been constructed so dairies can market their own milk products. The plants separate the fat and protein components and condense the milk, thus retaining reusable water for the farm. Milk processing plants will improve the value of the milk and its respective components. Additional income of \$2.00 plus per hundred weight can be realized from dairies with processing plants. Processing plants allow dairies to have reduced hauling costs since the overall volume is reduced. Dairies with processing plants usually increase their geographic milk market and create numerous options instead of being locked into a certain milk price. Processing plants create reusable water on-site which has a value.

The subject dairy is not improved with a milk processing plant. All of the sales are similar to the subject, therefore, no adjustments were required.

Water and Waste Management

The subject property is located in an area of average to good surface water and underground water for commercial agricultural uses, irrigation, and rural homestead development. All of the sales are located in areas with groundwater that is considered to be adequate for the operation of the dairies along with irrigation and other uses. The sales were estimated to be basically similar to the subject, requiring no adjustments.

The subject property has an extensive waste handling system with sediment basins and lagoons for handling wastewater. The dairy has irrigated land that is used for de-watering the lagoons. The wastewater from the lagoon system can be applied to onsite and offsite land by a system of underground pipelines and a portable irrigation systems.

The application of the wastewater at dairies is typically done by pumping wastewater through buried underground irrigation lines to risers where portable guns are attached and/or to sprinkler irrigation systems located on the dairy property or the adjacent property owner.

The solid waste or dry manure is separated and stored for resale, application, or contract hauling. Slurry can be applied on-site and off-site. This is typical for all dairies. Usually dairies have agreements with adjacent land owners to apply wastewater to farm land or pasture land, as they welcome this arrangement for free natural fertilizer.

The owner of the dairy has owned and non-owned farmland available for wastewater, dry waste and slurry application. The subject waste management system is estimated to be similar to the comparable sales. No adjustments were required.

Dwellings, Bunk Houses, Apartments, Employee Housing

The subject dairy is improved with two dwellings that contribute value to the property. The three mobile homes located on the property were not given value. The contributory value of the dwellings as part of the whole dairy property is approximately \$143 per milking cow. The sales were compared to the subject and adjustments were made based on the total contributory value of the dwelling improvements on each dairy facility as compared to the subject facility.

It is noted that a typical buyer for a dairy property would consider dwellings and mobile homes to be secondary improvements as compared to major dairy improvements, but would consider them to contribute some to the market value depending on their condition.

Please see the following chart.

Employee Dwelling Value Indication By Depreciation Extraction Method - 594 Milking Head					
Replacement Cost New (2 x Dwellings)					\$570,750
Less Physical Curable Depreciation	1.0	\$0	\$0	\$0	
RCN Less Deferred Maintenance Physical Curable Depreciation					\$570,750
Less Physical Incurable Depreciation	32 Yrs	-2.5%	-80.0%	(\$456,600)	
Physically Depreciated Value of Improvements					\$114,150
Less Functional Obsolescence	1.0	0.0%	0.0%	\$0	
Physically and Functionally Depreciated Value of Improvements					\$114,150
Less External Obsolescence Soft Real Estate Market - 20% of Physically and Functionally Depreciation Value	1.0	-25.0%	-25.0%	(\$28,538)	
Physically, Functionally, and Externally Depreciation Value					\$85,613
Accrued Depreciation				(\$485,138)	
Final Depreciated Value of Improvements					\$85,613
CV of Dwellings Rounded					\$85,000
Milking Head					594
CV of MH's Per Milking Head Rounded					\$143
*No Functional Obsolescence is Applied to the Dwelling Structures. *External Obsolescence is 25.0% of Physically and Functionally Depreciated Value (Includes Soft Market and Location)					

Remaining Elements

The arrays of the remaining elements indicate that no quantitative differences can be extracted from the data presented. Additional market indicated quantitative differences could not be identified, therefore, adjustments for these elements were not necessary. The following is a comparative analysis chart and summary of the subject improvement valuation.

Sales Comparison Adjustment Grid - Improved Sales						
Sale No.	Subject	1	2	3	4	5
City Location	Walsenburg	Eaton	Greeley	Fort Morgan	Kersey	Ault
County Location	Huerfano	Weld	Weld	Morgan	Weld	Weld
State	Colorado	Colorado	Colorado	Colorado	Colorado	Colorado
Sale Date	N/A	Jun-12	Jul-11	Jan-12	Oct-14	Aug-14
Grantor	N/A	Lester Hardesty	Erin Barkey	Lane Evans	Michael Grenemyer	Robert Tateyama
Grantee	N/A	Long Meadow Farm	Dyelands Dairy, LLC	Chapin Dairy II	Jerrold Brethauer	Longs Peak Dairy LLC
Recording	N/A	RN 3858486	RN 3782787	RN 873646	RN 4057616	RN 4040392
Terms	N/A	Cash to Seller	Cash to Seller	Cash to Seller	Cash to Seller	Cash to Seller
Sale Price	N/A	\$3,500,000	\$1,150,000	\$1,100,000	\$2,200,000	\$2,956,000
Milking Head	594	925	400	400	550	750
Price Per Milking Head	N/A	\$3,784	\$2,875	\$2,750	\$4,000	\$3,941
Milking Parlor	D-12 Herringbone	D-12 Parallel	D-6 Herringbone	D-7 Herringbone	D-8 Herringbone	D-14 Herringbone
Milking Confinement	Open Lot	Natural Vent Freestall Barns Plus Open Lot	Open Lot	Open Lot	Natural Vent Freestall Barns Plus Open Lot	Open Lot
% Milking/Freestalls	0%	52%	0%	0%	58%	0%
% Milking/Saudi Barns	0%	0%	0%	0%	0%	0%
% Milking/Open Lots	100%	48%	100%	100%	42%	100%
Total Head Capacity	1,388	1,485	520 Plus Heifers	550 Plus Heifers	690	1,125
YOC	1960-2013	1990 Plus	1980-2005	1986-2010	1990	1977-1996-2013
Effective Age Years	32	15	13	24	17	18
Land Size Acres	1,018.780	165.000	55.000	320.000	300.000	203.000
Acres Per Milking Cow	1.72	0.18	0.14	0.80	0.55	0.27
Land Value Per Acre	\$1,275	\$5,500	\$5,450	\$2,095	\$3,667	\$6,256
Dwelling CV Per MC	\$143	\$457	\$105	\$288	\$109	\$357
Water System	Avg-Good	Avg-Good	Avg-Good	Avg-Good	Avg-Good	Avg-Good
Waste Mng. System	Avg-Good	Avg-Good	Avg-Good	Avg-Good	Avg-Good	Avg-Good
OAR	N/A	4.66%	4.24%	4.44%	3.01%	3.20%
Sale Price		\$3,500,000	\$1,150,000	\$1,100,000	\$2,200,000	\$2,956,000
Price Per Milking Head		\$3,784	\$2,875	\$2,750	\$4,000	\$3,941
Property Rights		-0-	-0-	-0-	-0-	-0-

Adjusted Price		\$3,784	\$2,875	\$2,750	\$4,000	\$3,941
Financing		-0-	-0-	-0-	-0-	-0-
Adjusted Price		\$3,784	\$2,875	\$2,750	\$4,000	\$3,941
Conditions of Sale		-0-	-0-	-0-	-0-	(\$788)
Adjusted Price		\$3,784	\$2,875	\$2,750	\$4,000	\$3,153
Market Conditions		-0-	-0-	-0-	-0-	-0-
Adjusted Price		\$3,784	\$2,875	\$2,750	\$4,000	\$3,153
Location		(\$568)	(\$431)	(\$413)	(\$600)	(\$473)
Effective Age		(\$965)	(\$819)	(\$330)	(\$900)	(\$662)
Condition		-0-	-0-	-0-	-0-	-0-
Size		-0-	-0-	-0-	-0-	-0-
Dairy Efficiency						
% MC Freestall Barns		(\$416)	-0-	-0-	(\$464)	-0-
Quality of Construction		-0-	-0-	-0-	-0-	-0-
Permit Expansion		-0-	-0-	-0-	-0-	-0-
Land / MC Ratio		\$757	\$575	\$275	\$400	\$631
Heifer Feedyard		-0-	-0-	-0-	-0-	-0-
Feed Mill		-0-	-0-	-0-	-0-	-0-
Milk Processing Plant		-0-	-0-	-0-	-0-	-0-
Water / Waste Mng.		-0-	-0-	-0-	-0-	-0-
Dwelling CV Per MC	\$143	(\$314)	\$38	(\$145)	\$34	(\$214)
Net Adjustment		(\$1,506)	(\$637)	(\$613)	(\$1,530)	(\$718)
Indicated Value		\$2,278	\$2,238	\$2,137	\$2,470	\$2,435

Sales Comparison Approach Final Value Conclusion

Adjustments were required for sale conditions, location, effective age, freestall barns, land to milking cow ratio, and dwellings.

The adjusted comparable dairy sales ranged from \$2,137 to \$2,470 per milking head. The mean indicated price per milking head was \$2,312 and the median indicated price per milking head was \$2,278. Greatest weight was given to Sales 4 and 5 due to date of sale. Supporting weight was given to Sales 1-3.

After making adjustments for all of the applicable elements of comparison and considering supply and demand factors, current listings, auctions, foreclosures, pending sales, and closed sales, the appraiser has concluded on a value based on the price per milking head method, “as is”, as of the effective date of the appraisal, as of November 7, 2015, of:

Subject Dairy on 1,018.78 Acres of Land As Is Value Opinion				
594 Milking Cows	X	\$2,450	=	\$1,455,300
Rounded			=	\$1,455,000

The Income Approach

Income Approach Introduction

Income-producing real estate is typically purchased as an investment, and from an investor's point of view earning power is the critical element affecting property value. One basic investment premise holds that the higher the earnings, the higher the value, provided the amount of risk remains constant. An investor who purchases income-producing real estate is essentially trading present dollars for the expectation of receiving future dollars. The income capitalization approach to value consists of methods, techniques, and mathematical procedures that an appraiser uses to analyze a property's capacity to generate benefits (i.e., usually the monetary benefits of income and reversion) and convert these benefits into an indication of present value.

The analysis of cost and sales data is often an integral part of the income capitalization approach, and capitalization techniques are frequently employed in the cost and sales comparison approaches as well. Capitalization techniques are commonly used to analyze and adjust sales data in the sales comparison approach. In the cost approach, obsolescence is often measured by capitalizing an estimated income loss. The income capitalization approach is described here as part of the systematic valuation process, but the various methods, techniques, and procedures used in the approach are analytical tools with broad applicability in the analysis and valuation of income-producing properties.³⁷

Definition and Use

In the income capitalization approach, an appraiser analyzes a property's capacity to generate future benefits and capitalizes the income into an indication of present value. The principal of anticipation is fundamental to the approach. Techniques and procedures from this approach are used to analyze comparable sales data and to measure obsolescence in the cost approach.³⁸

Anticipation and Change

Anticipation is fundamental to the income capitalization approach. All income capitalization methods, techniques, and procedures forecast anticipated future benefits and estimate their present value. This may involve forecasting the anticipated future income from a property or estimating a capitalization rate that implicitly reflects the anticipated pattern of change in income over time.³⁹

³⁷ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 439-440.

³⁸ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 439.

³⁹ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 440.

Applications and Limitations

Any property that has the potential to generate income can be valued using the income capitalization approach. When more than one approach to value is used to develop an opinion of value for an income-producing property, the value indication produced by the income capitalization approach might be given greater weight than that of the other approaches in the final reconciliation of value indications.⁴⁰

Procedure

The income capitalization approach supports two basic methods: direct capitalization, which uses the relationship of one year's income to conclude a value, and yield capitalization, which considers a series of cash flows over time together with any reversion value or resale proceeds.

Initially, both methods require a comprehensive study of historical income and expenses for the subject property. This study is combined with an analysis of typical income and expense levels for comparable properties. A reconstructed operating statement is developed for the subject property. This statement must reflect the purpose of the appraisal, especially with respect to the property interest being appraised. Leased fee value will reflect current leases and the associated expense structure, while fee simple value starts with an income based on market rent. Yield capitalization will require a consideration of probable income and expenses over the designated projection period, often from five to 10 years. When this method is used, the appraiser must forecast income and expenses over time together with the eventual reversion or resale value of the property. Direct capitalization, on the other hand, requires a one-year cash flow estimate (usually 12 months from the date of value) and application of an overall rate to estimate value. This method often relies on sales of properties with income characteristics and future expectations similar to the subject's, although alternate methods for developing the appropriate rate are available.

Although there are various income capitalization techniques available to the appraiser, certain steps are essential in applying the income capitalization approach. Before applying most capitalization techniques, an appraiser works down from potential gross income to net operating income. To do this, the appraiser will:

1. Research the income and expense data for the subject property and comparables.
2. Estimate the potential gross income of the property by adding the rental income and any other potential income.
3. Estimate the vacancy and collection loss.

⁴⁰ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 441.

4. Subtract vacancy and collection loss from total potential gross income to arrive at the effective gross income of the subject property.
5. Estimate the total operating expenses for the subject by adding fixed expenses, variable expenses, and a replacement allowance (where applicable).
6. Subtract the estimate of total operating expenses from the estimate of effective gross income to arrive at net operating income. (Deductions for capital items may also be necessary at various points in time through the projection period to calculate the cash flow used in discounted cash flow analysis.)
7. Apply one of the direct or yield capitalization techniques to this data to generate an estimate of value via the income capitalization approach.

Some capitalization techniques involve the use of a potential gross income multiplier or effective gross income multiplier. In those cases, the appraiser does not work down to net operating income but stops at effective gross income.⁴¹

Direct Capitalization Technique

Direct capitalization is a method used in the income capitalization approach to convert a single year's income expectancy into a value indication. This conversion is accomplished in one step, by dividing the net operating income estimate by an appropriate income rate. Direct capitalization is widely used when properties are already operating on a stabilized basis. Direct capitalization can also be used when there is a sufficient supply of comparable sales with similar risk levels, incomes, expenses, physical and locational characteristics, and future expectations from which to extract capitalization rates or when there are alternate methods for deriving capitalization rates.

The direct capitalization methodology may be less useful for properties going through an initial lease-up period and for properties with income or expenses that are expected to change in an irregular pattern over time. Investors often have minimum first-year capitalization rate requirements. In these cases, comparables with similar future expectations may not be available and one of the yield capitalization techniques may be more appropriate.

The advantages of direct capitalization are (1) it is simple to use and easy to explain, (2) it often expresses market thinking, and (3) it provides strong market evidence of value when adequate sales are available.

⁴¹ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 459-461.

Direct capitalization is applied using one of two basic methods:

- applying an overall capitalization rate to relate value to the entire property income (i.e., net operating income).
- using residual techniques that consider components of a property's income and then applying market-derived capitalization rates to each income component analyzed.

Direct capitalization is distinct from yield capitalization in that it does not directly consider individual cash flows beyond one year. Yield capitalization explicitly calculates the year-by-year effects of potentially changing income patterns, changes in the original investment's value, and other considerations.

In contrast, direct capitalization processes a single year's income into an indication of value. Either direct capitalization or yield capitalization can be used to produce a supportable indication of value when based on relevant market information derived from comparable properties. These comparable properties should have similar income-expense ratios, land value-to-building value ratios, risk characteristics, and future expectations of income and value changes over a typical projection period. When this data is available, the choice of capitalization method does not affect the indication of value.⁴²

Yield Capitalization Technique

Yield capitalization is the more complex of the two fundamental methods used in the income capitalization approach to value. Within this methodology, various techniques are available for converting a series of future cash flows received over time into an indication of value. Yield capitalization is used to convert future benefits into an indication of present value by applying an appropriate discount rate. To select an appropriate discount rate for a market value appraisal, an appraiser analyzes market evidence of the yields anticipated by typical investors, supported by market sales data, or both. When investment value is sought, the discount rate used should reflect the individual investor's requirements, which may differ from the requirements of typical investors in the market. To perform yield capitalization, an appraiser:

1. Selects an appropriate projection period
2. Forecasts all future cash flows or cash flow patterns (including the reversion, if any)
3. Chooses an appropriate yield (or discount) rate
4. Converts future benefits into present value by discounting each annual future benefit or by developing an overall rate that reflects the income pattern, value change, and yield rate using one of the various yield capitalization formulas.

⁴² The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 491-492.

The application of capitalization rates that reflect an appropriate yield rate, the use of present value factors, and discounted cash flow analysis are all yield capitalization procedures. Mortgage-equity formulas and yield rate or value change formulas may be used to derive overall capitalization rates.

Like direct capitalization, yield capitalization should reflect market behavior. To apply the discounting procedure, appraisers must be familiar with the following concepts and techniques:

- income patterns
- capital return concepts
- the mathematics of the discounting process
- investor requirements or expectations—i.e., projection period, anticipated market growth, and inflation
- the selection of an appropriate discount rate

Yield capitalization is used to convert future benefits, typically a periodic income stream and reversion, into present value by discounting each future benefit at an appropriate rate or by applying an overall rate (developed using one of the yield capitalization methods) that explicitly reflects the investment's income pattern, change in value, and yield rate.⁴³

Statement of Appraised Value and Lease Type

The subject dairy is owner operated and not leased.

The value stated in the report is fee simple estate and is based on the market lease information.

The appraiser has also attempted to obtain operating and income data from competing dairies in the subject market area and other important dairy areas throughout the U.S. Few of these properties are leased and verification of lease information and operating expenses was difficult due to individual privacy concerns of the operators. Additionally, after searching for industry standards, it was evident that there is no available publication which included the dairy industry.

Unit of Comparison and Lease Types

In the dairy industry the most common unit method is the monthly lease rate per milking cow. In this method the milking cow capacity is used. The dry cows and replacement heifers are not included in the calculation, as dairies are typically leased on a per milking cow basis only.

⁴³ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 509-510.

A tenant may pay a higher lease for a facility which has more amenities, but the rate is usually based on the milking head. Additional amenities to a dairy may include additional land, dwelling improvements, a non-typical large heifer facility or feedyard, a feed mill, or an onsite milk processing plant which is a new item to the dairy farming industry.

The land and dwellings associated with a dairy are usually included in the price per milking cow lease and not leased separately. This could vary on occasion, if there is a very large high quality dwelling associated with the dairy, or if there is an extremely large amount of land associated with the dairy that is above what is needed for the normal function of the dairy. In these cases, the dwelling is given additional contributory value and the excess land is separated and given excess land value.

The most common lease situation for a commercial dairy is where the owner pays property taxes, insurance, reserves and management. The tenant is usually responsible for maintenance and utilities. This is considered to be a gross lease arrangement analysis. Most organic leases are typically triple net situations where the tenant is paying all or most of the expenses. Some commercial dairies are leased on triple net basis.

The subject dairy facility is organic certified, but because of the older condition of the facility, the lack of a CAFO Permit, the lack of organic dairy facility sales, and the moderate demand for organic dairy facilities, the dairy will be analyzed on a gross basis for commercial use.

Historical and current commercial and organic dairy leases will be analyzed.

Comparable Market Lease Analysis

The first step in this method is to identify the gross potential income by using either the contract rents or an appropriate market lease. PGI is the total potential income attributable to the real property at full occupancy before operating expenses are deducted. Market or economic lease may be defined as the lease income that a property would most probably command in the open market: indicated by current rents of the subject, if applicable, as well as comparable properties, as of the date of the appraisal.

A search was made for comparable dairy leases located in the subject region and other comparable dairy regions. It is apparent that there are few leases available in the market. The following are market leases of commercial and organic dairy facilities. It is noted that many of the dairy leases are older and expired leases but they still represent historical lease information and a trend in the market for commercial and organic dairies.

All of the dairy properties selected and used in this analysis are improved with various types of commercial and organic dairy improvements. It is noted that the only physical difference in commercial dairies and organic dairies would be some land and infrastructure cost due to organic rules requiring the organic milking cows to be on grass a certain percentage of the time.

All of the dairy properties selected and used in this analysis are improved with various types of commercial dairy improvements.

The following is a summary version of the leases.

Historical Commercial Dairy Comparable Leases								
	Dairy Name	County, State	Lessor / Lessee	Dairy Type	Milking Head	Lease Amount Per Milking Head Per Month	Lease Structure	Lease Status
1	Smulders Dairy	Stephenville, Erath County, Texas	Tony Beltman / Joost Smulders	Freestall Barn	1,000	\$12.00	Gross	Expired in 2004. Tenant constructed a new 3,500 milking head dairy (Double S Dairy) in Hartley County, Texas
2	Wilhelmus Dairy	Hico, Erath County, Texas	Michael Schouten / Arjen Giejsel	D-16 Herringbone Freestall Barn 1987-1995	990	\$13.64	Gross 5 Year Graduated Lease \$12.53 to \$13.64	Lease expired end of 2007. Tenant purchased Excel Dairy in 2008.
3	Massey Dairy	Goldthwaite, Mills County, Texas	Eugene Norwood / Don Massey	Freestall Barn	700	\$14.00	Gross	Older Lease
4	Udder Place Dairy	Hico, Erath County, Texas	Michael Schouten / N/A	D-24 Parallel Freestall Barn 1987-1995	850	\$19.21	Gross 5 Year Graduated Lease \$14.59 to \$19.21	Lease expired in 2008.
5	Dimmitt Dairy	Dimmitt, Castro County, Texas	Dimmitt Develop. / N/A	D-30 Parallel Open Lot 1999-2000	1,680	\$12.00	Gross	Older expired lease.
6	Idsinga Dairy 2	Portales, Roosevelt County, NM	Joe Van Ruiten / Jim Idsinga	D-20 Parallel Open Lot 1990's	1,000	\$12.00	Gross	Older expired lease.
7	Van Der Lie Dairy	Amherst, Lamb County, Texas	Moo Tech, Inc. / Van Der Lie Dairy	D-25 Parallel Open Lot 1995-2000	2,000	\$11.00	Gross Lease Purchase Agreement	Older lease.
8	TJ Dairy	Amherst,	Stanley	D-25	2,000	\$11.50	Gross	The property was purchased

Historical Commercial Dairy Comparable Leases								
	Dairy Name	County, State	Lessor / Lessee	Dairy Type	Milking Head	Lease Amount Per Milking Head Per Month	Lease Structure	Lease Status
		Lamb County, Texas	Jones / Jerry Greathouse	Parallel Open Lot 1995			Lease Purchase Agreement	and the lease expired.
9	Ladder Creek Dairy	Tribune, Greeley County, Kansas	FCB of SW Kansas / Celtic, LLC	R-60 Parlor Freestall Barn 1999	2,500	\$10.00	Gross Lender ORE Lease Distressed	The property was purchased and the lease expired.
10	Ritsema Dairy	Kearney County, Kansas	Fred Retisema / N/A	D-25 Parallel Freestall Barn 1990's	1,750	\$16.00	Gross	Older lease.
11	DeBoer Dairy	Tulare, Tulare County, CA	DeBoer Dairy / N/A	D-32 Parallel Freestall Barn 2001	1,800	\$23.00	Gross	Older lease.
12	DeJong Dairy	Porterville, Tulare County, CA	Chris DeJong / N/A	D-27 Parallel Freestall Barn 2000's	600	\$19.00	Gross	Older lease.
13	Arroyo Dairy	Roswell, Chaves County, NM	Baker / Arroyo Dairy	D-24 Parallel Open Lot 1990's	2,900	\$14.00	Gross	Older lease.
14	DeGraff Dairy	Roswell, Chaves County, NM	DeGraff Farms / Vista Grande	D-25 Parallel Open Lot 1990's	2,000	\$16.00	Gross	Older lease.
15	Van Der Weg Dairy	Hereford, Deaf Smith County, TX	Rio Leche Investments, Ltd. / Van Der Weg Family	D-30 Parallel Open Lot 2001-2002	1,500	\$10.00	Gross	Older lease.
16	Western Star Dairy	Portales, Roosevelt County, NM	Tony Teune / Eric Daale	D-25 Parallel Open Lot 1980's	1,375	\$10.00	Gross	Older lease.
17	Desperado Dairy	Clovis, Curry County, NM	Jack Kasberger / Steve Hansen and Howard Hellman	D-16 and D-14 Parallel Open Lot 1990's-2000's	1,600	\$10.00	Gross	Lease Purchase Agreement for \$2,480,000. The property was purchased and the lease terminated.
18	Outlaw Dairy	Arch, Roosevelt County, NM	John Van Ruiten / Don	D-25 Parallel Open Lot	1,800	\$8.35	Gross	The property was purchased and the lease expired. The dairy had water problems.

Historical Commercial Dairy Comparable Leases								
	Dairy Name	County, State	Lessor / Lessee	Dairy Type	Milking Head	Lease Amount Per Milking Head Per Month	Lease Structure	Lease Status
			Oppliger and Art Schaap	1990's-2000's				
19	Visser Dairy	Roswell, Chaves County, NM	Visser Brothers / N/A	D-25 Parallel Open Lot 1990's	2,250	\$13.00	Gross	The property was purchased and the lease expired.
20	Lueck Dairy	Lingleville, Erath County, Texas	Lueck Dairy / Johan and Sonja Koke	D-20 Parallel Open Lot 1992-1996	1,200	\$15.00	Gross \$18,000 Per Month	The property was purchased on May 19, 2005 by the tenant and the lease expired. The sale price was \$1,500 per milking head.
21	Milk Flow Dairy	Arch, Curry County, NM	N/A / Hemink Dairy Farms Laurens Schieldernk	D-35 Parallel Open Lot 2002	2,000	\$17.40	Gross	Lease expired in 2008.
22	Ohio Dairy	Ohio Dairy Region	Confidential FCB / Confidential FCB	Freestall Barn	1,450	\$31.76	Gross	Lease Purchase Agreement from 2005 to 2012.
23	Midwest Dairy	Midwest Dairy Region	Confidential FCB / Confidential FCB	D-25 Parallel Freestall Barn 2003	1,000	\$27.50	Gross	The lease ran from 2003 through 2008. Surveyed in 2007.
24	Midwest Dairy	Midwest Dairy Region	Confidential FCB / Confidential FCB	2 x R-72 Freestall Barn 2003	6,000	\$31.40	Gross	The lease ran from 2005 through 2010. Surveyed in 2008.
25	Midwest Dairy	Midwest Dairy Region	Confidential FCB / Confidential FCB	D-29 Parallel Freestall Barn 2003	1,200	\$30.00	Gross	The lease ran from 2003 to 2005.
26	Scott City Dairy dba West Plains Dairy	Scott City, Scott County Kansas	West Plains Dairy, LLC / GAG	60 Rotary Freestall Barn 2001	2,000	\$18.00	Gross Escalation Lease at \$36,000 Per Month	The lease began in 2007 and expired in 2011.
27	Bos Dairy	Lovington, Lea County, NM	Kenneth Ivan Trust / Isaak Bos	D-40 Parallel Open Lot	2,000	\$14.74	Gross	The lease expired in 2009.
28	Consolidated Dairy	Hartley, Hartley County, Texas	Dyke Rogers / G2 Producers	2 x D-20 Parallel Parlors Freestall Barn 2009	3,200	\$20.25	Gross \$64,800 Per Month	Leased to G2 from 2009-2012. G2 purchased Harvest Dairy in May 2011 and moved out. The Dairy was placed on the market for lease for \$21.25/MC or \$68,000 per

Historical Commercial Dairy Comparable Leases								
	Dairy Name	County, State	Lessor / Lessee	Dairy Type	Milking Head	Lease Amount Per Milking Head Per Month	Lease Structure	Lease Status
								month.
29	Circle R Dairy	Muleshoe, Bailey County, Texas	Donald Ray, Circle R Dairy / Matthew Beckerink Dutch Road Dairy	D-30 Parallel Open Lot 2004	2,000	\$15.00	Gross \$30,000 Per Month	Lease Purchase Agreement. Began 2009.
30	Shelby County Iowa Dairy	Harlan, Shelby County, Iowa	Ag Real Estate Iowa One, LP / Kirkman Farms, LLP	Twin 72 Rotary Freestall Barn	5,100	\$29.61	NNN \$151,000 Per Month	The tenant purchased the dairy property and additional land for \$21,000,000 in 2011.
31	Consolidated Dairy	Hartley, Hartley County, Texas	Dyke Rogers / Confidential	2 x D-20 Parallel Parlors Freestall Barn 2009	3,200	\$21.25	Gross	The tenants leased half of the facility (1,680 head) for \$34,000 per month (\$20.24/MC). The lease began in November 2011. The tenant agreed to take the whole dairy facility approximately 9 months from the beginning of the lease for \$68,000 per month or \$21.25 per 3,200 milking head.
32	Hansen Dairy	Perryton, Ochiltree County, Texas	Hansen Farming, APS / Syracuse Dairy, LLC	D-16 Parallel Expandable to a D-20 Open Lot 2008	850	\$16.47	Gross \$14,000 Per Month	Active as of November 20, 2012. Active as of July 2014.

Regional Dairy Market - Historical lease rates for open lot dairy facilities ranged from \$8.35 to \$17.40 per milking cow. Historical lease rates for conventional natural-ventilated freestall barn and cross-ventilated freestall barn dairy facilities range from \$10.00 to \$31.76 per milking cow.

High Plains and Texas Panhandle Dairy Market - Based on the current 2015 milk prices and operating costs, a typical lease rate for an open lot dairy facility in the Texas Panhandle and High Plains Area including Colorado and New Mexico would be \$14 to \$17 per milking cow. A typical lease rate for a conventional natural-ventilated freestall dairy facility in the Texas Panhandle and High Plains Area including Colorado and New Mexico Area would be \$18 to \$22 per milking cow. A cross-ventilated or tunnel-ventilated freestall barn dairy facility would typically require the same or slightly higher lease rate than a conventional natural-ventilated freestall barn dairy facility.

Central Texas Dairy Market - Based on the current 2015 milk prices and operating costs, a typical lease rate for an open lot dairy facility in the Central Texas Area would be \$12 to \$14 per milking cow. A typical lease rate for a conventional natural-ventilated freestall dairy facility in the Central Texas Area would be \$15 to \$18 per milking cow. A cross-ventilated or tunnel-ventilated freestall barn dairy facility would typically require the same or slightly higher lease rate than a conventional natural-ventilated freestall barn dairy facility.

The stated lease rates depend on various factors such as location, age, condition, size, terms, associated land, and available water. It is noted that newer dairy facilities on the High Plains would typically command higher lease rates than older dairy facilities located in Central, West-Central, and Northeast Texas.

Historical Organic Dairy Comparable Leases								
	Dairy Name	County, State	Lessor / Lessee	Dairy Type	Milking Head	Lease Amount Per Milking Head Per Month	Lease Structure	Lease Status
1	CBS Dairy	Kersey, Weld County, Colorado	Scott Cockroft / CBS Aurora	2 x D-24 Parallel Milking Parlors Freestall Barn Facility	4,480	\$32.50	NNN	Dairy completed new in 2006 and lease began. Landlord defaulted on the dairy loan in 2009 and the tenant, Aurora, assumed the note on the dairy.
2	CBS Dairy 2	Kersey, Weld County, Colorado	Scott Cockroft / CBS Aurora	2 x D-24 Parallel Milking Parlors Open Lot Facility	3,200	\$32.50	NNN	Proposed Open Lot Organic Dairy to be constructed and leased to Aurora. The landlord and future tenant could not agree on dairy costs and the agreement was canceled.
3	Natural Prairie Organic Dairy	Hartley, Hartley County, Texas	Partnership in NE U.S. / Natural Prairie Dairy Farm (DeJongs)	D-30 Parallel Milking Parlor Freestall Barn Facility	3,200 With Future Expansion	\$25.00 to \$27.00	NNN	The Dairy was operated by Donald DeJong and his brothers who are also partners. Donald DeJong owns and operates a commercial dairy in close proximity to the Natural Prairie Organic Dairy.
4	Aurora Organic Panhandle Dairy	Dalhart, Sherman County, Texas	TXAGR / Aurora Organic Dairy Farm	2 x D-35 Parallel Milking Parlors 2,960 Head in Freestall Barns and 3,200 Head in Open Lots YOC 2006	6,160 Milking	\$34.90 or \$215,000 Per Month	NNN 10 Year Lease Plus 2 x 5 Year Options	The dairy was completed new in 2006 to be leased for an organic dairy operation. The lease is currently active.
5	Aurora Dairy Dublin	Dublin, Erath County, Texas	Dipple Remington Tanner Dairy / Aurora	D-27 Parallel Milking Parlor Freestall	Originally a 2,800 head milking facility that was reduced	\$25.55 then \$35.35 per milking head per month	NNN 10 Year Lease with 2 x 5 Year Options	Current Organic Lease of a dairy facility in Central, Texas.

Historical Organic Dairy Comparable Leases								
	Dairy Name	County, State	Lessor / Lessee	Dairy Type	Milking Head	Lease Amount Per Milking Head Per Month	Lease Structure	Lease Status
			Organic Dairy	Barns 1999-2004	to a 2,000 head milking facility.		Lease Began 2006	
6	Dar Anderson Dairy	Dublin, Comanche County, Texas.	Dar Anderson / Grand Canyon Dairy	D-14 Parallel Open Lot Facility YOC 1989-2007	975 Milking Haed	\$16.92 per milking head	NNN, Landlord Pays Taxes and Internal Management	This was a 2011 written lease-purchase agreement to a local Organic Dairy Operator from a previous Commercial Dairy Operator. Before, the future tenant moved on the property, the property was foreclosed on by Lone Star Ag Credit and it sold for a different use.

Organic Dairies - Historical organic dairy lease rates for open lot dairy facilities range from \$16.92 to \$32.50 per milking cow. Historical organic dairy lease rates for freestall barn dairy facilities range from \$26.00 to \$35.35 per milking cow. Most of the organic dairy leases are triple net, 10 year leases with two five year options, some are 5 year leases.

It is noted that no new organic leases have occurred since 2011.

Subject Dairy Facility

The subject dairy is improved with a Double 12 Herringbone milking parlor. The milking parlor has a maximum output of 1,000 to 1,200 head. The total capacity of the dairy, based on space for milking cows, dry cows, and replacement heifers, is estimated at 1,388 head. According to the Colorado Department of Public Health and Environment, AFO Regulation 81, the total legal mature dairy cow capacity for the subject dairy is limited to 699 head. Since it is necessary for a portion (usually 10 to 15 percent) of mature dairy cattle to be dry cows, the efficient milking capacity of the dairy is estimated to be 594 head. All of the milking head are confined to open lots with attached open feed lanes. Dry cows and replacement heifers are also confined to open lots with attached open feed lanes. Overall, the subject dairy layout is considered to be average and functional.

Given the available market information, and after a complete review of all the physical attributes of the historical comparable market leases, a current market lease rate for an older commercial or organic open lot dairy facility similar to the subject property, would be in the \$13.00 to \$15.00 per milking cow per month range.

The estimated lease rate is for the subject dairy facility and all associated improvements, all of the 1,018.78 acres of land, and the main dwellings. At the stated rate additional income would not be applied to additional land and dwellings.

The market lease rate includes the owner being responsible for property taxes, insurance, management, and maintenance. Based on the foregoing data, the market lease rate and the estimated gross potential income for the subject is summarized as follows.

GROSS POTENTIAL INCOME ESTIMATE				
Subject	Milking Cow Capacity	Commercial Monthly Lease Rate Per Milking Cow	Total Monthly Lease	Annual GPI
Corsetino Dairy	594 cows @	\$14.00/Cow	\$8,316	\$99,792

Vacancy and Collection Loss

The occupancy estimate utilized reflects the analysis of recent dairy market studies. The demand is average based on the current good milk prices.

The subject dairy is located in a traditional agricultural farming and ranching area. There are no other dairies located in the immediate area. The nearest competing dairy areas are in Northeastern Colorado, north of Denver and east of Interstate Highway 25 near Greeley, Fort Morgan and Yuma. Other competing areas include Eastern New Mexico and the Texas Panhandle.

Demand for a dairy in the subject area is considered to be fair or less than average based on the feed commodities grown, the dry climate, the available irrigation water, the proximity to milk processing centers, and the proximity to farms, feedyards and other dairies.

Most of the dairy expansion has occurred in the Texas Panhandle, Eastern New Mexico, Northeastern Colorado, and Western Kansas. The expansion began in the High Plains Region in the mid to late 1990's. Large dairies have been constructed on the High Plains because it is easier for dairy owners to obtain large CAFO permits to confine large dairy herds.

According to interviews with commercial and organic dairy owners and operators, if vacated it could take a few months to re-lease a dairy under the current conditions.

A vacancy rate and collection loss of 10 percent, would be reasonable for most existing dairy properties in the High Plains Dairy Region. Because of the lack of other dairy facilities in the subject immediate area, the soft dairy real estate market, and the moderate demand for a dairy in the subject immediate area, a slightly higher than normal vacancy and collection loss rate of 15 percent of the potential gross income will be used in the following analysis.

Vacancy Rate and Effective Gross Income		
Gross Income		\$99,792
Vacancy and Collection Loss	15%	\$14,969
Effective Gross Income		\$84,823

Expense Analysis

Operating expenses are periodic expenditures necessary to maintain an income producing property and to continue the production of the effective gross income. Normal operating expenses associated with commercial dairy facilities and paid by the owner are 1) real estate taxes, 2) insurance, 3) management and 4) maintenance or reserves for replacement.

As previously noted, most organic facilities are being leased on a triple-net basis where the tenant is responsible for all or most of the operating expenses. The only deductions, from an owners standpoint would be some internal management and accounting expense and sometimes property taxes.

Because of the subject's smaller size, older age and condition, and remote location, and because few organic dairy properties have sold, the subject dairy will be analyzed on a typical commercial gross lease basis.

The annual property taxes for the subject dairy have been calculated. By using the annual property tax expense of \$6,752.79 (\$6,753 Rounded) for the subject property and dividing it by 594 milking head, this results in a tax expense of \$11.37 per milking cow. The current tax expense for the subject property appears to be average as compared to other dairy properties.

Annual Property Tax Expense Per Milking Cow		
Property Tax Estimate		\$6,753
Milking Head		594
Expense Per Cow		\$11.37

A typical management fee for leasing is 5 percent of effective gross income. Considering a 15 percent vacancy and collection loss, the management expense would be \$7.14 per milking cow.

Management Expense Per Milking Cow		
PGI		\$99,792
Vacancy	15%	\$14,969
EGI		\$84,823
Mang. Fee	5%	\$4,241
Milking Head		594
Expense Per Cow		\$7.14

According to insurance agents, commercial general liability and property coverage insurance could run \$3,000 to \$6,000 annually for a dairy property similar to the subject depending on various factors. The following rate was developed.

Annual Insurance Expense Per Milking Cow		
Insurance Fees		\$4,000
Milking Head		594
Expense Per Cow		\$6.73

Reserves and replacement expenses vary but should be minimal because tenants are responsible for most of the repairs. A \$4.00 per cow expense has been applied to the reserves.

Annual Expense Per Milking Cow	
Property Taxes	\$11.37
Insurance	\$6.73
Management	\$7.14
Maintenance and Reserves	\$4.00
Total	\$29.24

Additional conversations with dairy operators and lenders directly involved in the dairy industry indicated that the calculation used in their income analysis of dairy facilities would typically range from 15 to 25 percent of the Effective Gross Income. Overall, the subject dairy layout is considered to be fairly modern and functional.

Based on the type of improvements on the subject dairy, an expense ratio in the middle of the range was considered applicable. The following is the annual expense amount when an expense ratio of 20 percent is applied to the annual income per cow for the subject property.

Subject Dairy on 1,018.78 Acres of Land				
Annual Income Per Cow	Per Cow	Months	%	PGI
Potential Gross Income	\$14.00 @	12		\$168.00
Vacancy and Collection Loss			-15%	(\$25.20)
Effective Gross Income - EGI				\$142.80
EGI - Expense Ratio			-20%	(\$28.56)
Market Survey				\$20 to \$40

As previously stated, a typical market expense for dairies, which includes additional operating expenses to management expenses generally runs from \$20 to \$40 per wet cow. The amount varies based on the size and age of the facility and various other factors. The annual expense breakdown was estimated at \$29.24 per milking cow. Total market expenses of \$28.56 per milking cow was calculated based on an expense percentage of the Effective Gross Income.

The estimated expenses for the subject are well supported by several sources within the dairy industry, and therefore, are considered reasonable. Based on this information, the subject's projected net operating income is stated below. The following income and expense analysis assumes a vacancy and collection loss of 15 percent.

STABILIZED INCOME AND EXPENSE PRO FORMA		
Potential Gross Lease Income		\$99,792
Other Income		\$0
Total Potential Gross Revenue		\$99,792
Less: Vacancy & Collection Loss	(15%)	(\$14,969)
Effective Gross Lease Income		\$84,823
Total Dairy Expenses	(20%)	(\$16,965)
Net Operating Income		\$67,859

Direct Capitalization Method

The direct capitalization method is a process by which a single year's estimate of income is converted into an indication of value. This is accomplished by dividing the income estimate by an appropriate overall rate (OAR). This is expressed algebraically as:

$$\text{NOI} / \text{RATE} = \text{VALUE}$$

Where NOI is annual net operating income or pre tax cash flow, RATE is the capitalization rate and VALUE is the resulting value of the property.

This method is most applicable when an income property has stabilized occupancy. Since the subject is appraised on a stabilized basis, the direct capitalization method is a reliable indicator of value and it was used exclusively in estimating a value for the subject by the Income Approach.

Indicated Value by the Direct Capitalization Method

The final step of this approach is to capitalize the estimated stabilized net revenues by the overall rate. Factors considered within the estimation of the capitalization rate are as follows:

1. The stability of the subject
2. The subject's location
3. The subject's condition
4. Current market conditions

The following rates were developed from comparable dairy sales.

Overall Rate Summary

Overall Rates Developed from Dairy Sales Used in the Sales Comparison Analysis						
Sales	Sale Date	Dairy Facility	Facility Type	Location	Effective Age	Overall Rates
1	Jun-12	Long Meadow Dairy	Nat-Vent Freestall Dairy	Weld County, Colorado	15 Years	4.66%
2	Jul-11	Dyelands Dairy	Open Lot Dairy	Weld County, Colorado	13 Years	4.24%
3	Jan-12	Sage Brush Dairy	Open Lot Dairy	Morgan County, Colorado	24 Years	4.44%
4	Oct-14	Grenemyer Dairy	Nat-Vent Freestall Dairy	Weld County, Colorado	17 Years	3.01%
5	Aug-14	Longs Peak Dairy	Open Lot Dairy	Weld County, Colorado	18 Years	3.60%
Mean						3.99%

The rates obtained from the comparable sales used in the Sales Comparison Analysis ranged from 3.01 to 4.66 percent. The mean rate is 3.99 percent and the median rate is 4.24 percent.

Final Summary of Overall Rates

The rates obtained from the comparable sales used in the Sales Comparison Analysis ranged from 3.01 to 4.66 percent. The mean rate is 3.99 percent and the median rate is 4.24 percent.

Because of the subject's inferior location, a rate in the upper end of the range of the developed rates will be used. The comparable rates are felt to represent the current loan situations and lack of available financing for high risk dairy operators, the current milk prices and dairy real estate values, the lack of liquidity of dairy real estate, and the overall higher risk associated with a dairy operation. A rate of 4.7 percent rounded will be applied to the subject property's net operating income. This rate also reflects the market risk reaction to the real estate market and the subject's inferior location in Southern Colorado.

Indicated Value of Subject Property

INDICATED VALUE Direct Capitalization Method			
Estimated Revenues			\$67,859
Capitalization of Revenue			
	\$67,859	4.7%	\$1,443,809
Rounded			\$1,445,000

Summary and Conclusion of the Income Approach

The income approach to value is predicated on the assumption that there is a definitive relationship between the amount of income a property will earn and its value. This approach is based on the principle that value is created by the expectation of benefits derived in the future.

The indicated value represents the market value of the subject property "as is", given the current economic conditions of the subject property and the commercial-organic dairy market in Southern Colorado High Plains Dairy Region.

The direct capitalization method was used to form a value opinion of the subject property. The direct capitalization analysis offers the indication of value based upon the estimated stabilized revenue and expenses and market derived overall capitalization rate. The income and expense estimates and assumptions used were reasonable and well-supported by evidence from the market.

Therefore, the market value conclusion of the subject property dairy facility on 1,018.78 acres of land, "as is" as of the effective date of the appraisal, by the Income Approach is **\$1,445,000 rounded**.

Exposure and Marketing Time Analysis

In accordance with the Market Value definition contained herein, as requested by the client, consideration has been given to a reasonable estimated marketing period for the subject property **at the appraised value estimate herein.**

Marketing Time is the time necessary to expose a property to the open market in order to achieve a sale. Implicit in this definition are the following conditions:

- * The property will be actively exposed and aggressively marketed to potential purchasers through marketing channels commonly used by sellers of similar types of properties.
- * The property will be offered at a price reflecting the most probable mark-up over market value used by sellers of similar properties.
- * A sale will be consummated under the terms and conditions of the definition of market value stated in this report.

A normal market period is a function of various factors including, prevailing market conditions, the price of the product being marketed, the competitive position of the property in the market, and the amount and quality of marketing effort allocated to the property. It is strongly emphasized that the appraisers have no control of the aforementioned factors, nor can the appraisers anticipate or predict any of them. Therefore, it is assumed that the property will receive an adequate marketing effort.

Based upon the degree of commercial dairy activity and sales similar to the subject contained herein, and the appraiser's personal conversations with area brokers and landowners familiar with the subject area, it is concluded that at the market value estimated herein, the subject property dairy facility on 1,018.78 acres can reasonably anticipate a sale within 12-24 months of the listing date.

Exposure Time

1. The time a property remains on the market.
2. The estimated length of time the property interest being appraised would have been offered on the market prior to the hypothetical consummation of a sale at market value on the effective date of the appraisal; a retrospective estimate based upon an analysis of past events assuming a competitive and open market. Exposure time is always presumed to occur prior to the effective date of the appraisal. The overall concept of reasonable exposure encompasses not only adequate, sufficient and reasonable time but also adequate, sufficient effort. Exposure time is different for various types of real estate and value ranges and under various market conditions. The Dictionary of Real Estate Appraisal, Third Addition, Appraisal Institute, 1993, Page 126.

A reasonable exposure time for the subject dairy on 1,018.78 acres would be 12-24 months.

Reconciliation and Final Opinion of Value

Reconciliation and Final Value Opinion

Resolving the differences among various value indications is called reconciliation.⁴⁴ The purpose of the reconciliation of value is to evaluate the strengths and weaknesses of the individual approaches, and to develop a single value opinion for the subject.

In the valuation process, more than one approach to value is usually applied, and each approach typically provides a different indication of value. If two or more approaches are used, the appraiser must reconcile the value indications.⁴⁵

All three approaches should be applied in forming an opinion of value, whenever possible. One approach, however, will often be given greater consideration than the others, depending largely upon the type of property appraised and the quality of the data upon which the approach is based. The greatest consideration is normally given to the approach most typically used by buyers and sellers to determine sale prices for properties of the subject type in the local market.

In the preceding sections of this report, indications of value based upon the cost approach, the sales comparison approach and the income approach were utilized to provide indications for value of the subject's fee simple estate. Within the reconciliation, the three value indications were considered and evaluated by the relative significance of applicability for each approach. As a result, the following estimates of value were derived:

Analysis and Approach	Subject	Value Type	Value Opinion
Cost Approach	1,018.78 Acres Land Only	As if Vacant	\$1,300,000
Cost Approach	1,018.78 Acres Land and Improvements	As Is	\$1,630,000
Sales Comparison Approach	1,018.78 Acres Land and Improvements	As Is	\$1,455,000
Income Approach	1,018.78 Acres Land and Improvements	As Is	\$1,445,000

⁴⁴ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 641.

⁴⁵ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, 2013, Page 641.

Cost Approach

In appraising a new or special-purpose property, the Cost Approach provides a meaningful standard of measurement. However, when dealing with older improvements, it is difficult to estimate the replacement and/or reproduction cost of improvements because the elements of production are always changing and difficult to monitor. Also, the Cost Approach requires an estimate of accrued depreciation, which is also difficult to determine for older improvements and for obsolescence. Based on the age and condition of the improvements and the available land sales in the immediate area near the subject property, this method was considered to be necessary and applicable and it was used in the analysis.

There was land sale data and construction cost data available to apply the Cost Approach method. The Cost Approach has provided a creditable but limited value conclusion due to the age of the improvements and the large amount of accrued depreciation.

Sales Comparison Approach

The sales comparison approach is used to form an opinion of market value by comparing the sales prices of recent transactions with similar attributes of the property being appraised. The sales comparison approach was utilized to provide an indication of value for the subject dairy property, as if vacant, and as improved.

Several sales of dairy properties were identified in the Colorado High Plains Dairy Region. The data obtained from these sales was considered to be accurate and reliable. Five of the most similar sales available in the market were used in the adjustment process. Additional sales were used for market comparison and support.

The improved comparable sales are indicating that similar properties are being purchased primarily by owner-occupants. When the market is dominated by purchasers who intend to occupy the property, the sales comparison approach is a strong indicator of value. Due to the quality and quantity of the market sales information for improved properties, the value derived within this approach is considered to provide a reliable conclusion.

Income Approach

The income approach to value is based on the premise that a direct relationship exists between the income-producing potential of a property and its market value. The income approach was utilized to provide an indication of value for the subject property.

As previously stated, the market research indicated that the majority of the dairy properties that have sold in the area have been to owner-occupants. The owner-occupant purchasers are more numerous than the investor purchasers. To an investor, a property's worth is based on its ability to produce income and/or appreciation in value over time.

The Income Approach has provided a reliable by limited value conclusion because dairy properties are typically not purchased to lease out to other operators.

Final Value Conclusion

There was adequate dairy sales data in the Sales Comparison Approach to arrive at an indication of value for the subject property. The Cost Approach was well supported by current cost estimates and recent similar land sales. The Cost Approach has provided a reliable but limited conclusion due to the age of the property and the large amount of accrued depreciation. The Income Approach has provided a reliable but limited value conclusion due to the fact that dairies are not typically purchased as investment properties to lease out to other operators to generate income. Reasonable weight was given to each approach with greatest emphasis placed on the on the Sales Comparison Approach.

Based on these considerations, it is my opinion that the market value of fee simple interest in the subject dairy facility on 1,018.78 acres of land, as of November 7, 2015, is:

Final Value Opinion of Subject Property	
Subject Property	Market Value Opinion
Value of Real Property and Attached Milking and Sprinkler Irrigation Equipment	\$1,455,000
Contributory Value of Attached Milking and Sprinkler Irrigation Equipment	\$80,000
Contributory Value of Real Property	\$1,375,000

CERTIFICATION

I certify that to the best of my knowledge and belief:

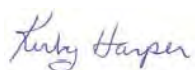
1. The statements of fact contained in this report are true and correct.
2. The reported analyses, opinions and conclusions are limited only by the reported assumptions and limiting conditions, and are my personal, impartial and unbiased professional analyses, opinions and conclusions.
3. I have no present or prospective interest in the property that is the subject of this report, and I have no personal interest or bias with respect to the parties involved.
4. I have no bias with respect to the property that is the subject of this report or to the parties involved with this assignment.
5. My compensation for completing this assignment is not contingent upon the development or reporting of a predetermined value or direction in value that favors the cause of the client, the amount of the value opinion, the attainment of a stipulated result, or the occurrence of a subsequent event directly related to the intended use of this appraisal.
6. My analyses, opinions and conclusions were developed, and this report has been prepared, in conformity with the requirements of the Uniform Standards of Professional Appraisal Practice.
7. The use of this report is subject to the requirements of the Appraisal Institute and the American Society of Appraisers, relating to review by its duly authorized representatives.
8. No one provided significant professional assistance to the persons signing this report.
9. Kirby Harper is currently a State Certified General Appraiser in Texas, New Mexico, and Colorado.
10. Kirby Harper made a personal inspection of the property that is the subject of this report.
11. My engagement in this assignment was not contingent upon developing or reporting predetermined results.
12. The reported analyses, opinions and conclusions were developed and this report has been prepared in conformity with the requirements of the Code of Professional Ethics and the Standards of Professional Appraisal Practice of the Appraisal Institute and the American Society of Appraisers.

13. As of the date of this report, Kirby Harper has completed the requirements of the continuing education program of the Texas Appraiser Licensing and Certification Board, the New Mexico Appraiser Licensing and Certification Board, the Colorado Appraiser Licensing and Certification Board, the Appraisal Institute and the American Society of Appraisers.

14. I have performed services, as an appraiser, regarding the property that is the subject of this report within the three-year period immediately preceding acceptance of the assignment. An additional statement relating to the appraisal history of the subject property is located in the body of the report.

Based on these considerations, it is my opinion that the market value of fee simple interest in the subject dairy facility on 1,018.78 acres of land, as of November 7, 2015, is:

Final Value Opinion of Subject Property	
Subject Property	Market Value Opinion
Value of Real Property and Attached Milking and Sprinkler Irrigation Equipment	\$1,455,000
Contributory Value of Attached Milking and Sprinkler Irrigation Equipment	\$80,000
Contributory Value of Real Property	\$1,375,000



Kirby Harper, SRA, ASA-RP

Texas General State Certification No. TX-1331201-G

New Mexico General State Certification No. 03440-G

Colorado General State Certification No. CG-40042526

Expiration Date July 31, 2016

Expiration Date April 30, 2017

Expiration Date December 31, 2016

ADDENDA

Assumptions and Limiting Conditions

This appraisal report has been made with the following general assumptions:

1. This is an **Appraisal Report** which is intended to comply with the reporting requirements set forth under **Standards Rule 2-2(a)** of the Uniform Standards of Professional Appraisal Practice for a Summary Appraisal Report. As such, it presents summary discussion of the data, reasoning, and analyses that were used in the appraisal process to develop the appraiser's opinion of value. Supporting documentation concerning the data, reasoning, and analyses is retained in the appraiser's file. The depth of discussion contained in this report is specific to the needs of the client and for the intended use stated herein. The appraiser is not responsible for unauthorized use of this report.
2. No responsibility is assumed for the legal description or for matters including legal or title considerations. Title to the property is assumed to be good and marketable unless otherwise stated.
3. The property is appraised free and clear of any or all liens or encumbrances unless otherwise stated.
4. Responsible ownership and competent property management are assumed.
5. The information furnished by others is believed to be reliable. However, no warranty is given for its accuracy.
6. All engineering is assumed to be correct. The plot plans and illustrative material in this report are included only to assist the reader in visualizing the property.
7. It is assumed that there are no hidden or unapparent conditions of the property, subsoil, or structures that render it more or less valuable. No responsibility is assumed for such conditions or for arranging for engineering studies that may be required to discover them.
8. It is assumed that there is full compliance with all applicable federal, state and local environmental regulations and laws unless noncompliance is stated, defined, and considered in the appraisal report.
9. It is assumed that all applicable zoning and use regulations and restrictions have been complied with, unless a nonconformity has been stated, defined, and considered in the appraisal report.

10. It is assumed that all required licenses, certificates of occupancy, consents, or other legislative or administrative authority from any local, state, or national government or private entity or organization have been or can be obtained or renewed for any use on which the value estimate contained in this report is based.
11. It is assumed that the utilization of the land and improvements is within the boundaries or property lines of the property described and that there is no encroachment or trespass unless noted in the report.
12. All information, comments and conclusions pertaining to subject and other properties described represent the opinion of the appraiser formed after a personal examination of each.
13. The appraiser has no interest, present or prospective, in the subject property.
14. Sketches in this report are included to assist the reader in visualizing the property.
15. The appraisers assume that there are no hidden or unapparent conditions of the appraised property, which would render it more or less valuable. Further, the appraisers assume that there are no potentially harmful asbestos or other materials and/or site contaminants in, on, or near soil, subsoil, or structure of the appraised property and that there has been no disposal, discharge, leakage, or spillage of pollutants or contaminant which would render it more or less valuable, whether or not these materials or contaminants are apparent or hidden and unapparent.

No responsibility is assumed by the appraisers for these conditions. In addition, no responsibility is assumed by the appraisers for the cost of engineering and/or laboratory studies which might be required to discover such materials or contaminants. And no such engineering or laboratory studies have been ordered for the appraised property.

16. Disclosure by the appraiser of the contents of this appraisal report is subject to review in accordance with the by-laws and regulations of the Appraisal Institute and the American Society of Appraisers.

This appraisal report has been made with the following general limiting conditions:

1. The distribution, if any, of the total valuation in this report between land and improvements applies only under the stated program of utilization. The separate allocations for land and buildings must not be used in conjunction with any other appraisal and are invalid if so used.
2. Possession of this report, or a copy thereof, does not carry with it the right of publication, unless prior arrangements have been made.
3. The appraiser, by reason of this appraisal, is not required to give further consultation, testimony, or be in attendance in court with reference to the property in question unless arrangements have been previously made.
4. Neither all nor any part of the contents of this report (especially any conclusions as to value, the identity of the appraiser, or the firm with which the appraiser is connected) shall be disseminated to the public through advertising, public relations, news, sales, or other media without prior written consent and approval of the appraiser.
5. This appraisal was made in accordance with the Code of Professional Ethics and Uniform Standards of Professional Appraisal Practice as promulgated by the Appraisal Foundation, the Appraisal Institute and the American Society of Appraisers.
6. Acceptance of and/or use of this report constitutes acceptance of all assumptions and limiting conditions stipulated.
7. The Americans with Disabilities Act ("ADA") became effective January 26, 1992. We have not made a specific compliance survey and analysis of this property to determine whether or not it is in conformity with the various detailed requirements of the ADA. It is possible that a compliance survey of the property, together with a detailed analysis of the requirements of the ADA, could reveal that the property is not in compliance with one or more of the requirements of the Act. If so, this fact could have a negative effect upon the value of the property. Since we have no direct evidence relating to this issue, we did not consider possible non-compliance with the requirements of ADA in estimating the value of the property.

8. Critical Issues, Extraordinary Assumptions and Hypothetical Conditions:

According to USPAP, the appraiser must address Extraordinary Assumptions and Hypothetical Conditions. An Extraordinary Assumption is defined as an assumption, directly related to a specific assignment, as of the effective date of the assignment results, which, if found to be false, could alter the appraiser's opinions and conclusions (example: a value in the future on the date a proposed project is expected to be completed).

A Hypothetical Condition is defined as a condition, directly related to a specific assignment, which is contrary to what is known by the appraiser to exist on the effective date of the assignment results, but is used for the purpose of analysis (example: a value of a proposed project as of the effective date of the appraisal or the date the property was inspected).

The following Critical Issues are addressed and Extraordinary Assumptions are made:

A. Permitted Use

The subject dairy does not operate with a Confined Animal Feeding Operations (CAFO) Permit or a Use By Special Review Permit for confining livestock and managing wastewater. The subject dairy legally operates under the Animal Feeding Operation (AFO) rule issued by the Colorado Department of Public Health and Environment. Under the AFO restriction a dairy in Colorado may confine up to 699 mature milking cows and 999 heifers without a CAFO Permit or Use By Special Review Permit. The subject dairy does have a Nutrient Management Plan filed with the USDA Natural Resource Conservation Service (NRCS) which is necessary for its legal operation.

The subject dairy pens and feed lanes will support approximately 1,079 mature dairy cows, 309 heifers, and numerous small heifer calves. The Double 12 Herringbone milking parlor has a maximum output of 1,000 to 1,200 head. Based on the current improvements and the AFO restrictions, the efficient milking capacity of the subject dairy is approximately 594 head, the dry cow capacity is approximately 105 head, and the replacement heifer capacity is approximately 689 head. A small calf barn and numerous calf hutches are available for small baby heifer calf confinement.

According to the Colorado Department of Public Health and Environment, the dairy is currently in compliance and there were no known environmental violations as of the appraisal date. The appraised value in this report is subject to maintaining all of the County, State, and Federal permits necessary for the legal operation of the dairy. It is noted that the dairy does not retain a full time environmental consultant-engineer.

The appraised value is subject to maintaining all on-site and off-site solid waste, slurry, and wastewater agreements necessary for the normal function of the dairy. This includes adjacent or non-contiguous land, owned or leased, used for solid waste, wastewater, and slurry application.

This appraisal assumes that any off-site waste application land, required by AFO restrictions, excluded from this analysis, will be available for solid waste, wastewater, and/or slurry application for the life of the subject dairy facility.

B. Organic Certified Use

The subject dairy and land as defined in this report are Certified Organic. The dairy operates as an organic dairy facility and the land is certified for the production of organic forage for the dairy cows. The organic milk is transported to Denver and sold. The Organic Certificate is issued from Indiana Certified Organic, LLC, 3914 Clarks Creek Road, Plainfield, Indiana 46168, Phone 317-839-9700. The certificate numbers include t1048-US1101z1 and t1013-US1101z1.

The time period to convert an existing commercial dairy and its cattle to an organic certified operation is one year. Pasture or grazing land that has never had fertilizer or chemicals applied to it will usually be allowed to be certified organic without a waiting period. Cropland that has had consistent use of fertilizers and chemicals, has to go through a three year period of no fertilizer or chemical use to obtain an organic certification.

Other than the organic certification and some additional land for grazing, which is part of the organic rules, an organic dairy facility basically has the same type of construction and equipment as a commercial dairy facility. Converting from commercial to organic is purely a business decision made by the dairy operator.

There are very few sales or leases of organic dairy facilities. Because of a lack of organic dairy sales and organic cropland sales in the market, the older age of the subject dairy improvements, the remote location of the subject dairy as compared to other dairy facilities, the lack of demand for an organic dairy facility or a commercial dairy facility, high operating costs for all dairies, no additional value was given to the subject dairy for its organic certification. In this appraisal report, the subject will be analyzed and valued as a typical commercial dairy facility with associated land. Organic leases are included in the appraisal for review.

C. Environmental Condition Critical Issue

Excerpts from Letter fro John D. Faught, Attorney for Corsentino Dairy Farms, Inc. to the Colorado Oil and Gas Conservation Commission (COGCC) dated January 29, 2010.

Corsentino Dairy raises irrigated corn and other forage to feed their dairy herd. Irrigation water for the farm land is diverted from the Cucharas River under high-priority, adjudicated water rights dating back to the early 1900's. Approximately 135 acres of the farm land is irrigated through ditch irrigation which is diverted directly from the Cucharas River to the fields. Approximately 215 acres of the farm land is irrigated through pivot irrigation systems with water stored in a reservoir, known as Holita Reservoir, which is filled with water diverted from the Cucharas River. Water from the Cucharas River also is used as drinking water for the dairy herd.

From approximately 1999 to 2007, Petroglyph Energy, Inc. discharged produced water from its CBM Operations into the Cucharas River, upstream of Corsentino Dairy. The produced water is groundwater pumped from deep coal seams to depressurize the system and allow the desorption of methane gas from the coal. During the eight-year period, Petroglyph discharged up to 6.5 million gallons per day of produced water to the Cucharas River. The largest volume of produced water discharged by Petroglyph occurred from 2003 to 2007.

Deep groundwater from CBM de-watering operations is typically high in sodium (Na). The produced water from Petroglyph's CBM Operations had a sodium content of approximately one ton per acre-foot (up to 39,896 lbs/day).

Petroglyph stopped its CBM Operations and ceased discharging produced water into the Cucharas River in July 2007 following meetings with COGCC staff regarding the potential threats to public health, safety, and welfare, and the environment related to the presence of methane gas in domestic water wells.

The Director of COGCC issued a Cease and Desist Order on October 16, 2007 shutting down Petroglyph's CBM Operations. Subsequent orders were issued by the Director in November 2007 and January 2008, extending the Cease and Desist Order and requiring Petroglyph to implement a Methane Investigation, Monitoring and Mitigation Plan. This matter remains pending before COGCC.²

Petroglyph holds a point source water discharge permit issued by the Colorado Water Quality Control Division (“CWQCD”) of the Colorado Department of Public Health and Environment (“CDPHE”), Permit No. CO-0048020, for the discharge of produced water. Petroglyph has applied for a renewal of the permit. In considering Petroglyph’s renewal application, the CWQCD recognized the adverse impacts to agricultural uses, and specifically those suffered by Corsentino Dairy, by allowing the discharge of untreated produced water from Petroglyph’s CBM Operations because of the high sodium concentrations and high sodium adsorption rate (“SAR”). The discharge permit held by Petroglyph during its discharge of produced water to the Cucharas River from 1999 to 2007, and during the high-volume discharges from 2003 to 2007, did not provide any limitations or standards for the quality of the water discharged related to sodium or the SAR.

First, the continued practice of discharging the untreated produced water (i.e., high Sodium Adsorption Rate, SAR, values and high sodium concentrations) into the Cucharas River, under specific hydro-logic conditions, creates a known threat to the beneficial agricultural use of this state water by impairing the suitability of this river water when diverted for agricultural uses. This threat is heightened when there exists minimal upstream flow in the river to dilute the effluent entering from several tributaries.

Specifically, there has been damage to corn fields, soils, and dairy cattle when water was diverted (Holita Ditch) from the Cucharas River to a storage pond (Holita Reservoir) and then routed to the Corsentino Dairy for these agricultural uses. The damage was first reported in 2006 and has been confirmed by soil scientists from Colorado State University and USDA’s National Salinity Team. ***

Third, the CBM operator [Petroglyph] has been aware of the SAR and high sodium problems in the produced water for several years and has taken steps to identify and characterize treatment technologies that will be evaluated for use in addressing this problem. The application for the renewal permit identifies a site for the treatment facility with a design capacity of 10 MGD [million gallons per day]. [emphasis added].

To address the serious adverse impacts of the discharge of untreated produced water from CBM Operations, the CWQCD has adopted a narrative standard for Agriculture Use Protection. In the renewal water discharge permit recently issued by CWQCD, Petroglyph is required to treat its produced water prior to discharge and is subject to water quality limits relating to electric conductivity and SAR levels.

As a result of Petroglyph's discharge of untreated produced water, Corsentino Dairy has suffered devastating financial losses and hardships, including lower milk production, increased mortality rates and decreased herd pregnancy rates. During the period of Petroglyph's discharge of untreated produced water, Corsentino Dairy's milk production dropped in half, from 84 lbs. per cow to 42 lbs. per cow. In the year following the cessation of Petroglyph's produced water discharges in 2007, milk production recovered to 62 lbs. per cow.

During the period of Petroglyph's discharge of untreated produced water, Corsentino Dairy also suffered increased herd death loss and a decrease in pregnancy rate. After Petroglyph stopped its discharges into the Cucharas River, Corsentino Dairy's herd death loss improved 64% and its pregnancy rate increased from 39% to 59%. There is a clear and direct correlation between Petroglyph's discharge of CBM produced water to the Cucharas River and the adverse impacts on Corsentino Dairy's milk production, herd death losses, herd pregnancy rates and other operational losses.

In addition, when used for irrigation of crops, the high sodium content of the produced water reduced crop yield and lowered the nutrient value of the silage. The result to Corsentino Dairy was reduced crop yield and increased reliance on alternative feed sources. Use of sodium-contaminated irrigation water from Petroglyph's produced water discharges impaired the soils of Corsentino Dairy's fields for the production of feed for the dairy herd.

Site investigations conducted in 2008 and 2009 indicated that soils on the farm have higher SAR levels than is considered optimum for agricultural soils, and also exhibit characteristics of sodic soils. The soils in these fields have accumulated Na as a result of high-Na irrigation water from the Cucharas River. Combined with low Ca and Mg, the Na accumulation causes poor soil physical conditions as well as stunted crop growth. The soil Na concentration in some areas of the Corsentino's farm is higher than that which corn, the most salt-sensitive crop grown on the farm, can tolerate.

Corsentino Dairy has repeatedly demanded that Petroglyph compensate them for their losses. Petroglyph has refused to make any restitution or otherwise compensate Corsentino Dairy for the losses directly caused by Petroglyph's discharges of produced water from its CBM Operations.

As a result of efforts of Executive Director Neslin, and the COGCC staff, Petroglyph has agreed to a Form 27 Site Investigation and Remediation Work Plan, approved on November 30, 2009. The Form 27 requires Petroglyph to conduct sampling and analysis of the Corsentino Dairy farm soils and to undertake certain remediation activities pursuant to a Work Plan. However, a final Work Plan has yet to be completed and approved.

Additionally, a Supplement to the Form 27 requires Petroglyph to reimburse Corsentino Dairy for the costs of the purchase and delivery of supplemental feed for the dairy herd in amounts and quality necessary to meet the feed requirements of the herd over and above the feed that can be supplied from its crop production during 2009 and 2010. The agreement to reimburse Corsentino Dairy for such supplemental feed costs extends only through the end of 2010. It is anticipated that the remediation of the Corsentino Dairy fields will not be completed until a much later date. Reimbursement payments have been made to Corsentino Dairy by Petroglyph under this Supplement to Form 27.

The delay, however, in undertaking the remediation activities has been costly to the Corsentino's. The lack of production of corn and silage from Corsentino Dairy's farmland as a result of the damage caused by the Petroglyph discharges has taken a heavy toll on the Corsentino family and their operations. Until the soils are fully remediated, the losses continue to mount.

Corsentino Dairy does not expect that all of its losses suffered as a result of Petroglyph's discharge of untreated produced water be mitigated by the Response Fund. Essentially, Petroglyph is a recalcitrant operator that has failed to meet its obligations to protect the public health, safety, and welfare from its operations. Corsentino Dairy has limited options available to correct this wrong. Under such circumstances, we submit, it is appropriate to use monies from the Response Fund to afford mitigation of the impacts from Petroglyph's CBM Operations.

Rather than present a specific dollar amount request, Corsentino Dairy offers to work with COGCC to determine what could be an appropriate response to the circumstances presented by this request.

Excerpts from Letter from the Colorado Oil and Gas Conservation Commission (COGCC) to John D. Faught, Attorney for Corsentino Dairy Farms, Inc. dated October 19, 2011.

Under the Form 27 and Supplement, Corsentino Dairy, Petroglyph and the Commission reached a voluntary agreement for reclamation of Corsentino Dairy's property. The agreement avoided the need for the parties to resolve many complex and contested issues before reclamation could proceed, including whether and to what extent Petroglyph's discharge permit was a defense to any such action, and the nature and extent of the harm allegedly caused by Petroglyph's operations.

Given these considerations, Corsentino Dairy, Petroglyph and the Commission entered into the Form 27 and Supplement and Petroglyph implemented the resulting work plan promptly.

Based on our investigation, the Staff believe that Corsentino Dairy has not made a sufficient showing that further enforcement action by the Commission against Petroglyph is warranted at this time. Further, the Staff believe that Petroglyph has satisfied its obligations under the Form 27 and Supplement. Accordingly, the Staff will not seek to compel Petroglyph to take further action as you have requested.

As of the effective date of value of November 7, 2015: According to the Corsentinos's and the USDA NRCS in Huerfano County, Colorado, only the elements of time with adequate rainfall and snowfall will leach the saline out of the subject irrigated ground and return it back to normal. The leaching process has been slow due to the droughts of 2011, 2012, 2013, and 2014. A significant amount of snow melt and rain occurred in 2015 helping to leach out the land and return it to normal, however, drought is common for this part of Colorado and it is expected to be ongoing into 2016 and beyond.

There is no measurable effect on value related to the subject's saline contaminated irrigated land. The land value, as if vacant, and the value of the property, as improved, stated in this report, assumes no negative impact on value due to the saline contamination.

D. Dairy and Irrigation Water Adequacy

Water for the dairy livestock, the milking operation, and domestic use is obtained from onsite water wells and the City of Walsenburg through an underground water line. Irrigation water for the cropland is legally obtained through owned water rights from the Holita Ditch Reservoir, the Holita Ditch Enlargement, the Walsenburg Ditch No. 4, and the Ballejos Ditch No. 7. Water quality and quantity are assumed to be adequate for the operation of the dairy, the dairy livestock, domestic use, and irrigation purposes, based on animal capacities and irrigated land acres stated in the report.

Key Definitions

Appraisal

In simplest terms, an appraisal is “the act or process of developing an opinion of value” of an asset. The asset in question could be anything, from real property, fine art to machinery and equipment, or even a specific type of business.

The value developed in an appraisal is some measure of the relative worth of the asset, usually expressed in terms of money. In other words, the appraisal quantifies to a certain level of precision what buyers and sellers would consider the relative worth of, in this case, some interest in a parcel of land and any improvements to that land.

Implicit in the traditional definition of appraisal is the idea that an appraisal is someone’s opinion, rather than an undeniable fact. Another useful way of describing and thinking about what an appraisal is would be to look more closely at the people who develop those opinions of value.

While anyone can have an opinion of value, appraisers are professionals with training and expertise in the accepted valuation methods and techniques who have an ethical obligation to remain disinterested and unbiased while performing an appraisal. That professional expertise gives the value opinion of an appraiser credibility in the marketplace that the opinions of other market participants do not carry. And the credibility of an appraiser’s unbiased opinion of value, the relevant evidence an appraiser gathers, and the logical analysis of that data make the appraiser’s opinion valuable to clients.⁴⁶

Real Estate and Real Property

The distinction between real estate and real property is fundamental to appraisal:

Real Estate - An identified parcel or tract of land, including improvements, if any.

Real Property - The interests, benefits, and rights inherent in the ownership of real estate.

In simplest terms, the real property rights, not the real estate itself. In real estate appraisal, an important distinction is made between the terms real estate and real property. Although these concepts are different, some state laws and court decisions treat them synonymously for legal purposes.

⁴⁶ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Pages 2-3.

Real estate is the physical land and appurtenances affixed to the land—e.g., structures. Real estate is immobile and tangible. The legal definition of real estate includes the following tangible components:

- land
- all things that are a natural part of land, such as trees and minerals
- all things that are attached to land by people, such as buildings and site improvements

In addition, all permanent building attachments (for example, plumbing, electrical wiring, and heating systems) as well as built-in items (such as cabinets and elevators) are usually considered part of the real estate. Real estate includes all attachments, both above and below the ground.

Real property includes the interests, benefits, and rights inherent in the ownership of physical real estate. In an appraisal, a particular set of real property interests—not the real estate—is what is valued. Real estate in and of itself has no value; the rights, or interests, in real estate are what have value.⁴⁷

Market Value

Market Value is defined as the most probable price which a property should bring in a competitive and open market under all conditions requisite to a fair sale, the buyer and seller each acting prudently, knowledgeably and assuming the price is not affected by undue stimulus.⁴⁸ Implicit in this definition is the consummation of a sale as of a specified date and the passing of title from seller to buyer under conditions whereby:

- 1) Buyer and seller are typically motivated;
- 2) Both parties are well informed or well advised, and acting in what he or she considers his or her own best interest;
- 3) A reasonable time is allowed for exposure in the open market;
- 4) Payment is made in terms of cash in U.S. dollars or in terms of financial arrangements comparable thereto; and
- 5) The price represents the normal consideration for the property sold unaffected by special or creative financing or sales concessions granted by anyone associated with the sale.

⁴⁷ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Pages 3-4.

⁴⁸ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 59.
The Appraisal of Rural Property, 2nd Edition, Appraisal Institute and ASFMRA, 2000, Page 27.
USPAP Advisory Opinions 2012-2013 Edition, The Appraisal Foundation, Page A-72.
USPAP Definition of Market Value Page A-72 References Title XI FIRREA Definition.

Going Concern Value

All tangible and intangible assets of an established and operating business with an indefinite life.

A going concern is an established and operating business with an indefinite future life. For certain types of properties (e.g., hotels and motels, restaurants, bowling alleys, manufacturing enterprises, athletic clubs, landfills), the physical real property assets are integral parts of an ongoing business. The market value of such a property (including all the tangible, intangible, and financial assets of the going concern, as if sold in aggregate) is often referred to as business value or business enterprise value, but in reality it is the market value of the going concern including real property, personal property, financial assets, and the intangible assets of the business. Appraisers may be asked to develop an opinion of the investment value, use value, or some other type of value of a going concern, but most appraisals of the value of a going concern relate to market value.

Traditionally, the term going-concern value has been used to describe the market value of a proven property operation, although a more accurate term is market value of the going concern. The concept of the value of the going concern can also be applied to a proposed business operation. The current definition of going concern highlights the assumption that the business enterprise is expected to continue operating well into the future (usually indefinitely). The market value of a going concern includes the incremental value associated with the business concern, which is distinct from the value of the tangible real property and personal property. The assemblage of the land, buildings, labor, equipment, financial assets, and the marketing operation creates an economically viable business that is expected to continue.

It may be difficult to separate the market value of the tangible assets (i.e., the land and the building) from the total market value of the business, but such a division of realty and non-realty assets may be required by the intended use of the appraisal. Application of the cost approach can be useful in separating the value of the tangible assets because the cost approach specifically excludes personal property and intangibles. An appraiser must always state when intangible assets are included in the property being appraised, even when the appraiser has not been able to separate the market value of the real property from the market value of the going concern. Only qualified practitioners should undertake these kinds of assignments, which must be performed in compliance with the appropriate professional standards. It may be necessary for a real estate appraiser to collaborate with a personal property appraiser or a business appraiser or both on such an assignment.⁴⁹

⁴⁹ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 63.

Fee Simple Interest

A fee simple estate is defined as: Absolute ownership unencumbered by any other interest or estate, subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power, and escheat.⁵⁰

Bundle of Rights and Fee Simple Interest

The total range of private ownership interests in real property is called the bundle of rights. Imagine a bundle of sticks in which each “stick” represents a distinct and separate right or interest. The bundle of rights contains all the interests in real property, including the right to use the real estate, sell it, lease it, enter it, and give it away, and each “stick” can be separated from the bundle and traded in the market. The US Constitution guarantees the private enjoyment of these rights, subject to certain limitations and restrictions.

The most complete form of ownership is the fee simple interest—i.e., absolute ownership unencumbered by any other interest or estate, subject only to the limitations imposed by the governmental powers of taxation, eminent domain, police power, and escheat. An appraiser may be asked to appraise something less than the fee simple interest—i.e., a partial interest or a fractional interest.

Because each stick in the bundle of rights represents a separate right or interest inherent in the ownership, these individual rights can be separated from the bundle by sale, lease, mortgage, donation, or another means of transfer. The complete bundle of rights includes, but is not limited to, the following:

- the right to sell an interest
- the right to lease an interest
- the right to occupy the property
- the right to mortgage an interest
- the right to give an interest away

Ownership of the fee simple interest is equivalent to ownership of the complete bundle of sticks, while one or more of the sticks (or a portion of individual sticks) can represent a partial interest in a specific property. Each individual right in the bundle may have potential value. If any or all are removed from the fee simple interest, one or more partial interests are created. Sometimes described as an absolute property right, a fee simple interest is not, in fact, absolute because it is subject to the four powers of government (i.e., taxation, eminent domain, police power, and escheat). Nevertheless, an owner of a fee simple interest in real estate has broad rights.

⁵⁰ The Appraisal of Real Estate, 13th Edition, The Appraisal Institute, Chicago, Illinois, 2008, Page 114.

If there are leases in place, even at market rates and terms, the interest is a leased fee. The value may be the same as the fee simple, but the interest is correctly identified as a leased fee.⁵¹

Leased Fee Interest

The ownership interest held by the lessor, which includes the right to the contract rent specified in the lease plus the reversionary right when the lease expires.⁵²

Leasehold Interest

The right held by the lessee to use and occupy real estate for a stated term and under the conditions specified in the lease.⁵³

Air Rights

The right to undisturbed use and control of designated air space above a specific land area within stated elevations. Such rights may be acquired to construct a building above the land or building of another or to protect the light and air of an existing or proposed structure on an adjoining lot.⁵⁴

Land Trust

A legal vehicle for partial ownership interests in real property in which independently owned properties are conveyed to a trustee; may be used to effect a profitable assemblage or, in some cases, to facilitate the assigning of property as collateral for a loan.⁵⁵

⁵¹ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Pages 5-6.

⁵² The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 72.

⁵³ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 72.

⁵⁴ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 78.

⁵⁵ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 80.

Scope of Work

In the valuation process, the identification of the assignment elements leads directly into the determination of the scope of work of an assignment, i.e., the type and extent of research needed to solve an appraisal problem. Professional standards place the responsibility for determining the appropriate scope of work in the appraisal assignment squarely on the shoulders of the appraiser. The scope of work for an assignment is acceptable if it leads to credible assignment results, is consistent with the expectations of parties who are regularly intended users for similar assignments, and is consistent with what the actions of the appraiser's peers would be in the same or a similar assignment.

The practice of developing a scope of work is a bottom-up process: the appraiser starts with the professional appraisal practices that are essential in all assignments and then considers the applicability of the professional standards and practices to the problem at hand. The ideal solution is arrived at not by reducing a standardized procedure to the specific requirements, but rather by building a logical framework for the assignment from the ground up.

In effect, scope of work provides appraisers with flexibility to perform the level of analysis that is appropriate for the needs of a specific appraisal assignment.⁵⁶

Scope of Work Determination

Scope of work is the most critical decision an appraiser will make in performing an assignment. Solving an appraisal problem involves three steps:

1. Identifying the problem
2. Determining the solution (or scope of work)
3. Applying the solution

None of the three steps can be omitted, and each must be performed in order.

To analyze the problem, the appraiser identifies seven key assignment elements: (1) client, (2) intended users in addition to the client, (3) intended use, (4) objective of the appraisal, or type of value and its definition, (5) effective date, (6) property characteristics that are relevant to the assignment such as the interest to be valued and physical and legal characteristics), and (7) assignment conditions such as hypothetical conditions, extraordinary assumptions, and other requirements. These elements provide the framework for the assignment and allow the appraiser to identify the problem to be solved.

⁵⁶ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Page 87.

The second step is to determine the scope of work to solve the problem. Scope of work encompasses all aspects of the valuation process, including which approaches to value will be used; how much data is to be gathered, from what sources, from which geographic area, and over what time period; the extent of the data verification process; and the extent of property inspection, if any.

The scope of work decision is appropriate when it allows the appraiser to arrive at credible assignment results and is consistent with the expectations of similar clients and the work that would be performed by the appraiser's peers in a similar situation.⁵⁷

Market Conditions

Comparable sales that occurred under market conditions different from those applicable to the subject on the effective date of appraisal require adjustment for any differences that affect their values. An adjustment for market conditions is made if general property values have increased or decreased since the transaction dates.

Although the adjustment for market conditions is often referred to as a "time" adjustment, time is not the cause of the adjustment. Market conditions that change over time create the need for an adjustment, not time itself. In other words, increases or decreases in property values in the market over time are the cause of the adjustment and time is the basis of the adjustment. If market conditions have not changed, no adjustment is required even though considerable time may have elapsed.

The timing of comparable sales can provide the basis for a market conditions adjustment. For example, the highest and best use analysis of vacant land parcels provides information that can be used to estimate an adjustment for changes in market conditions. Comparable tracts of vacant land may have been sold under market conditions different from those on the date of the appraisal. The best sales data available is often historical sales to purchasers who bought the land with a specific use in mind. These sales provide an indication of the anticipated land value under the specific use. By studying marginal demand, an appraiser can establish the time horizon for development of the subject, and the prospective value of the subject under the specific use plan can be estimated. Discounting the prospective value yields an estimate of the present value of the subject land, which can be compared to the values indicated by past sales.

Changes in market conditions may also result from changes in income tax laws, building moratoriums, the availability of financing, employment, interest rates, and fluctuations in supply and demand. Sometimes several economic factors work in concert to cause a change in market conditions. A recession tends to deflate all real estate prices, but specific property types or submarkets may be affected differently.

⁵⁷ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Pages 38-39.

A decline in demand may affect only one category of real estate. If the demand for a specific type of property falls during a period of inflation, sales transacted during that period may not provide a reliable indication of the value of a similar property in a different period unless appropriate adjustments are made. In a depressed economy, recent sales are often difficult to find. Older sales, occurring prior to the onset of the depressed economy, should be used with great caution because they may not reflect the problems associated with the depressed economy. In some instances when current sales of improved properties do not exist, upward or downward shifts in rent and rent terms or land values may help the appraiser identify the direction of market activity.

Appraisers must also recognize that the sale of a property may be negotiated months or even years before the sale closes. The buyer and the seller make an agreement as of the contract date, but the agreement does not become effective until the closing date, and changes to the agreement are often made in the interim. An adjustment for changes in market conditions between the date the contract is signed and the effective date of value may be appropriate. Also, sometimes appraisers are called on to develop an opinion of retrospective or prospective value, which requires a close study of changes in market conditions.

An adjustment for changes in market conditions is usually measured as a percentage of previous prices. While change is continuous, it is typically measured and quoted in specific intervals. If the physical and economic characteristics of a property remain unchanged, analyzing two or more sales of the same property over a period of time will indicate the percentage of price change. In other words, an appraiser can measure the difference in sale prices of the same or similar properties over time to extract the rate of change, which can be used as the basis for adjustment in the sales comparison analysis. An appraiser should always attempt to examine several sets of sales to arrive at an appropriate adjustment. An adjustment supported by just one set of sales may be unreliable.

Sales and resales of the same properties may provide a good indication of the change in market conditions over time. However, such an analysis must be approached with caution because it is possible that a resale of a property involved non-market conditions. For example, if similar properties are typically held for seven years and the resale occurred after only two years, is it possible that the seller was compelled to sell? As long as both the sale and resale were based on market conditions, such an analysis may prove useful. Consider a three-bedroom house that sold three years ago for \$250,000 and then sold again recently for \$242,500. The indicated average annual decline in value of the house would be 1% ($[(\$250,000 - \$242,500)/\$250,000]/3$). In the same market area, another three-bedroom home with similar characteristics sold for \$260,000 three years ago and then sold again last year for \$250,000. The average annual change for that comparable property is 1.92% per year ($[(\$260,000 - \$250,000)/\$260,000]/2$). The results of additional calculations made using sale and resale data and paired sales of comparable properties can be reconciled to support an estimated market conditions adjustment. The transactions used in these additional calculations should be similar in terms of markets, land-to-building value ratios, and other elements of comparability.

Appraisers must remember that supply and demand are dynamic forces, and periods of decline are just as probable as periods of growth in real estate markets. For example, in recent years many property markets saw falling prices, and negative market conditions adjustments were needed in sales comparison analysis involving sales data from that period of market decline. Also, in volatile markets an adjustment for market conditions may be needed to account for periods of time in which sale prices go up and down. For example, an appraiser studying mid-rise office building sales in a metropolitan market finds that steadily rising prices between 2006 and 2007 were followed by a period of volatility in 2008, then a sharp decline in 2009, then a slow rise to 2006 levels by late 2010, and then another period of stability. Comparable sales that occurred between 2008 and 2010 will require scrutiny because of the changing market conditions during that period, whereas comparable sales occurring before and after the dramatic dip in the market may not require a significant market conditions adjustment.

The appreciation or depreciation in average sale prices in a market does not necessarily follow a linear pattern. Changes in sale price can also be irregular or stepped, they can increase or decrease on a compounded basis, or they may require identifying inflection points or dates on which changes in trends occurred. Statistical tools such as regression analysis and extrapolation are useful in determining precise mathematical relationships. However, any statistical model generated from the available data must reflect market thinking to be useful in the adjustment process.

Sorting and plotting sale and resale data or paired sales data on a graph is another way to determine patterns of change. The reliability of such analyses is affected by the number of market transactions studied. With sufficient data, unit prices can be graphed over time to indicate the trend in the market. Rents can also be plotted on scatter diagrams to show differences over time. If sales of comparable properties are not available, other evidence of shifting market conditions may include changes in:

- the ratio between sale prices and listing prices or between lease contracts and lease offering rates
- exposure time
- listing prices
- trends in rents
- the number of offers a seller receives and the frequency of backup offers
- the proportion of accepted offers that actually close
- the number of foreclosures
- the number of available properties
- the number of building permits issued and their aggregate value
- terms of available institutional financing
- use of seller financing
- changing market demographic patterns
- demolition and new construction⁵⁸

⁵⁸ The Appraisal of Real Estate, 14th Edition, Appraisal Institute, Chicago, Illinois, 2013, Pages 414-417.

Subject Information

Trans Pecos Real Estate, Inc.

SUBJECT PHOTOGRAPHS



Front View of Milking Parlor



Utility/Storage Shed - Adjacent to Milking Parlor



Double 12 Herringbone Milking Equipment



Milking Parlor Covered Holding Pen



Double 12 Herringbone Milking Equipment



Milk Storage Tank



Machine Shed / Shop Building



Hay/Grain Storage Silos - No Contributory Value



Grain Storage Silos - No Contributory Value



Open Concrete Feed Lane and Attached Confinement Pens



Open Concrete Feed Lane and Attached Confinement Pens

+



Cattle Pens



Maternity Barn



Quonset Cattle Barn / Loafing Shed



Compost Cattle Barn / Loafing Shed



Special Needs Barn



Commodity Barn



Main Dwelling



Employee Dwelling



Employed Manufactured Dwelling - Not Valued



Owner's Manufactured Dwelling - Not Valued



Dairy Facility Sign



9-Tower T-L Sprinkler Irrigation System / Irrigated Land



7-Tower Valley Sprinkler Irrigation System / Irrigated Land



Flood Irrigated Land



Irrigated Field with 7-Tower Lockwood Sprinkler Irrigation System

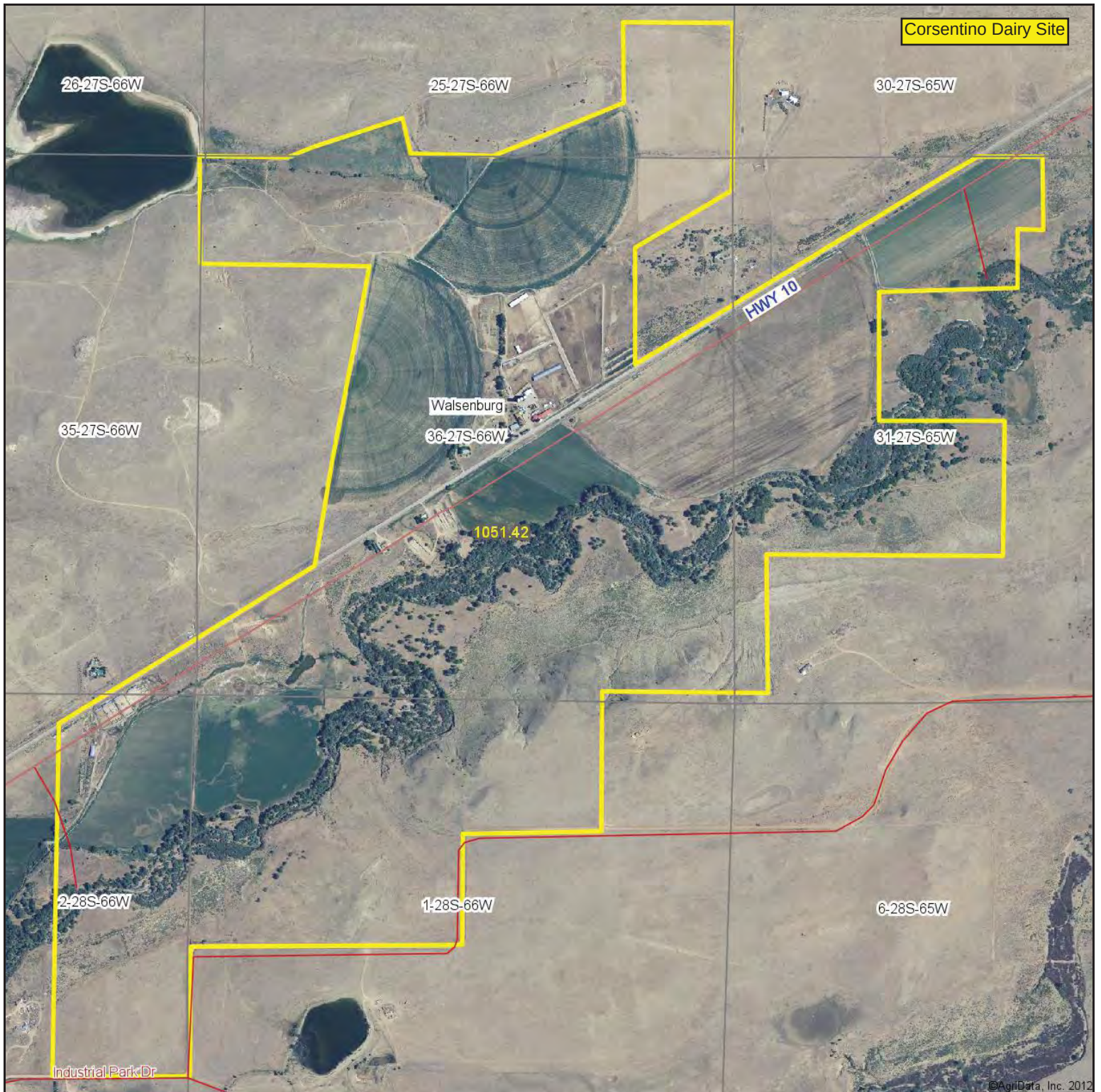


Colorado State Highway 10 Access



Colorado State Highway 10 Access

Aerial Map



©AgriData, Inc. 2012

map center: 37° 38' 55.94, 104° 43' 33.29

scale: 16231

Maps provided by:



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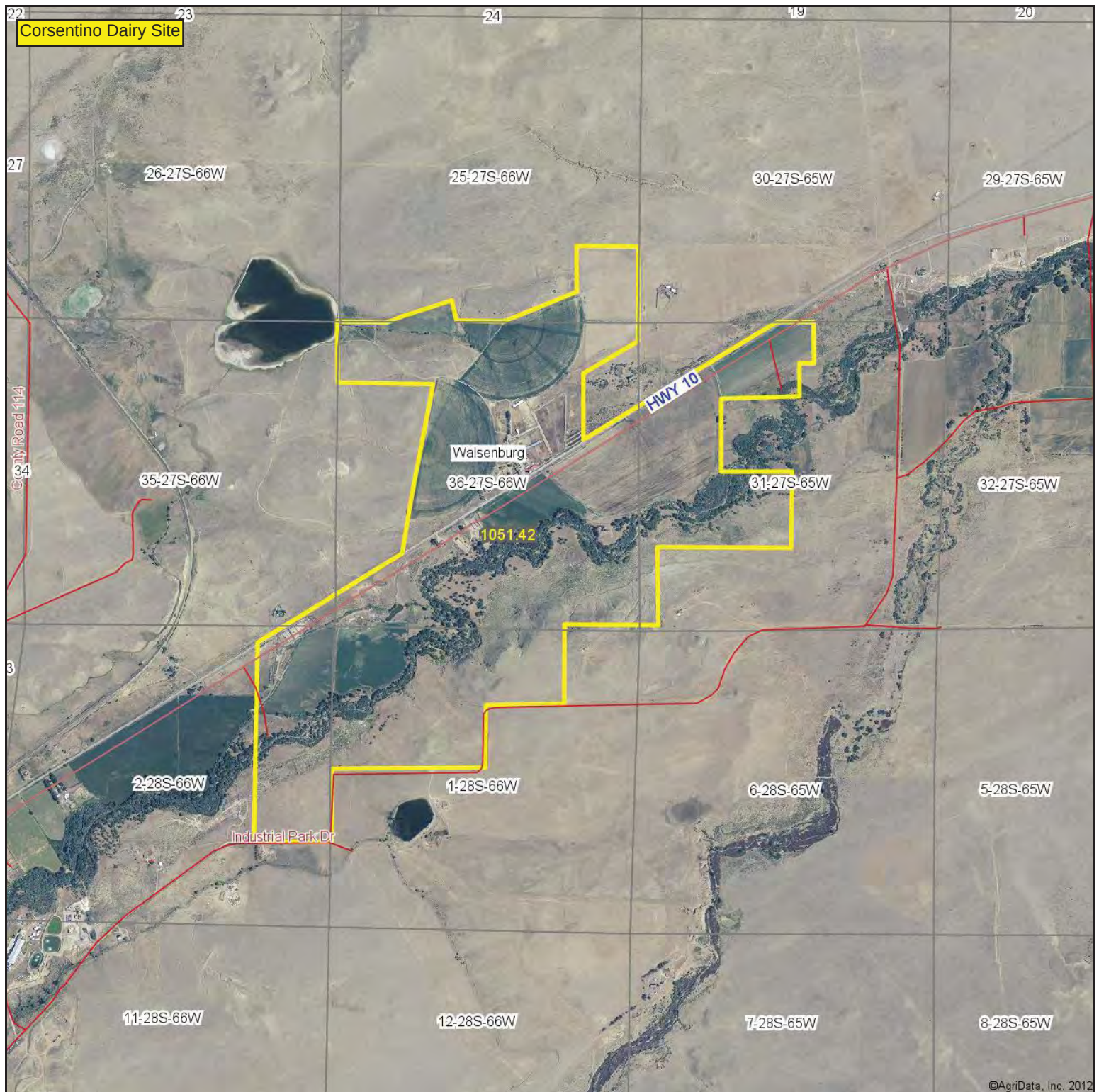
36-27S-66W
Huerfano County
Colorado



2/17/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

Aerial Map



map center: 37° 38' 54.94, 104° 43' 30
scale: 28684

Maps provided by:



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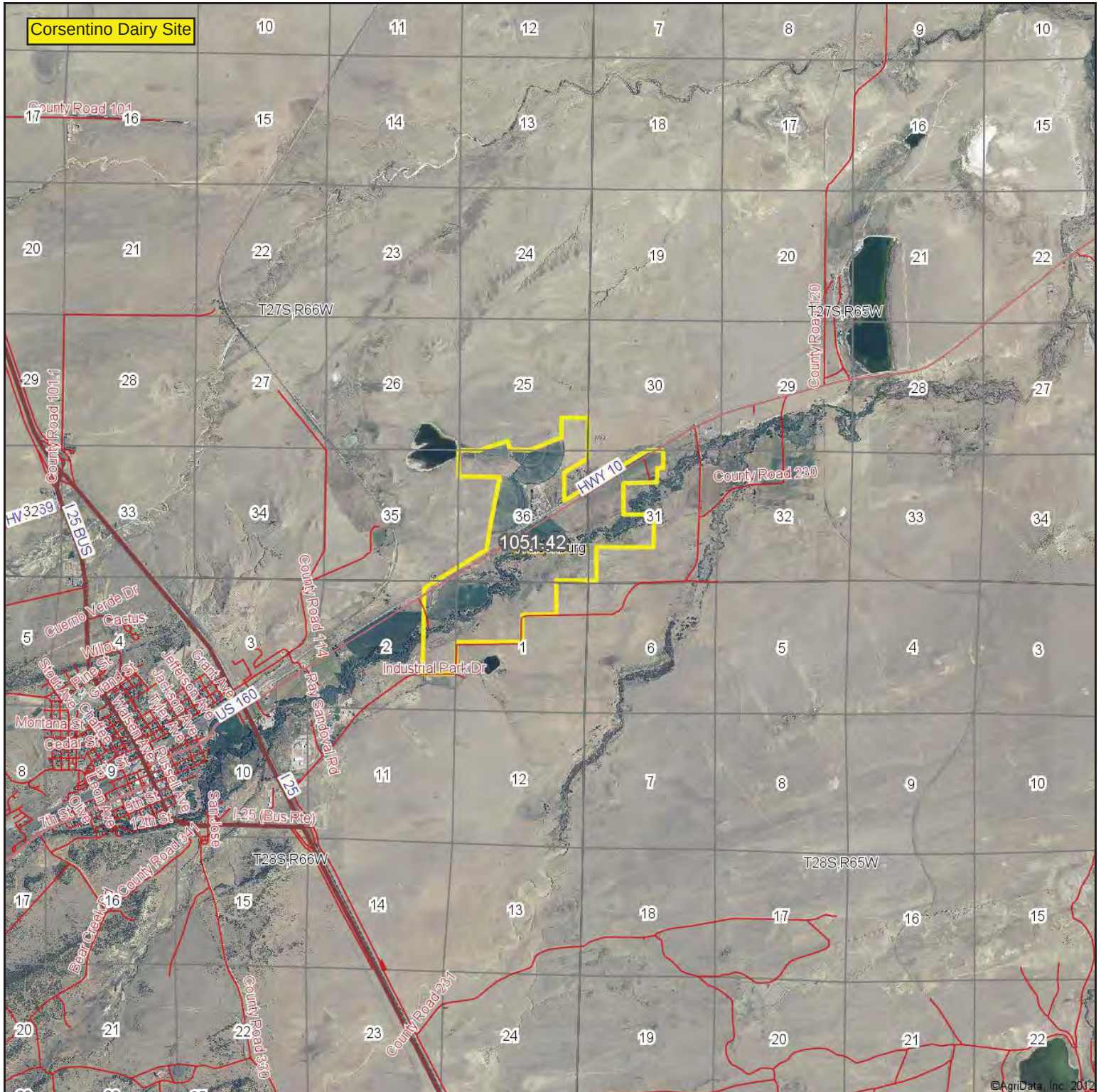
36-27S-66W
Huerfano County
Colorado



2/17/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

Aerial Map



map center: 37° 38' 54.86, 104° 43' 29.82

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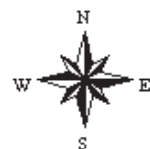
36-27S-66W
Huerfano County
Colorado

Maps provided by:



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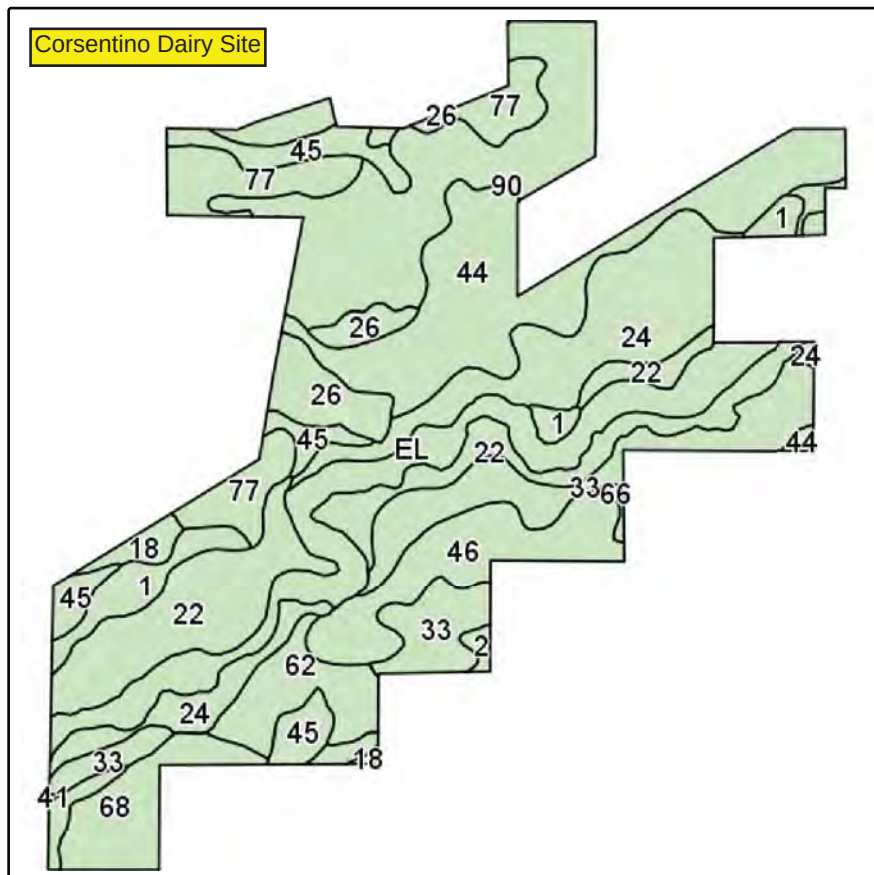
www.AgriDataInc.com



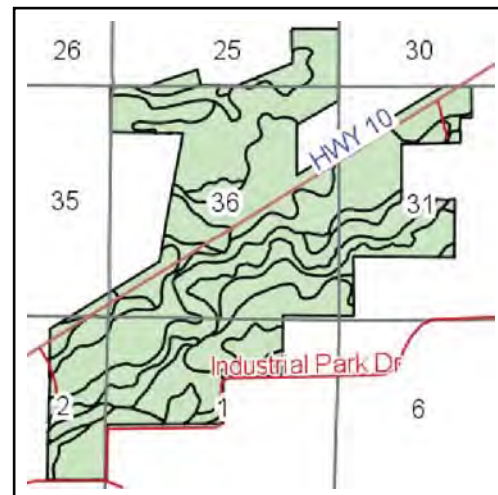
2/17/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

Soils Map



Field borders provided by Farm Service Agency as of 5/21/2008.
Soils data provided by USDA and NRCS.



State: **Colorado**
County: **Huerfano**
Location: **36-27S-66W**
Township: **Walsenburg**
Acres: **1051.4**
Date: **2/17/2013**



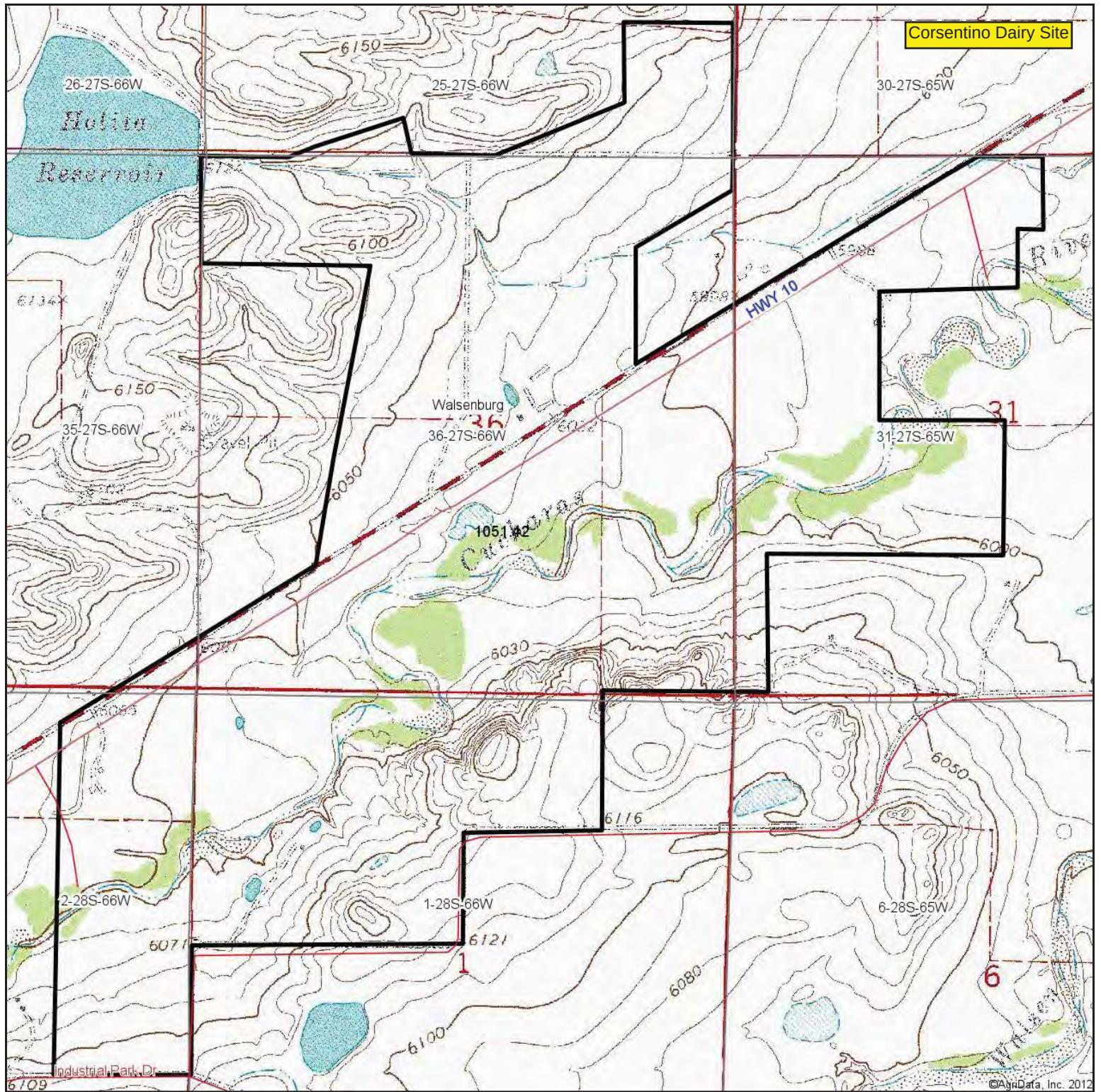
Maps provided by:



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Code	Soil Description	Acres	Percent of field	Non-Irr Class	Irr Class	Grain sorghum	Wheat
44	Manzanola clay loam, 0 to 2 percent slopes	130	12.4%	IVc			
90	Wiley loam, 1 to 3 percent slopes	127.3	12.1%	IVe	Ile	18	20
22	Glenberg sandy loam	125.1	11.9%	IVc	IIIe		
24	Haverson clay loam	119.3	11.3%	IVs	IVs		
EL	Ellicott-Las Animas complex, 0 to 2 percent slopes, occasionally flooded	102.6	9.8%	IVw	IIw		
33	Limon silty clay loam, 0 to 2 percent slopes	97.7	9.3%	VIIs	VIIs		
77	Schamber-Midway complex, 3 to 25 percent slopes	76.8	7.3%	VIIe	VIe		
46	Midway clay, 3 to 20 percent slopes	62.8	6.0%	VIe	VIe		
45	Manzanola clay loam, 2 to 5 percent slopes	52.4	5.0%	IVc			
68	Razor clay loam, 1 to 12 percent slopes	42.2	4.0%	VIe			
62	Otero sandy loam, 1 to 9 percent slopes	36.9	3.5%	IVc			
26	Kim fine sandy loam, 3 to 9 percent slopes	32.9	3.1%	VIc			
1	Apishapa silty clay	30.9	2.9%	VIw	IIIw		
18	Fort Collins loam, 3 to 9 percent slopes	9.2	0.9%	VIe			
2	Baca loam, 1 to 3 percent slopes	3.1	0.3%	IVe	Ile	18	21
66	Penrose-Rock outcrop complex, 4 to 25 percent slopes	2.1	0.2%	VIIIs			
41	Manvel silty clay loam saline, 1 to 5 percent slopes	0.1	0.0%	VIIs			
Weighted Average						2.2	2.5

Topography Map



map center: 37° 38' 55.94, 104° 43' 33.29

scale: 16231

Maps provided by:



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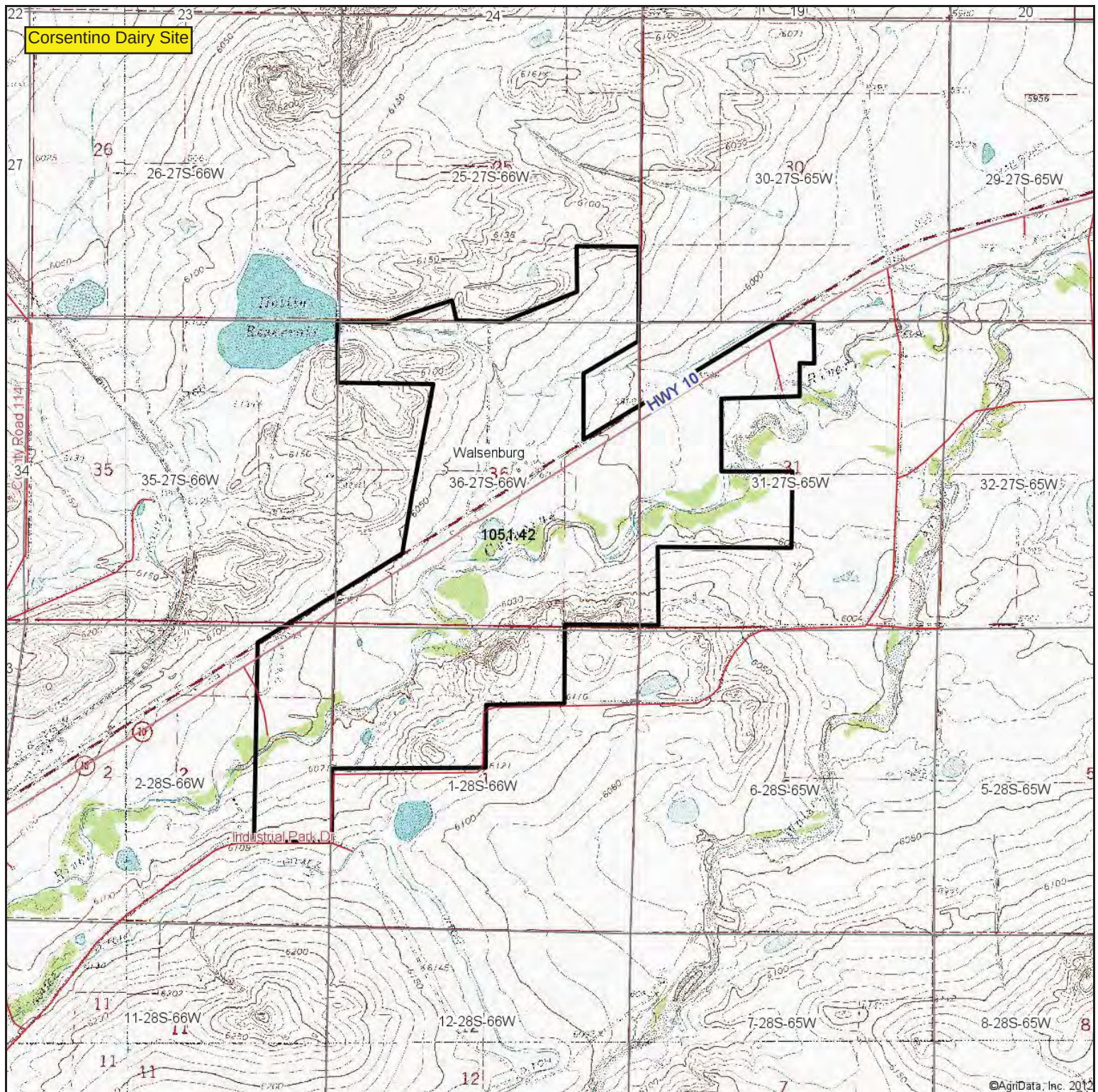
36-27S-66W
Huerfano County
Colorado



2/17/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

Topography Map



map center: 37° 38' 54.94, 104° 43' 30

scale: 28684

Maps provided by:



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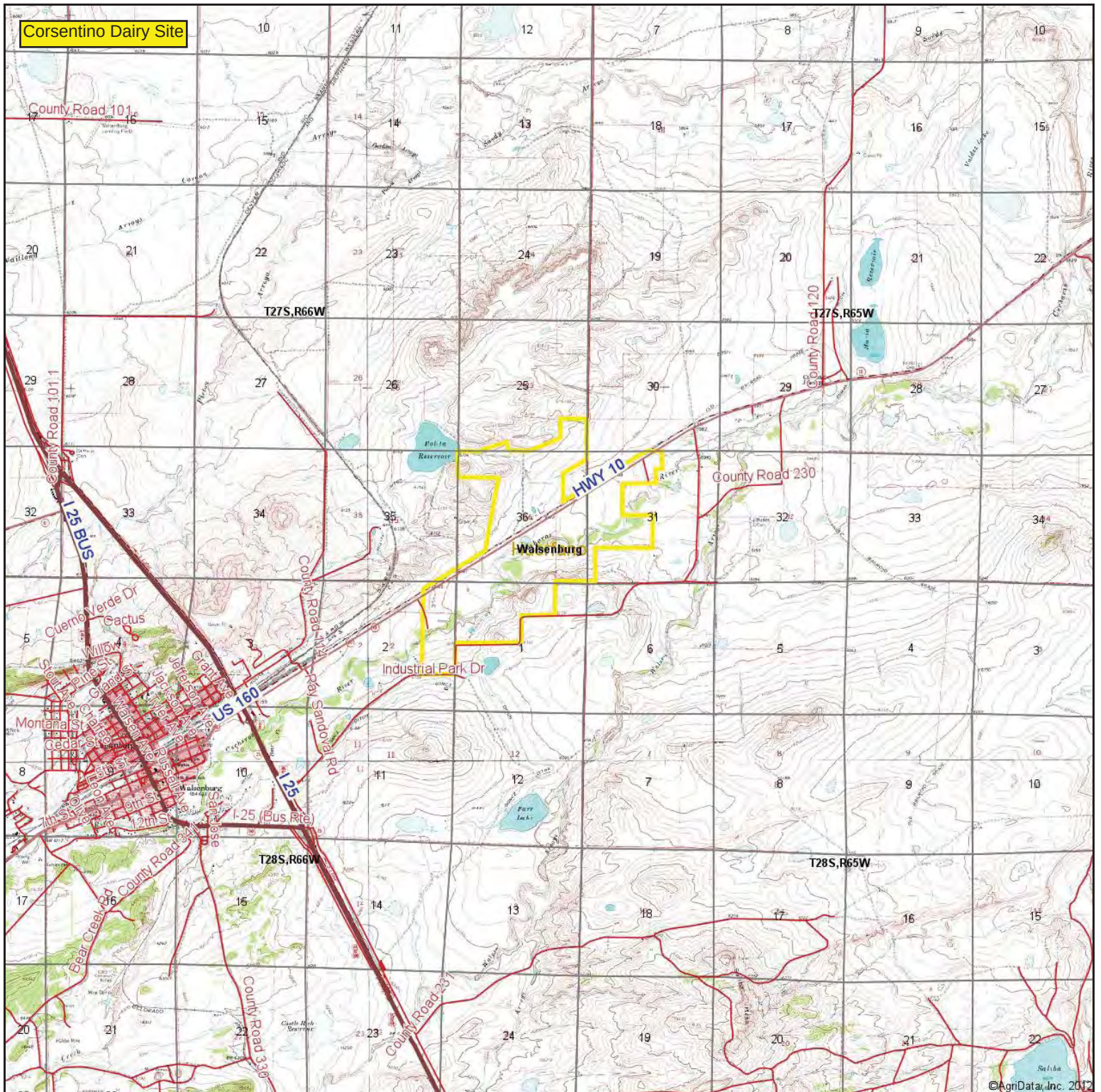
36-27S-66W
Huerfano County
Colorado



2/17/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

Topography Map



©AgriData, Inc. 2012

map center: 37° 38' 54.86, 104° 43' 29.82

scale: 66929

36-27S-66W
Huerfano County
Colorado

Maps provided by:



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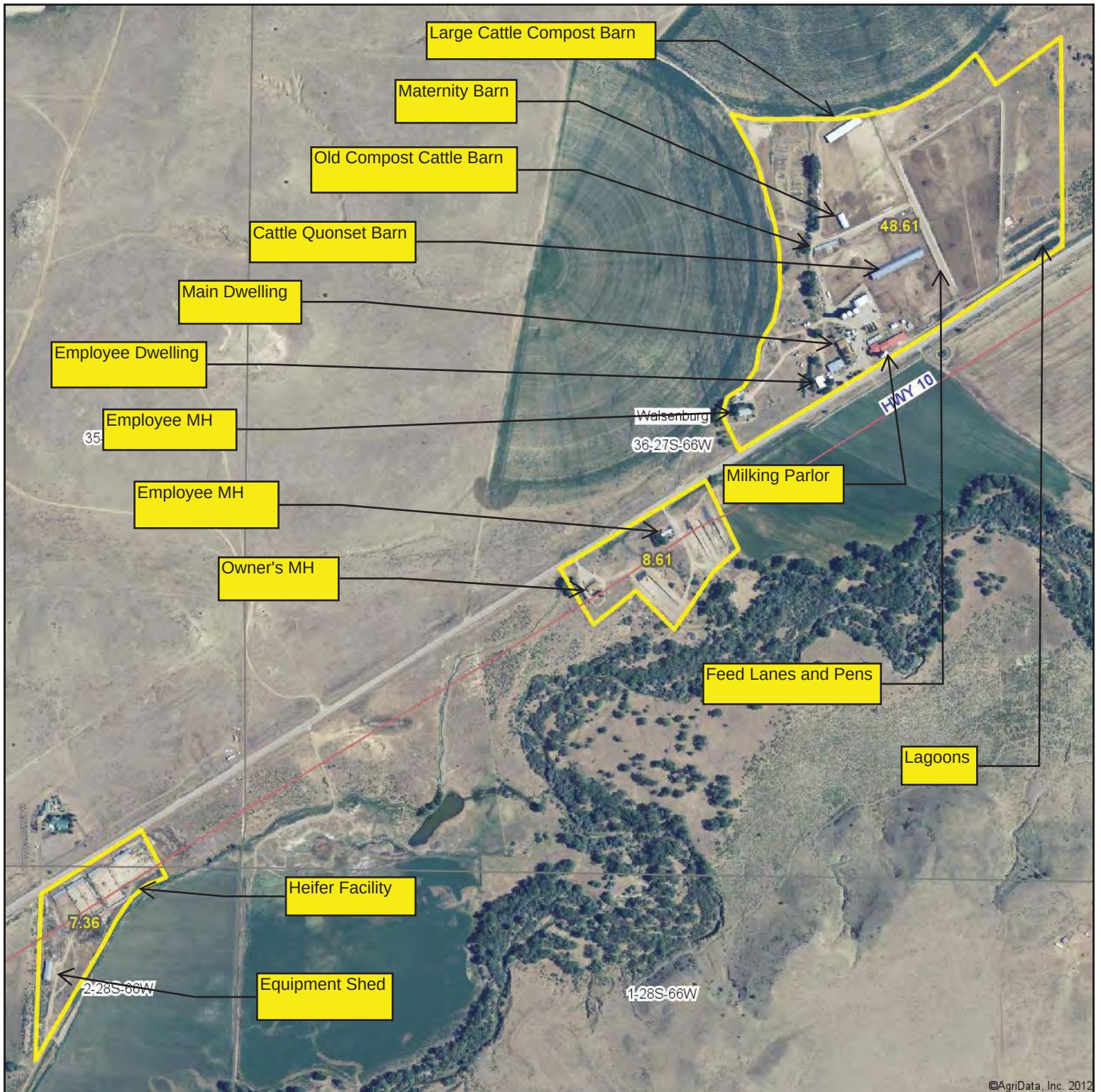
www.AgriDataInc.com



2/17/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

Aerial Map



©AgriData, Inc. 2012

map center: 37° 38' 58.4, 104° 43' 56.44

scale: 8691

36-27S-66W
Huerfano County
Colorado

Maps provided by:



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2/17/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

Aerial Map



map center: 37° 38' 58.4, 104° 43' 56.44

scale: 8691

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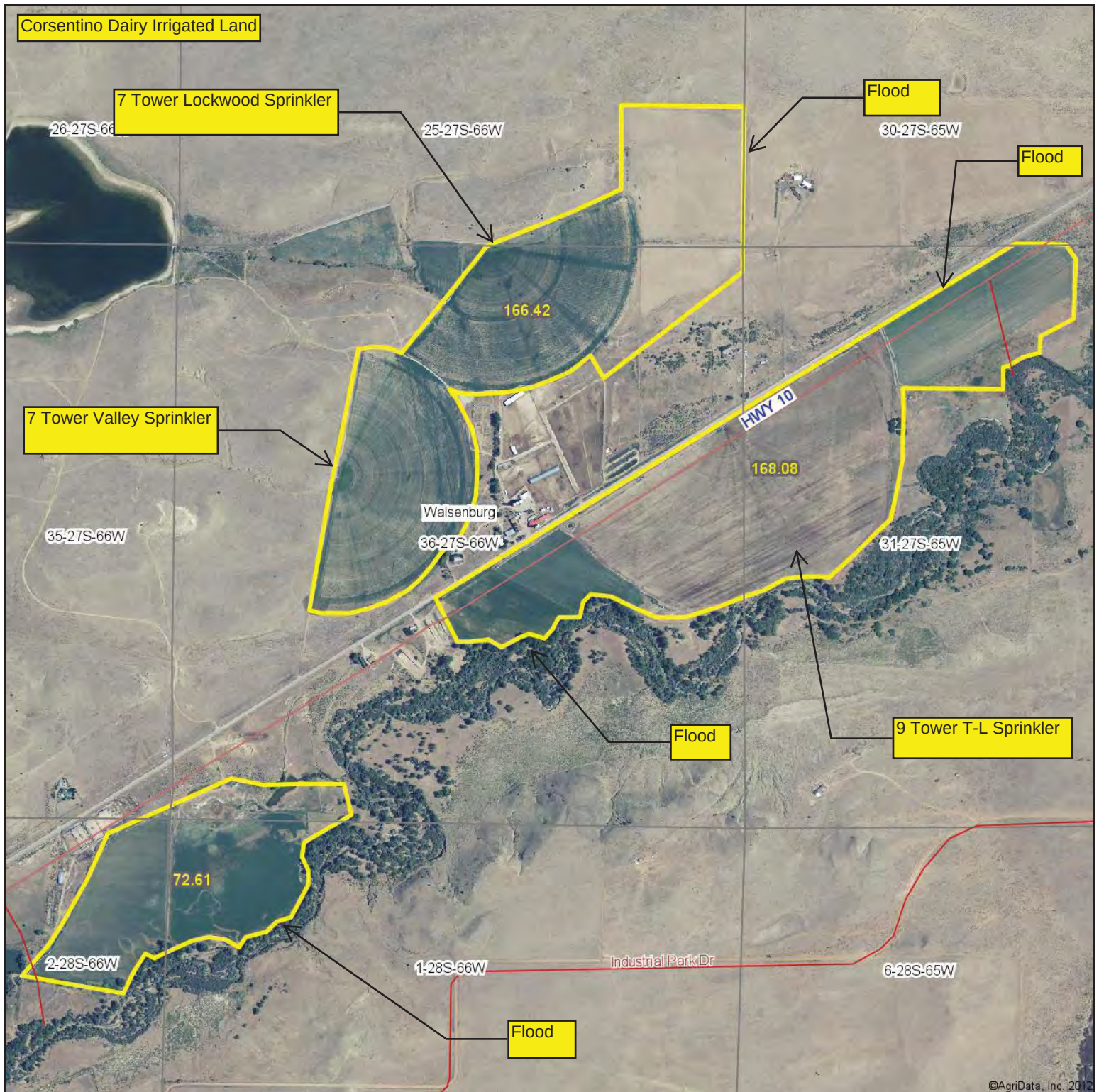
36-27S-66W
Huerfano County
Colorado



2/17/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

Aerial Map



©AgriData, Inc. 2012

map center: 37° 39' 6.41, 104° 43' 33.04

scale: 15240

Maps provided by:



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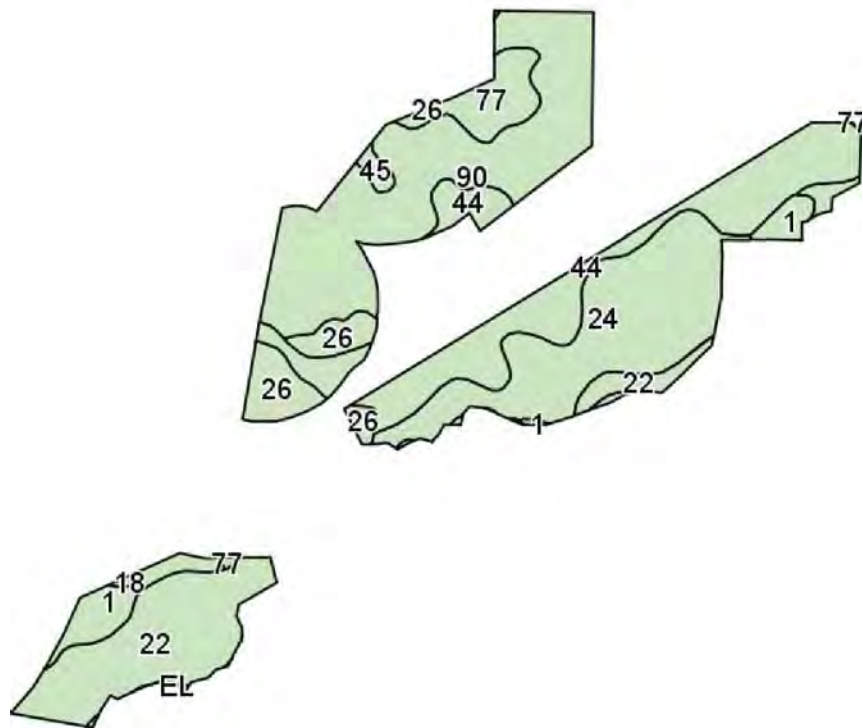
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Huerfano County
Colorado



2/17/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

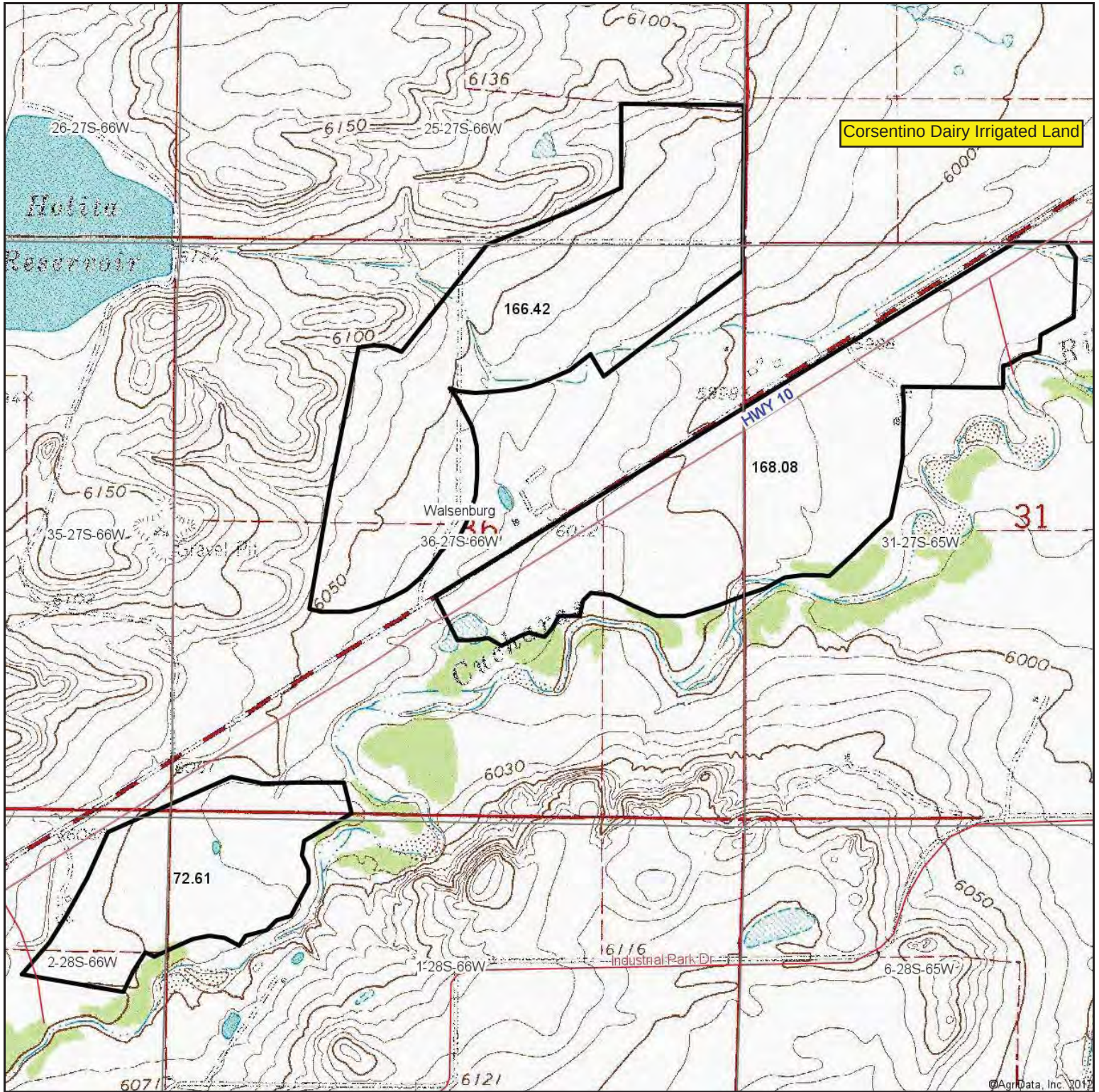
Correntino Dairy Irrigated Land



surety
CUSTOMIZED ONLINE MAPPING

Code	Soil Description	Acres	Percent of field	Non-Irr Class	Irr Class	Grain sorghum	Wheat
90	Wiley loam, 1 to 3 percent slopes	110.3	27.1%	IVe	Ile	18	20
24	Haverson clay loam	86.2	21.2%	IVs	IVs		
44	Manzanola clay loam, 0 to 2 percent slopes	81.6	20.1%	IVc			
22	Glenberg sandy loam	64.9	15.9%	IVc	IIIe		
26	Kim fine sandy loam, 3 to 9 percent slopes	22.1	5.4%	VIc			
1	Apishapa silty clay	19.2	4.7%	VIw	IIIw		
77	Schamber-Midway complex, 3 to 25 percent slopes	17.7	4.3%	VIIe	VIe		
45	Manzanola clay loam, 2 to 5 percent slopes	2.8	0.7%	IVc			
EL	Ellicott-Las Animas complex, 0 to 2 percent slopes, occasionally flooded	1.6	0.4%	IVw	IIw		
18	Fort Collins loam, 3 to 9 percent slopes	0.7	0.2%	VIe			
Weighted Average						4.9	5.4

Topography Map



map center: 37° 39' 6.41, 104° 43' 33.04

scale: 15240

Maps provided by:



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36-27S-66W
Huerfano County
Colorado



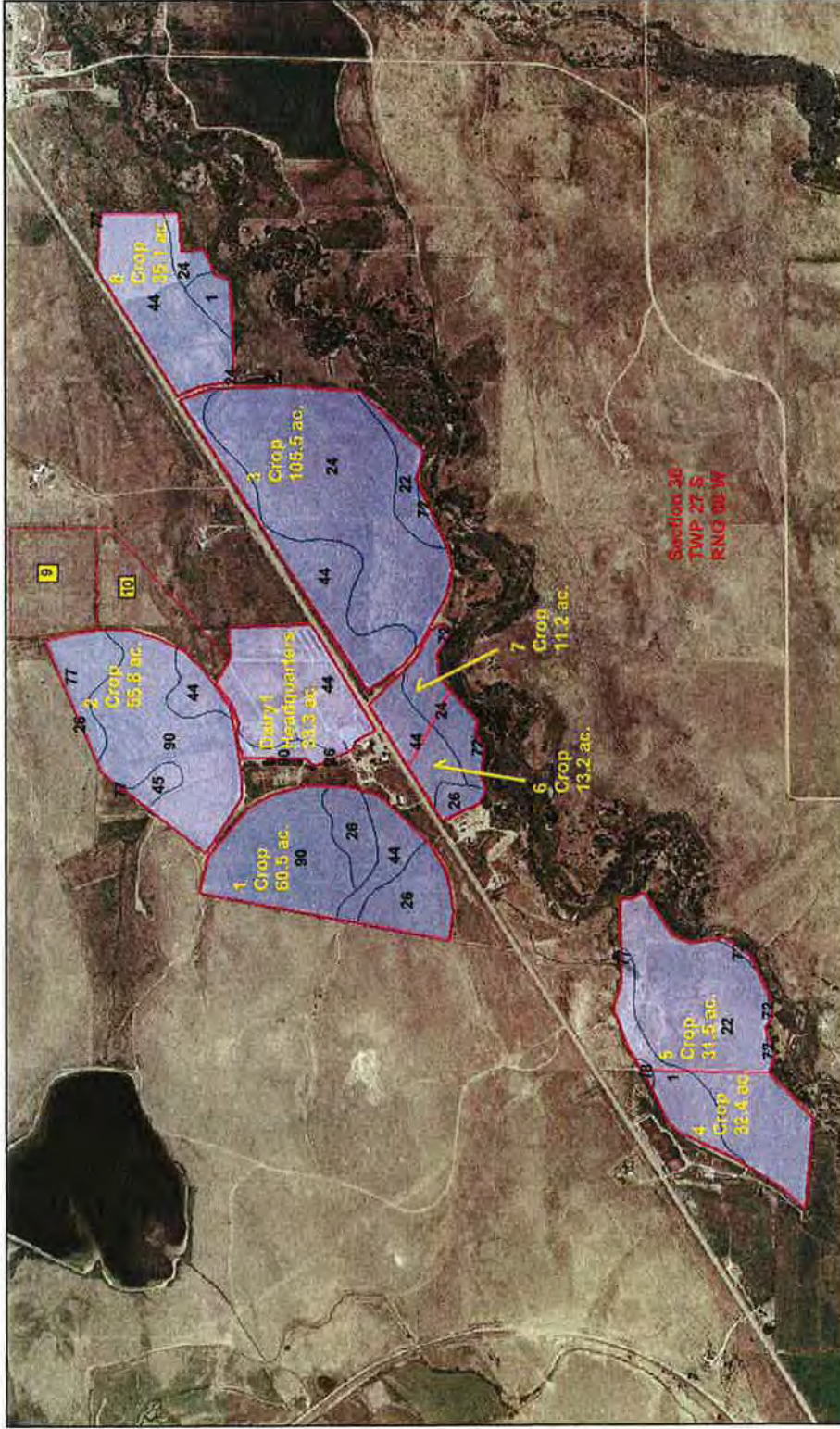
2/17/2013

Field borders provided by Farm Service Agency as of 5/21/2008. Aerial photography provided by Aerial Photography Field Office.

SOILS MAP

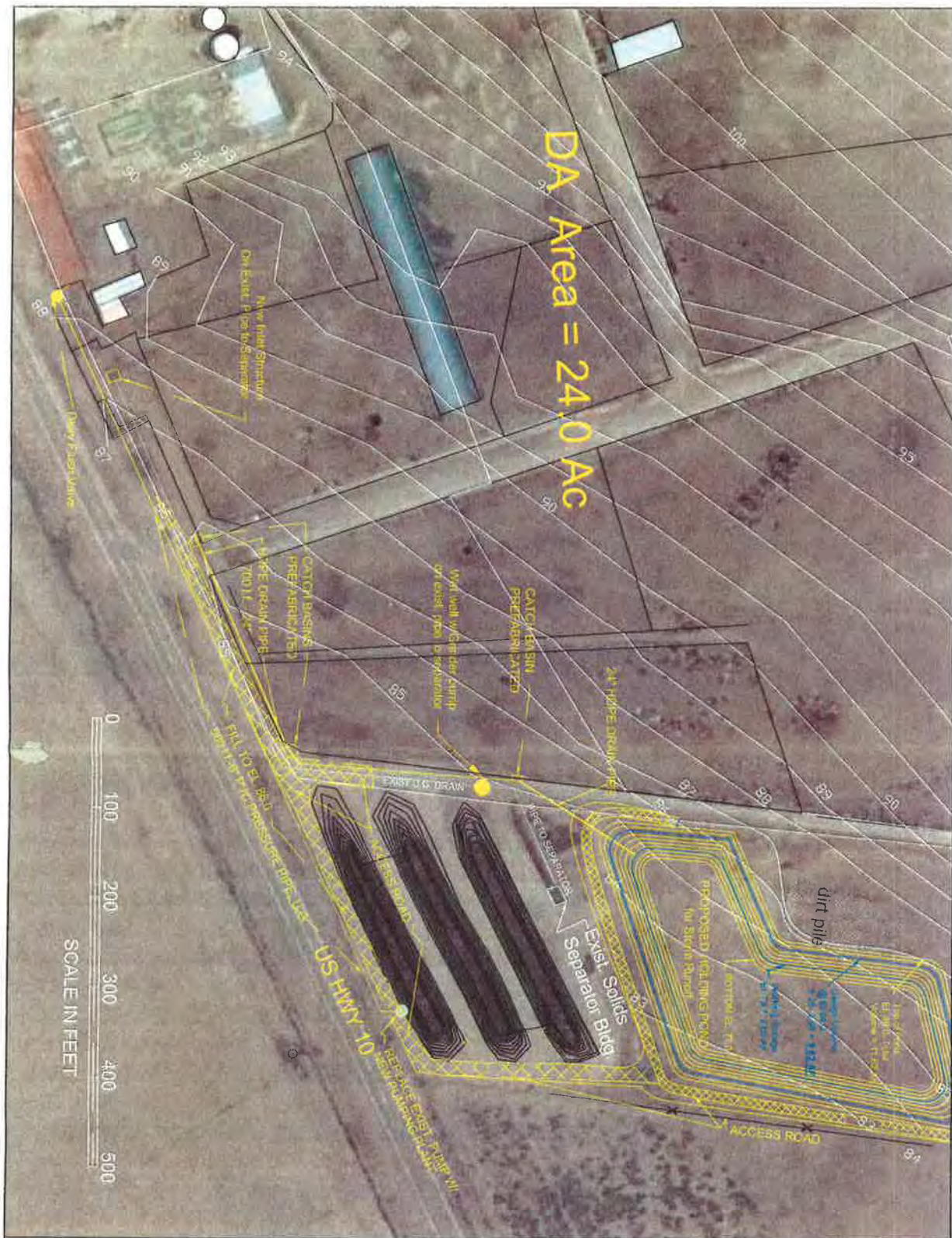
Customer(s): CORSENTINO DAIRY FARMS INC
 District: UPPER HUERFANO CONSERVATION DISTRICT

Date: 8/8/2007
 Field Office: WALSENBURG SERVICE CENTER
 Agency: USDA-NRCS
 Assisted By: Tony Arnhold



- Legend**
- Soils Map
 - Consplan





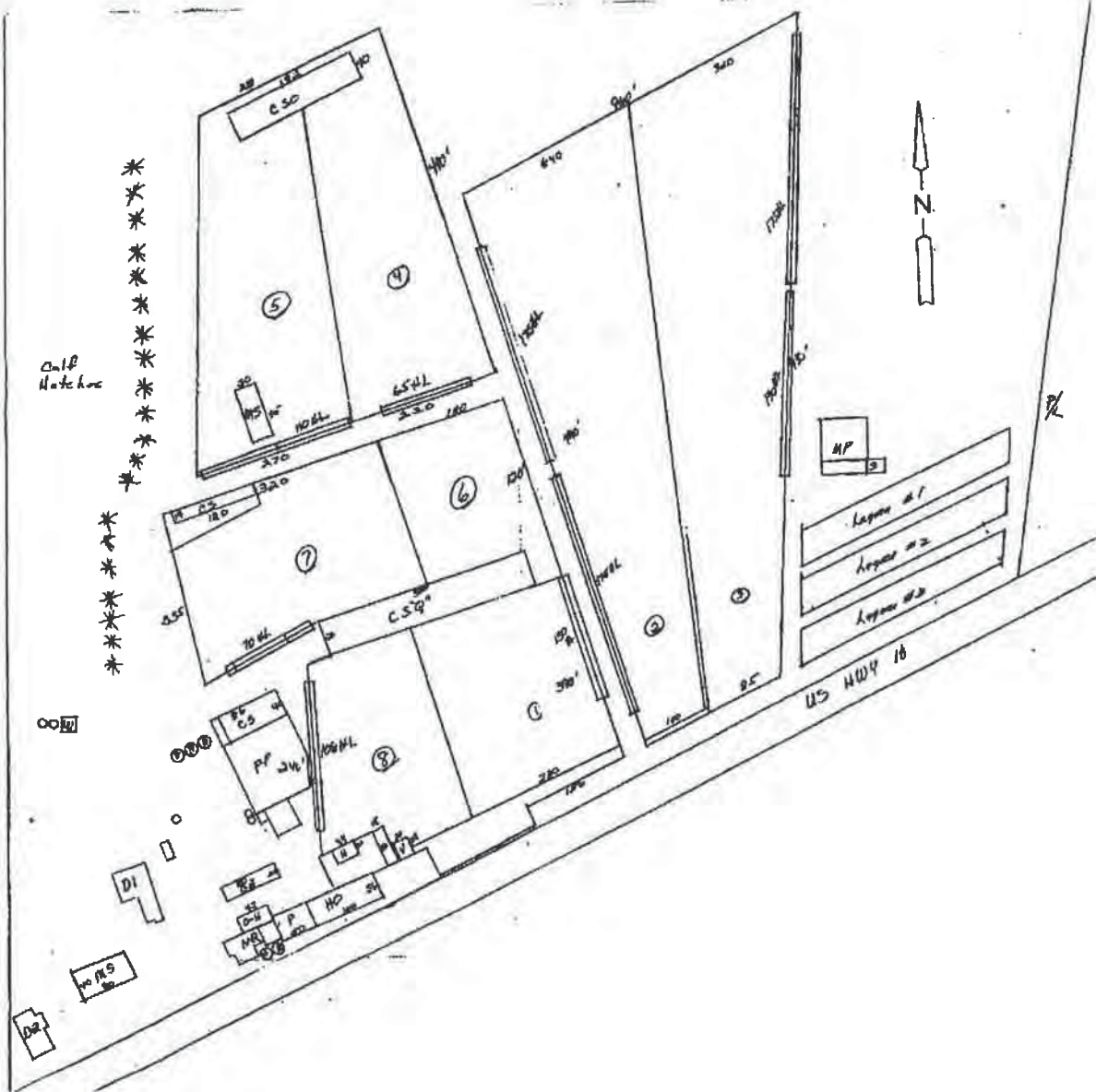
PRELIMINARY-NOT FINAL DESIGN

GN Engineering
114 E 5th St.
Loveland, Colorado 80537
email: glnn@gneengineering.com
770-290-6345

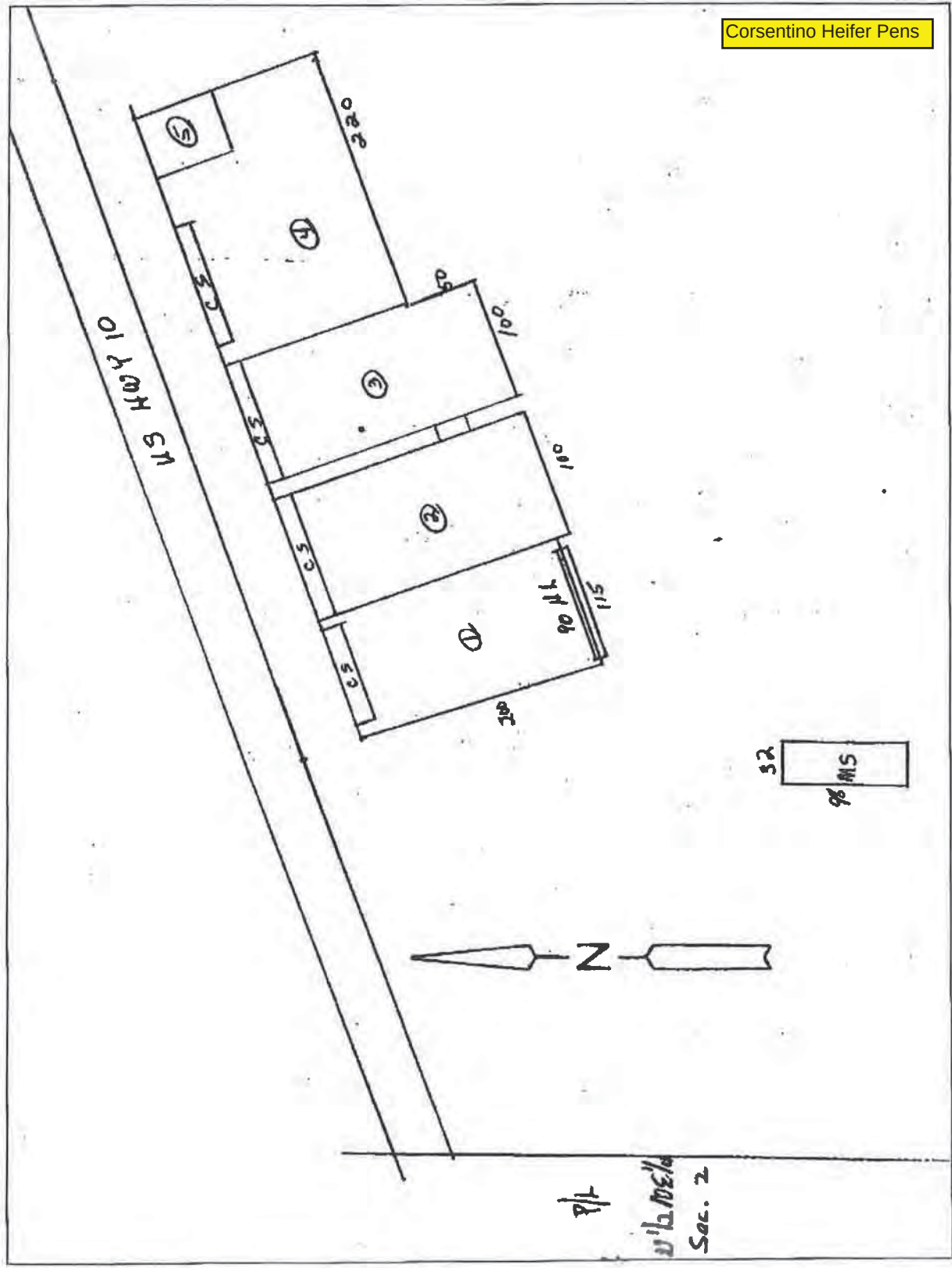
CORSETINO DAIRY
CNMP

	Design	Drawn	Revised	Revised	Date
1	gwn	gwn			04/26
2					04/26
3					
4					

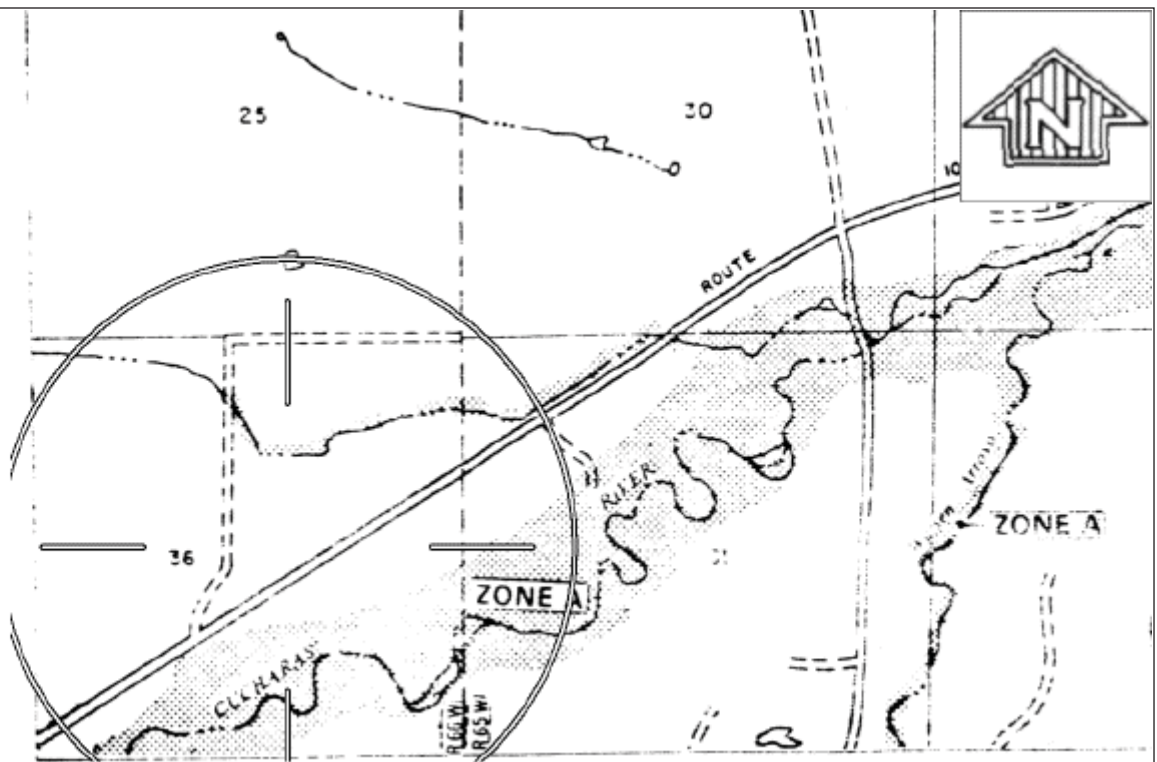
Corsetino Dairy Pens and Building Site



Corsentino Heifer Pens



Plat Map



FLOODSCAPE™

Flood Hazards Map

Map Number
0802060062B

Effective Date
October 1, 1986

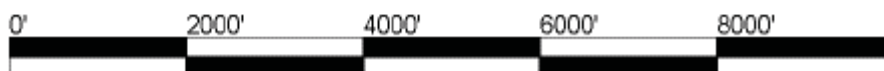
Flood Legend

- High flood risk
- Moderate flood risk
- Low flood risk

Does not depict LOMCs.
Placement by user or geocoder.
For more info contact:

FloodSource Corp
877-77-FLOOD
www.floodsource.com

Powered by FloodSource
877.77.FLOOD
www.floodsource.com



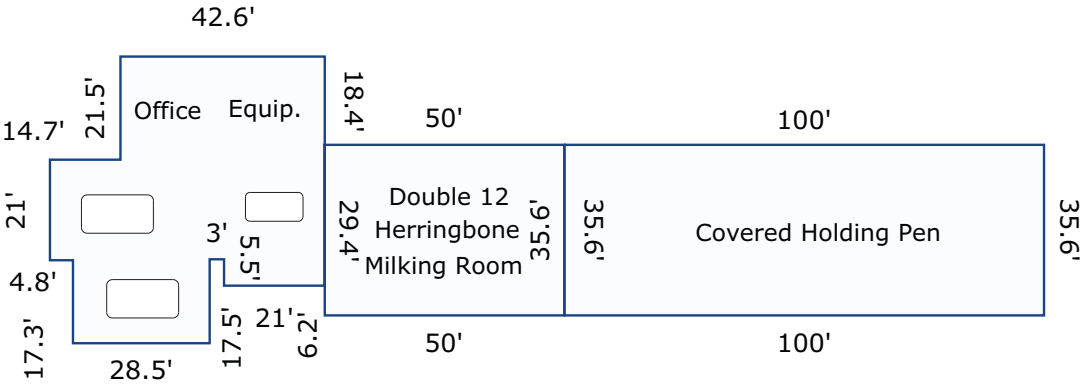
SKETCH/AREA TABLE ADDENDUM

File No **Corsentino Dairy Sketch**

SUBJECT

Property Address	2689 East Highway 10		
City	Walsengurg	County	Huerfano
		State	CO
		Zip	81089
Borrower	Corsentino Dairy		
Lender/Client	Community Banks of Colorado		
Appraiser Name	TPRE, Inc.		

IMPROVEMENTS SKETCH



Scale: 1 = 40

AREA CALCULATIONS

AREA CALCULATIONS SUMMARY			
Code	Description	Net Size	Net Totals
GBA1	Milking Barn Front	2723.0	
	D-12 Milking Room	1780.0	
	Covered Holding Pen	3560.0	8062.9
Net BUILDING Area		(rounded)	8063

BUILDING AREA BREAKDOWN		
Breakdown		Subtotals
Milking Barn Front		
5.5	x 21.0	115.5
21.5	x 42.6	915.9
17.3	x 28.5	493.1
0.2	x 33.3	6.7
20.8	x 57.3	1191.8
D-12 Milking Room		
50.0	x 35.6	1780.0
Covered Holding Pen		
100.0	x 35.6	3560.0
7 Items	(rounded)	8063

SKETCH/AREA TABLE ADDENDUM

File No **Corsentino Dairy Sketch**

SUBJECT

Property Address **2689 East Highway 10**

City **Walsengurg**

County **Huerfano**

State **CO**

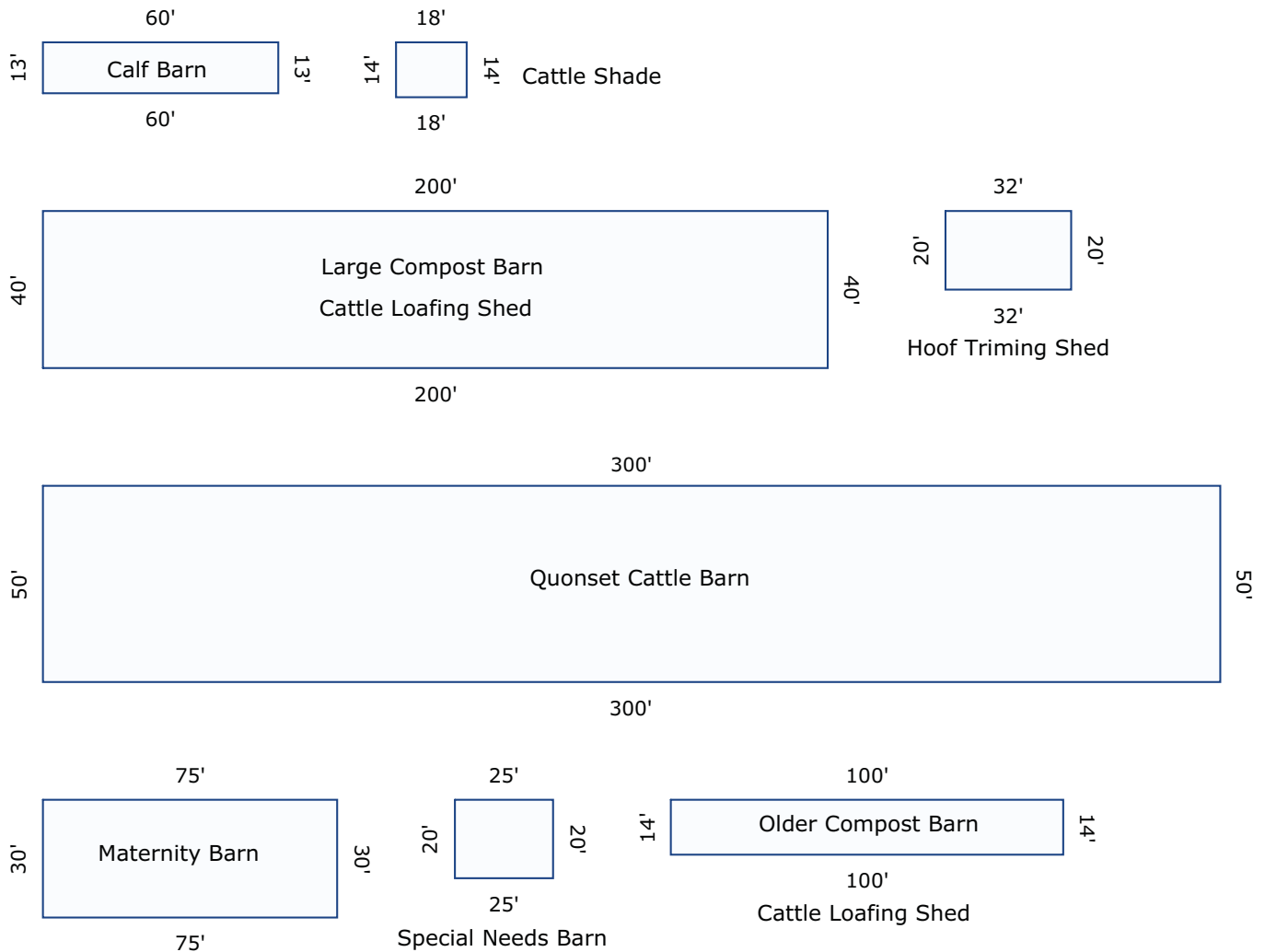
Zip **81089**

Borrower **Corsentino Dairy**

Lender/Client **Community Banks of Colorado**

Appraiser Name **TPRE, Inc.**

IMPROVEMENTS SKETCH



Scale: **1" = 45'**

AREA CALCULATIONS

AREA CALCULATIONS SUMMARY

Code	Description	Net Size	Net Totals
GBA1	Quonset Cattle Barn	15000.0	
	Maternity Barn	2250.0	
	Special Needs Barn	500.0	
	Large Compost Barn	8000.0	
	Older Compost Barn	1400.0	
	Hoof Trimming Shed	640.0	
	New Calf Barn	780.0	
	Cattle Shade	252.0	
			28822.0
	Net BUILDING Area	(rounded)	28822

BUILDING AREA BREAKDOWN

Breakdown	Subtotals
Quonset Cattle Barn 300.0 x 50.0	15000.0
Maternity Barn 75.0 x 30.0	2250.0
Special Needs Barn 25.0 x 20.0	500.0
Large Compost Barn 40.0 x 200.0	8000.0
Older Compost Barn 100.0 x 14.0	1400.0
Hoof Trimming Shed 32.0 x 20.0	640.0
New Calf Barn 13.0 x 60.0	780.0
Cattle Shade 18.0 x 14.0	252.0
8 Items	(rounded) 28822

SKETCH/AREA TABLE ADDENDUM

File No **Corsentino Dairy Sketch**

SUBJECT

Property Address **2689 East Highway 10**

City **Walsengurg**

County **Huerfano**

State **CO**

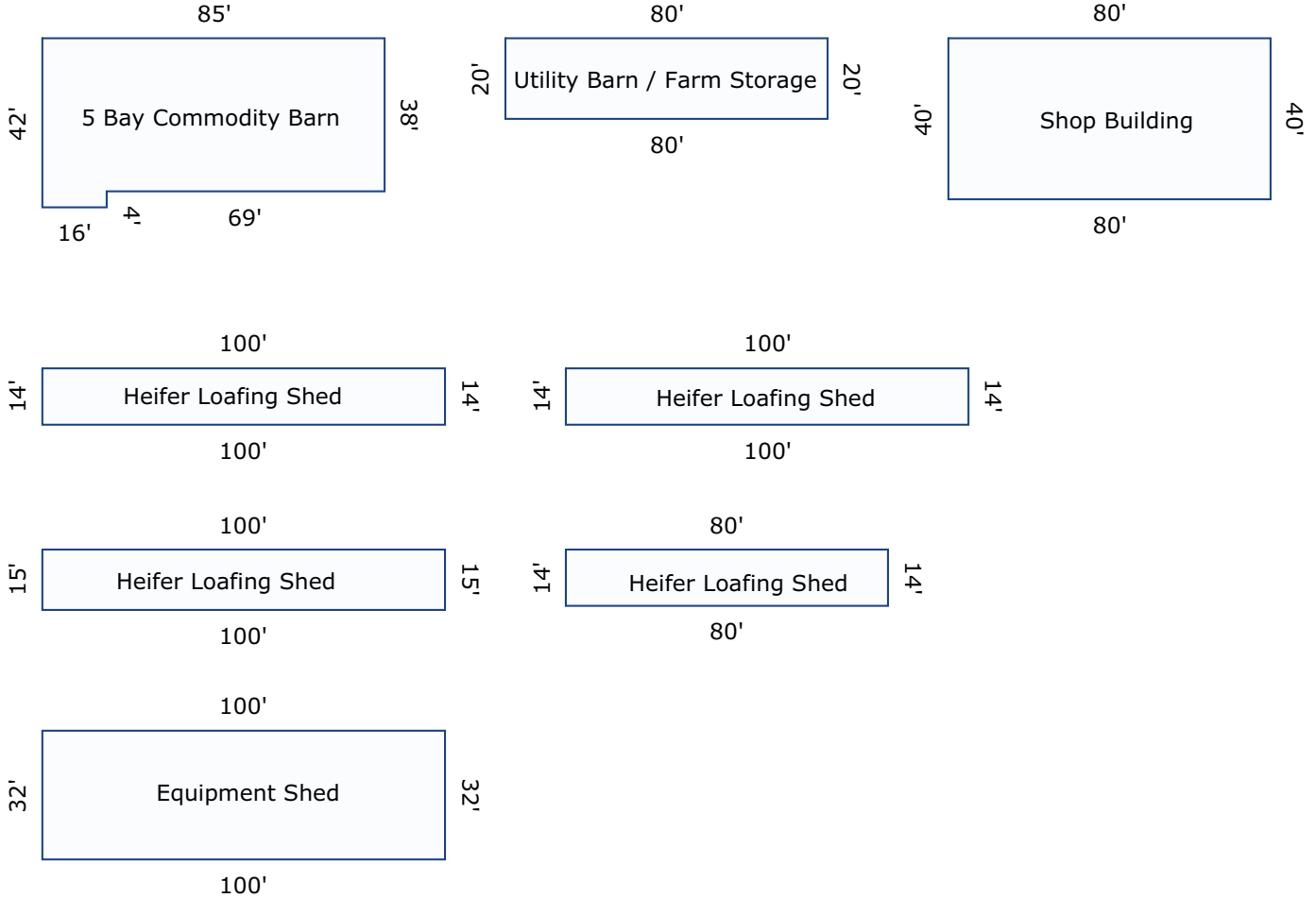
Zip **81089**

Borrower **Corsentino Dairy**

Lender/Client **Community Banks of Colorado**

Appraiser Name **TPRE, Inc.**

IMPROVEMENTS SKETCH



Scale: **1" = 45'**

AREA CALCULATIONS

AREA CALCULATIONS SUMMARY

Code	Description	Net Size	Net Totals
GBA1	Commodity Barn	3294.0	
	Utility Barn	1600.0	
	Shop Building	3200.0	
	Heifer Loafing Shed	1400.0	
	Heifer Loafing Shed	1400.0	
	Heifer Loafing Shed	1500.0	
	Heifer Loafing Shed	1120.0	
	Equipment Shed	3200.0	
			16714.0
	Net BUILDING Area	(rounded)	16714

BUILDING AREA BREAKDOWN

Breakdown	Subtotals
Commodity Barn	
85.0 x 38.0	3230.0
4.0 x 16.0	64.0
Utility Barn	
80.0 x 20.0	1600.0
Shop Building	
80.0 x 40.0	3200.0
Heifer Loafing Shed	
100.0 x 14.0	1400.0
100.0 x 14.0	1400.0
100.0 x 15.0	1500.0
80.0 x 14.0	1120.0
Equipment Shed	
100.0 x 32.0	3200.0
9 Items	(rounded) 16714

SKETCH/AREA TABLE ADDENDUM

File No **Corsentino Dairy Sketch**

SUBJECT

Property Address **2689 East Highway 10**

City **Walsengurg**

County **Huerfano**

State **CO**

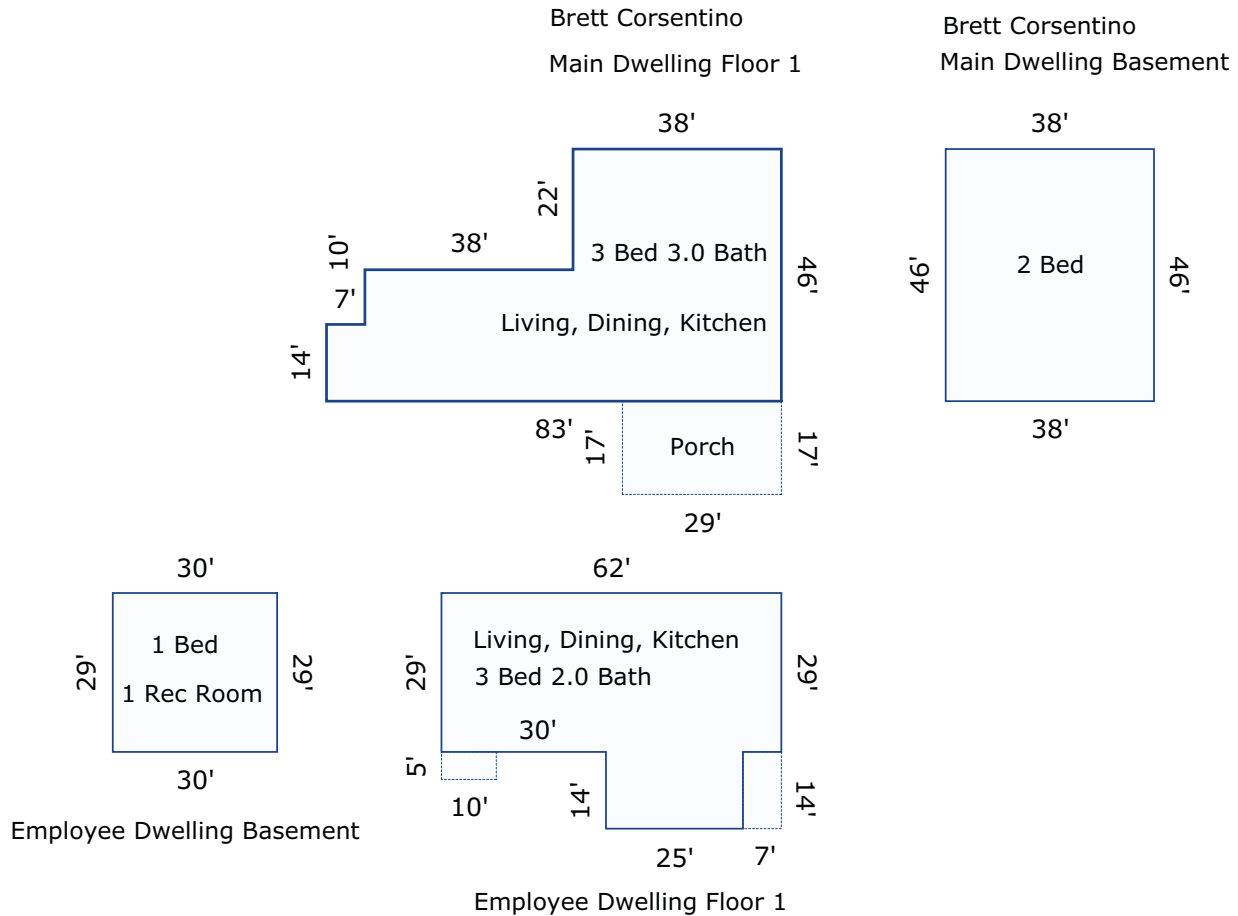
Zip **81089**

Borrower **Corsentino Dairy**

Lender/Client **Community Banks of Colorado**

Appraiser Name **TPRE, Inc.**

IMPROVEMENTS SKETCH



Scale: 1 = 35

AREA CALCULATIONS

AREA CALCULATIONS SUMMARY

Code	Description	Net Size	Net Totals
GLA1	Emp Dwell Floor 1	2148.0	2148.0
GBA1	Main Dwell Floor 1	2758.0	2758.0
BSMT	Emp Dwell Basement	870.0	
	Main Dwell Basement	1748.0	2618.0
P/P	Emp Dwell Porch	98.0	
	Emp Dwell Porch	50.0	
	Main Dwell Porch	493.0	641.0
Net LIVABLE Area (rounded)			2148
Net BUILDING Area (rounded)			2758

LIVING/BUILDING AREA BREAKDOWN

Breakdown	Subtotals
Emp Dwell Floor 1	
62.0 x 29.0	1798.0
14.0 x 25.0	350.0
Main Dwell Floor 1	
83.0 x 14.0	1162.0
10.0 x 76.0	760.0
22.0 x 38.0	836.0
5 Items (rounded)	4906

SKETCH/AREA TABLE ADDENDUM

File No **Corsentino Dairy Sketch**

SUBJECT

Property Address **2689 East Highway 10**

City **Walsengurg**

County **Huerfano**

State **CO**

Zip **81089**

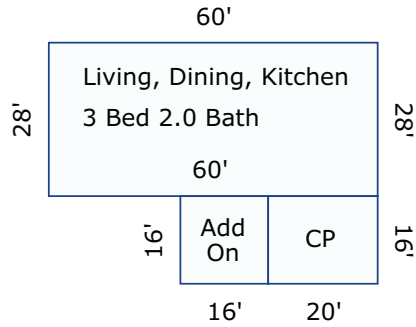
Borrower **Corsentino Dairy**

Lender/Client **Community Banks of Colorado**

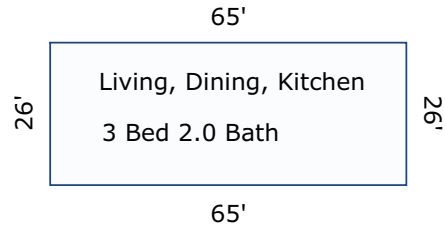
Appraiser Name **TPRE, Inc.**

IMPROVEMENTS SKETCH

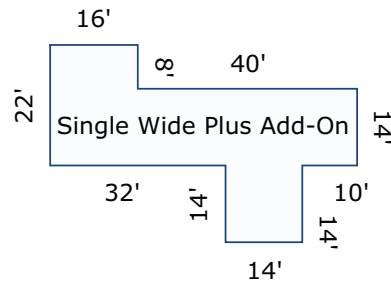
Joe Corsentino Manufactured Dwelling



Employee Manufactured Dwelling



Employee Manufactured Dwelling



Scale: **1" = 35'**

AREA CALCULATIONS

AREA CALCULATIONS SUMMARY

Code	Description	Net Size	Net Totals
GLA1	Manufactured Dwell	1680.0	
	MFD Add-on	256.0	
	Manufactured Dwell	1690.0	
	Single Wide	1108.0	4734.0
GAR	Carport	320.0	320.0
Net LIVABLE Area		(rounded)	4734

LIVING AREA BREAKDOWN

Breakdown		Subtotals
Manufactured Dwell		
60.0	x 28.0	1680.0
MFD Add-on		
16.0	x 16.0	256.0
Manufactured Dwell		
65.0	x 26.0	1690.0
Single Wide		
16.0	x 8.0	128.0
56.0	x 14.0	784.0
14.0	x 14.0	196.0
6 Items		(rounded) 4734

EXHIBIT A

Order Number: 22739

LEGAL DESCRIPTION

Township 27 South, Range 65 West of the 6th P.M.

Section 31: SW1/4NW1/4, N1/2SW1/4; that part of N1/2NW1/4 lying South of Highway No. 10; that part of NW1/4NE1/4 described as, beginning at the Northwest corner of said NW1/4NE1/4; thence East 300 feet; thence South 1053 feet; thence West 300 feet; thence North 1053 feet, more or less, to the point of beginning.

Township 27 South, Range 66 West of the 6th P.M.

Section 35: SE1/4SE1/4;

Section 36: E1/2SE1/4; SW1/4SE1/4; that part of SE1/4NE1/4 lying South of Highway No. 10; the East 1020 feet of the SW1/4NE1/4; the East 1020 feet of the NW1/4SE1/4; that part of SW1/4 and the West 300 feet of the NW1/4SE1/4 lying South of Highway No. 10;

Also a tract of land encompassed by an existing fence line, located in part of the NE1/4SW1/4, the NW1/4 and part of the NE1/4 of Section 36 and part of the S1/2S1/2 of Section 25, being more particularly described as follows:

Beginning at the Southwest corner of Section 36, Township 27 South, Range 66 West of the 6th P.M., thence running North 49°03'19" East a distance of 2989.93 feet to a point in a fence corner on the Northerly right of way of Colorado Highway 10, said point being the point of beginning of the following described tract of land, thence running in a Westerly, Northerly, Easterly, and Southerly directions along an existing fence line the following 30 courses:

North 30°17'35" West a distance of 18.66 feet,
North 09°38'28" East a distance of 687.91 feet,
North 89°45'32" West a distance of 2,375.60 feet,
North 00°15'23" West a distance of 2,515.85 feet,
North 04°05'18" East a distance of 134.86 feet,
South 89°54'35" East a distance of 711.26 feet,
North 73°17'41" East a distance of 1,301.78 feet,
South 30°06'19" East a distance of 437.49 feet,
South 89°54'33" East a distance of 1,342.42 feet,
North 01°35'31" West a distance of 180.64 feet,
North 55°00'18" East a distance of 536.52 feet,
North 01°05'21" West a distance of 217.29 feet,
North 04°35'47" West a distance of 192.41 feet,
North 84°32'21" East a distance of 170.45 feet,
North 03°50'27" West a distance of 372.38 feet,
South 85°43'49" East a distance of 1,190.29 feet,
South 00°49'33" East a distance of 1,314.94 feet,
South 89°21'21" West a distance of 48.46 feet,
South 39°31'47" West a distance of 427.49 feet,
Continued on next page.

Legal Description Continued

South 83°10'49"West a distance of 384.89 feet,
South 56°15'47"West a distance of 219.35 feet,
South 47°23'42"West a distance of 265.35 feet,
South 69°12'26"West a distance of 287.09 feet,
South 51°22'13"West a distance of 212.38 feet,
South 01°40'28"East a distance of 192.05 feet,
South 46°59'04"West a distance of 154.27 feet,
South 89°32'04"West a distance of 712.05 feet,
South 00°07'02"West a distance of 672.63 feet,
South 26°15'15"West a distance of 1,481.48 feet,
South 57°33'54"West a distance of 27.22 feet to the point of beginning.

Also a tract of land located in the SW1/4NE1/4; NW1/4SE1/4; NE1/4SW1/4; SE1/4NW1/4; of Section 36, Township 27 South, Range 66 West of the 6th P.M., County of Huerfano, State of Colorado and being more particularly described as follows:

Beginning at the Southeast corner of Section 36, thence running north 45°09'49"West a distance of 3,379.51 feet to a point on the North right of way of the existing Colorado Highway No. 10, said point being the point of beginning of the following described tract of land, thence running South 57°33'54"West along the North right of way of said Colorado State Highway No. 10. a distance of 762.27 feet to a point;
thence leaving said Colorado State Highway No. 10 right of way and running North 26°14'56"East a distance of 1,481.62 feet to a point; thence running South 00°44'31"West a distance of 920.07 feet to the point of beginning.

Township 28 South, Range 66 West of the 6th P.M.

Section 1: NW1/4; NW1/4NE1/4

Section 2: Lot 1; SE1/4NE1/4; NE1/4SE1/4

Parcel 1

A parcel of land located in the County of Huerfano, State of Colorado, to-wit:

A parcel of land located in the SW1/4 of the SE1/4 of Section 25, Township 27 South, Range 66 West of the 6th P.M. being more particularly described as follows:

Beginning at a point from which the southwest corner of Section 36 of said Township and Range bears S 29°14'06"W a distance of 6104.65 feet, according to that document titled Legal Description Corsentino Dairy Farms, Inc., - FLBA Loan No. 812674-3-0. (all bearings used herein are based on assumption that the south line of said Section 36, monumented on the west end with an aluminum cap on #4 rebar said rebar set by PLS 12160 and on the east end with a marked Stone, bears N89°47'59"E) a distance of 6116.38 feet; Thence N68°41'42"E a distance of 494.92 feet; Thence S01°35'31"E a distance of 180.63 feet; Thence S89°54'33"W a distance of 466.12 feet to the point of beginning.

Parcel 2

A parcel of land located in the County of Huerfano, State of Colorado, to-wit:

A parcel of land being a part of Section 35 and 36 Township 27 South, Range 66 West of the 5th P.M., more particularly described as follows:

Beginning at a point from which the southwest corner of said Section 36 bears S27°10'14"W (all bearings used herein are based on the assumption that the south line of said Section 35, monumented at both ends with a standard monument set by PLS 10895, Bears S89°29'14"W) a distance of 2987.40 feet thence N 89°45'32' W a distance of 1375.83 feet thence N00°33'05"W a distance of 1609.20 feet thence S85°47'31'E a distance of 1629.68 feet; Thence S08°53'36"W a distance of 1513.52 feet to the Point of Beginning.

Parcel 3

A parcel of land located in the County of Huerfano, State of Colorado, to-wit:

A parcel of land being a part of Section 35 and 36 Township 27 South, Range 66 West of the 6th P.M., more particularly described as follows:

Beginning at a point from which the southwest corner of said Section 36 bears S27°10'14"W (all bearings used herein are based on the assumption that the South line of said Section 35, monumented at both ends with a standard monument set by PLS 10895, bears S89°29'14"W) a distance of 2987.40 feet; Thence S89°45'32"E a distance of 999.77 feet; Thence S 09°38'28"W a distance of 689. 91 feet; Thence S 31°17'35"E a distance of 18.66 feet to a point on the north right of way line of Colorado State Highway No. 10; Thence S 57°34'30"W, along said north line a distance of 1320.09 feet; Thence N08°53'36"E a distance of 1423.29 feet to the Point of beginning, according to the records of the clerk and recorder for Huerfano County Colorado.

**AUTHORIZATION FOR RELEASE OF INFORMATION TO
TECHNICAL SERVICE PROVIDER**

January 2005

USDA Service Center Address

WALSENBURG FSC
601 S. ALBERT STREET
WALSENBURG, CO 81089

County: HUERFANO

Tract #(s): _____

Section, Township, & Range: _____

Farm Bill Program: _____

Contract Number: _____

Item Numbers of Contract: _____

* I, _____ (participants name), hereby authorize TSP
BRINK, Inc (print name), TechReg ID Number B-03-133 to have
access to my Farm Bill Program Contract and associated data, for the Item Number(s) listed above for the specific
purpose of providing me technical services related to conservation practice installation.

* 
Program Participant Signature

x 10-17-07
Date

I, BRINK, Inc. (print TSP's name), understand that I am responsible for the
custody and safeguarding of the information received through this authorization and that I may not share or utilize
the information for purposes other than for the implementation of this USDA Farm Bill program contract, without the
specific written consent of the Program Participant. A Conservation District (CD), CD employee, or other partnering
agency, that is engaged as a TSP through a program participant acquisition of technical services must demonstrate
separation from the local USDA Service Center related to shared office space, use of phones, use of government
vehicles and equipment as well as NRCS training opportunities not available to a private sector TSP.

 for BRINK, Inc
Technical Service Provider's Signature

8/21/07
Date

Received By (NRCS Employee) _____

_____ Date

Reset Form



Clients Responsibilities When You Use A Technical Service Provider (TSP)

Before the TSP Starts Work You Must:

- 1. Select a certified TSP.**
 - Locate a certified TSP on the internet at this address: (Access to the internet is available at your local USDA Service Center)
 - Click on "**Find a Technical Service Provider**" and follow the instructions.
 - The TSP must be certified for the practice categories shown in your plan.
- 2. Tell NRCS that you want to use a TSP, including:**
 - The name(s) of the TSP you have selected;
 - Which practices the TSP will assist you with; and
 - What tasks (design, installation or check out) the TSP will perform for each practice.
- 3. Work with NRCS to modify your farm bill program contract to:**
 - Add contract items for each task the TSP will perform; and to
 - Establish the Not to Exceed (NTE) rates that represent the maximum payment that NRCS can make to you for each task the TSP performs.
- 4. Sign a release form** that allows NRCS to give information from your plan to the TSP.
(see the back side of this fact sheet)

When the TSP Starts Work You Must:

- 1. Inform NRCS when the work begins.**
- 2. Direct the TSP to perform their work in accordance with the schedule in your Farm Bill Program contract.**
- 3. Direct the TSP to perform their work in accordance with NRCS requirements.**
 - The **NRCS Conservation Practice Standards** describe required planning and design criteria for each practice in your plan;
 - The **NRCS Conservation Practice Specifications** describe installation requirements for each practice; and
 - The **NRCS Conservation Practice Statements of Work** describe the deliverables the TSP must provide to adequately document performance of their work for you and NRCS.

When the TSP Is Finished You Must:

- 1. Inform NRCS when a task is complete.**
- 2. Direct the TSP to provide NRCS with the required documentation for each task.**
 - The **NRCS Conservation Practice Statements of Work** describe the paperwork the TSP must provide to verify completion of each task.
 - Obtain the Progress Reporting Transaction Code for verification of reported progress by TSP.
- 3. Submit a paid invoice from the TSP for their services, itemized by contract item.**
- 4. Be responsible for paying the TSP.**
 - You may request that NRCS make the contract TSP incentive payment directly to the TSP by completing form CCC-36 - "Assignment of Payment" at your local USDA Service Center.

CCC-36
(02-17-04)U.S. DEPARTMENT OF AGRICULTURE
Commodity Credit Corporation

ASSIGNMENT OF PAYMENT

See Page 2 for Privacy Act and Public Burden Statements.

PART A - GENERAL INFORMATION

1. STATE CO	2. COUNTY HUERFANO
3. PRODUCER'S (ASSIGNOR'S) NAME AND ADDRESS (Including Zip Code) 2689 E Hwy 10 Walsenburg Co 81089	5. ASSIGNEE'S NAME AND ADDRESS (Including Zip Code) BRINK, Inc 1304 centaur Village Drive, Suite B Lafayette, CO 80026
4. PRODUCER'S (ASSIGNOR'S) TAX IDENTIFICATION NUMBER 840730934	6. ASSIGNEE'S IDENTIFYING NUMBER TAX ID (Note: Completed SF-1199 A or SF-3881 must be submitted and established by the administrative county office) 80-0001516

PART B - APPLICABLE PROGRAM(S)

7. Program	8. Program Year or Payment Year	9. Assigned Amount for Each Applicable Year					
Conservation Reserve Program	From:	Year	Year	Year	Year	Year	Year
		Amount	Amount	Amount	Amount	Amount	Amount
	To:	Year	Year	Year	Year	Year	Year
		Amount	Amount	Amount	Amount	Amount	Amount
Milk Income Loss Contract	From:	Year	Year	Year	Year	Year	Year
		Amount	Amount	Amount	Amount	Amount	Amount
	To:	Year	Year	Year	Year	Year	Year
		Amount	Amount	Amount	Amount	Amount	Amount
Direct and Counter-Cyclical Payment	From:	Year	Year	Year	Year	Year	Year
		Amount	Amount	Amount	Amount	Amount	Amount
	To:	Year	Year	Year	Year	Year	Year
		Amount	Amount	Amount	Amount	Amount	Amount
Loan Deficiency Payment	From:	Year	Year	Year	Year	Year	Year
		Amount	Amount	Amount	Amount	Amount	Amount
	To:	Year	Year	Year	Year	Year	Year
		Amount	Amount	Amount	Amount	Amount	Amount
Other: EQIP	From:	Year	Year	Year	Year	Year	Year
		Amount	Amount	Amount	Amount	Amount	Amount
	To:	Year	Year	Year	Year	Year	Year
		Amount	Amount	Amount	Amount	Amount	Amount
10. Program Name		11. Program Year or Payment Year		12. Assigned Amount			
Environmental Quality Incentives Program (EQIP)				\$			
				\$			
				\$			
				\$			

PART C - REPRESENTATION OF ASSIGNOR AND ASSIGNEE

In order to assign a cash payment in accordance with the programs specified by the assignor in Items 8 and 11, this form must be completed by both the assignor and the assignee. This assignment is applicable only to payments issued by the county FSA office specified in Item 2. This assignment is applicable only to programs publicly announced before this form is filed and is subject to the terms stated in this form and the provisions of 7 CFR Part 1404.

The assignee agrees to repay promptly to the Federal Government any amount by which the assigned payment exceeds the amount secured by the assignment. The assignor and the assignee agree that they will promptly notify the county FSA office of any change affecting this assignment. This assignment may be revoked at any time by written request signed by the assignee.

13A. PRODUCER'S (ASSIGNOR'S) SIGNATURE But J. Conley	13B. DATE (MM-DD-YYYY) 10-17-07
14A. ASSIGNEE'S SIGNATURE Philip Brink for BRINK, Inc	14B. DATE (MM-DD-YYYY) 8-21-07

PART D - REVOCATION OF ASSIGNMENT

Assignment of payment authorization above is hereby revoked.

15A. ASSIGNEE'S SIGNATURE	15B. DATE (MM-DD-YYYY)
FOR COUNTY OFFICE USE ONLY	16. DATE FILED (MM-DD-YYYY)
	17. TIME FILED

COUNTY FSA COMMITTEE



ASSIGNEE



PRODUCER



SPECIAL PROVISIONS RELATING TO ASSIGNMENTS

- A. The original of this assignment, properly executed, must be filed in the Farm Service Agency office in the county where the farm or operation subject to this assignment is administratively located with respect to the program involved.
- B. If the assignor assigns a specified value of payments to more than one assignee:
 - 1. CCC and FSA will recognize only 2 assignments for each program per program year or group of years if multi-year is selected.
 - 2. Assignments will be honored in chronological sequence based on the order of filing with the county FSA office.
- C. The payment due the producer may be applied first against indebtedness owing by the producer to the United States, including debts arising after the execution of a Form CCC-36, which may be offset in accordance with the regulations governing, 7 CFR Parts 3, 1403, and 1951, and any balance will be subject to assignment.
- D. Neither the United States of America, the Commodity Credit Corporation, the Secretary of Agriculture, any disbursing officer, nor any other Government employee or official shall be subject to any suit or liable for payment of any amount if payment is inadvertently made to the assignor without regard to this assignment.
- E. This assignment does not extend to any successor of the assignee, nor may the assignee re-assign this assignment.

18. COUNTY FSA OFFICE NAME AND ADDRESS (Including Zip Code)

TELEPHONE NO. (Including area code):

NOTE: The following statement is made in accordance with the Privacy Act of 1974 (5 USC 552a) and the Paperwork Reduction Act of 1995, as amended. The Commodity Credit Corporation Charter Act, the Federal Agriculture Improvement and Reform Act of 1996, the Food Security Act of 1985, the Agricultural Act of 1949, and the Soil Conservation and Domestic Allotment Act authorizes collection of this data. Furnishing the assignee's identifying number is voluntary. Furnishing all other data is also voluntary; however, without it a payment to assignee cannot be issued. The information will be used to authorize CCC to make program payments to an assignee. This information may be provided to other agencies, IRS, Department of Justice, or other State and Federal law enforcement agencies and in response to a court magistrate or administrative tribunal. The provisions of criminal and civil fraud statutes, including 18 USC 286, 287, 371, 651, 1001; 15 USC 714m; and 31 USC 3729, may be applicable to the information provided.

According to the Paperwork Reduction Act of 1995, an agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0560-0183. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. **RETURN THIS COMPLETED FORM TO YOUR COUNTY FSA OFFICE.**

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, gender, religion, age, disability, political beliefs, sexual orientation and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, D. C. 20250-9410 or call (202) 720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

CNMP Questionnaire

BRINK, INC.
Environmental Solutions
for the Livestock Industry

NOTE: The following information is required by the USDA-NRCS to be included in your Comprehensive Nutrient Management Plan (CNMP). Please answer each question as completely as you can. Use the back of the page if you need more space. Thank you for your patience in filling this out!

Date: 10-17-07

Facility Name: CORSENTINO DAIRY

Physical Address: 2689 E Hwy 10 Walsenburg Co 81084

Mailing Address if different: _____

Phone numbers: 719-738-2114

email address: _____

I. Manure & Wastewater Handling & Storage:

1. Type of facility (ex. Backgrounder only, background all and finish some): _____
2. Animal numbers (maximum):
Milking: 500 hd Average wt: 1300 lbs
Dry 50 hd Average wt: 1300 lbs
Repl. Heifers 900 hd Average wt: 300 to 1000 lbs on Hill or Pasture
Heifer calves 60 hd Average wt: 100 lbs
Bull calves none hd Average wt: _____ Sell them
3. Indicate how & where you dispose of dead animals: Bury
4. Describe disposal of medical wastes (needles, bottles, gloves, etc.): Trash pickup Service
5. What do you do with spoiled feed and/ or hay? Spread on fields
6. Approximate minimum depth to **groundwater** at the lowest point in the facility? 800 ft
7. Corral pens are bedded with STRAW
8. How often do you normally clean pens (ex: once/yr, twice/yr, every few years)?
9. Is manure normally stockpiled or immediately spread on fields? (please describe)
Stockpiled
10. What is the most recent year manure was applied to fields? 2007 Which fields received manure during the most recent application? 3 to 4 year Rotation
11. When is manure normally spread on fields (Spring, Fall, Winter, Summer) and how much, on average, is applied per acre? ?
12. Is manure worked into the soil after application (disked, harrowed)? yes
13. What equipment is used to apply manure to fields? Truck with Busters or Hary wagon
14. Is manure / wastewater spreading equipment calibrated? ?
15. Is the milking barn dry scraped or flushed?

16. How much wastewater is produced from the milking barn per day (flushing, line rinse, all other uses) 3600 gallons
17. Water tanks (please circle correct type): continuous flow float with valve
18. Does tank overflow go to wastewater pond system? _____ If so, how much per day _____ gal.
19. Are there local zoning regulations that will affect waste management at this facility? NO

III. Field and Farming Information

20. What fields do you use for land application of wastewater? field - 3, 8, 9, 10
21. Method(s) of wastewater application on field: Flood / Center pivot with Fertigation water
22. Total acreage available for land application of manure and/or wastewater? 381 A
23. Please fill out the table below for each field:

Crops planted by year							Planned
#	Field# or Name	Acres	Legal Description	2005 Crop	2006 Crop	2007 Crop	2008 Crop
1	Valley	60		CORN	CORN	CORN	CORN Rye
2	Lookwood	55		CORN Rye	CORN	CORN	CORN
3	T+L	106		CORN	CORN 1/2 Rye, with	CORN Rye	CORN ~~Rye~~
4	CRUMP	32		CORN	CORN Rye	CORN	CORN
5	Amid.	32		CORN	CORN	CORN	CORN
6	Across Rd Grass	12		Grass	Grass	Grass	Grass
7	Across Rd CORN	12		ALF	CORN	CORN Rye	CORN
8	mito field	37		Sorghum	CORN	CORN	CORN Rye
9	15-16 street field	40		Rye	Rye	Rye	Rye
10							
11							
12							

The NRCS requires that detailed wind and water erosion estimates be prepared for each field included in your CNMP. Please answer the following questions as completely as possible.

24. Please describe your normal crop rotation patterns (ex: 5 years of corn followed by alfalfa for 3-4 years): Continuous CORN Rotated with winter Rye In Different fields

25. Please describe general farming practices for each crop type (EX: Corn; In March, bust and shred stubble, disk, level, plant (ridge till) and starter fertilizer, May-Cultivator, June-Cultivator, October-harvest): Disc Rip + Cultapacker - field finished (Cultivator + harrow). then plant corn.

Rye - Disc Rip + Cultapacker All In one - then plant Rye

26. What are your normal crop yields for each crop type listed below, and the average number of inches of irrigation water applied (in inches)?

Corn (grain) _____ bu/ac annual irrigation water applied: _____ inches

Corn Silage 16 tons/ac annual irrigation water applied: 49 inches

Alfalfa Hay _____ tons/ac annual irrigation water applied: _____ inches

Wheat _____ bu/ac annual irrigation water applied: _____ inches

Wheat Silage _____ bu/ac annual irrigation water applied: _____ inches

Grass Hay 6 tons/ac annual irrigation water applied: 28 inches

Other Rye 6 annual irrigation water applied: 2+3 inches winter snow + rain

27. Commercial Fertilizer:

a) What types of commercial fertilizers are used? 30-0-10 N - N30 - 12-0

b) Are the nutrients in manure or wastewater used to replace some or all of the commercial fertilizer that would otherwise be applied to the crop? yes no

c) How much commercial fertilizer is normally applied on a given crop type (per acre of N, P&K)? (example: corn fields normally receive 30 lbs N as starter (dry form) and 100 lbs N and 30 lbs Phosphate via fertigation,, alfalfa hay fields receive 100 lbs of MAP(11-52-0).

100 lbs N

d) What time(s) of year is commercial fertilizer applied? Growing Season

28. **IRRIGATION:** The following table deals with the methods of irrigation that you use, and related information. Please fill it out as completely as possible.

#	Field# or Name	Acres	Method of Irrigation	Method of tailwater control (if applicable)	Name of Irrig. Ditch (if applicable)
	example	80	pivot	none	pond, fed by Eaton Ditch
1	I Valley	50	Pivot	none	Holita
2	Lockwood	55	Pivot	none	Holita
3	T+L	106	Pivot	none	8+13+Holita
4	Crump Field	32	Gated Pipe	Tailwater 8-13 Ditch	8+13
5	Amidi	32	Flood	none	8+13
6	Across Road Grass	12	Flood	none	8+13
7	^{7A} CORN Across Road	12	Gated Pipe	none	8+13
8	Milo field	37	Gated Pipe	none	8+13
9	IS-16 STREET field	40	Flood	none	Holita
10					
11					
12					

IV. Feed Management

Please describe your feed ration compositions: (example: Grower = 45% corn silage, 40% alfalfa hay, 10% corn grain, 5% supplement, as fed)

45 lbs Corn silage - 6 lbs ALF - 24 lbs Corn meal

V. Soil, Manure and Wastewater Test Results:

Please attach a copy of the most recent soil test results for each field to be included in your CNMP.

Also, please attach a copy of the most recent manure and wastewater test results if you have any.

Thank you for completing this questionnaire. Please return to:

BRINK, INC.

1304 Centaur Village Drive, Suite B

Lafayette, CO 80026

Office phone: 720-887-9944

Colorado Department of Public Health and Environment Environmental Agriculture Program

—AFO Assessment Report—

Corsentino Dairy
2689 E. State Highway 10, Walsenburg

Facility Owner: **Brett Corsentino**
Facility Operator: **Brett Corsentino**
Mailing Address: **2689 E. State Highway 10**
City, State, ZIP: **Walsenburg, CO 81089**
County: **Huerfano**
Legal Description: Section: Township: Range:
Contact Person: **Brett Corsentino**
Phone (office): **(719) 738-2114** Cellular: Fax: **(719) 738-2879**
E-mail:
Lead Inspector: **Scott Slamal (Tt)**
Consultant Name: **Phil Brink**
Persons Present : **Brett Corsentino (Owner/operator) and Scott Slamal (Tt)**

General Information

Date: **6/5/2008** Time in: **10:15 AM** Time out: **12:00 PM**

GPS Reading (at gate): North: **37.652222** West: **104.72638**

Weather Conditions: **Partly cloudy with rain showers**

Maximum Number of Animals Confined for 45 Days: **780** Maximum Facility Capacity:

Number of Animals Present on **6/5/2008**:

Dairy Mature: **570** Cattle: Swine (<55 lbs): Sheep: Laying Hens:
Dairy Heifers: **170** Calves: **40** Swine (>55 lbs): Turkeys: Other Chickens:
Other (specify):

Period of confinement/bare lot:

Animals are confined year round.

Name of nearest surface water:

Cucharas River

Location of nearest surface water:

The Cucharas River is located 0.3 miles south of the facility. The Cucharas River appears to be tributary to Tejana Arroyo.

Identify potential impacts to Waters of State:

Wastewater mixed with clean water is land applied through a center pivot to a field adjacent to the Cucharas River. Over applying wastewater or over spray could potentially enter the river.

—AFO Assessment Report—

Expected Corrective Actions:

No corrective actions were identified during the assessment.

Recommendations:

Monitor land application sites during irrigation to ensure that no wastewater is discharged to the Cucharas River.

Nutrient Management Requirements for Non-Permitted CAFOs that Land Apply Manure and/or Process Wastewater

Colorado Dept. of Public Health and Environment -
Environmental Ag Program

January 2006

On February 28, 2005 the United States Court of Appeals for the 2nd Circuit issued its decisions regarding challenges to the Concentrated Animal Feeding Operation (“CAFO”) regulation published by the EPA on February 12, 2003. One of the decisions was that a CAFO cannot be required to apply for a discharge permit unless it has added, or proposes to add, pollutants to waters of the U.S. Generally speaking, “waters of the U.S.” means all waters of the U.S. that are connected with a navigable stream, lake, or sea. This typically includes any waterway (even a normally dry wash or roadside borrow ditch) that eventually drains into a navigable water.

Two other decisions pertained to land application sites. The court confirmed that these sites are part of the CAFO and are point sources of pollution. This means that a discharge from an application site is allowable only by a CAFO that has a discharge permit. However, the court said that a permit is not required for a storm-caused discharge from an application site where the following conditions are met [per 40 CFR 122.23(e) of the federal regulation]. Such a discharge is known as an agricultural stormwater discharge.

- The discharge was caused by precipitation (as opposed to over-irrigation, for example)
- Manure and wastewater has been applied in accordance with the nutrient management practices specified in 40 CFR 122.42(e)(1)(vi)-(ix) of the federal CAFO regulation [the correlated part of the Colorado CAFO regulations is section 61.17(2)(b)]

The court decision means that if a CAFO chooses to not have a discharge permit, it still must manage manure/wastewater applications in accordance with the following nutrient management practices. Where these practices are not used, a storm-caused discharge from a land application site is a violation of the Clean Water Act.

1. [40 CFR 122.42(e)(1)(vi)]: Identify appropriate site specific conservation practices to be implemented, including as appropriate buffers or equivalent practices, to control runoff of pollutants to waters of the United States.
2. [40 CFR 122.42(e)(1)(vii)]: Identify protocols for appropriate testing of manure, litter, process wastewater, and soil.
3. [40 CFR 122.42(e)(1)(viii)]: Establish protocols to land apply manure, litter, or process wastewater in accordance with site specific nutrient management practices that ensure appropriate agricultural utilization of the nutrients in the manure, litter or process wastewater.
4. [40 CFR 122.42(e)(1)(ix)]: Identify specific records that will be maintained to document the implementation and management of the minimum elements described in the three sections above.

Project Name: Consentino Dairy
Location: Wilsenburg, Colorado
Computed By: gwn
Checked By: pb
Date: 6/4/2008
Date: 6/4/2008

Climate Station:

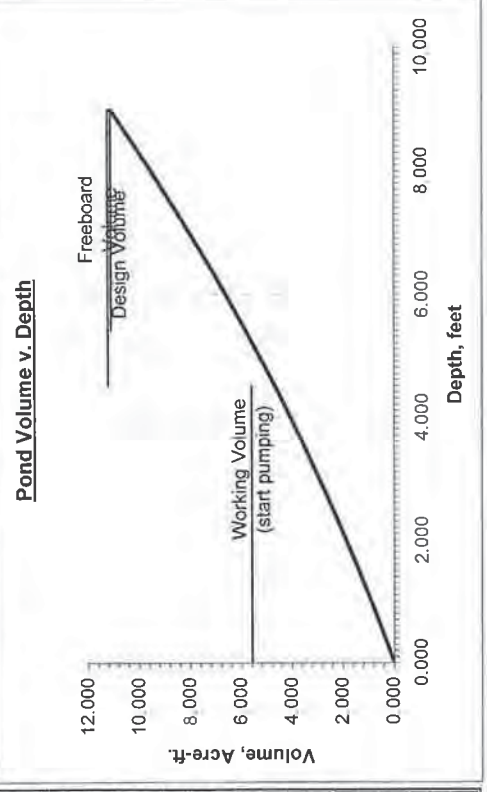
BASIC DATA		POND DESIGN VOLUME		RECTANGULAR STORAGE POND DESIGN DIMENSIONS			
Solids & Slurry Inflow :	0 cu. ft./day	Max Working Storage:	5.57 Acre-ft	Bottom Width:	250 ft.	Inside Top Width:	322 ft.
Other Liquid Waste Inflow:	0 gal./day	Design Storm Runoff:	5.62 Acre-ft	Bottom Length:	150 ft.	Inside Top Length:	222 ft.
Contributing Roof Area:	18,500 sq. ft.	Design Requirement:	11.19 Acre-ft	Design Depth:	7.0 ft.	Total Depth:	9 ft.
Contributing Paved Lot Area:	0 sq. ft., CN = 97			Freeboard:	2.0 ft.	Design Surface Area:	71,484 sq. ft.
Contributing Earth Lot Area:	24 Acres, CN = 90	Available Storage:	71% of design	Inside Slope:	4 H:1V	Available Storage Volume:	7.99 Acre-ft
25yr-24hr Precipitation Depth:	3.60 inches	Storage Safety Factor:	1.0	Evaporation Area:	37,500 sq.ft.	Freeboard Volume:	3.09 Acre-ft
10yr-10day Precipitation Depth:	4.42 inches	(w/ Freeboard)		Seepage Rate:	0.000 inches/day	Total Volume:	11.08 Acre-ft
Annual FWS Evaporation:	45 inches			Seepage Area:	40356 sq. ft.		

AVERAGE ANNUAL MASS BALANCE FOR ESTIMATING MAXIMUM WORKING STORAGE REQUIREMENTS

Month	MONTHLY POND INFLOW										MONTHLY POND OUTFLOW					WORKING STORAGE		
	Precip. (inches)	Monthly Contribution to Working Storage from Precipitation				On Pond (Acre-ft)	Waste Inflow		Total Inflow (Acre-ft)	Seepage Loss (Acre-ft)		Planned Drawdown (Acre-ft)	Total Outflow (Acre-ft)	Monthly In - Out (Acre-ft)	Monthly Accumulated Storage (Acre-ft)			
		Earth Lot Runoff (inches)	Paved Lot Runoff (inches)	Roof Runoff (inches)	Roof Runoff (Acre-ft)		Solids (Acre-ft)	Liquids (Acre-ft)										
										Earth Lot Runoff (Acre-ft)	Paved Lot Runoff (Acre-ft)					Roof Runoff (Acre-ft)	Evaporation (inches)	Surface (Acre-ft)
Jan.	0.70	0.00	0.01	0.22	0.0000	0.50	0.0178	0.0957	0.0000	0.0000	0.12	1.35	0.0968	0.00	0.10	0.02	0.34	
Feb.	0.80	0.01	0.03	0.29	0.0000	0.60	0.0212	0.1094	0.0000	0.0000	0.16	1.58	0.1130	0.0000	0.00	0.11	0.04	0.38
Mar.	0.80	0.35	0.68	1.11	0.0000	1.58	0.0558	0.2462	0.0000	0.0000	0.98	2.48	0.1776	0.0000	0.00	0.18	0.81	1.19
Apr.	1.85	0.37	0.73	1.15	0.0000	1.63	0.0575	0.2530	0.0000	0.0000	1.04	4.05	0.2905	0.0000	0.00	0.29	0.75	1.94
May	1.95	0.42	0.83	1.25	0.0000	1.72	0.0610	0.2667	0.0000	0.0000	1.16	5.40	0.3874	0.0000	0.00	0.39	0.77	2.71
June	1.36	0.16	0.31	0.73	0.0000	1.14	0.0404	0.1860	0.0000	0.0000	0.53	6.53	0.4681	0.0000	0.00	0.47	0.07	2.78
July	2.13	0.52	1.03	1.41	0.0000	1.90	0.0674	0.2913	0.0000	0.0000	1.38	6.75	0.4842	0.0000	0.00	0.48	0.90	3.68
Aug.	2.34	0.64	1.27	1.60	0.0000	2.11	0.0747	0.3200	0.0000	0.0000	1.66	6.08	0.4358	0.0000	0.00	0.44	1.23	4.91
Sep.	1.04	0.06	0.11	0.47	0.0000	0.83	0.0294	0.1422	0.0000	0.0000	0.29	4.50	0.3228	0.0000	0.00	0.32	-0.04	4.87
Oct.	1.06	0.06	0.12	0.48	0.0000	0.85	0.0301	0.1450	0.0000	0.0000	0.30	3.15	0.2260	0.0000	0.00	0.23	0.07	4.94
Nov.	1.45	0.19	0.37	0.80	0.0000	1.23	0.0436	0.1983	0.0000	0.0000	0.62	1.80	0.1291	0.0000	0.00	0.13	0.49	5.43
Dec.	0.96	0.04	0.08	0.40	0.0000	0.75	0.0266	0.1313	0.0000	0.0000	0.24	1.35	0.0968	0.0000	0.00	0.10	0.14	5.57
Totals:	17.44	2.83	5.57	9.92	0.00	14.85	0.53	2.38	0.00	0.00	8.48	45.00	3.23	0.00	0.00	3.23		

RAINFALL AND RINOFF ESTIMATION FOR WASTE STORAGE POND DESIGN

	Earth Areas	Paved Areas	Roofed Areas	Pond Surface
25yr-24hr Storm Event				
1 day Curve Numbers:	90	97	100	100 %
25yr-24hr Rainfall:	3.60 inches	3.60 inches	3.60 inches	3.60 inches
25yr-24hr Runoff:	2.54 inches	3.25 inches	3.60 inches	3.60 inches
Runoff Volume:	5.00 Acre-ft	0.00 Acre-ft	0.13 Acre-ft	0.49 Acre-ft
Total 24hr-25yr Event Runoff Volume: 5.62 Acre-ft				
Chronic Storm (10 day event)				
10 day Curve Numbers:	81	94	100	100 %
10yr-10day Rainfall:	4.4 inches	4.4 inches	4.4 inches	4.42 inches
10yr-10day Runoff:	2.46 inches	3.75 inches	4.42 inches	4.42 inches
Runoff Volume:	4.83 Acre-ft	0.00 Acre-ft	0.16 Acre-ft	0.60 Acre-ft
Total 10yr-10day Event Runoff Volume: 5.59 Acre-ft				
Average Monthly Runoff Contribution to Working Storage				
30 day Curve Numbers:	77	93	98	100 %
Monthly Runoff:	(see computations in monthly mass balance table above)			
Average Annual Rainfall:	17.4 inches	17.4 inches	17.4 inches	17.4 inches
Average Annual Runoff:	2.83 inches	9.92 inches	14.85 inches	17.44 inches
Runoff as % of Rainfall:	16%	57%	85%	100.0%



prepared by: PB date: June, 2008

I. **BASIC DATA**
2)

(See AWMFH Chpt.

A. Contacts

Name of Operation : Corsentino Dairy

Name of Owner/Operator .. : Brett Corsentino

Principal Contact : "

Address (RR, PO Box, etc.): 2689 E. Hwy 10

City, State, Zip : Walsenburg, CO 81089

Telephone No. : 719-738-2114

B. Facility Description (give a brief description of the facilities, any special problems & management objectives)

Dairy; milking cows. Heifer calves are kept on site for a limited period of time, then grown off-site

C. Waste Management Data

How many times per year is manure/waste collected ? 2X Is waste stored on site before disposal/use? YES

If yes, describe how, where and how long ? On north side of pens, drains to pond. Apply manure on fields in
Winter and incorporate right away

Existing Handling Method(s): X Liquid Slurry X Solid Describe existing waste handling equipment:

Manure spreader truck for solid manure; pump and pipeline to field for wastewater.

Describe the frequency for cleaning lots, lanes, feed bunk areas, etc., or frequency & volume of flushing holding pits, gutters, parlor & equipment, etc.

2 times per year avg.

How is storm runoff currently handled?

Portion of it is retained in wastewater ponds

Are dead animals currently disposed of on site? yes If yes, how? Bury

Are there local zoning or other regulations that will affect waste management at this facility? yes no

If yes, explain: CDPHE and EPA regulations govern waste management at CAFOs

II. WASTE PRODUCTION DATA

(see AWMFH Chpt.4)

A. Animal Inventory

(a) Animal Type(s)	(b) Existing Capacity (# head)	(c) Maximum Capacity (# head)	(d) Working Capacity (# head)	(e) Average Weight (lb.)	(f) Animal Units (no.)	(g) Confinement Period(s) (from ___ to ___)
Milking Cows	500			1300	650	365
Dry Cows	50			1300	650	"
Replacement Heifers	100			650	65	"
Heifer calves	60			100	6	"
						"
	710			total AU's:	1371	

(a) Describe all animals confined by species, age class (cow vs. calf), management group (lactating vs. dry cow), etc.

(b) Number of animals on site when inventory was made.

(c) Estimate the maximum number of animals that could occupy the facility.

(d) Annual average working capacity to be used for planning and design - include proposed expansion.

(e) Estimate the average weight of this type of animal during its confinement period.

(f) Multiply the working capacity (b) by the average weight (d) and divide by 1,000 lb.

(g) Show the usual time period(s) this type of animal is confined in the facility (e.g. January to April, October to December, etc.).

B. Other Solid Waste Generation

Source	Current Volume	Units	Proposed Volume	Units	Notes/Explanation
Bedding		cu.ft./day		cu.ft./day	150 square bales/yr x 1350lb/bale
Waste Feed		cu.ft./day		cu.ft./day	< 10T / yr
Dead Animal Carcasses:		# head/yr		# head/yr	20- 30 hd / yr
Other					

C. Process Wastewater Generation

Source	Existing Use	Units	Proposed Use	Units	Notes/Explanation
Milking Parlor	3600	gal/day	No change	gal/day	Total; all milking related activities
Milkhouse related		gal/day		gal/day	"
Silage Pit Seepage		gal/day		gal/day	"
Flush tanks/gutters/etc. :		gal/day		gal/day	"
Leaking watering facilities:		gal/day		gal/day	"
Other		gal/day		gal/day	

D. Storm Runoff Producing Areas25yr-24hr rainfall depth: 3.6 in.

Source	Existing Area	Units (circle one)	Proposed Area	Units (circle one)	Notes/Explanation
Roofs, concrete	0.42	Ac.	No change	Sq. Ft. or Ac.	
Paved open lots	NA	Sq. Ft. or Ac.	"	Sq. Ft. or Ac.	
Unpaved open lots	24	Ac.	"	Sq. Ft. or Ac.	
Contributing Drainage Area :	0	Ac.	"	Sq. Ft. or Ac.	
Drainage Area to be diverted:	0	Sq. Ft. or Ac.	"	Sq. Ft. or Ac.	

E. Dust and Odors

Describe any current or anticipated problems resulting from dust or odors produced at the site.

Dust when pen conditions are dry, odor when pens are wet

III. SITE INVENTORY

(See AWMFH Chpt. 2 & 8)

A. Legal Description Section 36, Township 27N, Range 66, W P.M., Huerfano CountySite is shown on USGS Quadrangle Sheets(s): _____
(attach copy when available)This site is approximately 2 miles E from Walsenburg, CO .
(distance & direction) (nearest town)**B. Location Map**

Show all of the following within a two mile radius of the facility:

- Location of the facility, public roads and fields receiving waste from the facility;
- Location of public, commercial & residential developments;
- Wells, streams, canals, lakes, wetlands, general direction of land slopes, and drainage areas affecting the facility, and the general direction of prevailing winds.

See attached survey and maps in Section 7 of notebook

C. Facility Map

Show pertinent on site features, such as:

- Location and dimensions of existing or proposed lots, alleys, buildings, ponds, etc.;
- Location of all utilities, dwellings, wells & surface water courses at the site; and
- Location of soil boring/sampling sites.

See attached survey and maps in Section 7 of notebook

IV. SOILS DATA

(see AWMFH Chpt. 5, 7, & Appendix 10D)

A. Soil Survey Information				See Section 7 of CNMP notebook for specific field soils information.		
Survey Name:						
Dominant Soil Series'	% Slope	Texture/Classification USDA USCS	% of Site	Depth to Water, (ft)	Describe any limitations or restrictions	
CL - CH				~ 800 ft	Native soils will be used to line pond	

B. Well Logs

Attach completion reports, logs, & any other information available for wells at or adjacent to the site.

C. On-Site Soils Investigation

Logged by:				Equipment Used:				Date:
Hole No. ¹	Ground Elev.	Hole from	Depth ² to	Field Class ³	Sample No. ⁴	Sample from	Depth to	Notes (describe soil characteristics, depth to water or bedrock, sample size and other features which may affect the planned facility)
								The soil type in the area of the planned new wastewater pond is Manzanola clay loam, 0 – 2% slope. This soil type is within Hydrologic Soil Group C, which is characterized as having a slow infiltration rate when thoroughly wet. These soils impede the downward movement of water and have a slow rate of water transmission. Group C soils are typically suitable for use in constructing low permeability wastewater pond liners. Compaction and moisture requirements relating to the planned pond liner will be specified or referenced by the engineer in the final designs.

¹ Show locations of soil borings on site plan.² Data should be obtained to a depth at least 2 feet below the bottom of any storage pond or lagoon.³ Field classification of soil by the Unified Soil Classification System, USCS.⁴ Minimum sample size needed to determine gradation & Atterberg

Limits is 10lb. A 50lb. composite sample, (100lb. for coarse grained soils), is required for moisture/density & permeability tests.

(attach all test

[illegible]³Determined with γ_d @ 90 - 95% of γ_{dmax}

(describe recommended materials, thickness, cover requirements, & any special construction requirements for this site)

Recommended Material
Source(s):

(describe in general any concerns or restrictions that should be considered in the facility)

SOIL CLASSIFICATION GUIDELINES

Perm. Group	USCS Class	COARSE TEXTURED SOILS ($< 50\%$ passes a #200 sieve)	Gradation	% Finer than			Appearance	
				#200	#4	3"		
I	GW	Well graded gravels; gravel-sand mixtures	broad range from #4 to 3", Cu>4, Cc 1-3	<5	<50	>50	Clean gravel - won't stain a wet palm	
I	GP	Poorly graded gravel	uniform size or gap graded	<5	<50	>50	Dirty Gravel, leaves stain on a wet palm	
I or II	GM	Silty gravels; gravel-sand-silt mixtures	non-plastic fines	12-50	<50	>50	Dirty Gravel, leaves stain on a wet palm	
II, III, IV	GC	Clayey gravels; gravel-sand-silt mixtures	plastic fines	12-50	<50	>50	Dirty sand, leaves stain on a wet palm	
I	SW	Well graded sands; sand-gravel mixtures	broad range - #200 to #4, Cu>6, Cc 1-3	<5	>50	>90	Clean sand - won't stain a wet palm	
I	SP	Poorly graded sands	uniform size or gap graded	<5	>50	>90	Dirty sand, leaves stain on a wet palm	
I or II	SM	Silty sand	sand with non-plastic fines	12-50	>50	>90	Dirty sand, leaves stain on a wet palm	
II, III, IV	SC	Clayey sands; sand-clay mixtures	plastic fines	12-50	>50	>90	Dirty sand, leaves stain on a wet palm	
		FINE TEXTURED SOILS ($> 50\%$ passes a #200 sieve)	Range	Ribbon Strength	Dry Crushing Strength	Dilatancy Reaction	Toughness near P.L.	Stickiness
			LL PI					
II or III	ML	Silts; silty v. fine sands; sandy or clayey silts	<50 <22	none	none/slight	quick- slow	none	none
II, III, IV	CL	Low-med. plasticity; silty, sandy or gravelly clays	< 50 >4-33	weak	Med./High	none/v. slow	medium	medium
III or IV	CH	Inorganic clays of high plasticity; fat clays	>50 >22-66	v. strong	High/V. High	none	high	v. high
II, III, IV	MH	Elastic silts; micaceous or diatomaceous silts	>50 <22-66	strong	slight/med.	slow/none	medium	low

V. WASTE UTILIZATION/DISPOSAL DATA

(see AWMFH Chpt. 6 & 11)

Is waste applied on cropland managed by the operation? **YES** *no*

If no, describe disposal methods for manure and other organic by-products of the operation. _____

If yes: (a) Describe methods used for waste transport and application:

Manure spreader for manure, electric pump and pivot or gated pipe for wastewater application. Honey wagon is also used in some instances.

(b) When is waste spread on the fields? **spring summer fall winter** (manure: winter, ww: as needed)

(c) Estimate the average annual application rate per field 20 ton (tons/acre, as needed) (1000gal/acre)

(d) Is the waste sampled and tested for nutrient content before/during application? **X no, will start**
 If yes, list typical test results for:

Total N	_____	NH ₄ ⁺	_____
NO ₃ ⁻	_____	Total P	_____
Total K	_____	Total Salts	_____

(e) Are the nutrients in the waste used to replace some or all of the commercial fertilizer that would otherwise be applied to the crop? **yes** *no*

Available Utilization/Disposal Areas

Field Number	Field Name	Acres
1	Valley	60.5
2	Lockwood	55.8
3	T & L	105.5
4	Crump	32.4
5	Amidi	31.5
6	Across Rd. Grass	13.2
7	Across Rd. Corn	11.2
8	Milo Field	35.1
9 and 10	15-16 Strait Field	40
Sum of App. Acres		385.2



Natural Resources Conservation Service

Nutrient Management

Conservation Practice Job Sheet

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Site Information

Name	Correntino Dairy Farms, Inc.	Field ID	1- Valley	Date	May 6, 2008
Address	2689 East Hwy. 10	Acres	60.5	Irrigated	☒ Yes ☐ No
	Walsenburg, CO 81089	Year	2008	Soil Survey Area	
		Planned Crop	Corn Silage	Soil Map Unit	90 - Wiley Loam
		Yield Goal	16 T/A	Slope	1 to 3%
Phone	(719) 738-2114	Previous Crop	Corn Silage	Permeability	Moderate
Email		Previous Yield	16 T/A	Crop Rotation	4 yr. Corn Silage, Rye Dbl

Purpose (check all that apply)

- ☒ To budget and supply nutrients for plant production
☒ To properly utilize manure or organic by-products as a plant nutrient source
☒ To minimize agricultural nonpoint source pollution of surface and groundwater resources
☐ To protect air quality by reducing nitrogen emissions (NH₃ and NO_x) and the formation of atmospheric particulates
☒ To maintain or improve the physical, chemical and biological condition of the soil

Soil Test Information (enter below or attach a copy of the current soil test report for this field)

Laboratory	Olsen's Agricultural Laboratory, Inc.						Analysis Date	January 23, 2008				
P Extraction Method		(check one)		☐ AB-DTPA	☐ Bray P1	☐ Mehlich 3	☒ NaHCO ₃ (Olsen)					
Sample ID	Depth (inches)	pH	OM %	Lime (CaCO ₃)	EC (dS m ⁻¹)	parts per million						
						NO ₃ - N	NH ₄ - N	P	K	Zn	Fe	S
749706	0-12	7.9	2.3	2150	1.42	67.9		102	600	1.9	11.2	54
749707	12-24					17.9						

Crop Nutrient Requirement, Nutrient Credits and Planned Nutrient Applications

Crop Nutrient Requirement		pounds per acre					
check one	☐ Soil Test Recommendation	N	P₂O₅	K₂O	Zn	Fe	S
	☒ Estimated Crop Removal	141	67	52			
Nutrient Credits							
Legume N credit from previous crop							
Residual N from previous manure applications		33					
Soil organic matter mineralization		69					
Irrigation Water NO ₃ -N							
Other	Soil N, 0-24 in.	308	232	720			
Planned Nutrient Applications - Source/Amount							
Manure							
Preplant							
Planting/Starter							
Sidedress							
Irrigation							
Other							
Available Nutrients		410	232	720	0	0	0
Nutrient Balance		269	165	668	0	0	0

Name	Corsentino Dairy Farms, Inc.	Field Number	1- Valley	Date	May 6, 2008

Estimated Crop Nutrient Removal

Crop	Yield	Harvest Unit	Pounds per Unit	Harvest DM %	Mean Concentration %			Nutrient Removal lb/ac.		
					N	P	K	N	P ₂ O ₅	K ₂ O
Corn, silage	16	ton	2000	35	1.26	0.26	0.39	141	67	52

Legume N Credit from Previous Crop ⁽¹⁾

Plants/ ft ²	pounds N per acre			
	New Seeding Alfalfa	First Year Alfalfa	Second Year Alfalfa	Third Year + Alfalfa

⁽¹⁾ For forage legumes other than Alfalfa such as clover or trefoil, use 80 % of the credit for Alfalfa. For soybeans or dry beans, credit 1 pound of N per bushel harvested the previous year, to a maximum of 40.

Approximate Manure Nutrient Composition and Mineralization

Type of Manure	Application rate		pounds per acre ⁽²⁾					
			N, yr 1	N, yr 2	N, yr 3	P ₂ O ₅ ⁽³⁾	P ₂ O ₅ ⁽⁴⁾	K ₂ O
Dairy Cattle, solid	20	tons /acre	91	33	20	256	192	544

⁽²⁾ Pounds per 1,000 gallons x 27.15 = pounds per acre-inch ⁽³⁾ Manure applied annually ⁽⁴⁾ Manure applied once in 2 or more years

Irrigation Water NO₃-N Credit

Application amount ⁽⁵⁾	19	[NO ₃ -N] ⁽⁶⁾	parts per million	NO ₃ -N Credit	0	lb/ac

⁽⁵⁾ Estimated acre inches to be applied prior to anthesis ⁽⁶⁾ Irrigation water nitrate [NO₃-N] concentration

Environmental Risk Assessments

1) Will manure or organic by-products be applied to this field during the crop rotation?	☒ Yes	☐ No	
2) Is this Nutrient Management Plan a component of a Comprehensive Nutrient Management Plan?	☒ Yes	☐ No	
3) Is the field located in a hydrologic unit area designated as being impaired for nutrients?	☐ Yes	☒ No	
4) Is an aquifer located below the field that is shallow (< 20 ft), or used as a public drinking water source?	☐ Yes	☒ No	
Land Base Requirement (acres) for manure or organic by-products applications		Nitrogen based	Phosphorus based
	Derived from average table values	252	657
	Derived from laboratory analysis	461	526
Colorado Phosphorus Index Risk Rating	11	Medium Risk, may use N based organic nutrient application rates	
Colorado Nitrogen Leaching Index Risk Rating	9	Medium Risk, may use N based organic nutrient application rates	

Recommendations (attach additional sheets as necessary)**Certification**

Owner / Operator / Producer - I have reviewed this plan including the operation, maintenance and recordkeeping requirements, and agree to follow the recommendations as stated.

Signature

Date

Nutrient Management Specialist - I approve this plan as written, and certify that it meets applicable NRCS nutrient management criteria for the stated purpose.

Signature

Certifying Organization / Number

Date

Colorado Nitrogen Leaching Index Risk Assessment (Version 2)

Name	Corsentino Dairy Farms, Inc.		Field ID	1- Valley	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Permeability Class (See Table 1 below)	Very Slow, Slow and Moderately Slow	Moderate	Moderately Rapid	Rapid and Very Rapid	2	
2. Irrigation Application Efficiency (See Table 2 below)	High > 85 %	Moderate 60 – 85 %	Moderately Low 35 – 60 %	Low < 35 %	2	
3a. Nitrogen Application Rate (fertilizer with or without manure) OR 3b. Manure - Effluent Application Rate, (no fertilizer) (See Table 3a or 3b)	Total N application rate below agronomic rate	Total N application rate equal to agronomic rate	Total N application rate 1 to 50 pounds per acre above agronomic rate	Total N application rate greater than 50 pounds per acre above agronomic rate	3	
	Applied at P agronomic rate	Applied at N agronomic rate	Applied above N agronomic rate	Applied above N agronomic rate more than one consecutive year		
4. Nitrogen Application Timing (See Table 4 below)	In season split application (2 or more splits)	Any nitrogen application 0 to 3 months before crop planting	Any nitrogen application 3 to 5 months before crop planting	Any nitrogen application more than 5 months before crop planting	3	
Gross Score (Sum of Factors 1 through 4)					10	
5. Best Management Practice (BMP) Implementation Credits	Subtract one point for each of the following BMPs implemented on this field: Slow release N fertilizer; Cover crops; Nitrification inhibitors*; Deep rooted crops in rotation; Deep (4-5 ft) soil sampling to determine sub-soil N credit; Irrigation Water Management Plan.				-1	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					9	

* BMP credit not applicable for fall applications on soils with rapid or very rapid permeabilities

Net Score	Risk Interpretations
< 8	This field has a LOW risk for nitrogen leaching if management is maintained at the current level. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to MEDIUM .
8 to 11	This field has a MEDIUM risk for nitrogen leaching and some management changes may be needed to decrease risk. Apply nitrogen at agronomic rates or lower using spring or split in-season applications. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to HIGH .
12 to 15	This field has a HIGH risk for nitrogen leaching and management changes should be implemented to decrease risk. Manure should be applied at P agronomic rates. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method may also be necessary. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to VERY HIGH .
16	This field has a VERY HIGH risk for nitrogen leaching and management changes are needed to decrease risk. Manure applications are NOT recommended. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method are necessary to protect ground water. Implement all appropriate BMPs.

Colorado Phosphorus Index Risk Assessment (Version 3.0)

Name	Corsentino Dairy Farms, Inc.		Field ID	1- Valley	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Runoff Class (See Table 1 below)	Low	Medium	High	Very High	1	
2. Soil Test P (See Table 2 below)	Low	Medium	High	Very High	4	
3. P ₂ O ₅ Application Rate (See Table 3a below)	< 30	30-90	91-150	> 150	4	
4. P Application Method (See Table 4 below)	None Applied, Injected or Subsurface Application Deeper Than 2 inches	Spring Applied and Incorporated within 2 weeks, or Sprinkler Applied	Fall/Winter Applied and Incorporated within 2 weeks	Surface Applied with No Incorporation, or Fall/Winter Applied with Spring Incorporation	3	
Gross Score (Sum of Factors 1 through 4)					12	
5. BMP Implementation Credits	Subtract one point for each of the following BMPs implemented on this site. Contour Buffer Strips, Cover Crops, Filter Strips, Furrow Diking, Grassed Waterways, Linear Polyacrylamide, Terraces, or Residue Management				-1	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					11	

Net Score	Risk Interpretations
< 8	This field has a LOW potential for off-site P movement if management is maintained at the current level. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
8 to 11	This field has a MEDIUM potential for off-site P movement and some management changes may need to be made to support continued long term organic nutrient applications. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
12 to 15	This field has a HIGH potential for off-site P movement and management changes should be implemented to decrease risk. Organic nutrient application rates should be calculated according to crop phosphorus requirements.
16	This field has a VERY HIGH potential for off-site P movement and management changes are needed to decrease risk. Organic nutrients should not be applied to this field.

Prepared by M. Nelson

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Site Information

Name	Corsetino Dairy Farms, Inc.	Field ID	2- Lockwood	Date	May 6, 2008
Address	2689 East Hwy. 10	Acres	55.8	Irrigated	☒ Yes ☐ No
	Walsenburg, CO 81089	Year	2008	Soil Survey Area	
		Planned Crop	Corn Silage	Soil Map Unit	90 - Wiley Loam
		Yield Goal	16 T/A	Slope	1 to 3%
Phone	(719) 738-2114	Previous Crop	Corn Silage	Permeability	Moderate
Email		Previous Yield	16 T/A	Crop Rotation	4 yr. Corn Silage, Rye Dbl

Purpose (check all that apply)

☒	To budget and supply nutrients for plant production
☒	To properly utilize manure or organic by-products as a plant nutrient source
☒	To minimize agricultural nonpoint source pollution of surface and groundwater resources
☐	To protect air quality by reducing nitrogen emissions (NH ₃ and NO _x) and the formation of atmospheric particulates
☒	To maintain or improve the physical, chemical and biological condition of the soil

Soil Test Information (enter below or attach a copy of the current soil test report for this field)

Laboratory						Olsen's Agricultural Laboratory, Inc.		Analysis Date		January 23, 2008		
P Extraction Method						(check one) ☐ AB-DTPA ☐ Bray P1 ☐ Mehlich 3 ☒ NaHCO ₃ (Olsen)						
Sample ID	Depth (inches)	pH	OM %	Lime (CaCO ₃)	EC (dS m ⁻¹)	parts per million						
						NO ₃ - N	NH ₄ - N	P	K	Zn	Fe	S
749708	0-12	7.7	2.9	2150	2.90	94.9		122	1146	2.9	12.6	68
749709	12-24					35.1						

Crop Nutrient Requirement, Nutrient Credits and Planned Nutrient Applications

Crop Nutrient Requirement		pounds per acre						
check one	☐ Soil Test Recommendation ☒ Estimated Crop Removal	N	P₂O₅	K₂O	Zn	Fe	S	
		141	67	52				
Nutrient Credits								
Legume N credit from previous crop								
Residual N from previous manure applications		33						
Soil organic matter mineralization		87						
Irrigation Water NO ₃ -N								
Other	Soil N, 0-24 in.	468	277	1375				
Planned Nutrient Applications - Source/Amount								
Manure								
Preplant								
Planting/Starter								
Sidedress								
Irrigation								
Other								
Available Nutrients		588	277	1375	0	0	0	0
Nutrient Balance		447	210	1323	0	0	0	0

Name	Corsentino Dairy Farms, Inc.	Field Number	2- Lockwood	Date	May 6, 2008

Estimated Crop Nutrient Removal

Crop	Yield	Harvest Unit	Pounds per Unit	Harvest DM %	Mean Concentration %			Nutrient Removal lb/ac.		
					N	P	K	N	P ₂ O ₅	K ₂ O
Corn, silage	16	ton	2000	35	1.26	0.26	0.39	141	67	52

Legume N Credit from Previous Crop ⁽¹⁾

Plants/ ft ²	pounds N per acre			
	New Seeding Alfalfa	First Year Alfalfa	Second Year Alfalfa	Third Year + Alfalfa

⁽¹⁾ For forage legumes other than Alfalfa such as clover or trefoil, use 80 % of the credit for Alfalfa. For soybeans or dry beans, credit 1 pound of N per bushel harvested the previous year, to a maximum of 40.

Approximate Manure Nutrient Composition and Mineralization

Type of Manure	Application rate		pounds per acre ⁽²⁾					
			N, yr 1	N, yr 2	N, yr 3	P ₂ O ₅ ⁽³⁾	P ₂ O ₅ ⁽⁴⁾	K ₂ O
Dairy Cattle, solid	20	tons /acre	91	33	20	256	192	544

⁽²⁾ Pounds per 1,000 gallons x 27.15 = pounds per acre-inch ⁽³⁾ Manure applied annually ⁽⁴⁾ Manure applied once in 2 or more years

Irrigation Water NO₃-N Credit

Application amount ⁽⁵⁾	19	[NO ₃ -N] ⁽⁶⁾	parts per million	NO ₃ -N Credit	0	lb/ac

⁽⁵⁾ Estimated acre inches to be applied prior to anthesis ⁽⁶⁾ Irrigation water nitrate [NO₃-N] concentration

Environmental Risk Assessments

1) Will manure or organic by-products be applied to this field during the crop rotation?	☒ Yes	☐ No
2) Is this Nutrient Management Plan a component of a Comprehensive Nutrient Management Plan?	☒ Yes	☐ No
3) Is the field located in a hydrologic unit area designated as being impaired for nutrients?	☐ Yes	☒ No
4) Is an aquifer located below the field that is shallow (< 20 ft), or used as a public drinking water source?	☐ Yes	☒ No
Land Base Requirement (acres) for manure or organic by-products applications	Nitrogen based	
	Derived from average table values	
	252	
Colorado Phosphorus Index Risk Rating	Phosphorus based	
	Derived from laboratory analysis	
	461	
Colorado Nitrogen Leaching Index Risk Rating	11	Medium Risk, may use N based organic nutrient application rates
	9	Medium Risk, may use N based organic nutrient application rates

Recommendations (attach additional sheets as necessary)**Certification**

Owner / Operator / Producer - I have reviewed this plan including the operation, maintenance and recordkeeping requirements, and agree to follow the recommendations as stated.

Signature

Date

Nutrient Management Specialist - I approve this plan as written, and certify that it meets applicable NRCS nutrient management criteria for the stated purpose.

Signature

Certifying Organization / Number

Date

Colorado Nitrogen Leaching Index Risk Assessment (Version 2)

Name	Corsentino Dairy Farms, Inc.		Field ID	2- Lockwood	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Permeability Class (See Table 1 below)	Very Slow, Slow and Moderately Slow	Moderate	Moderately Rapid	Rapid and Very Rapid	2	
2. Irrigation Application Efficiency (See Table 2 below)	High > 85 %	Moderate 60 – 85 %	Moderately Low 35 – 60 %	Low < 35 %	2	
3a. Nitrogen Application Rate (fertilizer with or without manure) OR 3b. Manure - Effluent Application Rate, (no fertilizer) (See Table 3a or 3b)	Total N application rate below agronomic rate	Total N application rate equal to agronomic rate	Total N application rate 1 to 50 pounds per acre above agronomic rate	Total N application rate greater than 50 pounds per acre above agronomic rate	3	
	Applied at P agronomic rate	Applied at N agronomic rate	Applied above N agronomic rate	Applied above N agronomic rate more than one consecutive year		
4. Nitrogen Application Timing (See Table 4 below)	In season split application (2 or more splits)	Any nitrogen application 0 to 3 months before crop planting	Any nitrogen application 3 to 5 months before crop planting	Any nitrogen application more than 5 months before crop planting	3	
Gross Score (Sum of Factors 1 through 4)					10	
5. Best Management Practice (BMP) Implementation Credits	Subtract one point for each of the following BMPs implemented on this field: Slow release N fertilizer; Cover crops; Nitrification inhibitors*; Deep rooted crops in rotation; Deep (4-5 ft) soil sampling to determine sub-soil N credit; Irrigation Water Management Plan.				-1	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					9	

* BMP credit not applicable for fall applications on soils with rapid or very rapid permeabilities

Net Score	Risk Interpretations
< 8	This field has a LOW risk for nitrogen leaching if management is maintained at the current level. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to MEDIUM .
8 to 11	This field has a MEDIUM risk for nitrogen leaching and some management changes may be needed to decrease risk. Apply nitrogen at agronomic rates or lower using spring or split in-season applications. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to HIGH .
12 to 15	This field has a HIGH risk for nitrogen leaching and management changes should be implemented to decrease risk. Manure should be applied at P agronomic rates. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method may also be necessary. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to VERY HIGH .
16	This field has a VERY HIGH risk for nitrogen leaching and management changes are needed to decrease risk. Manure applications are NOT recommended. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method are necessary to protect ground water. Implement all appropriate BMPs.

Colorado Phosphorus Index Risk Assessment (Version 3.0)

Name	Corsentino Dairy Farms, Inc.		Field ID	2- Lockwood	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Runoff Class (See Table 1 below)	Low	Medium	High	Very High	1	
2. Soil Test P (See Table 2 below)	Low	Medium	High	Very High	4	
3. P ₂ O ₅ Application Rate (See Table 3a below)	< 30	30-90	91-150	> 150	4	
4. P Application Method (See Table 4 below)	None Applied, Injected or Subsurface Application Deeper Than 2 inches	Spring Applied and Incorporated within 2 weeks, or Sprinkler Applied	Fall/Winter Applied and Incorporated within 2 weeks	Surface Applied with No Incorporation, or Fall/Winter Applied with Spring Incorporation	3	
Gross Score (Sum of Factors 1 through 4)					12	
5. BMP Implementation Credits	Subtract one point for each of the following BMPs implemented on this site. Contour Buffer Strips, Cover Crops, Filter Strips, Furrow Diking, Grassed Waterways, Linear Polyacrylamide, Terraces, or Residue Management				-1	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					11	

Net Score	Risk Interpretations
< 8	This field has a LOW potential for off-site P movement if management is maintained at the current level. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
8 to 11	This field has a MEDIUM potential for off-site P movement and some management changes may need to be made to support continued long term organic nutrient applications. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
12 to 15	This field has a HIGH potential for off-site P movement and management changes should be implemented to decrease risk. Organic nutrient application rates should be calculated according to crop phosphorus requirements.
16	This field has a VERY HIGH potential for off-site P movement and management changes are needed to decrease risk. Organic nutrients should not be applied to this field.

Prepared by M. Nelson



Nutrient Management

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Site Information

Name	Corsetino Dairy Farms, Inc.	Field ID	3- T&L	Date	May 6, 2008
Address	2689 East Hwy. 10	Acres	105.5	Irrigated	☒ Yes ☐ No
	Walsenburg, CO 81089	Year	2008	Soil Survey Area	
		Planned Crop	Corn Silage/Rye	Soil Map Unit	24 -Haverson Clay Loam
		Yield Goal	16 T/A	Slope	0
Phone	(719) 738-2114	Previous Crop	Corn Silage	Permeability	Moderately Slow
Email		Previous Yield	16 T/A	Crop Rotation	4 yr. Corn Silage, Rye Dbl

Purpose (check all that apply)

- ☒ To budget and supply nutrients for plant production
☒ To properly utilize manure or organic by-products as a plant nutrient source
☒ To minimize agricultural nonpoint source pollution of surface and groundwater resources
☐ To protect air quality by reducing nitrogen emissions (NH₃ and NO_x) and the formation of atmospheric particulates
☒ To maintain or improve the physical, chemical and biological condition of the soil

Soil Test Information (enter below or attach a copy of the current soil test report for this field)

Laboratory	Olsen's Agricultural Laboratory, Inc.					Analysis Date	January 23, 2008					
P Extraction Method	(check one) ☐ AB-DTPA ☐ Bray P1 ☐ Mehlich 3 ☒ NaHCO ₃ (Olsen)											
Sample ID	Depth (inches)	pH	OM %	Lime (CaCO₃)	EC (dS m⁻¹)	parts per million						
						NO₃ - N	NH₄ - N	P	K	Zn	Fe	S
749710	0-12	7.6	3.1	2070	1.46	36.0		117	747	3.6	16.4	46
749711	12-24					19.7						

Crop Nutrient Requirement, Nutrient Credits and Planned Nutrient Applications

Crop Nutrient Requirement		pounds per acre						
check one	☐ Soil Test Recommendation	N	P₂O₅	K₂O	Zn	Fe	S	
	☒ Estimated Crop Removal	141	67	52				
Nutrient Credits								
Legume N credit from previous crop								
Residual N from previous manure applications		33						
Soil organic matter mineralization		93						
Irrigation Water NO ₃ -N								
Other	Soil N, 0-24 in.	201	266	896				
Planned Nutrient Applications - Source/Amount								
Manure								
Preplant								
Planting/Starter								
Sidedress								
Irrigation								
Other								
Available Nutrients		327	266	896	0	0	0	0
Nutrient Balance		186	199	844	0	0	0	0

Name	Corsetino Dairy Farms, Inc.	Field Number	3- T&L	Date	May 6, 2008

Estimated Crop Nutrient Removal

Crop	Yield	Harvest Unit	Pounds per Unit	Harvest DM %	Mean Concentration %			Nutrient Removal lb/ac.		
					N	P	K	N	P ₂ O ₅	K ₂ O
Corn, silage	16	ton	2000	35	1.26	0.26	0.39	141	67	52

Legume N Credit from Previous Crop ⁽¹⁾

Plants/ ft ²	pounds N per acre			
	New Seeding Alfalfa	First Year Alfalfa	Second Year Alfalfa	Third Year + Alfalfa

⁽¹⁾ For forage legumes other than Alfalfa such as clover or trefoil, use 80 % of the credit for Alfalfa. For soybeans or dry beans, credit 1 pound of N per bushel harvested the previous year, to a maximum of 40.

Approximate Manure Nutrient Composition and Mineralization

Type of Manure	Application rate		pounds per acre ⁽²⁾						
			N, yr 1	N, yr 2	N, yr 3	P ₂ O ₅ ⁽³⁾	P ₂ O ₅ ⁽⁴⁾	K ₂ O	
Dairy Cattle, solid	20	tons /acre	91	33	20	256	192	544	

⁽²⁾ Pounds per 1,000 gallons x 27.15 = pounds per acre-inch ⁽³⁾ Manure applied annually ⁽⁴⁾ Manure applied once in 2 or more years

Irrigation Water NO₃-N Credit

Application amount ⁽⁵⁾	19	[NO ₃ -N] ⁽⁶⁾	parts per million	NO ₃ -N Credit	0	lb/ac

⁽⁵⁾ Estimated acre inches to be applied prior to anthesis ⁽⁶⁾ Irrigation water nitrate [NO₃-N] concentration

Environmental Risk Assessments

1) Will manure or organic by-products be applied to this field during the crop rotation?	☒ Yes	☐ No
2) Is this Nutrient Management Plan a component of a Comprehensive Nutrient Management Plan?	☒ Yes	☐ No
3) Is the field located in a hydrologic unit area designated as being impaired for nutrients?	☐ Yes	☒ No
4) Is an aquifer located below the field that is shallow (< 20 ft), or used as a public drinking water source?	☐ Yes	☒ No
Land Base Requirement (acres) for manure or organic by-products applications	Nitrogen based	
	Phosphorus based	
	Derived from average table values	252
	Derived from laboratory analysis	461
Colorado Phosphorus Index Risk Rating	11	Medium Risk, may use N based organic nutrient application rates
Colorado Nitrogen Leaching Index Risk Rating	8	Medium Risk, may use N based organic nutrient application rates

Recommendations (attach additional sheets as necessary)

Certification

Owner / Operator / Producer - I have reviewed this plan including the operation, maintenance and recordkeeping requirements, and agree to follow the recommendations as stated.

Signature

Date

Nutrient Management Specialist - I approve this plan as written, and certify that it meets applicable NRCS nutrient management criteria for the stated purpose.

Signature

Certifying Organization / Number

Date

Colorado Nitrogen Leaching Index Risk Assessment (Version 2)

Name	Corsentino Dairy Farms, Inc.		Field ID	3- T&L	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Permeability Class (See Table 1 below)	Very Slow, Slow and Moderately Slow	Moderate	Moderately Rapid	Rapid and Very Rapid	1	
2. Irrigation Application Efficiency (See Table 2 below)	High > 85 %	Moderate 60 – 85 %	Moderately Low 35 – 60 %	Low < 35 %	2	
3a. Nitrogen Application Rate (fertilizer with or without manure) OR 3b. Manure - Effluent Application Rate, (no fertilizer) (See Table 3a or 3b)	Total N application rate below agronomic rate	Total N application rate equal to agronomic rate	Total N application rate 1 to 50 pounds per acre above agronomic rate	Total N application rate greater than 50 pounds per acre above agronomic rate	3	
	Applied at P agronomic rate	Applied at N agronomic rate	Applied above N agronomic rate	Applied above N agronomic rate more than one consecutive year		
4. Nitrogen Application Timing (See Table 4 below)	In season split application (2 or more splits)	Any nitrogen application 0 to 3 months before crop planting	Any nitrogen application 3 to 5 months before crop planting	Any nitrogen application more than 5 months before crop planting	3	
Gross Score (Sum of Factors 1 through 4)					9	
5. Best Management Practice (BMP) Implementation Credits	Subtract one point for each of the following BMPs implemented on this field: Slow release N fertilizer; Cover crops; Nitrification inhibitors*; Deep rooted crops in rotation; Deep (4-5 ft) soil sampling to determine sub-soil N credit; Irrigation Water Management Plan.				-1	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					8	

* BMP credit not applicable for fall applications on soils with rapid or very rapid permeabilities

Net Score	Risk Interpretations
< 8	This field has a LOW risk for nitrogen leaching if management is maintained at the current level. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to MEDIUM .
8 to 11	This field has a MEDIUM risk for nitrogen leaching and some management changes may be needed to decrease risk. Apply nitrogen at agronomic rates or lower using spring or split in-season applications. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to HIGH .
12 to 15	This field has a HIGH risk for nitrogen leaching and management changes should be implemented to decrease risk. Manure should be applied at P agronomic rates. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method may also be necessary. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to VERY HIGH .
16	This field has a VERY HIGH risk for nitrogen leaching and management changes are needed to decrease risk. Manure applications are NOT recommended. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method are necessary to protect ground water. Implement all appropriate BMPs.

Colorado Phosphorus Index Risk Assessment (Version 3.0)

Name	Corsentino Dairy Farms, Inc.		Field ID	3- T&L	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Runoff Class (See Table 1 below)	Low	Medium	High	Very High	1	
2. Soil Test P (See Table 2 below)	Low	Medium	High	Very High	4	
3. P ₂ O ₅ Application Rate (See Table 3a below)	< 30	30-90	91-150	> 150	4	
4. P Application Method (See Table 4 below)	None Applied, Injected or Subsurface Application Deeper Than 2 inches	Spring Applied and Incorporated within 2 weeks, or Sprinkler Applied	Fall/Winter Applied and Incorporated within 2 weeks	Surface Applied with No Incorporation, or Fall/Winter Applied with Spring Incorporation	3	
Gross Score (Sum of Factors 1 through 4)					12	
5. BMP Implementation Credits	Subtract one point for each of the following BMPs implemented on this site. Contour Buffer Strips, Cover Crops, Filter Strips, Furrow Diking, Grassed Waterways, Linear Polyacrylamide, Terraces, or Residue Management				-1	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					11	

Net Score	Risk Interpretations
< 8	This field has a LOW potential for off-site P movement if management is maintained at the current level. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
8 to 11	This field has a MEDIUM potential for off-site P movement and some management changes may need to be made to support continued long term organic nutrient applications. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
12 to 15	This field has a HIGH potential for off-site P movement and management changes should be implemented to decrease risk. Organic nutrient application rates should be calculated according to crop phosphorus requirements.
16	This field has a VERY HIGH potential for off-site P movement and management changes are needed to decrease risk. Organic nutrients should not be applied to this field.

Prepared by M. Nelson



Nutrient Management

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Site Information

Name	Corsentino Dairy Farms, Inc.	Field ID	4- Crump	Date	May 6, 2008
Address	2689 East Hwy. 10	Acres	105.5	Irrigated	☒ Yes ☐ No
	Walsenburg, CO 81089	Year	2008	Soil Survey Area	
		Planned Crop	Corn Silage	Soil Map Unit	22 -Glenberg Sandy Loam
		Yield Goal	16 T/A	Slope	0
Phone	(719) 738-2114	Previous Crop	Corn Silage	Permeability	Moderately Rapid
Email		Previous Yield	16 T/A	Crop Rotation	4 yr. Corn Silage, Rye Dbl

Purpose (check all that apply)

- ☒ To budget and supply nutrients for plant production
☒ To properly utilize manure or organic by-products as a plant nutrient source
☒ To minimize agricultural nonpoint source pollution of surface and groundwater resources
☐ To protect air quality by reducing nitrogen emissions (NH₃ and NO_x) and the formation of atmospheric particulates
☒ To maintain or improve the physical, chemical and biological condition of the soil

Soil Test Information (enter below or attach a copy of the current soil test report for this field)

Laboratory	Olsen's Agricultural Laboratory, Inc.						Analysis Date	January 23, 2008				
P Extraction Method (check one) ☐ AB-DTPA ☐ Bray P1 ☐ Mehlich 3 ☒ NaHCO ₃ (Olsen)												
Sample ID	Depth (inches)	pH	OM %	Lime (CaCO₃)	EC (dS m⁻¹)	parts per million						
						NO₃ - N	NH₄ - N	P	K	Zn	Fe	S
749712	0-12	8.1	2.6	2570	1.26	9.5		52	322	1.5	15.5	73
749713	12-24					3.7						

Crop Nutrient Requirement, Nutrient Credits and Planned Nutrient Applications

Crop Nutrient Requirement		pounds per acre						
check one	☐ Soil Test Recommendation	N	P₂O₅	K₂O	Zn	Fe	S	
	☒ Estimated Crop Removal	141	67	52				
Nutrient Credits								
Legume N credit from previous crop								
Residual N from previous manure applications		0						
Soil organic matter mineralization		78						
Irrigation Water NO ₃ -N								
Other	Soil N, 0-24 in.	47	118	386				
Planned Nutrient Applications - Source/Amount								
Manure								
Preplant								
Planting/Starter								
Sidedress								
Irrigation								
Other								
Available Nutrients		125	118	386	0	0	0	0
Nutrient Balance		-16	51	334	0	0	0	0

Name	Correntino Dairy Farms, Inc.	Field Number	4- Crump	Date	May 6, 2008

Estimated Crop Nutrient Removal

Crop	Yield	Harvest Unit	Pounds per Unit	Harvest DM %	Mean Concentration %			Nutrient Removal lb/ac.		
					N	P	K	N	P ₂ O ₅	K ₂ O
Corn, silage	16	ton	2000	35	1.26	0.26	0.39	141	67	52

Legume N Credit from Previous Crop ⁽¹⁾

Plants/ ft ²	pounds N per acre			
	New Seeding Alfalfa	First Year Alfalfa	Second Year Alfalfa	Third Year + Alfalfa

⁽¹⁾ For forage legumes other than Alfalfa such as clover or trefoil, use 80 % of the credit for Alfalfa. For soybeans or dry beans, credit 1 pound of N per bushel harvested the previous year, to a maximum of 40.

Approximate Manure Nutrient Composition and Mineralization

Type of Manure	Application rate		pounds per acre ⁽²⁾					
			N, yr 1	N, yr 2	N, yr 3	P ₂ O ₅ ⁽³⁾	P ₂ O ₅ ⁽⁴⁾	K ₂ O
Dairy Cattle, solid	20	tons /acre	91	33	20	256	192	544

⁽²⁾ Pounds per 1,000 gallons x 27.15 = pounds per acre-inch ⁽³⁾ Manure applied annually ⁽⁴⁾ Manure applied once in 2 or more years

Irrigation Water NO₃-N Credit

Application amount ⁽⁵⁾	19	[NO ₃ -N] ⁽⁶⁾	parts per million	NO ₃ -N Credit	0	lb/ac

⁽⁵⁾ Estimated acre inches to be applied prior to anthesis ⁽⁶⁾ Irrigation water nitrate [NO₃-N] concentration

Environmental Risk Assessments

1) Will manure or organic by-products be applied to this field during the crop rotation?			☒ Yes	☐ No
2) Is this Nutrient Management Plan a component of a Comprehensive Nutrient Management Plan?			☒ Yes	☐ No
3) Is the field located in a hydrologic unit area designated as being impaired for nutrients?			☐ Yes	☒ No
4) Is an aquifer located below the field that is shallow (< 20 ft), or used as a public drinking water source?			☐ Yes	☒ No
Land Base Requirement (acres) for manure or organic by-products applications	Derived from average table values		Nitrogen based	Phosphorus based
			252	657
	Derived from laboratory analysis		461	526
Colorado Phosphorus Index Risk Rating	10	Medium Risk, may use N based organic nutrient application rates		
Colorado Nitrogen Leaching Index Risk Rating	11	Medium Risk, may use N based organic nutrient application rates		

Recommendations (attach additional sheets as necessary)

Certification

Owner / Operator / Producer - I have reviewed this plan including the operation, maintenance and recordkeeping requirements, and agree to follow the recommendations as stated.

Signature

Date

Nutrient Management Specialist - I approve this plan as written, and certify that it meets applicable NRCS nutrient management criteria for the stated purpose.

Signature

Certifying Organization / Number

Date

Colorado Nitrogen Leaching Index Risk Assessment (Version 2)

Name	Corsentino Dairy Farms, Inc.		Field ID	4- Crump	Date	5/6/2008
Factor/Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Permeability Class (See Table 1 below)	Very Slow, Slow and Moderately Slow	Moderate	Moderately Rapid	Rapid and Very Rapid	3	
2. Irrigation Application Efficiency (See Table 2 below)	High > 85 %	Moderate 60 – 85 %	Moderately Low 35 – 60 %	Low < 35 %	3	
3a. Nitrogen Application Rate (fertilizer with or without manure) OR 3b. Manure - Effluent Application Rate, (no fertilizer) (See Table 3a or 3b)	Total N application rate below agronomic rate Applied at P agronomic rate	Total N application rate equal to agronomic rate Applied at N agronomic rate	Total N application rate 1 to 50 pounds per acre above agronomic rate Applied above N agronomic rate	Total N application rate greater than 50 pounds per acre above agronomic rate Applied above N agronomic rate more than one consecutive year	3	
4. Nitrogen Application Timing (See Table 4 below)	In season split application (2 or more splits)	Any nitrogen application 0 to 3 months before crop planting	Any nitrogen application 3 to 5 months before crop planting	Any nitrogen application more than 5 months before crop planting	3	
Gross Score (Sum of Factors 1 through 4)					12	
5. Best Management Practice (BMP) Implementation Credits	Subtract one point for each of the following BMPs implemented on this field: Slow release N fertilizer; Cover crops; Nitrification inhibitors*; Deep rooted crops in rotation; Deep (4-5 ft) soil sampling to determine sub-soil N credit; Irrigation Water Management Plan.				-1	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					11	

* BMP credit not applicable for fall applications on soils with rapid or very rapid permeabilities

Net Score	Risk Interpretations
< 8	This field has a LOW risk for nitrogen leaching if management is maintained at the current level. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to MEDIUM .
8 to 11	This field has a MEDIUM risk for nitrogen leaching and some management changes may be needed to decrease risk. Apply nitrogen at agronomic rates or lower using spring or split in-season applications. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to HIGH .
12 to 15	This field has a HIGH risk for nitrogen leaching and management changes should be implemented to decrease risk. Manure should be applied at P agronomic rates. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method may also be necessary. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to VERY HIGH .
16	This field has a VERY HIGH risk for nitrogen leaching and management changes are needed to decrease risk. Manure applications are NOT recommended. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method are necessary to protect ground water. Implement all appropriate BMPs.

Colorado Phosphorus Index Risk Assessment (Version 3.0)

Name	Corsentino Dairy Farms, Inc.		Field ID	4- Crump	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Runoff Class (See Table 1 below)	Low	Medium	High	Very High	1	
2. Soil Test P (See Table 2 below)	Low	Medium	High	Very High	3	
3. P ₂ O ₅ Application Rate (See Table 3a below)	< 30	30-90	91-150	> 150	4	
4. P Application Method (See Table 4 below)	None Applied, Injected or Subsurface Application Deeper Than 2 inches	Spring Applied and Incorporated within 2 weeks, or Sprinkler Applied	Fall/Winter Applied and Incorporated within 2 weeks	Surface Applied with No Incorporation, or Fall/Winter Applied with Spring Incorporation	3	
Gross Score (Sum of Factors 1 through 4)					11	
5. BMP Implementation Credits	Subtract one point for each of the following BMPs implemented on this site. Contour Buffer Strips, Cover Crops, Filter Strips, Furrow Diking, Grassed Waterways, Linear Polyacrylamide, Terraces, or Residue Management				-1	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					10	

Net Score	Risk Interpretations
< 8	This field has a LOW potential for off-site P movement if management is maintained at the current level. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
8 to 11	This field has a MEDIUM potential for off-site P movement and some management changes may need to be made to support continued long term organic nutrient applications. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
12 to 15	This field has a HIGH potential for off-site P movement and management changes should be implemented to decrease risk. Organic nutrient application rates should be calculated according to crop phosphorus requirements.
16	This field has a VERY HIGH potential for off-site P movement and management changes are needed to decrease risk. Organic nutrients should not be applied to this field.

Prepared by M. Nelson



Nutrient Management

Natural Resources Conservation Service

Conservation Practice Job Sheet

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Site Information

Name	Corsetino Dairy Farms, Inc.	Field ID	5-Amidi	Date	May 6, 2008
Address	2689 East Hwy. 10	Acres	31.5	Irrigated	☒ Yes ☐ No
	Walsenburg, CO 81089	Year	2008	Soil Survey Area	
		Planned Crop	Corn Silage	Soil Map Unit	22 - Glenberg Sandy Loam
		Yield Goal	16 T/A	Slope	0
Phone	(719) 738-2114	Previous Crop	Corn Silage	Permeability	Moderately Rapid
Email		Previous Yield	16 T/A	Crop Rotation	4 yr. Corn Silage, Rye Dbl

Purpose (check all that apply)

- ☒ To budget and supply nutrients for plant production
☒ To properly utilize manure or organic by-products as a plant nutrient source
☒ To minimize agricultural nonpoint source pollution of surface and groundwater resources
☐ To protect air quality by reducing nitrogen emissions (NH₃ and NO_x) and the formation of atmospheric particulates
☒ To maintain or improve the physical, chemical and biological condition of the soil

Soil Test Information (enter below or attach a copy of the current soil test report for this field)

Laboratory	Olsen's Agricultural Laboratory, Inc.						Analysis Date	January 23, 2008				
P Extraction Method (check one)		☐ AB-DTPA		☐ Bray P1		☐ Mehlich 3		☒ NaHCO ₃ (Olsen)				
Sample ID	Depth (inches)	pH	OM %	Lime (CaCO₃)	EC (dS m⁻¹)	parts per million						
						NO₃ - N	NH₄ - N	P	K	Zn	Fe	S
749714	0-12	7.6	2.1	1960	2.96	9.2		36	188	0.9	15.3	190
749715	12-24					5.5						

Crop Nutrient Requirement, Nutrient Credits and Planned Nutrient Applications

Crop Nutrient Requirement		pounds per acre						
check one	☐ Soil Test Recommendation	N	P₂O₅	K₂O	Zn	Fe	S	
	☒ Estimated Crop Removal	141	67	52				
Nutrient Credits								
Legume N credit from previous crop		0						
Residual N from previous manure applications		63						
Soil organic matter mineralization								
Irrigation Water NO ₃ -N								
Other	Soil N, 0-24 in.	53	82	226				
Planned Nutrient Applications - Source/Amount								
Manure								
Preplant								
Planting/Starter								
Sidedress								
Irrigation								
Other								
Available Nutrients		116	82	226	0	0	0	0
Nutrient Balance		-25	15	174	0	0	0	0

Name	Corsetino Dairy Farms, Inc.	Field Number	5-Amidi	Date	June 3, 2008

Estimated Crop Nutrient Removal

Crop	Yield	Harvest Unit	Pounds per Unit	Harvest DM %	Mean Concentration %			Nutrient Removal lb/ac.		
					N	P	K	N	P ₂ O ₅	K ₂ O
Corn, silage	16	ton	2000	35	1.26	0.26	0.39	141	67	52

Legume N Credit from Previous Crop ⁽¹⁾

Plants/ ft ²	pounds N per acre			
	New Seeding Alfalfa	First Year Alfalfa	Second Year Alfalfa	Third Year + Alfalfa

⁽¹⁾ For forage legumes other than Alfalfa such as clover or trefoil, use 80 % of the credit for Alfalfa. For soybeans or dry beans, credit 1 pound of N per bushel harvested the previous year, to a maximum of 40.

Approximate Manure Nutrient Composition and Mineralization

Type of Manure	Application rate		pounds per acre ⁽²⁾					
			N, yr 1	N, yr 2	N, yr 3	P ₂ O ₅ ⁽³⁾	P ₂ O ₅ ⁽⁴⁾	K ₂ O
Dairy Cattle, solid	20	tons /acre	91	33	20	256	192	544

⁽²⁾ Pounds per 1,000 gallons x 27.15 = pounds per acre-inch ⁽³⁾ Manure applied annually ⁽⁴⁾ Manure applied once in 2 or more years

Irrigation Water NO₃-N Credit

Application amount ⁽⁵⁾	19	[NO ₃ -N] ⁽⁶⁾	parts per million	NO ₃ -N Credit	0	lb/ac

⁽⁵⁾ Estimated acre inches to be applied prior to anthesis ⁽⁶⁾ Irrigation water nitrate [NO₃-N] concentration

Environmental Risk Assessments

1) Will manure or organic by-products be applied to this field during the crop rotation?	☒ Yes	☐ No
2) Is this Nutrient Management Plan a component of a Comprehensive Nutrient Management Plan?	☒ Yes	☐ No
3) Is the field located in a hydrologic unit area designated as being impaired for nutrients?	☐ Yes	☒ No
4) Is an aquifer located below the field that is shallow (< 20 ft), or used as a public drinking water source?	☐ Yes	☒ No
Land Base Requirement (acres) for manure or organic by-products applications	Nitrogen based	
	Phosphorus based	
Derived from average table values	252	657
Derived from laboratory analysis	461	526
Colorado Phosphorus Index Risk Rating	9	Medium Risk, may use N based organic nutrient application rates
Colorado Nitrogen Leaching Index Risk Rating	11	Medium Risk, may use N based organic nutrient application rates

Recommendations (attach additional sheets as necessary)

Certification

Owner / Operator / Producer - I have reviewed this plan including the operation, maintenance and recordkeeping requirements, and agree to follow the recommendations as stated.

Signature

Date

Nutrient Management Specialist - I approve this plan as written, and certify that it meets applicable NRCS nutrient management criteria for the stated purpose.

Signature

Certifying Organization / Number

Date

Colorado Nitrogen Leaching Index Risk Assessment (Version 2)

Name	Corsentino Dairy Farms, Inc.		Field ID	5-Amidi	Date	6/2/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Permeability Class (See Table 1 below)	Very Slow, Slow and Moderately Slow	Moderate	Moderately Rapid	Rapid and Very Rapid	3	
2. Irrigation Application Efficiency (See Table 2 below)	High > 85 %	Moderate 60 – 85 %	Moderately Low 35 – 60 %	Low < 35 %	4	
3a. Nitrogen Application Rate (fertilizer with or without manure) OR 3b. Manure - Effluent Application Rate, (no fertilizer) (See Table 3a or 3b)	Total N application rate below agronomic rate	Total N application rate equal to agronomic rate	Total N application rate 1 to 50 pounds per acre above agronomic rate	Total N application rate greater than 50 pounds per acre above agronomic rate	3	
	Applied at P agronomic rate	Applied at N agronomic rate	Applied above N agronomic rate	Applied above N agronomic rate more than one consecutive year		
4. Nitrogen Application Timing (See Table 4 below)	In season split application (2 or more splits)	Any nitrogen application 0 to 3 months before crop planting	Any nitrogen application 3 to 5 months before crop planting	Any nitrogen application more than 5 months before crop planting	3	
Gross Score (Sum of Factors 1 through 4)					13	
5. Best Management Practice (BMP) Implementation Credits	Subtract one point for each of the following BMPs implemented on this field: Slow release N fertilizer; Cover crops; Nitrification inhibitors*; Deep rooted crops in rotation; Deep (4-5 ft) soil sampling to determine sub-soil N credit; Irrigation Water Management Plan.				-2	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					11	

* BMP credit not applicable for fall applications on soils with rapid or very rapid permeabilities

Net Score	Risk Interpretations
< 8	This field has a LOW risk for nitrogen leaching if management is maintained at the current level. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to MEDIUM .
8 to 11	This field has a MEDIUM risk for nitrogen leaching and some management changes may be needed to decrease risk. Apply nitrogen at agronomic rates or lower using spring or split in-season applications. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to HIGH .
12 to 15	This field has a HIGH risk for nitrogen leaching and management changes should be implemented to decrease risk. Manure should be applied at P agronomic rates. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method may also be necessary. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to VERY HIGH .
16	This field has a VERY HIGH risk for nitrogen leaching and management changes are needed to decrease risk. Manure applications are NOT recommended. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method are necessary to protect ground water. Implement all appropriate BMPs.

Colorado Phosphorus Index Risk Assessment (Version 3.0)

Name	Corsentino Dairy Farms, Inc.		Field ID	5-Amidi	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Runoff Class (See Table 1 below)	Low	Medium	High	Very High	1	
2. Soil Test P (See Table 2 below)	Low	Medium	High	Very High	2	
3. P ₂ O ₅ Application Rate (See Table 3a below)	< 30	30-90	91-150	> 150	4	
4. P Application Method (See Table 4 below)	None Applied, Injected or Subsurface Application Deeper Than 2 inches	Spring Applied and Incorporated within 2 weeks, or Sprinkler Applied	Fall/Winter Applied and Incorporated within 2 weeks	Surface Applied with No Incorporation, or Fall/Winter Applied with Spring Incorporation	3	
Gross Score (Sum of Factors 1 through 4)					10	
5. BMP Implementation Credits	Subtract one point for each of the following BMPs implemented on this site. Contour Buffer Strips, Cover Crops, Filter Strips, Furrow Diking, Grassed Waterways, Linear Polyacrylamide, Terraces, or Residue Management				-1	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					9	

Net Score	Risk Interpretations
< 8	This field has a LOW potential for off-site P movement if management is maintained at the current level. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
8 to 11	This field has a MEDIUM potential for off-site P movement and some management changes may need to be made to support continued long term organic nutrient applications. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
12 to 15	This field has a HIGH potential for off-site P movement and management changes should be implemented to decrease risk. Organic nutrient application rates should be calculated according to crop phosphorus requirements.
16	This field has a VERY HIGH potential for off-site P movement and management changes are needed to decrease risk. Organic nutrients should not be applied to this field.

Prepared by M. Nelson

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Site Information

Name	Corsetino Dairy Farms, Inc.	Field ID	6- Across Rd. Grass	Date	May 6, 2008
Address	2689 East Hwy. 10	Acres	13.2	Irrigated	☒ Yes ☐ No
	Walsenburg, CO 81089	Year	2008	Soil Survey Area	
		Planned Crop	Fescue	Soil Map Unit	44 - Manzanola Clay Loam
		Yield Goal	Graze	Slope	0 to 2 %
Phone	(719) 738-2114	Previous Crop	Fescue	Permeability	Moderately Slow
Email		Previous Yield	Graze	Crop Rotation	Continuous Grass

Purpose (check all that apply)

☒	To budget and supply nutrients for plant production
☒	To properly utilize manure or organic by-products as a plant nutrient source
☒	To minimize agricultural nonpoint source pollution of surface and groundwater resources
☐	To protect air quality by reducing nitrogen emissions (NH ₃ and NO _x) and the formation of atmospheric particulates
☒	To maintain or improve the physical, chemical and biological condition of the soil

Soil Test Information (enter below or attach a copy of the current soil test report for this field)

Laboratory						Olsen's Agricultural Laboratory, Inc.				Analysis Date		January 23, 2008	
P Extraction Method (check one)						☐ AB-DTPA		☐ Bray P1		☐ Mehlich 3		☒ NaHCO ₃ (Olsen)	
Sample ID	Depth (inches)	pH	OM %	Lime (CaCO₃)	EC (dS m⁻¹)	parts per million							
						NO₃ - N	NH₄ - N	P	K	Zn	Fe	S	
749716	0-12	7.7	3.4	2360	1.36	6.8		70	548	3.2	18.6	37	
749717	12-24					3.0							

Crop Nutrient Requirement, Nutrient Credits and Planned Nutrient Applications

Crop Nutrient Requirement						pounds per acre							
check one	☐ Soil Test Recommendation					N	P₂O₅	K₂O	Zn	Fe	S		
	☒ Estimated Crop Removal					134	31	163					
Nutrient Credits													
Legume N credit from previous crop													
Residual N from previous manure applications						0							
Soil organic matter mineralization						102							
Irrigation Water NO ₃ -N													
Other Soil N, 0-24 in.						35	159	658					
Planned Nutrient Applications - Source/Amount													
Manure													
Preplant													
Planting/Starter													
Sidedress													
Irrigation													
Other													
Available Nutrients						137	159	658	0	0	0	0	
Nutrient Balance						3	128	495	0	0	0	0	

Name	Corsentino Dairy Farms, Inc.	Field Number	6- Across Rd. Grass	Date	May 6, 2008

Estimated Crop Nutrient Removal

Crop	Yield	Harvest Unit	Pounds per Unit	Harvest DM %	Mean Concentration %			Nutrient Removal lb/ac.		
					N	P	K	N	P ₂ O ₅	K ₂ O
Tall fescue, hay	4	ton	2000	85	1.96	0.20	2.00	134	31	163

Legume N Credit from Previous Crop ⁽¹⁾

Plants/ ft ²	pounds N per acre			
	New Seeding Alfalfa	First Year Alfalfa	Second Year Alfalfa	Third Year + Alfalfa

⁽¹⁾ For forage legumes other than Alfalfa such as clover or trefoil, use 80 % of the credit for Alfalfa. For soybeans or dry beans, credit 1 pound of N per bushel harvested the previous year, to a maximum of 40.

Approximate Manure Nutrient Composition and Mineralization

Type of Manure	Application rate		pounds per acre ⁽²⁾					
			N, yr 1	N, yr 2	N, yr 3	P ₂ O ₅ ⁽³⁾	P ₂ O ₅ ⁽⁴⁾	K ₂ O
Dairy Cattle, solid	20	tons /acre	91	33	20	256	192	544

⁽²⁾ Pounds per 1,000 gallons x 27.15 = pounds per acre-inch ⁽³⁾ Manure applied annually ⁽⁴⁾ Manure applied once in 2 or more years

Irrigation Water NO₃-N Credit

Application amount ⁽⁵⁾	19	[NO ₃ -N] ⁽⁶⁾	parts per million	NO ₃ -N Credit	0	lb/ac

⁽⁵⁾ Estimated acre inches to be applied prior to anthesis ⁽⁶⁾ Irrigation water nitrate [NO₃-N] concentration

Environmental Risk Assessments

1) Will manure or organic by-products be applied to this field during the crop rotation?	☒ Yes	☐ No	
2) Is this Nutrient Management Plan a component of a Comprehensive Nutrient Management Plan?	☒ Yes	☐ No	
3) Is the field located in a hydrologic unit area designated as being impaired for nutrients?	☐ Yes	☒ No	
4) Is an aquifer located below the field that is shallow (< 20 ft), or used as a public drinking water source?	☐ Yes	☒ No	
Land Base Requirement (acres) for manure or organic by-products applications		Nitrogen based	Phosphorus based
	Derived from average table values	252	657
	Derived from laboratory analysis	461	526
Colorado Phosphorus Index Risk Rating	11	Medium Risk, may use N based organic nutrient application rates	
Colorado Nitrogen Leaching Index Risk Rating	9	Medium Risk, may use N based organic nutrient application rates	

Recommendations (attach additional sheets as necessary)

Certification

Owner / Operator / Producer - I have reviewed this plan including the operation, maintenance and recordkeeping requirements, and agree to follow the recommendations as stated.

Signature

Date

Nutrient Management Specialist - I approve this plan as written, and certify that it meets applicable NRCS nutrient management criteria for the stated purpose.

Signature

Certifying Organization / Number

Date

Colorado Nitrogen Leaching Index Risk Assessment (Version 2)

Name	Corsentino Dairy Farms, Inc.		Field ID 6- Across Rd. Grass	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score
1. Permeability Class (See Table 1 below)	Very Slow, Slow and Moderately Slow	Moderate	Moderately Rapid	Rapid and Very Rapid	1
2. Irrigation Application Efficiency (See Table 2 below)	High > 85 %	Moderate 60 – 85 %	Moderately Low 35 – 60 %	Low < 35 %	4
3a. Nitrogen Application Rate (fertilizer with or without manure) OR 3b. Manure - Effluent Application Rate, (no fertilizer) (See Table 3a or 3b)	Total N application rate below agronomic rate	Total N application rate equal to agronomic rate	Total N application rate 1 to 50 pounds per acre above agronomic rate	Total N application rate greater than 50 pounds per acre above agronomic rate	3
	Applied at P agronomic rate	Applied at N agronomic rate	Applied above N agronomic rate	Applied above N agronomic rate more than one consecutive year	
4. Nitrogen Application Timing (See Table 4 below)	In season split application (2 or more splits)	Any nitrogen application 0 to 3 months before crop planting	Any nitrogen application 3 to 5 months before crop planting	Any nitrogen application more than 5 months before crop planting	3
Gross Score (Sum of Factors 1 through 4)					11
5. Best Management Practice (BMP) Implementation Credits	Subtract one point for each of the following BMPs implemented on this field: Slow release N fertilizer; Cover crops; Nitrification inhibitors*; Deep rooted crops in rotation; Deep (4-5 ft) soil sampling to determine sub-soil N credit; Irrigation Water Management Plan.				-2
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					9

* BMP credit not applicable for fall applications on soils with rapid or very rapid permeabilities

Net Score	Risk Interpretations
< 8	This field has a LOW risk for nitrogen leaching if management is maintained at the current level. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to MEDIUM .
8 to 11	This field has a MEDIUM risk for nitrogen leaching and some management changes may be needed to decrease risk. Apply nitrogen at agronomic rates or lower using spring or split in-season applications. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to HIGH .
12 to 15	This field has a HIGH risk for nitrogen leaching and management changes should be implemented to decrease risk. Manure should be applied at P agronomic rates. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method may also be necessary. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to VERY HIGH .
16	This field has a VERY HIGH risk for nitrogen leaching and management changes are needed to decrease risk. Manure applications are NOT recommended. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method are necessary to protect ground water. Implement all appropriate BMPs.

Prepared by M. Nelson

Colorado Phosphorus Index Risk Assessment (Version 3.0)

Name	Corsentino Dairy Farms, Inc.		Field ID 6- Across Rd. Grass	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score
1. Runoff Class (See Table 1 below)	Low	Medium	High	Very High	1
2. Soil Test P (See Table 2 below)	Low	Medium	High	Very High	3
3. P ₂ O ₅ Application Rate (See Table 3a below)	< 30	30-90	91-150	> 150	4
4. P Application Method (See Table 4 below)	None Applied, Injected or Subsurface Application Deeper Than 2 inches	Spring Applied and Incorporated within 2 weeks, or Sprinkler Applied	Fall/Winter Applied and Incorporated within 2 weeks	Surface Applied with No Incorporation, or Fall/Winter Applied with Spring Incorporation	4
Gross Score (Sum of Factors 1 through 4)					12
5. BMP Implementation Credits	Subtract one point for each of the following BMPs implemented on this site. Contour Buffer Strips, Cover Crops, Filter Strips, Furrow Diking, Grassed Waterways, Linear Polyacrylamide, Terraces, or Residue Management				-1
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					11

Net Score	Risk Interpretations
< 8	This field has a LOW potential for off-site P movement if management is maintained at the current level. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
8 to 11	This field has a MEDIUM potential for off-site P movement and some management changes may need to be made to support continued long term organic nutrient applications. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
12 to 15	This field has a HIGH potential for off-site P movement and management changes should be implemented to decrease risk. Organic nutrient application rates should be calculated according to crop phosphorus requirements.
16	This field has a VERY HIGH potential for off-site P movement and management changes are needed to decrease risk. Organic nutrients should not be applied to this field.

Prepared by M. Nelson



Nutrient Management

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Site Information

Name	Corsetino Dairy Farms, Inc.	Field ID	7-Across Rd. Corn	Date	May 6, 2008
Address	2689 East Hwy. 10	Acres	11.2	Irrigated	☒ Yes ☐ No
	Walsenburg, CO 81089	Year	2008	Soil Survey Area	
		Planned Crop	Corn Silage	Soil Map Unit	44 - Manzanola Clay Loam
		Yield Goal	16 T/A	Slope	0 to 2 %
Phone	(719) 738-2114	Previous Crop	Corn Silage/Rye	Permeability	Moderately Slow
Email		Previous Yield	16 T/A	Crop Rotation	4 yr. Corn Silage, Rye Dbl

Purpose (check all that apply)

- ☒ To budget and supply nutrients for plant production
☒ To properly utilize manure or organic by-products as a plant nutrient source
☒ To minimize agricultural nonpoint source pollution of surface and groundwater resources
☐ To protect air quality by reducing nitrogen emissions (NH₃ and NO_x) and the formation of atmospheric particulates
☒ To maintain or improve the physical, chemical and biological condition of the soil

Soil Test Information (enter below or attach a copy of the current soil test report for this field)

Laboratory	Olsen's Agricultural Laboratory, Inc.						Analysis Date	January 23, 2008				
P Extraction Method (check one) ☐ AB-DTPA ☐ Bray P1 ☐ Mehlich 3 ☒ NaHCO ₃ (Olsen)												
Sample ID	Depth (inches)	pH	OM %	Lime (CaCO₃)	EC (dS m⁻¹)	parts per million						
						NO₃ - N	NH₄ - N	P	K	Zn	Fe	S
749718	0-12	7.6	3.0	2400	1.44	25.7		83	425	2.5	15.5	26
749719	12-24					2.1						

Crop Nutrient Requirement, Nutrient Credits and Planned Nutrient Applications

Crop Nutrient Requirement		pounds per acre						
check ☐	Soil Test Recommendation	N	P₂O₅	K₂O	Zn	Fe	S	
one ☒	Estimated Crop Removal	141	67	52				
Nutrient Credits								
Legume N credit from previous crop								
Residual N from previous manure applications		91						
Soil organic matter mineralization		90						
Irrigation Water NO ₃ -N								
Other	Soil N, 0-24 in.	101	188	510				
Planned Nutrient Applications - Source/Amount								
Manure								
Preplant								
Planting/Starter								
Sidedress								
Irrigation								
Other								
Available Nutrients		282	188	510	0	0	0	0
Nutrient Balance		141	121	458	0	0	0	0

Name	Corsetino Dairy Farms, Inc.	Field Number	7-Across Rd. Corn	Date	May 6, 2008

Estimated Crop Nutrient Removal

Crop	Yield	Harvest Unit	Pounds per Unit	Harvest DM %	Mean Concentration %			Nutrient Removal lb/ac.		
					N	P	K	N	P ₂ O ₅	K ₂ O
Corn, silage	16	ton	2000	35	1.26	0.26	0.39	141	67	52

Legume N Credit from Previous Crop ⁽¹⁾

Plants/ ft ²	pounds N per acre			
	New Seeding Alfalfa	First Year Alfalfa	Second Year Alfalfa	Third Year + Alfalfa

⁽¹⁾ For forage legumes other than Alfalfa such as clover or trefoil, use 80 % of the credit for Alfalfa. For soybeans or dry beans, credit 1 pound of N per bushel harvested the previous year, to a maximum of 40.

Approximate Manure Nutrient Composition and Mineralization

Type of Manure	Application rate		pounds per acre ⁽²⁾					
			N, yr 1	N, yr 2	N, yr 3	P ₂ O ₅ ⁽³⁾	P ₂ O ₅ ⁽⁴⁾	K ₂ O
Dairy Cattle, solid	20	tons /acre	91	33	20	256	192	544

⁽²⁾ Pounds per 1,000 gallons x 27.15 = pounds per acre-inch ⁽³⁾ Manure applied annually ⁽⁴⁾ Manure applied once in 2 or more years

Irrigation Water NO₃-N Credit

Application amount ⁽⁵⁾	19	[NO ₃ -N] ⁽⁶⁾	parts per million	NO ₃ -N Credit	0	lb/ac

⁽⁵⁾ Estimated acre inches to be applied prior to anthesis ⁽⁶⁾ Irrigation water nitrate [NO₃-N] concentration

Environmental Risk Assessments

1) Will manure or organic by-products be applied to this field during the crop rotation?	☒ Yes	☐ No
2) Is this Nutrient Management Plan a component of a Comprehensive Nutrient Management Plan?	☒ Yes	☐ No
3) Is the field located in a hydrologic unit area designated as being impaired for nutrients?	☐ Yes	☒ No
4) Is an aquifer located below the field that is shallow (< 20 ft), or used as a public drinking water source?	☐ Yes	☒ No
Land Base Requirement (acres) for manure or organic by-products applications	Derived from average table values	
	Nitrogen based	Phosphorus based
	252	657
Derived from laboratory analysis		
461		
Colorado Phosphorus Index Risk Rating	11	Medium Risk, may use N based organic nutrient application rates
Colorado Nitrogen Leaching Index Risk Rating	9	Medium Risk, may use N based organic nutrient application rates

Recommendations (attach additional sheets as necessary)**Certification**

Owner / Operator / Producer - I have reviewed this plan including the operation, maintenance and recordkeeping requirements, and agree to follow the recommendations as stated.

Signature

Date

Nutrient Management Specialist - I approve this plan as written, and certify that it meets applicable NRCS nutrient management criteria for the stated purpose.

Signature

Certifying Organization / Number

Date

Colorado Nitrogen Leaching Index Risk Assessment (Version 2)

Name	Corsentino Dairy Farms, Inc.		Field ID	7-Across Rd. Corn	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Permeability Class (Sec Table 1 below)	Very Slow, Slow and Moderately Slow	Moderate	Moderately Rapid	Rapid and Very Rapid	1	
2. Irrigation Application Efficiency (Sec Table 2 below)	High > 85 %	Moderate 60 – 85 %	Moderately Low 35 – 60 %	Low < 35 %	3	
3a. Nitrogen Application Rate (fertilizer with or without manure) OR 3b. Manure - Effluent Application Rate, (no fertilizer) (Sec Table 3a or 3b)	Total N application rate below agronomic rate	Total N application rate equal to agronomic rate	Total N application rate 1 to 50 pounds per acre above agronomic rate	Total N application rate greater than 50 pounds per acre above agronomic rate	3	
	Applied at P agronomic rate	Applied at N agronomic rate	Applied above N agronomic rate	Applied above N agronomic rate more than one consecutive year		
4. Nitrogen Application Timing (Sec Table 4 below)	In season split application (2 or more splits)	Any nitrogen application 0 to 3 months before crop planting	Any nitrogen application 3 to 5 months before crop planting	Any nitrogen application more than 5 months before crop planting	3	
Gross Score (Sum of Factors 1 through 4)					10	
5. Best Management Practice (BMP) Implementation Credits	Subtract one point for each of the following BMPs implemented on this field: Slow release N fertilizer; Cover crops; Nitrification inhibitors*; Deep rooted crops in rotation; Deep (4-5 ft) soil sampling to determine sub-soil N credit; Irrigation Water Management Plan.				-1	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					9	

* BMP credit not applicable for fall applications on soils with rapid or very rapid permeabilities

Net Score	Risk Interpretations
< 8	This field has a LOW risk for nitrogen leaching if management is maintained at the current level. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to MEDIUM .
8 to 11	This field has a MEDIUM risk for nitrogen leaching and some management changes may be needed to decrease risk. Apply nitrogen at agronomic rates or lower using spring or split in-season applications. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to HIGH .
12 to 15	This field has a HIGH risk for nitrogen leaching and management changes should be implemented to decrease risk. Manure should be applied at P agronomic rates. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method may also be necessary. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to VERY HIGH .
16	This field has a VERY HIGH risk for nitrogen leaching and management changes are needed to decrease risk. Manure applications are NOT recommended. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method are necessary to protect ground water. Implement all appropriate BMPs.

Prepared by M. Nelson

Colorado Phosphorus Index Risk Assessment (Version 3.0)

Name	Corsentino Dairy Farms, Inc.		Field ID	7-Across Rd. Corn	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Runoff Class (See Table 1 below)	Low	Medium	High	Very High	1	
2. Soil Test P (See Table 2 below)	Low	Medium	High	Very High	4	
3. P ₂ O ₅ Application Rate (See Table 3a below)	< 30	30-90	91-150	> 150	4	
4. P Application Method (See Table 4 below)	None Applied, Injected or Subsurface Application Deeper Than 2 inches	Spring Applied and Incorporated within 2 weeks, or Sprinkler Applied	Fall/Winter Applied and Incorporated within 2 weeks	Surface Applied with No Incorporation, or Fall/Winter Applied with Spring Incorporation	3	
Gross Score (Sum of Factors 1 through 4)					12	
5. BMP Implementation Credits	Subtract one point for each of the following BMPs implemented on this site. Contour Buffer Strips, Cover Crops, Filter Strips, Furrow Diking, Grassed Waterways, Linear Polyacrylamide, Terraces, or Residue Management				-1	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					11	

Net Score	Risk Interpretations
< 8	This field has a LOW potential for off-site P movement if management is maintained at the current level. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
8 to 11	This field has a MEDIUM potential for off-site P movement and some management changes may need to be made to support continued long term organic nutrient applications. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
12 to 15	This field has a HIGH potential for off-site P movement and management changes should be implemented to decrease risk. Organic nutrient application rates should be calculated according to crop phosphorus requirements.
16	This field has a VERY HIGH potential for off-site P movement and management changes are needed to decrease risk. Organic nutrients should not be applied to this field.

Prepared by M. Nelson



Nutrient Management

Natural Resources Conservation Service

Conservation Practice Job Sheet

590

Site Information

Name	Corsetino Dairy Farms, Inc.	Field ID	8- Milo Field	Date	May 6, 2008
Address	2689 East Hwy. 10	Acres	35.1	Irrigated	☒ Yes ☐ No
	Walsenburg, CO 81089	Year	2008	Soil Survey Area	
		Planned Crop	Corn Silage/Rye	Soil Map Unit	44 - Manzanola Clay Loam
		Yield Goal	16 T/A	Slope	0 to 2 %
Phone	(719) 738-2114	Previous Crop	Corn Silage	Permeability	Moderately Slow
Email		Previous Yield	16 T/A	Crop Rotation	4 yr. Corn Silage, Rye Dbl

Purpose (check all that apply)

☒ To budget and supply nutrients for plant production
☒ To properly utilize manure or organic by-products as a plant nutrient source
☒ To minimize agricultural nonpoint source pollution of surface and groundwater resources
☐ To protect air quality by reducing nitrogen emissions (NH ₃ and NO _x) and the formation of atmospheric particulates
☒ To maintain or improve the physical, chemical and biological condition of the soil

Soil Test Information (enter below or attach a copy of the current soil test report for this field)

Laboratory	Olsen's Agricultural Laboratory, Inc.						Analysis Date	January 23, 2008				
P Extraction Method (check one) ☐ AB-DTPA ☐ Bray P1 ☐ Mehlich 3 ☒ NaHCO ₃ (Olsen)												
Sample ID	Depth (inches)	pH	OM %	Lime (CaCO₃)	EC (dS m⁻¹)	parts per million						
						NO₃ - N	NH₄ - N	P	K	Zn	Fe	S
749720	0-12	7.8	2.6	2490	0.92	11.7		53	482	1.8	14.9	26
749721	12-24					2.0						

Crop Nutrient Requirement, Nutrient Credits and Planned Nutrient Applications

Crop Nutrient Requirement						pounds per acre						
check one	☐ Soil Test Recommendation	N	P₂O₅	K₂O	Zn	Fe	S					
	☒ Estimated Crop Removal	141	67	52								
Nutrient Credits												
Legume N credit from previous crop						0						
Residual N from previous manure applications						78						
Soil organic matter mineralization												
Irrigation Water NO ₃ -N												
Other Soil N, 0-24 in.						49	120	578				
Planned Nutrient Applications - Source/Amount												
Manure												
Preplant												
Planting/Starter												
Sidedress												
Irrigation												
Other												
Available Nutrients						127	120	578	0	0	0	0
Nutrient Balance						-14	53	526	0	0	0	0

Name	Corsetino Dairy Farms, Inc.	Field Number	8- Milo Field	Date	May 6, 2008

Estimated Crop Nutrient Removal

Crop	Yield	Harvest Unit	Pounds per Unit	Harvest DM %	Mean Concentration %			Nutrient Removal lb/ac.		
					N	P	K	N	P ₂ O ₅	K ₂ O
Corn, silage	16	ton	2000	35	1.26	0.26	0.39	141	67	52

Legume N Credit from Previous Crop ⁽¹⁾

Plants/ ft ²	pounds N per acre			
	New Seeding Alfalfa	First Year Alfalfa	Second Year Alfalfa	Third Year + Alfalfa

⁽¹⁾ For forage legumes other than Alfalfa such as clover or trefoil, use 80 % of the credit for Alfalfa. For soybeans or dry beans, credit 1 pound of N per bushel harvested the previous year, to a maximum of 40.

Approximate Manure Nutrient Composition and Mineralization

Type of Manure	Application rate		pounds per acre ⁽²⁾					
			N, yr 1	N, yr 2	N, yr 3	P ₂ O ₅ ⁽³⁾	P ₂ O ₅ ⁽⁴⁾	K ₂ O
Dairy Cattle, solid	20	tons /acre	91	33	20	256	192	544

⁽²⁾ Pounds per 1,000 gallons x 27.15 = pounds per acre-inch ⁽³⁾ Manure applied annually ⁽⁴⁾ Manure applied once in 2 or more years

Irrigation Water NO₃-N Credit

Application amount ⁽⁵⁾	19	[NO ₃ -N] ⁽⁶⁾	parts per million	NO ₃ -N Credit	0	lb/ac

⁽⁵⁾ Estimated acre inches to be applied prior to anthesis ⁽⁶⁾ Irrigation water nitrate [NO₃-N] concentration

Environmental Risk Assessments

1) Will manure or organic by-products be applied to this field during the crop rotation?	☒ Yes	☐ No	
2) Is this Nutrient Management Plan a component of a Comprehensive Nutrient Management Plan?	☒ Yes	☐ No	
3) Is the field located in a hydrologic unit area designated as being impaired for nutrients?	☐ Yes	☒ No	
4) Is an aquifer located below the field that is shallow (< 20 ft), or used as a public drinking water source?	☐ Yes	☒ No	
Land Base Requirement (acres) for manure or organic by-products applications		Nitrogen based	Phosphorus based
	Derived from average table values	252	657
	Derived from laboratory analysis	461	526
Colorado Phosphorus Index Risk Rating	10	Medium Risk, may use N based organic nutrient application rates	
Colorado Nitrogen Leaching Index Risk Rating	9	Medium Risk, may use N based organic nutrient application rates	

Recommendations (attach additional sheets as necessary)

Certification

Owner / Operator / Producer - I have reviewed this plan including the operation, maintenance and recordkeeping requirements, and agree to follow the recommendations as stated.

Signature

Date

Nutrient Management Specialist - I approve this plan as written, and certify that it meets applicable NRCS nutrient management criteria for the stated purpose.

Signature

Certifying Organization / Number

Date

Colorado Nitrogen Leaching Index Risk Assessment (Version 2)

Name	Corsentino Dairy Farms, Inc.		Field ID	8- Milo Field	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Permeability Class (See Table 1 below)	Very Slow, Slow and Moderately Slow	Moderate	Moderately Rapid	Rapid and Very Rapid	1	
2. Irrigation Application Efficiency (See Table 2 below)	High > 85 %	Moderate 60 – 85 %	Moderately Low 35 – 60 %	Low < 35 %	3	
3a. Nitrogen Application Rate (fertilizer with or without manure) OR 3b. Manure - Effluent Application Rate, (no fertilizer) (See Table 3a or 3b)	Total N application rate below agronomic rate	Total N application rate equal to agronomic rate	Total N application rate 1 to 50 pounds per acre above agronomic rate	Total N application rate greater than 50 pounds per acre above agronomic rate	3	
	Applied at P agronomic rate	Applied at N agronomic rate	Applied above N agronomic rate	Applied above N agronomic rate more than one consecutive year		
4. Nitrogen Application Timing (See Table 4 below)	In season split application (2 or more splits)	Any nitrogen application 0 to 3 months before crop planting	Any nitrogen application 3 to 5 months before crop planting	Any nitrogen application more than 5 months before crop planting	3	
Gross Score (Sum of Factors 1 through 4)					10	
5. Best Management Practice (BMP) Implementation Credits	Subtract one point for each of the following BMPs implemented on this field: Slow release N fertilizer; Cover crops; Nitrification inhibitors*; Deep rooted crops in rotation; Deep (4-5 ft) soil sampling to determine sub-soil N credit; Irrigation Water Management Plan.				-1	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					9	

* BMP credit not applicable for fall applications on soils with rapid or very rapid permeabilities

Net Score	Risk Interpretations
< 8	This field has a LOW risk for nitrogen leaching if management is maintained at the current level. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to MEDIUM .
8 to 11	This field has a MEDIUM risk for nitrogen leaching and some management changes may be needed to decrease risk. Apply nitrogen at agronomic rates or lower using spring or split in-season applications. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to HIGH .
12 to 15	This field has a HIGH risk for nitrogen leaching and management changes should be implemented to decrease risk. Manure should be applied at P agronomic rates. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method may also be necessary. If there is an underlying aquifer that is shallow (< 20 ft) or used locally as a public drinking water source, increase the risk to VERY HIGH .
16	This field has a VERY HIGH risk for nitrogen leaching and management changes are needed to decrease risk. Manure applications are NOT recommended. Apply nitrogen using split in-season applications at or below the agronomic rate. Changes in irrigation management and/or method are necessary to protect ground water. Implement all appropriate BMPs.

Colorado Phosphorus Index Risk Assessment (Version 3.0)

Name	Corsentino Dairy Farms, Inc.		Field ID	8- Milo Field	Date	5/6/2008
Factor\Risk	Low (1)	Medium (2)	High (3)	Very High (4)	Score	
1. Runoff Class (See Table 1 below)	Low	Medium	High	Very High	1	
2. Soil Test P (See Table 2 below)	Low	Medium	High	Very High	3	
3. P ₂ O ₅ Application Rate (See Table 3a below)	< 30	30-90	91-150	> 150	4	
4. P Application Method (See Table 4 below)	None Applied, Injected or Subsurface Application Deeper Than 2 inches	Spring Applied and Incorporated within 2 weeks, or Sprinkler Applied	Fall/Winter Applied and Incorporated within 2 weeks	Surface Applied with No Incorporation, or Fall/Winter Applied with Spring Incorporation	3	
Gross Score (Sum of Factors 1 through 4)					11	
5. BMP Implementation Credits	Subtract one point for each of the following BMPs implemented on this site. Contour Buffer Strips, Cover Crops, Filter Strips, Furrow Diking, Grassed Waterways, Linear Polyacrylamide, Terraces, or Residue Management				-1	
Net Score (Sum of Factors 1 through 4 less Factor 5, BMP Implementation Credits)					10	

Net Score	Risk Interpretations
< 8	This field has a LOW potential for off-site P movement if management is maintained at the current level. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
8 to 11	This field has a MEDIUM potential for off-site P movement and some management changes may need to be made to support continued long term organic nutrient applications. Organic nutrient application rates may be calculated according to crop nitrogen requirements.
12 to 15	This field has a HIGH potential for off-site P movement and management changes should be implemented to decrease risk. Organic nutrient application rates should be calculated according to crop phosphorus requirements.
16	This field has a VERY HIGH potential for off-site P movement and management changes are needed to decrease risk. Organic nutrients should not be applied to this field.

Prepared by M. Nelson

Land Base Requirement * (Complete steps 1, 2a and or 2b, and 3a and or 3b below)

Name	Corsetino Dairy Farms, Inc.			Date	May 7, 2008	
1. To estimate nutrient removal , select the crop(s) in the rotation that will receive manure, and enter the corresponding yield goal(s). A realistic yield goal is a 5 year average for the field plus 5 % for exceptional growing conditions.						
Crop	Yield Goal	Harvest Unit	Pounds per Unit	Harvest DM %	Estimated Nutrient Removal lb/ac	
					N	P
Corn, silage	16	ton	2000	35	141	29

2a. To estimate **solid manure production**, select the animal type and enter the number of animals, days on feed and incoming and outgoing weights

Animal Type	No. of Animals	Days on feed	Incoming weight	Outgoing weight	Average weight	Annual Production tons/yr
1 Dairy, lactating cow	550	365	1,300	1,300	1,300	2,414
2 Dairy, heifer	160	365	300	1,000	650	321

2b. To estimate **liquid manure production**, select the animal type and enter the number of animals, days on feed and incoming and outgoing weights

Animal Type	No. of Animals	Days on feed	Incoming weight	Outgoing weight	Average weight	Annual Production 1,000 gal/yr
3						
4						

3a. To estimate **annual nutrient production from table values**, select the type of manure for the Animal Type listed in 2a and 2b above.

Type of Manure	Annual Production	Unit	Annual Nutrient Production lb/yr	
			N	P
1 Dairy Cattle, solid	2735	tons	35,552	19,122
2				
3				
4				
Land base requirement (acres), derived from table values			N based	P based
			252	657

3b. To estimate **annual nutrient production from laboratory analysis**, enter laboratory information and pounds of N and P per ton or 1,000 gallons for the Animal Type listed in 2a and 2b above.

Laboratory	Olsen's Agricultural Lab	Date sampled		Date reported	
Annual Production	Unit	Pounds per ton or 1,000 gal ⁽¹⁾ ⁽²⁾		Annual Nutrient Production lb/yr	
		N	P	N	P
1 2,414	tons	24	6	57,454	13,519
2 321	tons	24	6	7,634	1,796
3					
4					
Land base requirement (acres), derived from laboratory analysis				N based	P based
				461	526

* Do not use this worksheet to determine agronomic rates of application.

⁽¹⁾ P = P₂O₅ x 0.437 ⁽²⁾ Pounds per 1,000 gallons x 27.15 = pounds per acre inch

**Record of Cooperator's Decisions
and Progress in Application
Corsentino Dairy Farm, Inc.**

June, 2008

Field	Planned Amount	Year	Applied Amount	Year	Land Use and Treatment
All Irr. Cropland*	385.2 Ac.	2008			Nutrient Management (590)
All Irr. Cropland*	385.2 Ac	2008			Irrigation Water Management (449)
Fields 1-5, and 7-10	372 Ac	2008			Conservation Crop Rotation (328)
All Irr. Cropland*	385.2 Ac	2008			Residue Management Mulch Till (345)
All Irr. Cropland*	385.2 Ac	2008			Salinity and Sodic Soil Management (610)
All Irr. Cropland*	385.2 Ac	2009			Nutrient Management (590)
All Irr. Cropland*	385.2 Ac	2009			Irrigation Water Management (449)
Fields 1-5, and 7-10	372 Ac	2009			Conservation Crop Rotation (328)
All Irr. Cropland*	385.2 Ac	2009			Residue Management Mulch Till (345)
All Irr. Cropland*	385.2 Ac	2009			Salinity and Sodic Soil Management (610)
All Irr. Cropland*	385.2 Ac	2010			Nutrient Management (590)
All Irr. Cropland*	385.2 Ac	2010			Irrigation Water Management (449)
Fields 1-5, and 7-10	372 Ac	2010			Conservation Crop Rotation (328)
All Irr. Cropland*	385.2 Ac	2010			Residue Management Mulch Till (345)
All Irr. Cropland*	385.2 Ac	2010			Salinity and Sodic Soil Management (610)
dairy	14,000 cy (12 ac-ft)	2009			Waste Storage Pond (313); excavation
dairy	2,900 cy (1 ac)	2009			Compacted Clay Liner (521D);
dairy	2,900 cy (1 ac)	2009			Protective Soil Blanket over liner (521D)
dairy	1,850 lf	2009			Dike (356)
dairy	700 lf	2009			Manure Transfer (430EE) 700' hdpe @\$22/ft
dairy	900 lf	2009			Manure Transfer (430DD) 6" dia PVC pipe
dairy	20 cfs	2009			Structure for Water Control (587)
dairy	10 cfs	2009			Structure for Water Control (587)
dairy	10 cfs	2009			Structure for Water Control (587)
dairy	> 20 hp	2009			Pumping Plant (553)
dairy	< 20 hp	2009			Pumping Plant (553)
dairy	105 acres	2009			Sprinkler renozzle(442)

*All Irrigated Cropland includes:

Field Number	Field Name	Acres			
1	Valley	60.5			
2	Lockwood	55.8			
3	T & L	105.5			
4	Crump	32.4			
5	Amidi	31.5			
6	Across Rd. Grass	13.2			
7	Across Rd. Corn	11.2			
8	Milo Field	35.1			
9 and 10	15-16 Strait Field	40			
Sum of App. Acres		385.2			

EXECUTIVE SUMMARY

Facility Name: Corsentino Dairy

Capacity: average is 500 milking, 50 dry, 100 replacements, 60 heifer calves

Production Area size = 24 acres.

Design Storm Runoff Volume (25 yr, 24 hr storm event) = 5.6 acre-feet

Wastewater Storage Capacity (settling basin + wastewater pond): 3.0 acre-feet

RESOURCE CONCERNS IDENTIFIED

1. Wastewater Conveyance Improvement & Retention Capacity Increase

Included in the list of recommended conservation practices are manure transfer related items (pumps, pipelines and water control structures) that will improve conveyance of process generated wastewater from the milking barn and runoff from the pens to the wastewater retention ponds. Also, an additional wastewater retention pond is planned to add storage capacity.

Important: It is recommended that no manure be applied on fields which will be receiving wastewater application(s). Be sure to collect a sample of manure and wastewater at least annually and have the samples tested by a certified laboratory. Use the results to calculate the agronomic rate of application. The NRCS 590 Nutrient Management worksheet can be used for agronomic balancing. A CD-ROM with the spreadsheet in MS Excel format is included in this notebook in Section 10: 590 Field Sheets.

2. Salt reduction in Land Application Soils

Soil salinity levels are elevated in some fields due to issues related to past application of irrigation water that was contaminated with very high salt levels (see attached report from Troy Bauder, CSU). Soil fertility and crop yield has been impacted in 2006 and 2007 but is improving. Humic acid is being added to fields to lower pH and help reduce soil pH and dissolve free lime already present in soils. This in turn frees up more calcium to replace sodium in the soil. Sodium must then be leached from the soil using good irrigation practices.

Treatment of Saline Soil:

Saline soils cannot be reclaimed exclusively by chemical amendments, conditioners or fertilizers. The field can only be reclaimed by removing salts from the plant root zone. Salts can be removed using excessive amounts of water to leach the salts to depths below the soil root system. The second method is leaching method with artificial drainage. The third method to remove salts is to move salt away from the root zone locations by single-row bed planting systems. These methods work only in furrow application. Sprinkler irrigation can leach salts only if the water is low in salts.

Crop Tolerance to Soil Salinity

Excessive soil salinity reduces the yield of many crops. This ranges from a slight crop loss to complete crop failure, depending on the type of crop and the severity of the salinity problem. Treatments and management practices can reduce salt levels in the soil, however, there are situations where it is impossible or too costly to lower salinity levels. This entails planting salt tolerant crops. Sugar beets are relatively tolerant of salts, whereas corn is more sensitive to salt levels. It is recommended the soil and irrigation water continue to be tested annually for salinity. Good irrigation water management will continue to be imperative.

Situation Analyses – Corsentino Farms

Prepared by
Troy Bauder
Extension Specialist – Water Quality
Dept. Soil and Crop Sciences, Colorado State University

Resource Concerns

The following interpretations are based upon the results from soil, plant, and water samples taken from Holita Lake and the two center pivot irrigated corn fields on August 24, 2006. It should be noted that these results represent a single point in time and continued monitoring of soil and water is necessary to understand the impact of any management changes or changes in water quality that may occur.

Water Quality

The quality of the water from a Holita Lake used to irrigate the two pivots in question is impaired. The primary impairments for this water are high pH, sodium (Na), and bicarbonate (HCO_3) coupled with low calcium (Ca) and magnesium (Mg). These parameters result in a relatively high sodium adsorption ratio (SAR) of 10.6. When adjusted for alkalinity the SAR_{adj} is approximately 22. This water chemistry is similar to other analyses results conducted on samples taken from the Cucharas River downstream of coal bed methane (CBM) discharge. A secondary concern for this water is the salinity as measured by electrical conductivity (EC) of 1,240 umhos/cm. Interpretations of these parameters are included in the enclosed fact sheets, but the bottom line is that the water contains too much sodium in respect to Ca, resulting in a high SAR. Continued irrigation with this water without special management will ultimately cause problems with sodium and other salt accumulation in the soil resulting in poor soil physical condition and reduced crop yield.

Soil Quality

Soil samples taken from both pivots suggest that the impaired water quality is beginning to negatively impact soil physical and chemical properties. Laboratory results

Situation Analyses – Corsentino Farms

Prepared by
Troy Bauder
Extension Specialist – Water Quality
Dept. Soil and Crop Sciences, Colorado State University

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show the soil SAR levels at 6.6 to 8.26 and the pH ranges from 8.2 to 8.5. Although the textbook SAR value for a “sodic” soil is 13, the SAR levels found in these fields are much higher than are typically found in most Colorado soils, which are naturally dominated by calcium rather than sodium. Also, physical impacts (crusting and dispersion) to fine textured soils such as clay loams, which dominate the Corsentino fields, can occur at SAR levels below 13. Surface crusting and soil dispersion were visible during the August field visit and the Corsentinos have complained of poor infiltration and excessive runoff during irrigation events. Additionally, pH levels above 8.4, indicate that a sodium problem exists. The higher soil and water pH can also begin to impact plant nutrient availability and uptake.

Additionally, total soluble salts as measured by E.C. from the east pivot (2.36 to 3.14 mmhos/cm) are elevated beyond the threshold level for yield impact to silage corn of 1.8 mmhos/cm. This may be due to reduced salt leaching as sodium levels have decreased the infiltration and permeability of the surface soil.

Potential Strategies

Remedies for this situation if production on these fields is to be sustained at desirable levels include improved water quality, soil amendments and changes in management. The first remedy is to obtain water that is not dominated by sodium. Although this seems overly simple and infeasible given the present situation, perhaps there could be some negotiation with various parties to fill Holita Lake when CBM discharge is not occurring or during periods of high flow when discharge is not dominating the river. It should also be noted that applying amendments to the soil or water as described below will not be as effective in the long run without leaching with good quality irrigation water (or above average rainfall) at some point in time. The basic steps for reclaiming a sodium dominated soil include replacement of the sodium with a calcium source, incorporation, and leaching of the sodium with better quality water.

The second strategy is to add a soluble source of calcium to mitigate that impact of the sodium load from the irrigation water. Typically, the preferred amendment is gypsum. I would not recommend calcium chloride unless another calcium source cannot be located at a reasonable cost. One potential source of gypsum is drywall scrap from large construction projects. The gypsum requirement (up to 1.5 tons/acre) recommended by the soil test from Olsen’s

Agricultural Laboratory is a sound recommendation to deal with the sodium currently in the soil. However, given the sodium concentration of the irrigation water as sampled an additional 620 pounds of sodium per acre will be added to the soil with every acre foot of irrigation water applied. Additional calcium will be required over time to deal with this additional sodium.

An alternative to gypsum is adding elemental sulfur to the soil. Soil analyses results show free lime (calcium carbonate 5.8 to 14%) is present in the soil of these fields. It can supply the calcium necessary for reclamation when dissolved by applying sulfur or sulfuric acid. Sulfur products reduce the soil pH, dissolving the lime, thus freeing up the calcium. Elemental sulfur should be applied at approximately 19% of the gypsum rate to be effective. Thus approximately 600 lbs of elemental sulfur would be needed to free up calcium equivalent to 1.5 tons of gypsum per acre. The choice of amendment should be based upon cost and availability. Elemental sulfur will require more time to be effective than gypsum.

Finally, another potential remedy to be used in combination with soil amendments is to treat the water itself. Acidification with sulfuric acid is a potential treatment option that would neutralize the bicarbonate in the irrigation water, lowering the pH and potentially freeing up some soil calcium (from free lime) in the soil to mitigate sodium additions. However, sulfuric acid is *extremely* hazardous to handle, requires special safety precautions, and is corrosive to the irrigation system if used improperly. Additional consultation is suggested if the Corsentino's choose to pursue this option. A soluble source of calcium may also be added to the irrigation water, but rate control is critical with this remedy as well and this will increase the total salinity of the water as measured by EC. There is no known economical water treatment technique or device to remove the sodium to levels acceptable for crop production.

Other Management Strategies

Irrigate more frequently and in lower amounts (1 inch or less) to reduce runoff from infiltration problems. Keeping soil moisture at higher levels between irrigation events effectively dilutes salt concentrations in the root zone, thereby reducing the salinity hazard. Additionally, salts are more efficiently leached from the soil profile under higher frequency irrigation. Since the fields are irrigated with above canopy nozzles, watch for signs of leaf burn from the high sodium in the irrigation water. The symptoms of sodium toxicity occur first on the oldest leaves and usually

appear as a burn or drying of tissue at the outer edges of the leaf. Should leaf burn problems begin to appear, drop nozzles or drag hoses may be necessary.

Manure application is recommended when applied in rotation and at reasonable rates. Manure adds organic material that can improve soil tilth and structure. However, it also adds an additional salt load and could exacerbate the problem if over-applied. An incorporated green manure crop such as winter wheat following silage, allowing it to grow through the winter and then disking it under, may also help with soil physical condition by adding organic material.

Crop selection – Sorghum and small grain forages such as wheat and triticale forages are generally more salt and sodium tolerant than corn.

Tillage – Deep tillage may temporarily help with infiltration and permeability problems and bring calcium up to the surface from the subsoil. However, excessive secondary tillage destroys soil tilth and structure and should be avoided. Avoid field operations when soil moisture is high to reduce additional soil physical problems with soil compaction.

1. Jander C'sh



July 26, 2011

Brett Corsentino
2689 East HW10
Walsenburg, CO 81089

Department of Soil and Crop Sciences
1170 Campus Delivery
Fort Collins, Colorado 80523-1170
(970) 491-6517
FAX: (970) 491-0564
www.soilcrop.colostate.edu

Dear Mr. Corsentino,

This letter is a summary of our opinion regarding the technical memo, *Spring 2011 Corsentino Farm Site Evaluation Results*, prepared by NewFields Consulting Group. In this letter, we will attempt to address two primary questions expressed via our phone and email communications that are of immediate concern to you and your operation. The first question is whether the fields are adequately reclaimed to conditions most likely existing prior to pre-coalbed methane (CBM) discharge impact. The second is whether you can expect the depression of crop production levels caused by the soil chemical and physical conditions resulting from the poor water quality applied to your fields or several years to continue.

Regarding the first question, we have only reviewed a few soil samples from 2001 that are apparently from the time before CBM discharge began to assess 'baseline' soil conditions, especially for SAR. From these results, we can assess two things: the first is that the soil SAR (when reported) was in the 2-3 range and the silage production was 20 - 24 tons/acre based upon the yield goal provided to the lab. As provided in the NewFields report, 5 of the 7 fields assessed this spring are still not below these target levels (reclamation goals), based upon the average soil SAR in the top 6 inch soil depth. While their sample reports do show that most of the fields have seen substantial improvement since initial samples were taken in 2008, the report also shows that additional gypsum, along with other agronomic and natural action is still necessary to reach the targeted soil SAR. Additionally, the average soil SAR tends to mask areas of the field where SAR's still exceed 5.

In general, within any cropland field soil salinity and sodicity are spatially variable; that is these properties are not uniformly distributed and not heterogeneous. Therefore, using standard parametric measures like an average (arithmetic mean) brings about a level of uncertainty if not accompanied by a measure of variability. The tendency of saline and sodic conditions to be highly variable particularly inherent in reclamation means that sodicity can vary substantially from one part of the field to another which an average value, alone, does not reflect. This leaves the possibility those parts of the CBM affected fields continue to experience high SAR's result in the likelihood of depressed crop yields even though the average SAR for a field has met some prescribed target. It's also important to recognize the average may not necessarily be equal to the middle value; if skewed upwards by a small number of field locations with very large SAR's, the majority have SAR values lower than the average. It's these field locations with high SAR's where the yield depressions are most severe and can have significant effects from an economic viability perspective.



DEPARTMENT OF NATURAL RESOURCES

John W. Hickenlooper, Governor

1120 Lincoln St. Suite 801

Denver, CO 80203

Phone: (303) 894-2100

FAX: (303) 894-2109

www.colorado.gov/cogcc

October 19, 2011

John D. Faught
Fognani & Faught, PLLC
1700 Lincoln Street, Suite 2222
Denver, CO 80203
VIA Email jfaught@fognanilaw.com

Re: Corsentino Dairy Farms, Inc.

Dear Mr. Faught:

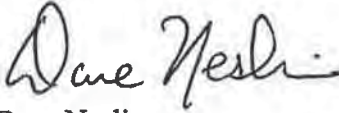
I am writing to follow up on your September 27, 2011 letter requesting that the Staff of the Colorado Oil and Gas Conservation Commission take further action with respect to the Form 27 Site Investigation and Remediation Work Plan and the Supplement to the Form 27 concerning Petroglyph Energy Inc. ("Petroglyph") and your client Corsentino Dairy Farms, Inc. ("Corsentino Dairy"). Pursuant to my request, counsel for Petroglyph responded to the issues raised in your letter by correspondence dated October 7, 2011.

Under the Form 27 and Supplement, Corsentino Dairy, Petroglyph and the Commission reached a voluntary agreement for reclamation of Corsentino Dairy's property. The agreement avoided the need for the parties to resolve many complex and contested issues before reclamation could proceed, including whether any action by the Commission or the Corsentino Dairy was time-barred, whether and to what extent Petroglyph's discharge permit was a defense to any such action, and the nature and extent of the harm allegedly caused by Petroglyph's operations. Given these considerations, Corsentino Dairy, Petroglyph and the Commission entered into the Form 27 and Supplement and Petroglyph implemented the resulting work plan promptly.

Based on our investigation, the Staff believe that Corsentino Dairy has not made a sufficient showing that further enforcement action by the Commission against Petroglyph is warranted at this time. Further, the Staff believe that Petroglyph has satisfied its obligations under the Form 27 and Supplement. Accordingly, the Staff will not seek to compel Petroglyph to take further action as you have requested.

I am treating your letter as a complaint under Rule 522.a.(1) of the Commission Rules. Pursuant to 522.a.(4), Corsentino Dairy may file an application with the Commission pursuant to Rule 503.b.(4) requesting the full Commission consider your client's request. The Staff is also willing to meet with you and Corsentino Dairy to discuss our decision.

Very truly yours,

A handwritten signature in black ink that reads "Dave Neslin". The signature is written in a cursive, flowing style.

Dave Neslin
Director

cc: Ken Wonstolen

CERTIFICATE OF CONFORMANCE

39 (v2) (f)

Corsentino Dairy
Brett Corsentino
2689 E Hwy 10
Walsenburg, CO 81089

Scope of
Certification
Livestock

Certificate
Number
1048-US1101z1

Issue Date
*December 20,
2011*

Effective Date
1/7/2011

Anniversary Date
April 15, 2012

The Organic System Plan of the above operation meets applicable requirements and has been granted organic certification in accordance with the standards and scope detailed on this certificate.

Standards
7 CFR Part 205 National Organic Program



Indiana Certified Organic, LLC, 3914 Clarks Creek Rd, Plainfield, IN 46168
Phone 317 839 9700, fax 317 839 9707

A handwritten signature in dark ink, appearing to read "Aude Poirer".

Aude Poirer, CO

Once certified, a production or handling operation's organic certification continues in effect until surrendered, suspended or revoked. To confirm the validity of this Certificate, please contact ICO. See attached list of individual products eligible to be labeled certified organic or contact ICO for verification.

CERTIFICATE OF CONFORMANCE

(v2) (f)

Corsentino Dairy
Brett Corsentino
2689 E Hwy 10
Wausenburg, CO 81089

Scope of
Certification
Crops

Certificate
Number

t1013-US1101z1

Issue Date
April 16, 2012

Effective Date
*December 20,
2010*

Anniversary Date
April 15, 2012

The Organic System Plan of the above operation meets applicable requirements and has been granted organic certification in accordance with the standards and scope detailed on this certificate.

Standards
7 CFR Part 205 National Organic Program



Indiana Certified Organic, LLC, 3914 Clarks Creek Rd, Plainfield, IN 46168
Phone 317 839 9700, fax 317 839 9707

A handwritten signature in dark ink, appearing to read 'Audé Poirer'.

Audé Poirer, CO

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1.02.05 Incorporation of Maps

The location and boundaries of the districts established herein are shown on the Zoning District Maps of Huerfano County, which are hereby incorporated into these regulations.

1.02.06 Location of the Zoning District Maps of Huerfano County

The Board of County Commissioners shall maintain on file a certified copy of the Zoning District Maps of Huerfano County in the Office of the County Clerk and Recorder, which copy shall be available to the public, and in such other places as designated by the Board of County Commissioners.

1.02.07 Amendments to the Zoning District Maps of Huerfano County

Amendments made to the Zoning District Maps of Huerfano County in accordance with these regulations shall be recorded on the Zoning District Maps on file in the Office of the County Clerk and Recorder within 30 calendar days of the effective date of the adoption of the amendment(s).

1.02.08 Interpretation of District Boundaries

Unless otherwise noted, all district boundary lines shall be construed to lie on the centerline of streets, roads, alleyways and rights-of-way, on lot lines of platted subdivisions, on section lines, on boundaries of the County and of special districts and on the corporate limit lines of incorporated municipalities. Disputes or interpretations regarding the exact location of any district boundary line shall be decided by the Board of Adjustment.

1.03 Zoning Districts

1.03.01 Establishment of Zoning Districts

In order to carry out the purposes of these regulations and implement the goals, objectives and policies of Huerfano County, as contained herein, the unincorporated area of Huerfano County is hereby divided, or by amendment shall become re-divided, into the following zoning districts:

A	Agricultural District
RR	Rural Residential District
UR	Urbanizing Residential District
C	Commercial-Service District
I	Industrial District
APO	Airport Protection Overlay District
WIND	Commercial Wind Generation Overlay District

1.03.02 District Characteristics and Requirements

The districts enumerated in Section 1.03.01 shall have the following characteristics and specifications:

A Agricultural District

This district is created for the purpose of protecting the productive agricultural lands of Huerfano County and preserving the visual and cultural values, historical and archeological features and critical wildlife habitat associated with the scenic vistas, natural topography and agricultural lifestyles in rural,

unincorporated areas of Huerfano County.

Minimum district size:	40 acres
Minimum lot area:	35 acres
Minimum lot width:	200 feet per dwelling unit
*Front yard setback:	60 feet
Side yard setback:	25 feet
Rear yard setback:	30 feet
Maximum structure height:	Refer to Comprehensive plan, page 4, "Residential Use"
Minimum dwelling size:	600 square feet
Maximum lot coverage:	15 percent

For uses allowed by right, conditional uses and prohibited uses see Section 1.05.

RR Rural Residential District

This district is created for the purpose of allowing the establishment of moderate density rural residential development in predominantly agricultural and rural areas of unincorporated Huerfano County without compromising or otherwise significantly changing the visual, scenic and other natural characteristics of the surrounding area and providing as necessary for the protection of critical wildlife habitat.

Minimum district size:	20 acres
Minimum lot area:	2 acres
Minimum lot width:	100 feet per dwelling unit
Front yard setback:	20 feet
Side yard setback:	10 feet
Rear yard setback:	20 feet
Maximum structure height:	40 feet (refer to Comprehensive plan, page 4, "Residential Use")
Minimum dwelling size:	600 square feet
Maximum lot coverage:	30 percent

For uses allowed by right, conditional uses and prohibited uses see Section 1.05.

UR Urbanizing Residential District

This district is created to accommodate the urbanizing areas of Huerfano County where relatively high density residential and associated commercial and service development has occurred, is occurring or is desired to occur.

Minimum district size:	10 acres
Minimum lot area:	½ acre
Minimum lot width:	50 feet
Front yard setback:	20 feet
Side yard setback:	10
Rear yard setback:	20 feet
Maximum structure height:	40 feet (refer to Comprehensive plan, page 4, "Residential Use")
Minimum dwelling size:	600 square feet
Maximum lot coverage:	30 percent

Table 1

Uses allowed by Right. Conditional Uses and Prohibited Uses by Zoning District

R = Use Allowed by Right
 C = Conditional Use
 P = Use Prohibited

	<i>Zoning District:</i>	<i>A</i>	<i>RR</i>	<i>UR</i>	<i>C</i>	<i>I</i>	<i>Regulatory Reference</i>
.01	Single family dwelling on a single undivided parcel of land	R	R	R	R	C	1.06
.02	Additional dwellings; e.g., for rent, lease or sale, on any undivided parcel of land or lot	C	P	P	P	C	1.06
.02A	Addition dwellings on tracts of land that meet a 35:1 land/dwelling ratio.	R	C	C	C	C	1.06
.03	Two family dwelling	C	C	R	C	P	1.06
.04	Multiple family dwelling, co-housing facilities and single and multi-family condominiums	C	C	C	C	P	1.06
.05	Individual mobile homes and mobile home parks	P	P	P	P	P	N/A
.06	Manufactured home parks and manufactured home subdivisions (see also Section A 7)	C	C	C	C	P	1.06
.07	Boarding and rooming houses and bed & breakfast establishments	C	C	C	C	P	1.06
.08	Guest ranches and vacation lodge	C	C	C	P	P	1.06
.09	Rest, nursing, convalescent, retirement and assisted living facilities	C	C	C	C	P	1.06
.10	Jails, prisons, correctional institutes and youth facilities and work camps	C	P	P	C	C	1.06
.11	Hospitals	C	C	C	P	P	1.06
.12	Hotels and motels*	C	C	C	R	P	1.06
.13	Restaurants and eating places	C	C	C	R	C	1.06

R = Use Allowed by Right

C = Conditional Use

P=Prohibited

Zoning District:

A RR UR C I Regulatory Reference

.14	Public schools and educational institution	R	R	R	C	P	1.06
.15	Private schools, educational institutes and training centers	C	C	C	C	P	1.06
.16	Day care, child care and nursery schools and homes	C	C	C	C	P	1.06
.17	Churches and religious institutes	R	R	R	C	P	1.06
.18	Public airport	C	P	P	P	C	1.06
.18A	Private airports and heliports	C	C	C	C	C	1.06
.19	Public cemeteries	C	C	C	P	P	1.06
.20	Parks, playgrounds, golf courses or playing fields	R	C	C	C	C	1.06
.21	Essential public and government utility uses, facilities, services and buildings. Note that special H.B. 1041 regulations may also apply.	C	C	C	R	R	1.06 Or H.B.1041 Depending on Scale
.22	Other utility uses, facilities and services including electric transmission lines and pipelines and all appurtenant facilities, uses and structures thereto. Note that special H.B.1041 regulations may also apply.	C	C	C	C	C	H.B. 1041
.23	Commercial radio and television transmitting and receiving stations, dishes and towers including telecommunications, microwave and cellular towers, antennae and dipoles (see height restrictions)	C	P	P	C	C	1.06
.24	Private antennas over 35 feet in height	R	P	P	C	C	1.06
.25	Sewage disposal areas, sludge, septage, landfills for non-hazardous substances and waste water treatment plants	C	C	C	C	C	1.06

R = Use Allowed by Right

C = Conditional Use

P=Prohibited

Zoning District:

A RR UR C I
Regulatory Reference

26	Landfills and disposal sites for toxic, radioactive and otherwise hazardous materials	P	P	P	P	P	N/A
.27	Agricultural crop production including orchards and accessory uses and buildings (agricultural property not associated with large lot subdivisions exempt from building permits)	R	R	R	R	R	N/A
.28	Recreational domestic animal husbandry including barns and shelters	R	R	C	C	C	1.06
.29	Animal production, including grazing and accessory uses and buildings but excluding commercial feedlots	R	R	C	C	C	1.06
.30	Commercial feedlots	See Item .31 (CAFO's)					1.06
.31	Confined Animal Feeding Operations (CAFO's)	C	P	P	P	C	1.06
.32	Stands for the sale of agricultural products	R	R	C	R	C	1.06
.33	Commercial riding stables	C	C	C	C	P	1.06
.34	Kennels and veterinary clinics	C	P	P	C	C	1.06
.35	Private and public zoos	C	C	C	C	C	1.06
.36	Camping areas and campgrounds	C	C	C	C	P	1.06
.37	Ski lifts and accessory structures and uses	C	C	C	C	P	1.06
.38	Outdoor amusement facilities	C	C	C	C	P	1.06
.39	Membership clubs and lodges	C	C	C	C	P	1.06
.40	Professional service and business offices for the delivery of health, legal, accounting, travel agencies, real estate, technology, office service and similar services.	C	C	C	R	C	1.06
.41	Personal service outlets such as beauty and barber shops, laundromats, etc.	C	C	C	R	C	1.06

R = Use Allowed by Right

C = Conditional Use

P=Prohibited

		<i>A</i>	<i>RR</i>	<i>UR</i>	<i>C</i>	<i>I</i>	<i>Regulatory Reference</i>
	<i>Zoning District:</i>						
42.	Retail sales outlets except convenience outlets serving a neighborhood or local resident clientele, including repair and rental outlets	P	P	C	R	C	1.06
43.	Retail convenience outlets serving a neighborhood or local residents	C	C	C	R	P	1.06
44.	Wholesale sales and/or distribution with open storage of goods	C	P	P	C	R	1.06
45.	Wholesale sales and/or distribution without open storage of goods	C	P	C	R	R	1.06
46.	Gasoline service stations	C	C	C	R	C	1.06
47.	Vehicle repair facilities including storage garages as a principal or an accessory use	C	P	C	R	C	1.06
48.	Motor vehicle parking lots	C	C	C	R	R	1.06
49.	Rental self-and mini-storage lockers	C	C	C	C	R	1.06
50.	Commercial lumber yards and sawmills (Exemption: Home occupations see Section 1.11)	C	P	P	C	R	1.06
51.	Manufacture or storage of gases or above ground storage of flammable liquids such as gasoline for other than residential or agricultural on-site use	C	C	C	C	C	1.06
52.	Railroad facilities including repair sheds and switch yards and trucking terminals, excluding trucks	C	P	P	C	R	1.06
53.	Junk, wrecking or vehicle storage yards, which shall be surrounded by an eight foot high solid fence or not visible from any public road (excluding agricultural equipment storage)	C	P	P	C	C	1.06

R = Use Allowed by Right

C = Conditional Use

P=Prohibited

Zoning District:

		A	RR	UR	C	I	<i>Regulatory Reference</i>
54.	Batch plants and hot mix plants and all appurtenant and accessible uses thereto	C	P	P	C	R	1.06
55.	Manufacture, fabrication or processing of all materials not otherwise listed and which will not cause excessive noise, heat, dust, fumes or other adverse consequences	C	P	P	C	R	1.06
56.	Manufacturing, production and other uses not otherwise listed that will cause excess noise, heat, dust, fumes or other adverse consequences	P	P	P	P	C	1.06
57.	Rock quarries, sand and gravel excavating pits, pipelines, strip and underground coal mines and all appurtenances and accessory uses thereto,	C	P	P	P	C	1.06
58.	Oil and gas wells	C	P	P	P	C	Section 4
60.	The exploration and mining of uranium or other radioactive substances or the disposal, storage or processing of such substances	C	P	P	P	C	
61.	Shipping containers for storage purposes (Staff approval)	C	P	P	C	R	Land-use office

DEPARTMENT OF PUBLIC HEALTH AND ENVIRONMENT

Water Quality Control Commission

ANIMAL FEEDING OPERATIONS CONTROL REGULATION

5 CCR 1002-81

Throughout these regulations, standards and requirements promulgated by the U.S. Environmental Protection Agency have been adopted and incorporated by reference. The federal references cited herein include only those versions that were in effect as of April 14, 2008, and not later amendments to the incorporated material.

All material incorporated by reference may be examined during regular business hours either at any state publications depository library or the Colorado Department of Public Health and Environment, 4300 Cherry Creek Drive South, Denver, Colorado 80246-1530. To review the materials at the Colorado Department of Public Health and Environment, contact the Water Quality Control Division's records center at 303-692-3600.

81.0 AUTHORITY

Section 25-8-205, C.R.S. as amended of the Colorado Water Quality Control Act.

81.1 Applicability

The provisions of this control regulation are applicable to all animal feeding operations and concentrated animal feeding operations, except those defined as housed commercial swine feeding operations under section 61.2 of the Colorado Discharge Permit System Regulations, Regulation No. 61. Housed commercial swine feeding operations are subject to permitting requirements under Regulation No. 61. A concentrated animal feeding operation also is subject to permitting requirements under Regulation No. 61 where it discharges to waters of the U.S.

81.2 PURPOSE

The purposes of this control regulation are:

- (1) to ensure that discharges to ground water from permitted and non-permitted concentrated animal feeding operations are controlled in a manner consistent with the performance standards as set forth in this regulation.
- (2) to ensure that non-permitted concentrated animal feeding operations protect surface waters of the state.
- (3) to ensure that non-permitted large concentrated animal feeding operations register with the Division.
- (4) to ensure that animal feeding operations that are not defined as concentrated animal feeding operations protect waters of the state through proper application of "best management practices" that consider existing physical conditions and constraints at the facility site.

This regulation is not intended to address public health nuisance conditions or land use controls such as zoning requirements.

81.3 DEFINITIONS

(1) **"AGRONOMIC RATE"**

"Agronomic rate" means the rate of application of nitrogen to plants that is necessary to satisfy the plants' nutritional requirements while accounting for applicable nitrogen credits.

(2) **"ANIMAL FEEDING OPERATION"**

An "animal feeding operation" (AFO) means a lot or facility (other than an aquatic animal production facility) where the following conditions are met:

- (a) Animals (other than aquatic animals) have been, are, or will be stabled or confined and fed or maintained for a total of 45 days or more in any 12-month period, and
- (b) Crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility.

(3) **"BEST MANAGEMENT PRACTICE"**

"Best Management Practice" means an activity, procedure, or practice necessary for the reduction of impacts from animal feeding operations on surface or ground water, as described in section 81.9.

(4) **"CHRONIC STORM"**

"Chronic Storm" means a series of storms that occur during a 10-day period which yield a total precipitation of a magnitude that has a probability of recurring once every ten (10) years.

(5) **"CONCENTRATED ANIMAL FEEDING OPERATIONS"**

"Concentrated Animal Feeding Operation" (CAFO) means an AFO that is defined as a Large or Medium CAFO, or that is designated by the Division as a CAFO pursuant to Section 81.4. Two or more AFOs under common ownership are deemed to be a single AFO for the purposes of determining whether they qualify as a Large or Medium CAFO, if they are adjacent to each other or if they use a common area or system for land application of manure or wastewater.

(6) **"CONVEYANCE STRUCTURE"**

"Conveyance Structure" means a natural or constructed conduit (e.g., berm, channel, ditch, pipe, culvert) that carries process-generated wastewater from production area buildings (such as milking barns), or that captures open-lot wastewater from production areas, and diverts the wastewater to an impoundment or between impoundments.

(7) **"DISCHARGE"**

"Discharge" means the introduction or addition of a pollutant into waters of the state.

(8) **"DIVISION"**

"Division" means the Water Quality Control Division of the Department of Public Health and Environment.

(9) "FACILITY"

"Facility" means the production area and land application sites of an animal feeding operation or concentrated animal feeding operation.

(10) "FREEBOARD"

"Freeboard" means the vertical distance measured downward from the top elevation of an impoundment to the maximum water level.

(11) "GROUND WATER"

"Ground Water" means subsurface waters in a zone of saturation which are or can be brought to the surface of the ground or to surface waters through wells, springs, seeps, or other discharge areas.

(12) "GROUND WATER RECHARGE"

"Ground water Recharge" means the entry into the saturated zone of water made available at the water-table surface, together with the associated flow away from the water table within the saturated zone.

(13) "IMPOUNDMENT"

"Impoundment" means a natural topographic depression, man-made excavation, or diked area formed primarily of earthen materials (although it may be lined with man-made materials or other seepage control materials), or any other structure which is used for the storage, treatment, evaporation or discharge of pollutant-containing waters, sludge or associated sediment.

(14) "LAND APPLICATION SITE"

"Land Application Site" means land under the control of an animal feeding operation or concentrated animal feeding operation operator, whether it is owned, rented, or leased, to which manure or wastewater from the production area is or may be applied.

(15) "LARGE CONCENTRATED ANIMAL FEEDING OPERATION"

"Large Concentrated Animal Feeding Operation" (Large CAFO) means an AFO that stables or confines as many as or more than the numbers of animals specified in any of the following categories:

- (a) 700 mature dairy cows, whether milked or dry;
- (b) 1,000 veal calves
- (c) 1,000 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls, and cow/calf pairs;
- (d) 2,500 swine each weighing 55 pounds or more;
- (e) 10,000 swine each weighing less than 55 pounds;
- (f) 500 horses;
- (g) 10,000 sheep or lambs;
- (h) 55,000 turkeys;

- (i) 30,000 laying hens or broilers, if the AFO uses a liquid manure handling system;
- (j) 125,000 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system;
- (k) 82,000 laying hens, if the AFO uses other than a liquid manure handling system;
- (l) 30,000 ducks (if the AFO uses other than a liquid manure handling system) or
- (m) 5,000 ducks (if the AFO uses a liquid manure handling system).

(16) "MAN-MADE DRAINAGE SYSTEM"

"Man-made drainage system" means a drainage ditch, flushing system, or other drainage device which was constructed by man and is used for the purpose of transporting manure or wastewater.

(17) "MANURE"

"Manure" means feces, litter, and/or urine and materials, such as bedding, sludge, compost, feed waste, dry harvested forage, and any raw material used in or resulting from the operation of an animal feeding operation, that have been commingled with feces, litter, and/or urine.

(18) "MEDIUM ANIMAL FEEDING OPERATION"

"Medium Animal Feeding Operation" (Medium AFO) means an AFO with the type and number of animals that fall within any of the ranges listed in section 81.3(19), and which has not been defined or designated as a CAFO.

(19) "MEDIUM CONCENTRATED ANIMAL FEEDING OPERATION"

"Medium Concentrated Animal Feeding Operation" (Medium CAFO) means an AFO with the type and number of animals that fall within any of the ranges listed in (a) below and which has been defined or designated as a CAFO. An AFO is defined as a Medium CAFO if:

- (a) The type and number of animals that it stables or confines falls within any of the following ranges:
 - (I) 200 to 699 mature dairy cows, whether milked or dry;
 - (II) 300 to 999 veal calves;
 - (III) 300 to 999 cattle other than mature dairy cows or veal calves. Cattle includes but is not limited to heifers, steers, bulls, and cow/calf pairs.
 - (IV) 750 to 2,499 swine each weighing 55 pounds or more;
 - (V) 3,000 to 9,999 swine each weighing less than 55 pounds;
 - (VI) 150 to 499 horses;
 - (VIII) 3,000 to 9,999 sheep or lambs;
 - (IX) 16,500 to 54,999 turkeys;

- (X) 9,000 to 29,999 laying hens or broilers, if the AFO uses a liquid manure handling system;
- (XI) 37,500 to 124,999 chickens (other than laying hens), if the AFO uses other than a liquid manure handling system;
- (XII) 25,000 to 81,999 laying hens, if the AFO uses other than a liquid manure handling system;
- (XIII) 10,000 to 29,999 ducks (if the AFO uses other than a liquid manure handling system); or
- (XIV) 1,500 to 4,999 ducks (if the AFO uses a liquid manure handling system); and
- (b) Either one of the following conditions are met:
 - (I) Pollutants are discharged into surface waters of the state through a man-made drainage system; or
 - (II) Pollutants are discharged directly into surface waters of the state which originate outside of and pass over, across, or through the facility or otherwise come into direct contact with the animals confined in the operation.

(20) "NEW SOURCE"

"New Source" means any building, structure, facility, or installation from which there is or may be a discharge of pollutants, the construction of which commenced after the promulgation of standards of performance for the particular source, pursuant to section 306 of the Clean Water Act. The term also applies where a standard of performance has been proposed, provided that the standard is promulgated within 120 days of its proposal. Except as otherwise provided in an applicable new source performance standard, a source is a "new source" if it meets this definition of "new source", and:

- (a) It is constructed at a site at which no other source is located; or
- (b) It totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or
- (c) Its processes are substantially independent of an existing source at the same site. In determining whether these processes are substantially independent, the Division shall consider such factors as the extent to which the new facility is integrated with the existing plant; and the extent to which the new facility is engaged in the same general type of activity as the existing source.

(21) "OPEN-LOT WASTEWATER"

"Open-Lot Wastewater" means any precipitation that comes into contact with manure; any spillage or overflow from animal or poultry watering systems in production area facilities that are not roof-covered; and spray-cooling water used in open-sided pole sheds that are not flushed.

(22) "OPERATOR"

"Operator" means any person who owns, leases, operates, controls, or supervises an animal feeding operation or concentrated animal feeding operation.

(23) “PERMIT”

“Permit” means a permit issued pursuant to Regulation #61 of the Water Quality Control Commission and therefore includes Colorado Discharge Elimination System permits, including new permits, renewals, general permits, GPPA permits and temporary permits.

(24) “PERSON”

“Person” means an individual, corporation, partnership, association, state or political subdivision thereof, federal agency, state agency, municipality, commission, or interstate body.

(25) “POLLUTANT”

“Pollutant” means dredged spoil, dirt, slurry, solid waste, incinerator residue, sewage, sewage sludge, garbage, trash, chemical waste, biological nutrient, biological material, radioactive material, heat, wrecked or discarded equipment, rock, sand, or any industrial, municipal, or agricultural waste.

(26) “PROCESS-GENERATED WASTEWATER”

“Process-generated Wastewater” means wastewater, except tank overflow and open-lot wastewater, resulting from waters being directly or indirectly used in the operation of an animal feeding operation for any or all of the following: spillage or overflow from animal or poultry watering systems, washing, cleaning, or flushing barns, manure pits, or other roof-covered production area facilities; washing of animals; spray-cooling of animals (except in open-sided pole barns in open lots); cooling or cleaning feed mills (also known as blowdown water); or direct contact swimming by animals. Process-generated wastewater includes any wastewater, except tank overflow and open-lot wastewater, which results from water coming into contact with any raw materials, products, or byproducts, including manure, litter, feed, milk, or eggs.

(27) “PRODUCTION AREA”

“Production Area” means that part of an AFO or CAFO that includes the animal confinement area, the manure storage area, the raw materials storage area, and wastewater containment areas. The animal confinement area includes but is not limited to open lots, housed lots, feedlots, confinement houses, stall barns, free stall barns, milkrooms, milking centers, cowyards, barnyards, medication pens, walkers, animal walkways, and stables. The manure and residual solids storage area includes but is not limited to lagoons, runoff ponds, storage sheds, stockpiles, under house or pit storages, liquid impoundments and tanks, static piles, and composting piles. The raw materials storage area includes but is not limited to feed silos, silage bunkers, and bedding materials. The waste containment area includes but is not limited to settling basins, and areas within berms and diversions which separate uncontaminated storm water. Also included in the definition of production area is any egg washing or egg processing facility, and any area used in the storage, handling, treatment, or disposal of mortalities.

(28) “PUBLIC DRINKING WATER SYSTEM”

“Public Drinking Water System” means a system for the provision to the public of piped water for human consumption, if such system has at least 15 service connections or serves an average of at least 25 persons daily at least 60 days out of the year. A public drinking water system includes both community and non-community systems.

(29) “SETBACK”

“Setback” means a specified distance from waters of the state, or potential conduits to waters of the state.

(30) "SMALL CONCENTRATED ANIMAL FEEDING OPERATION"

"Small Concentrated Animal Feeding Operation" (Small CAFO) means an AFO that is designated by the Division as a CAFO, and is not a Medium CAFO.

(31) "SOLID/LIQUID WASTE SEPARATION FACILITY"

A "Solid/Liquid Waste Separation Facility" means a filtration or screening device, settling tank, or settling channel used to separate a portion of solids from a liquid wastewater stream.

(32) "STOCK WATERING POINT"

"Stock Watering Point" means a fenced area with a hardened surface that limits access to surface water for a very small number of animals (typically one or two at a time) for the purpose of the animals obtaining drinking water.

(33) "STORMWATER"

"Stormwater" means precipitation induced surface runoff from land, except that defined as wastewater.

(34) "SURFACE WATER"

"Surface Water" means all waters of the state, except ground water, but includes ground water that may be hydrologically connected to non-subsurface water.

(35) "TANK"

"Tank" means a stationary device designed to contain an accumulation of pollutant-containing water, which is constructed primarily of non-earthen materials (e.g., wood, concrete, steel, plastic) which provide structural support.

(36) "TANK OVERFLOW"

"Tank Overflow" means livestock drinking water in constant-flow watering troughs that overflows into in-trough drain pipes and is retained separately from wastewater storage.

(37) "25-YEAR, 24-HOUR STORM"

"25-Year, 24-Hour Storm" means a storm of a 24-hour duration which yields a total rainfall of a magnitude which has a probability of recurring once every twenty-five years.

(38) "WASTEWATER"

"Wastewater" means that defined as process-generated wastewater and/or open-lot wastewater.

(39) "WASTEWATER TREATMENT STRIP"

"Wastewater Treatment Strip" means a treatment component of an agricultural waste management system consisting of a strip or area of herbaceous vegetation that assimilates pollutants and within which wastewater runs via sheet flow.

(40) "WATERS OF THE STATE"

"Waters of the State" means any and all surface and subsurface waters which are contained in or flow in or through this state, except waters in sewage systems, waters in treatment works of disposal systems,

waters in potable water distribution systems, and all water withdrawn for use until use and treatment have been completed.

(41) “WATERS OF THE U.S.”

“Waters of the U.S.” means waters as defined in 40 C.F.R. Part 122.2.

(42) “WATER QUALITY STANDARD”

“Water Quality Standard” means any standard promulgated pursuant to section 25-8-204, C.R.S.

81.4 DESIGNATION OF AN ANIMAL FEEDING OPERATION AS A CONCENTRATED ANIMAL FEEDING OPERATION

The Division may designate any AFO as a CAFO upon performing an on-site inspection and determining that it reasonably could be a significant contributor of pollutants to waters of the U.S.

- (1) The following criteria shall be considered to determine if an AFO will be designated as a CAFO:
 - (a) The size of the AFO and the amount of manure and wastewater reaching waters of the U.S.;
 - (b) The location of the AFO relative to waters of the U.S.;
 - (c) The means of conveyance of manure and wastewater into waters of the U.S.;
 - (d) The slope, vegetation, rainfall, and other factors affecting the likelihood or frequency of discharge of manure and wastewater into waters of the U.S.; and
 - (e) Other relevant factors.
- (2) No AFO with animal numbers below those established for a Medium CAFO shall be designated as a CAFO unless:
 - (a) Pollutants are discharged into waters of the U.S. through a manmade ditch, flushing system, or other similar manmade device from the animal feeding operation; or
 - (b) Pollutants from the animal feeding operation are discharged directly into waters of the U.S. that originate outside of the facility and pass over, across, or through the facility or otherwise come into contact with the animals confined in the operation.
- (3) Where an AFO is at risk of being designated a CAFO, the AFO operator shall submit to the Division, within 60 days of receiving written notice by the Division of such a risk, one of the following:
 - (a) In consultation with the Division, an approvable work plan and associated timeline for reducing actual or potential environmental impacts such that the Division would not designate the AFO as a CAFO. The operator shall implement the plan within 30 days of it being approved by the Division; or
 - (b) A written statement signed by the operator indicating the operator’s intention to do one of the following:
 - (i) Operate as a CAFO and submit a complete application to be covered under a CAFO discharge permit within 180 days of the date of the written statement; or,

- (ii) Comply with all of the CAFO surface water and ground water protection provisions of this control regulation.
- (4) Where an operator does not complete and implement a work plan pursuant to section 81.4(3)(a), does not submit a written statement pursuant to section 81.4(3)(b), or evidence exists of a discharge from the facility to waters of the U.S., the AFO may be designated a CAFO by the Division and be required to submit a complete application to be covered under a CAFO discharge permit within 90 days of receiving written notice by the Division of such a designation and permit application requirement.

81.5 REQUIREMENT TO REGISTER WITH DIVISION - NON-PERMITTED LARGE CAF0s

The operator of a Large non-permitted CAFO shall register the facility with the Division by no later than February 27, 2009.

- (1) The registration shall be submitted to the Division and include the following information about the facility:
 - (a) Legal name
 - (b) Names of legal owner and current operator
 - (c) Facility phone number
 - (d) Physical address
 - (e) Mailing address
 - (f) County in which the facility exists
 - (g) Latitude/longitude coordinates at the entrance of the facility and source of the datum
 - (h) Maximum number and type of all animals the facility will confine in the production area
 - (i) A Standard Operating Procedure (SOP) for removal of manure from impoundments in accordance with section 81.8(3), unless the facility has previously submitted such an SOP.
- (2) At such time that any of the above information changes, the operator shall submit to the Division a revised registration by no later than 30 days after a change occurs.

81.6 FACILITY MANAGEMENT PLAN: NON-PERMITTED LARGE CAF0s

The operator of a non-permitted Large CAFO shall compile a facility management plan (FMP) that includes, to the extent applicable, the information specified in sections 81.6(1), 81.6(2), and 81.6(3).

- (1) Surface water protection elements – Production Area. The operator of a non-permitted Large CAFO must develop and implement the following design, construction, and performance requirements for the production area by no later than May 30, 2011. The operator of such a CAFO that comes into existence after May 30, 2011, shall develop and implement the requirements upon being defined as such a CAFO.
 - (a) By the implementation deadline stated in section 81.6(1), as applicable, the operator shall include in the FMP the requirements that have been developed and implemented.

- (b) Control of wastewater shall be accomplished using the following structures, methods, and procedures:
 - (i) An impoundment(s) designed, constructed, and maintained so that it is capable of storing, the volume of all liquid manure and wastewater, including the runoff resulting from a 25-year, 24-hour storm or Chronic Storm, whichever is greater, plus two (2) feet of freeboard.
 - (ii) A conveyance structure(s) designed, constructed, and maintained so that it is capable of carrying the flow expected from a 25-year, 24-hour storm or Chronic Storm, whichever is greater.
 - (iii) For open lot wastewater only, in addition to the conveyance structures as described in section 81.6(1)(b)(ii), one of the following structures or methods: 1) an impoundment(s) designed, constructed, and maintained as described in section 81.6(1)(b)(i); 2) a solid/liquid waste separation facility in conjunction with a wastewater treatment strip designed, constructed, and maintained in accordance with sections 81.6(1)(b)(iii)(A-B), below; or, 3) a method approved by the Division.
 - (A) A solid/liquid waste separation facility in conjunction with a wastewater treatment strip designed, constructed, and maintained so that it is capable of managing the flow expected from a 25-year, 24-hour storm or Chronic Storm, whichever is greater.
 - (B) The system described in subsection (A) above shall also be designed in accordance with United States Department of Agriculture – Natural Resources Conservation Service standards, or other standards approved by the Division.
 - (iv) For process-generated wastewater, the operator may use the wastewater control system described in section 81.6(1)(b)(iii) where the Division approves a plan submitted by the operator demonstrating that the system will be sustainable, including that wastewater released into the treatment strip will be properly assimilated by the vegetation.
- (c) Install a depth marker(s) in all impoundments indicated in the facility design calculations as being necessary to contain a 25-year, 24-hour storm or Chronic Storm, whichever is greater. In addition, depth markers shall be clearly marked, at minimum, in one (1) foot increments and shall clearly indicate the minimum capacity necessary to contain the greater storm event.
 - (i) Perform weekly inspections of depth markers and record the wastewater level in each impoundment containing a depth marker.
- (d) Design, construct, and maintain structures that are sized to divert stormwater from running onto a production area as the result of a 25-year, 24-hour storm or Chronic Storm, whichever is greater.
- (e) Procedures to ensure proper operation and maintenance of the impoundments, including the following:
 - (i) Whenever the storage capacity of impoundments and tanks is less than the volume required to store runoff from the designed storm event, the structures shall be dewatered to a level that restores the required capacity once soils on a

land application site has the water holding capacity to receive the wastewater, or in accordance with section 81.6(2)(b)(i)(C).

- (2) Surface water protection elements – Land Application Sites. The operator of a non-permitted Large CAFO shall develop and implement the following practices and procedures for land application sites by no later than February 27, 2009. The operator of such a CAFO that comes into existence after February 27, 2009, shall develop and implement the practices and procedures upon being defined as such a CAFO.
- (a) By the implementation deadline stated in section 81.6(2), as applicable, the operator shall include in the FMP the developed and implemented practices and procedures.
 - (b) Apply manure and wastewater to a land application site in accordance with the following practices and procedures beginning no later than February 27, 2009. The operator of such a CAFO that comes into existence after February 27, 2009 shall so apply manure and wastewater upon being defined as such a CAFO.
 - (i) Conservation Practices - Site-specific conservation practices that have been identified and implemented, including as appropriate, buffers or equivalent practices, to control runoff of pollutants to surface water. Such practices shall include, but are not limited to:
 - (A) Solid manure shall be incorporated as soon as possible after application, unless the application site has perennial vegetation or is no-till cropped, or except where the operator adequately demonstrates that surface water quality will be protected where manure is not so incorporated.
 - (B) Where wastewater is applied to a land application site via furrow- or flood-irrigation, it shall be applied in a manner that prevents any wastewater runoff into surface water.
 - (C) There shall be no discharge to surface water from land application activities when the ground is frozen or saturated.
 - (D) Manure or wastewater shall not be land-applied within 150 feet of domestic water supply wells, and within 300 feet of community domestic water supply wells.
 - (ii) Sampling and Analysis - Manure, wastewater, and soil shall be sampled and analyzed with the following frequency. The results of the analyses shall be used in determining application rates for manure and wastewater.
 - (A) Manure and wastewater shall be sampled and analyzed a minimum of once annually for nitrogen and phosphorus content.
 - (B) The top one foot of soil of land application sites shall be sampled and analyzed for available phosphorus a minimum of once every five years, or as otherwise necessary to meet the transport risk assessment requirements of section 81.6(2)(c)(i), below.
 - (iii) Protocols established by the operator for land applying manure or wastewater in accordance with site specific nutrient management practices that ensure appropriate utilization of the nutrients in the manure or wastewater. Such protocols shall include, but are not limited to:

- (A) No application of manure or wastewater shall be made to a land application site at a rate that will exceed the capacity of the soil and the planned crops to assimilate plant available nitrogen within twelve (12) months of the manure or wastewater being applied.
 - (B) Manure and wastewater shall be applied as uniformly as possible with properly calibrated equipment.
 - (C) Application rates of manure and wastewater shall be calculated using: 1) the current published fertilizer suggestions of Cooperative Extension in Colorado or adjacent states; 2) a method provided in a complete and current Comprehensive Nutrient Management Plan (CNMP) that meets United States Department of Agriculture – Natural Resources Conservation Service standards; 3) the current nutrient management planning guidelines for Colorado as published by the United States Department of Agriculture – Natural Resources Conservation Service; or, 4) a method approved by the Division.
- (iv) Records - Records identified by the operator that will be maintained to document the implementation and management of the elements described in sections 81.6(2)(b)(i-iii), above.
 - (A) Such records shall be maintained on-site for five years from the date they are created.
 - (B) Such records shall be made available to the Division or its designee, upon request.
- (c) Nutrient Transport Minimization - Application rates for manure and wastewater applied to a land application site must minimize phosphorus and nitrogen transport from the sites to surface water and shall be in accordance with the following standards.
 - (i) Assessments shall be made for each land application site of the potential for phosphorus and nitrogen transport from the site to surface water and that address the form, source, amount, timing, and method of application of nitrogen and phosphorus to achieve realistic yield goals, while minimizing nitrogen and phosphorus movement to surface water.
 - (A) Phosphorus transport risk assessments shall be made using a transport risk-screening tool approved by the Division and that is current, readily available, peer-reviewed, and appropriate for use in Colorado. The screening tool shall provide for off-site transport risk scores of either 'low', 'medium', 'high', and 'very high'.
 - (B) An initial assessment of the potential for phosphorus and nitrogen transport risk to surface water shall be made prior to manure or wastewater being applied to an application site after the operator's Facility Management Plan (FMP) is implemented.
 - (ii) Phosphorus-based manure and wastewater application rates shall be made to an application site where the risk of off-site phosphorus transport is scored as 'high'.
 - (iii) No application of manure or wastewater shall be made to a land application site where the risk of off-site phosphorus transport is rated as 'very high'. Where the initial assessment of a land application site is scored as 'very high', the operator

shall have a three-year period within which to manage the site for the purpose of lowering the phosphorus transport risk assessment rating to 'high' or less. During this period, manure and wastewater may be applied to the site at either nitrogen- or phosphorus-based rates.

- (iv) No application of manure or wastewater shall be made to a land application site where the risk of off-site nitrogen transport to surface water is not minimized.
- (v) After an initial assessment is made of the potential for phosphorus and/or nitrogen transport from a land application site to surface water, additional assessments shall be made at the following frequency, whichever is sooner:
 - (A) Of both phosphorus and nitrogen transport risk, every five (5) years; or,
 - (B) Where a crop management change has occurred, assess phosphorus transport risk within one (1) year after such change would reasonably result in an increase in the phosphorus transport risk assessment score, and assess nitrogen transport risk within one (1) year after such a change would reasonably result in the nitrogen transport to surface water not being minimized; or,
 - (C) Where a phosphorus transport risk assessment score was 'very high', assess phosphorus transport risk within six (6) months of intending to apply manure or wastewater, except as provided in section 81.6(2)(c)(iv), above.
 - (D) Where a nitrogen transport risk assessment reveals that nitrogen transport to surface water is not minimized, assess nitrogen transport risk within six (6) months of intending to apply manure or wastewater.
- (vi) Where a multi-year phosphorus application was made to a land application site, no additional manure or wastewater shall be applied to the same site in subsequent years until the applied phosphorus has been removed from the site via harvest and crop removal.
- (c) Inspect Land Application Equipment - Periodically inspect for leaks equipment used for land application of manure or wastewater. At minimum, such inspection shall be made annually and within the six month period prior to the first application of manure or wastewater, and at least once daily when wastewater is being applied.
- (d) Setback Requirements – Unless the operator exercises one of the alternatives provided below, manure and wastewater shall not be applied closer than 100 feet to any down-gradient surface waters, open tile line intake structures, sinkholes, agricultural well heads, or other conduits to surface water.
 - (i) As a setback alternative, the operator may substitute the 100-foot setback with a 35-foot wide vegetated buffer where applications of manure or wastewater are prohibited.
 - (ii) The Division may approve an alternative setback or buffer based on a demonstration by the operator that a required setback or buffer is not necessary because implementation of alternative conservation practices or land application site conditions will provide pollutant reductions equivalent or better than the reductions that would be achieved by the 100-foot setback.

- (e) Mortalities - Ensure proper management of animal mortalities to ensure that they are not disposed of in a wastewater storage system that is not specifically designed to treat animal mortalities.
 - (f) Prevent direct contact of confined animals with surface water.
 - (g) Ensure that chemicals and other contaminants handled on-site are not disposed of in any manure or wastewater storage system unless specifically designed to treat such chemicals and other contaminants.
- (3) Ground water protection elements – Production Area. The operator of a non-permitted Large CAFO shall include in the FMP the following information by no later than February 27, 2009. After February 27, 2009, the FMP shall be updated as necessary to meet the requirements of the sections of this regulation cited below, and by the deadlines specified in the sections.
- (a) The impoundment liner certification(s) specified in section 81.8(2)(b).
 - (b) The current approved Standard Operating Procedure (SOP) specified in section 81.8(3)(a).
 - (c) Information demonstrating that the facility is in compliance with the depth marker, conveyance structure, and setback requirements specified in sections 81.8(4-6).

81.7 ADDITIONAL REQUIREMENTS – NON-PERMITTED LARGE CAFOs

- (1) Performance Standards – Surface Water Protection
- (a) There shall be no discharge of manure or wastewater from the production area to waters of the U.S. without a discharge permit.
 - (b) There shall be no discharge of manure or wastewater from the production area to surface water, except whenever precipitation causes a discharge and the production area is designed, constructed, operated, and maintained to contain all manure and wastewater, including the runoff and direct precipitation from a 25-year, 24-hour storm or Chronic Storm, whichever is greater.
 - (c) The discharge of manure and wastewater to waters of the U.S. from a CAFO as the result of the application of that manure or wastewater by the CAFO to a land application site is a discharge from that CAFO subject to permit requirements, except where it is an agricultural storm water discharge. Where the manure or wastewater has been applied in accordance with the requirements of sections 81.6(2)(a-d), a precipitation-related discharge of manure or wastewater from the site to waters of the U.S. is an agricultural storm water discharge.
 - (d) Manure and wastewater shall not be applied directly to surface water.
- (2) Recordkeeping – The operator shall create, maintain at the facility for five years from the date they are created, and make available to the Division or its designee, upon request, the following records:
- (a) A copy of its current FMP shall be compiled and maintained in one discrete place at the facility, such as an office or filing cabinet.
 - (b) The land application records specified in section 81.6(2)(b)(iv).

- (c) Weekly records of the depth of the manure and wastewater as indicated by the depth markers in the impoundments required to be inspected by section 81.6(1)(c)(i), or as indicated by an alternative method approved by the Division.
 - (d) The records and certifications specified in sections 81.8(2)(c) and 81.8(3)(d).
- (3) Discharge Reporting – The operator shall notify the Division of a discharge of manure or wastewater to surface water.
- (a) Such notification shall be made by telephone, electronic mail, or facsimile within 24 hours after the operator becomes aware of the discharge.
 - (b) The notification shall describe, at minimum, the date, time, cause of the discharge, approximate volume of the discharge, the estimated length of time of the discharge, the level of wastewater in the discharging impoundment(s), and whether the discharge entered, or could enter, waters of the U.S.

81. 8 GROUND WATER PROTECTION REQUIREMENTS - CONCENTRATED ANIMAL FEEDING OPERATIONS (PERMITTED AND NON-PERMITTED)

- (1) Tanks at concentrated animal feeding operations shall be operated and maintained so as not to discharge wastewater to ground water.
- (2) Impoundment liners
 - (a) An impoundment at a concentrated animal feeding operation shall be constructed and maintained to comply with one of the following standards, as applicable:
 - (i) The seepage rate from an impoundment shall not exceed 1×10^{-6} cm/sec; or
 - (ii) Where approved by the Division for an impoundment with an earthen liner, the seepage rate from the impoundment shall not exceed 7.35×10^{-6} cm/sec. The operator of the impoundment shall submit to the Division a request that the impoundment be approved to meet this seepage standard. Such a request shall include, but not be limited to, information documenting that only open-lot wastewater will be diverted to the impoundment, that the impoundment is not designed as an evaporation impoundment, and that the ten (10) foot soil depth zone immediately beneath the impoundment has a cation exchange capacity of at least 15 meq/100 g of soil. Demonstration of compliance with the cation exchange capacity criteria requires the following:
 - (A) At least seven soil samples shall be acquired from below the entire surface area of the impoundment and analyzed for cation exchange capacity.
 - (B) The soil samples shall be reasonably equidistant from each other, with five locations being within ten feet of, and downslope of, the two-foot freeboard elevation of the impoundment, and two locations from the middle of the impoundment.
 - (C) The operator shall have available a map of the impoundment and soil sampling locations.
 - (D) Where soil samples were taken below existing impoundments, the operator shall have available documentation from a professional

engineer registered in the State of Colorado of how the core locations were sealed to meet a 1×10^{-6} cm/sec maximum seepage rate.

- (b) CAFO operators shall have available documentation, including the supporting information required by section 81.8(2)(b)(iii), prepared by a professional engineer registered in Colorado certifying that the provisions of section 81.8(2) have been met, and stating what constitutes each constructed liner (e.g., synthetic, clay).
 - (i) For impoundments constructed prior to June 30, 2004, the liner certification shall be available no later than April 13, 2006.
 - (ii) For any impoundment constructed by an operator on or after June 30, 2004 and before February 27, 2009, the liner certification shall be available prior to wastewater entering the impoundment.
 - (iii) For any impoundment constructed by an operator on or after February 27, 2009, the liner certification and, where applicable, the seepage rate calculations using Darcy's Law shall be available prior to wastewater entering the impoundment.
 - (iv) Copies of the liner certification and supporting information shall be made available to the Division and its designee, upon request. In addition, these documents shall be submitted to the Division as follows:
 - (A) For impoundments constructed after February 1, 2007, and before December 30, 2008, submit the documents by February 27, 2009.
 - (B) For an impoundment constructed after December 30, 2008, submit the documents by no later than 30 days after construction of the impoundment is complete.
- (c) A CAFO operator shall visually inspect the exposed liner of an impoundment weekly to identify physical changes or deficiencies that may affect the integrity of the liner. Such deficiencies and physical changes shall be corrected within thirty (30) days of having been identified.
 - (i) The operator shall record the date of the inspection, deficiencies identified, corrective actions taken, and dates that corrective action was completed.
 - (ii) Deficiencies not corrected within 30 days shall be accompanied by an explanation of the factors preventing completion of corrective actions within this time period.
 - (iii) The records shall be maintained on-site for five years from the date of creation and shall be made available to the Division upon request.
- (3) Removal of manure or wastewater from an impoundment shall be accomplished in a manner that does not damage the integrity of the liner. The operator shall submit to the Division for approval a Standard Operating Procedure ("SOP") that demonstrates how manure, including sludge, will be removed such that the liner integrity of impoundments is not damaged. The SOP also shall indicate the expected frequency with which manure will be removed from impoundments.
 - (a) The approved SOP must be available on-site and be submitted to the Division upon request.

- (b) The operator shall follow the approved SOP whenever manure, including sludge, is removed. Where the SOP was not followed, the Division may require that the operator make the liner available for inspection. Where the Division has just cause as a result of the inspection, the Division may require re-certification of the liner by a professional engineer registered in Colorado.
 - (c) An existing CAFO shall submit the SOP no later than December 31, 2004.
 - (i) A CAFO that comes into existence after December 31, 2004 shall submit the SOP no later than 120 days after animals are placed on the production area.
 - (ii) The operator shall submit a revised SOP for approval within 30 days of a change having been made to the impoundment(s) at the facility that requires a revision of the SOP, such as a new impoundment or different liner having been constructed.
 - (d) The operator shall certify after each manure or sludge removal event that the manure or sludge was removed in accordance with the approved SOP.
 - (i) For a concrete-lined impoundment, where a certification for each removal event is not completed, the operator shall:
 - (A) Drain and clean the impoundment every five years and use best professional judgment to determine whether the liner integrity is damaged such that the impoundment is no longer capable of having a maximum seepage rate of 1×10^{-6} cm/sec.
 - (B) Where the operator determines that the liner integrity is such that the impoundment remains capable of having a maximum seepage rate of 1×10^{-6} cm/sec, the operator shall so certify within five days of the liner inspection. The certification shall include photographs supporting the determination.
 - (C) Where the operator determines that the liner integrity is damaged such that the impoundment is no longer capable of having a maximum seepage rate of 1×10^{-6} cm/sec, the operator shall:
 - (I) Repair the impoundment within 30 days of the liner inspection so that the liner integrity is such that the impoundment is capable of having a maximum seepage rate of 1×10^{-6} cm/sec.
 - (II) Within 14 days of the impoundment having been repaired, submit to the Division evidence of the repair having been properly completed. The evidence shall consist either of photographs with accompanying written documentation or of other evidence approved by the Division.
 - (ii) The certifications must be available on-site and be submitted to the Division upon request.
 - (e) Where the SOP is not followed the operator shall provide notice to the Division within 30 days of the date of manure removal.
- (4) Any depth marker in an impoundment shall be installed in a manner that maintains the integrity of the liner and maintains the required seepage rate standard.

- (5) Earthen Wastewater Conveyance Structures - Earthen conveyance structures shall be maintained to minimize ponding of wastewater. In addition, such structures shall be constructed and maintained as follows for the purpose of limiting seepage of wastewater in the structures:
- (a) Conveyance structures that carry open-lot wastewater
 - (i) Where constructed in soils that have 35-60 percent gravel, a conveyance structure shall be constructed by sufficiently compacting the existing soil material (less than 60 percent gravel) in place with at least two passes of rubber-tired construction equipment, four passes of track-type equipment, or equivalent, over the entire surface of the conveyance structure. Moisture content of the soil material during compaction shall be maintained to promote sufficient compaction of the in-place materials. The soil should be wet to the touch and leave a stain on the hand when squeezed.
 - (ii) Where constructed in soils that have greater than 60 percent gravel, or in loamy sand or sandy soils with greater than 35 percent gravel, a conveyance structure shall be constructed by placing a compacted liner over the entire surface of the conveyance structure. A conveyance structure liner shall be constructed of soils having less than 60 percent gravel, shall be twelve (12) inches thick, and shall be compacted with at least two passes of rubber-tired construction equipment, four passes of track-type equipment, or equivalent, over the entire surface of the conveyance structure. Moisture content of the soil material during compaction shall be maintained to promote sufficient compaction of the soil liner material. The soil should be wet to the touch and leave a stain on the hand when squeezed. In addition, the constructed liner shall be maintained to retain these standards.
 - (iii) Where constructed in soils having less than 35 percent gravel, a conveyance structure does not need to be lined or compacted.
 - (b) Conveyance structures that carry process-generated wastewater intermittently (greater than 48 hours between conveyance events) – Earthen conveyance structures that carry process-generated wastewater intermittently shall be constructed and maintained in accordance with the standards specified in section 81.8(5)(a)(ii), above.
 - (c) Conveyance structures that carry process-generated wastewater non-intermittently (48 hours or less between conveyance events) – Earthen and non-earthen (e.g., pipe or concrete) conveyance structures that carry process-generated wastewater non-intermittently shall be constructed and maintained to have a maximum seepage rate of 1×10^{-6} cm/sec.
 - (d) Where upon inspection the Division has just cause to determine that the required liner is not in place, the Division may require that the operator submit to the Division a certification that the conveyance structure meets the requirements of section 81.8(5)(b) or (c), or 81.8(5)(a)(ii). The certification shall be made by a professional engineer registered in the State of Colorado.
- (6) Setbacks for New and Expanded Impoundments – A completely new impoundment constructed after June 30, 2008, and an existing impoundment that is expanded by 50 percent or more of existing storage capacity after June 30, 2008, shall not be located:
- (a) Except as provided below, where the seasonally high ground water level is located within four (4) feet of the bottom of the impoundment liner; and

- (i) Where the seasonally high ground water level is located within four (4) feet of the bottom of the impoundment liner, the impoundment shall be constructed and maintained in accordance with the design by a professional engineer registered in the state of Colorado that prevents ground water from contacting the impoundment's liner.
 - (b) Within 150 feet of a private domestic water supply well or within 300 feet of a community domestic water supply well.
- (7) Ground Water Monitoring - Where an impoundment is not in compliance with section 81.8(2), or where the Division determines that an impoundment liner is not being properly maintained, the Division may require the operator to conduct site-specific ground water quality monitoring of, but not limited to, total nitrogen, ammonia-nitrogen, nitrate-nitrogen, and fecal coliform. In making a determination of whether ground water monitoring is required, the Division shall consider all pertinent factors, including but not limited to: whether the impoundment poses a significant potential risk to beneficial uses of ground water, whether there is suspected contamination of ground water attributable to the facility, whether early detection of ground water contamination is essential to protect valuable drinking water sources, and whether there has been a significant failure on the part of the operator to comply with Section 81.8(2), (3), (4), (6), or (7).
- (8) Ground Water Remediation - When the Division determines that non-compliance with Section 81.8(2), (3), (4), (6), or (7) has caused, or contributed to, the exceedance of established ground water quality standards, the operator shall:
 - (a) Submit, in consultation with the Division, an approvable investigation plan (IP) within 60 days of being notified by the Division of the exceedance, unless an extension of time is granted by the Division based on good faith efforts made by the operator.
 - (i) The IP must indicate how the nature and extent of the contamination will be delineated and shall include the following, at minimum:
 - (A) A plan to determine the full vertical and horizontal extent of ground water contamination.
 - (B) All potential human and environmental receptors, including: 1) all surface water features including springs, streams, and lakes that could be impacted; and 2) all municipal, agricultural, and domestic ground water users.
 - (C) A plan to obtain other site-specific hydrogeologic data necessary to fully determine the nature and extent of the contamination. These shall include, as appropriate, but not be limited to, the hydraulic conductivity of all hydrogeologic units, associated porosity values, ground water flow directions, regional and local hydraulic gradients, and pumping rates associated with all wells. The Division may require that the operator install additional monitoring wells for the purpose of fully determining the nature and extent of the contamination.
 - (D) A reasonable timeline for completing the investigation.
 - (ii) The operator shall implement the IP within 30 days of it being approved by the Division.

- (b) The operator shall submit the following information by no later than 60 days after completion of the approved IP, unless an extension of time is granted by the Division based on good faith efforts made by the operator:
 - (i) A summary report of the findings of the investigation conducted pursuant to section 81.8(8)(a).
 - (ii) A comparison of all appropriate and applicable remediation alternatives, including innovative technologies, the associated performance and costs of each alternative, the estimated timelines to achieve the required remediation goals, and the monitoring that will be done until the remediation goal(s) is reached. The Division shall review remediation alternatives based on technological, economic, and environmental risk factors. In determining economic reasonableness, the Division shall take into account such factors as costs of the various alternatives, the potential impact of the alternatives on a project's profitability or competitive position, and any long-term energy impacts. In determining environmental risk factors the Division will include potential exposures of sensitive human and environmental receptors. In cases where sensitive human and environmental impacts could occur, the Division may require interim, or emergency, remedial activities.
- (c) The operator shall submit an approvable remediation plan (RP) by no later than 60 days of being notified of the Division's preferred remediation alternative, unless an extension of time is granted by the Division based on good faith efforts made by the operator. The RP shall contain designs and plans for implementation of the preferred alternative.
 - (i) The operator shall implement the RP within 30 days of it being approved by the Division.
- (9) Impoundment Closure – The operator of a facility shall remove manure and wastewater from a closed impoundment, to the fullest extent practicable within 60 days of the impoundment being closed, unless an alternative timeline is approved by the Division. Within one hundred twenty (120) days of an impoundment being closed, an impoundment shall be backfilled with soil that is graded to blend with surface topography and prevent ponding, unless an alternative procedure and timeline is approved by the Division.

81.9 ANIMAL FEEDING OPERATIONS - BEST MANAGEMENT PRACTICES

The following Best Management Practices (BMPs) shall be utilized by animal feeding operations, as appropriate based upon existing physical conditions, and site constraints. Best management practices means, for purposes of this regulation, activities, procedures, or practices necessary for the reduction of impacts from animal feeding operations on surface or ground water, as described in Section 81.9.

The following practices, designed to decrease runoff volume from animal feeding operations, are BMPs within the meaning of this regulation:

- (1) Operators of animal feeding operations shall divert runoff from uncontaminated areas away from animal confinement areas and manure and wastewater control facilities to the extent practicable through:
 - (a) Construction of ditches, terraces or other waterways;
 - (b) Installation of gutters, downspouts and buried conduits to divert roof drainage;
 - (c) Construction of roofed areas over animal confinement areas everywhere it is practicable.

- (2) Practices to decrease open lot surface area:
 - (a) Where practicable, operators of animal feeding operations shall:
 - (i) Reduce lot size;
 - (ii) Improve lot surfacing to support increased animal density;
 - (iii) Provide roofed area to the maximum extent practicable; and
 - (iv) Eliminate animal confinement areas and manure and wastewater control facilities in areas that slope in directions such that wastewater/rainfall cannot be collected.
- (3) Practices to decrease water volume:
 - (a) Repair or adjust waterers and water systems to minimize water wastage.
 - (b) Use lowest practical amounts of water for manure and wastewater flushing.
 - (c) Recycle water used to flush manure from paved surfaces or housed confinement areas, if practical.
- (4) Practices to decrease wastewater discharges to surface water:
 - (a) Collect and allow process-generated wastewater to evaporate.
 - (i) For Medium AFOs, design, construct, and maintain an impoundment(s) that is capable of storing, at minimum, the volume of all liquid manure and process-generated wastewater for 180 days, at minimum.
 - (b) Collect and evenly apply wastewater to land application sites at agronomic rates.
 - (i) For Medium AFOs, design, construct, and maintain an impoundment(s) that is capable of storing, at minimum, the volume of all liquid manure and process-generated wastewater for 120 days, at minimum.
 - (ii) The operator shall keep records demonstrating that wastewater has been applied to each land application site at an agronomic rate.
 - (A) Such records shall be maintained on-site for five years from the date they are created.
 - (B) Such records shall be made available to the Division or its designee, upon request.
 - (c) Treat wastewater through use of one of the following:
 - (i) A wastewater treatment strip; or,
 - (A) Inflow to a wastewater treatment strip shall be pretreated by a solid/liquid waste separation facility, as appropriate based upon site constraints and to have the wastewater treatment strip adequately assimilate pollutants.
 - (ii) A method approved by the Division.

- (d) Animals shall not have direct contact with surface water. A stock watering point may be used where animals have access to no other source of drinking water. A stock watering point shall be cleaned frequently of manure and have wastewater diverted at the watering point entry.
 - (e) Operators shall not deposit such waste which might pollute waters of the state in such locations that storm water run-off or normally expected high stream flow will carry the waste into the waters of the state.
 - (f) Wastewater retention structures shall not be located within a mapped 100 year flood plain as designated by the Colorado Water Conservation Board (CWCB) unless proper flood proofing measures (structures) are designed and constructed.
 - (g) The operator shall manage animal mortalities in a manner that prevents a discharge of pollutants to surface water.
- (5) Practices to minimize manure transport to surface water:
- (a) Manure stockpiles shall be located away from surface water, above the 100 year flood plain as designated and approved by CWCB, unless adequate flood proofing structures are provided, and bermed to minimize runoff.
 - (b) Operators of animal feeding operations shall provide adequate manure storage capacity based upon manure and wastewater production.
 - (c) Settleable solids shall be removed by the use of solids-setting basins, terraces, diversions, or other solid removal methods. Construction of solids-settling facilities shall not be required where the Division determines existing site conditions provide adequate settleable solids removal.
 - (d) Removal of settleable manure and wastewater solids shall be considered adequate when the velocity of waste flows has been reduced to less than 0.5 foot per second for a minimum of five minutes. Sufficient capacity shall be provided in the solids-settling facilities to store settled solids between periods of manure and wastewater disposal.
 - (e) Apply manure to land application sites at an agronomic rate.
 - (i) The operator shall keep records demonstrating that manure has been applied to each land application site at an agronomic rate.
 - (A) Such records shall be maintained on-site for five years from the date they are created.
 - (B) Such records shall be made available to the Division or its designee, upon request.
 - (f) Avoid applications on saturated soils and lands subject to excessive erosion.
 - (g) Operators of animal feeding operations shall use edge-of-field, grassed strips, filter fences or straw bales to separate eroded soil and manure particles from the field runoff.
 - (h) Collect manure frequently.
- (6) Practices to Protect Groundwater.

- (a) Operators of animal feeding operations shall locate manure and wastewater management facilities hydrologically downgradient and a minimum horizontal distance of 150 feet from all water supply wells.
- (b) When applying manure and wastewater to land, operators of animal feeding operations shall utilize a buffer area around water wells sufficient to prevent the possibility of waste transport to groundwater via the well or well casing.
- (c) An impoundment at a Medium AFO shall have a liner that is constructed and maintained such that the seepage rate from the impoundment does not exceed 1×10^{-6} cm/sec.
 - (i) The operator of such a facility shall have documentation prepared by a professional engineer registered in Colorado certifying that each impoundment has a liner that does not allow a seepage rate in excess of 1×10^{-6} cm/sec.
 - (A) For an impoundment constructed on or prior to December 31, 2008, such documentation shall be on-site no later than May 30, 2011.
 - (B) For an impoundment constructed after December 31, 2008, such documentation shall be available prior to wastewater entering the impoundment.
 - (C) The operator shall make a copy of such documentation available to the Division or its designee, upon request.
- (d) Where the Division determines that an animal feeding operation, other than a Medium AFO, could adversely affect ground water quality, the operator of such an AFO shall install a liner in all impoundments such that the seepage rate from each impoundment does not exceed 1×10^{-6} cm/sec.
 - (i) The Division shall determine that such an AFO could adversely affect ground water quality by demonstrating that it is in a location:
 - (A) Where significant ground water recharge occurs as determined using the United States Department of Agriculture- Natural Resources Conservation Service's current "Agricultural Waste Management Field Handbook, Part 651, Chapter 7, Geologic and Ground Water Considerations"; or,
 - (B) Where contamination from the AFO could cause ground water to exceed the standards adopted by the Water Quality Control Commission; or
 - (C) Where a water source susceptibility analysis results in the AFO having a "medium-high" or "high" potential for contaminating existing or reasonably likely future public drinking water system withdrawals. Such an analysis shall examine the physical setting of ground water and the contaminant threat that the AFO poses to the ground water source. Factors that shall be considered in examining the physical setting include aquifer sensitivity at the water source intake location, depth to the water source, structural integrity of the water system at the withdrawal point, flow of the water source, and first draw of the water source. Factors that shall be considered in examining the contaminant threat are migration potential, contaminant hazard, potential volume, and likelihood of contaminant release.

- (ii) Where required, the liner shall be installed according to a work plan approved by the Division. The operator shall, in consultation with the Division, develop and submit to the Division within 60 days of receiving written request by the Division the approvable work plan that includes a timeline for installing each liner.
 - (A) The operator shall implement the plan within 30 days of it being approved by the Division.
 - (B) The operator shall submit to the Division, within 30 days of each liner having been properly constructed, documentation prepared by a professional engineer registered in the State of Colorado certifying that the seepage rate from each impoundment does not exceed 1×10^{-6} cm/sec.

81.10 SEVERABILITY

The provisions of this regulation are severable, and if any provisions or the application of the provisions to any circumstances is held invalid, the application of such provision to other circumstances, and the remainder of this regulation shall not be affected thereby.

81.11 – 81.14 RESERVED

81.15 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY, AND PURPOSE (1992 Confined Animal Feeding Operation Control Regulation Revisions)

The provisions of sections 25-8-202(7), 25-8-205, 25-8-206, and 25-8-308, C.R.S. 1973, as amended provide the specific statutory authority for adoption of this regulation. The Commission also adopted, in accordance with section 24-4-103(4), C.R.S. the following Statement of Basis and Purpose.

Overview

The original Feedlot Control Regulation, 5 C.C.R. 1002-5 et. seq. was adopted by the Commission in 1974. The format of the regulation was changed in 1976 and there have been no further changes to it since then. Several recent developments have indicated the need for the Commission to modify the regulation both in terms of substance and format. Such developments include the establishment of the Basic Standards for Groundwater and the adoption of the groundwater discharge amendments to the Permit Regulations.

A strict interpretation of the previously adopted Feedlot Control Regulation would indicate that discharges of process wastewater from any operation that meets the definition of a feedlot are prohibited. That definition encompasses a wide variety of operations of all sizes. The Commission has determined that it is desirable to improve the focus of the regulation upon water quality in terms of protecting beneficial uses and insuring applicable standards are not violated, while maintaining consistency with federal regulations. Therefore the regulation presently being adopted addresses two different categories of confined animal feeding operations: concentrated animal feeding operations and other animal feeding operations.

Purpose of the Regulation

Based upon the information received into the record during this rulemaking hearing, the Commission has determined that the purposes of this control regulation are to prevent the discharge of manure or process wastewater from concentrated animal feeding operations into waters of the state and to encourage that these materials be retained and utilized beneficially on agricultural land. The Commission recognizes that livestock produce manure and process wastewater which when properly used, supply nutrients and organic matter to soils. The mere presence of livestock manure and process wastewater in a given location does not denote pollution, but may, when improperly stored, transported or disposed of, create

adverse impacts upon public health and the environment. A primary concern of the Commission is to ensure that manure and process wastewater associated with confined animal feeding operations is handled in a manner which does not cause exceedances of applicable standards or harm to existing or classified uses of state waters. While the Commission has drawn a distinction between the regulatory requirements pertaining to concentrated animal feeding operations and other animal feeding operations, it intends that the latter types of operations nevertheless protect surface water, ground water and soil resources, through proper application of "best management practices" based upon existing physical conditions and constraints at the facility site.

The Commission, in adopting this regulation does not intend to address public health nuisance conditions or land use controls such as zoning requirements or policies.

Concentrated Animal Feeding Operations

The Commission has defined concentrated animal feeding operations as those facilities with a larger capacity or which are located in areas where the potential adverse impacts associated with a discharge are particularly severe. For these facilities, the adopted rule establishes specific manure and process wastewater retention and disposal requirements which focus on proper design, construction and operation as the primary means to prevent discharges of pollutants into surface and ground waters.

Concentrated animal feeding operations are confined operations that fall under one of three specific criteria. The first criterion is based on the number and type of animals confined. The second criterion is a case-by-case designation based on certain discharges to surface waters. The last criterion is based on the facility's location in a hydrologically sensitive area. In the noticed proposal, these sensitive areas were described as sensitive environmental areas. The rule adopted by the Commission renames these areas to more accurately reflect the types of potential impacts the regulation addresses (i.e., water quality and human health impacts).

The Commission finds that prevention of process wastewater and manure discharges is particularly important when such discharges may impact areas of significant groundwater recharge, waters which are currently used for drinking water purposes or which could be used for drinking water purposes in the future, and waters subject to antidegradation review. Therefore, operations located within these hydrologically sensitive areas are considered to be concentrated animal feeding operations.

Some parties have expressed concern with the inclusion of facilities in the Concentrated Animal Feeding Operation category, based on their potential impacts on reasonably likely future drinking water supplies. It is the Commission's intent, through this regulation, to protect classified as well as existing but unclassified drinking water uses from the potential impacts of animal feeding operations. In addition, the Commission intends this regulation to preserve existing drinking water supplies which are not currently used but which may be used for public consumption in the future. For that reason, the rule adopted by the Commission includes within the definition of hydrologically sensitive areas, areas where contamination from animal feeding operations could impact reasonably likely future public drinking water system withdrawals. In order to determine whether these future withdrawals are reasonably likely, the Division must take into account the background quality as well as the decreed or permitted use of the water. A definition of public drinking water systems, consistent with the definition found in the state's safe drinking water regulations, is adopted by the Commission as part of this regulation.

Animal Feeding Operations

For those confined animal feeding operations not included in the concentrated animal feeding operations category the Commission has prescribed best management practices (BMPs) which are aimed at reducing the water quality impacts from these operations. The BMPs provide guidance to the small operations for solids removal, runoff and process water reduction and groundwater protection. The goal of these requirements is the same as that for concentrated animal feeding operations-i.e., preventing

discharge of pollutants to ground and surface water. However, considering the lesser likelihood of adverse impacts from these facilities, and the goal of economic reasonableness, the Commission has determined that the establishment of BMPs is the most appropriate control mechanism for these facilities at this time.

Surface and Ground Water Protection Requirements for Concentrated Animal Feeding Operations

The adopted rule preserves the general performance, design, and operation requirements for the protection of surface waters established in the feedlot regulation which it amends. Facilities are required to operate as no-discharge operations by designing and constructing structures to retain contaminated storm and wastewater within an applicable storm event. The adopted rule adds specificity to these requirements.

While the existing feedlot regulation requires no discharge to state waters, including groundwater, from confined animal feeding operations, it provides no direction regarding what is expected from a facility in order to achieve the no discharge to groundwater requirement. The amendment adopted by the Commission fills that void by specifying design and construction requirements for manure and process wastewater retention and conveyance structures. The Commission recognizes that existing facilities may find it difficult to demonstrate that retention structures which have been constructed prior to the effective date of this rule are in compliance with these specific design and construction requirements. It is not the Commission's intent in adopting this rule to cause operators to be automatically in noncompliance. For this reason, the adopted rule does not require operators to demonstrate that manure and process wastewater retention structures in existence at the time the rule becomes effective meet design and construction requirements. If, however, the Division determines that seepage at a rate greater than allowed is occurring, the operator may be required to redesign and reconstruct existing structures in order to meet the seepage rates required.

The evidence presented at the hearing indicates that process-generated wastewater from animal feeding operations may contain levels of nitrates and other pollutants equivalent to those contained in domestic wastewater treatment facilities. The Commission finds that, in order to comply with the no discharge requirement, structures which retain process-generated wastewater, whether in combination with stormwater or not, must be lined so as not to exceed a seepage rate of 1/32" per day. This approach is consistent with the approach adopted by the Commission in the groundwater amendments to the Regulations for the State Discharge Permit System, (5 CCR1002-2, Section 6.10).

The Commission recognizes that structures which retain runoff from open animal feeding operations for a short term, which runoff is not combined with process-generated wastewater, do not pose the same potential impacts to groundwater as full-time process-generated wastewater retention structures. The runoff retained in the former type of structures comes into contact with manure or raw, intermediate, or final products of operation and is, therefore, process wastewater. However, given the dilute nature of the waste retained and the short retention time allowed (i.e., they must be kept in a dewatered status as defined in subsection 4(B)), these structures are subject to a more lenient maximum seepage rate requirement. The rule adopted by the Commission requires that these structures be designed, constructed, and maintained, so as not to exceed a seepage rate of 1/4" per day. The Commission also understands that these runoff retention structures often retain, in addition to runoff sources of process wastewater, raw water, such as boiler cooling water and flow-through livestock drinking water. These raw water sources are isolated from areas where manure or raw, intermediate or final products are found. Therefore, while not considered process wastewaters while diverted, they become process wastewaters when commingled with the runoff contained in the retention structures. Structures which retain commingled process wastewater runoff and these raw water sources are subject to the 1/4" per day maximum seepage rate requirement.

Beneficial Use and Disposal of Manure and Process Wastewater

Two primary means of disposal of manure and process wastewater are addressed in the adopted rule: land application and treatment and discharge. Innovative methods of disposal are encouraged and

require the Division's approval. Treatment and discharge of manure and process wastewater into state waters requires a CDPS permit.

The Commission recognizes that proper land application of manure and process wastewater from animal feeding operations may be quite beneficial to agricultural land. The Commission also recognizes, however, that improper land application or land application at a rate greater than that which plants can utilize, may result in adverse impacts to the state's waters. In order to ensure that the maximum benefits of land application are obtained, without impacting the quality of ground and surface waters, the rule adopted specifies land application practices requirements and a tiered approach to maximum land application rates to be allowed.

The adopted rule specifies three alternative methods of calculation of appropriate land application rates. The first two methods contemplate the use of manure and/or process wastewater to supply plant nutrients. Accordingly, land application rates under either method is limited to the amount of nutrients which are plant available at any given time. The first method contemplates a text-book approach to rate calculation, based on a number of preestablished conditions. Because they are preestablished, these conditions are conservative and may result in application rates which are more restrictive than necessary to ensure that all nutrients are plant available at any given site. Operators who want to avoid the cost of site-specific conditions analysis may use this first method, provided that commercial fertilizers are not used in addition to manure and or process wastewater at the land application site. Operators who want to land apply at a rate that takes into account site-specific conditions may do so after performing site-specific agronomic analyses as specified under the second method provided in the adopted rule. The Commission finds that all the elements specified under the second method are necessary to derive an appropriate site-specific application rate. Operators who rely on either method need not obtain the Division's prior approval, but an operator relying on the second method must keep copies of all agronomic analyses and make them available for inspection.

The second method of calculating manure and/or process wastewater application rates requires an agronomic analysis comparable to that which is performed by farmers and ranchers in order to determine appropriate levels of nutrients which must be added to growing crops in a given growing season. This analysis requires a determination of the residual nutrient content of the soil in order to determine the amount of nutrients that can be added through land application or any other nutrient sources, including commercial fertilizers, in order to supply the necessary crop requirements. An operator who utilizes this method may also rely on commonly accepted mineralization rates, i.e., the rates at which organic nitrogen in manure and process wastewater converts to inorganic forms, such as nitrates, which are available to plants, but which pose a risk of ground water contamination.

The third land application rate calculation method provided in the adopted rule contemplates not only the supply of plant nutrients, but also the disposal of excess manure and process wastewater beyond that which is available for plant uptake. For example, other potential mechanisms for nutrient losses, such as volatilization and denitrification, may be considered. The Commission finds that the combination of plant uptake and land treatment techniques could be an adequate method to remove pollutants in the context of concentrated animal feeding operations. The Commission also finds, however, that reliance on the third method of land application rates calculation poses a significantly increased risk of adverse impacts to state waters. Therefore, an operator who wishes to land apply manure and/or process wastewater at rates allowed under the third calculation method must incur the expense of comprehensive studies and, if deemed necessary by the Division, of monitoring, to ensure that applicable water quality standards and protection levels are not exceeded. In addition, operators relying on the third rate calculation method must obtain interim and/or final approval from the Division prior to land application.

Operators who choose to exceed the rates of application allowed under the second method of calculating application rates must perform a comprehensive analyses required under Section 5(A)(5)(c). Operators who land apply manure and/or process wastewater on a "continuous or near continuous basis" must also comply with those provisions. The phrase "on a continuous or near continuous basis" is designed to include those facilities which, due to their size and intensity, land apply waste on a regular, year-round basis, rather than on a seasonal or sporadic basis utilized in more common farming operations.

Manure and Process Wastewater Management Plans

The Commission intends this regulation, including the amendment hereby adopted, to be a self-implementing control regulation which requires no permit as a condition for operation of a confined animal feeding facility, whether concentrated or not. The Commission finds, however, that planning is necessary in order to ensure that concentrated animal feeding facilities meet the regulation's requirements. Such planning is necessary whenever an improvement to an existing facility or the construction of a new facility will take place. Planning is also crucial when an existing facility is not performing in accordance with the no discharge parameters established in the regulation, and may be in need of improvement. The Commission further finds that in order to better monitor compliance with this self-implementing regulation, and in order to be more responsive to public inquiries, the Division needs to be informed of the existence and operation of concentrated animal feeding operations. Therefore, the adopted rule requires new, reactivated, reconstructed, and expanded concentrated animal feeding operations, as well as existing operations which are in significant noncompliance, to submit to the Division a Manure and Process Wastewater Management Plan.

Such plan need not be approved by the Division unless it includes the land application plan which may be required pursuant to section 5. If a land application plan is included, only the land application plan must be approved. However, the Division will review the plan submitted and may provide comments to the operator within 45 days of receipt. The Commission does not intend the Division's comments to be binding on the operator, nor does the Commission intend the Division's comments or lack thereof to be relied upon as an approval or a denial of the matters addressed in the plan. The Commission finds, however, that the Division's input early in the planning process may help to prevent noncompliance after construction has taken place.

Monitoring

The Commission, in its notice for this rulemaking hearing, specifically requested input from the public regarding the need for water quality monitoring at concentrated animal feeding operations. There was a great deal of concern expressed by the regulated community about the possible imposition of monitoring requirements on top of the mandatory management practices set forth in this regulation. Some parties expressed the view that monitoring is appropriate and should be required by the Division.

The Commission recognizes that this regulation consists, for the most part, of stringent technology-based requirements aimed at achieving no discharge of manure and process wastewater to waters of the state. Where these are complied with, further monitoring is not required. The Commission feels, however, that there are circumstances where the potential risk to beneficial uses of state waters, as reflected, for example, by potential violations of water quality standards and numerical protection levels, posed by a concentrated animal feeding operation may warrant monitoring. Such circumstances and some of the factors which must be considered prior to requiring a facility to monitor are outlined in the adopted rule.

Because there is a potentially significant cost associated with groundwater monitoring, the Commission has decided that it should be involved in each decision to require monitoring from a concentrated animal feeding operation, except as provided in subsection 5(A)(5)(c) of the regulation. Therefore, except as provided in subsection 5(A)(5)(c), the Division will be required to bring cases to the Commission where it feels monitoring is needed. Then, upon the request of the Commission, the Division may require monitoring to be conducted by an operator.

An exception to the stringent no discharge requirements set forth in this regulation is the manure and process wastewater land application rate allowed under subsection 5(A)(5)(c). Given the potential risk of groundwater contamination associated with such practices, the Commission has determined that monitoring may be required directly by the Division when such practices are proposed by the operator.

Statutory Considerations

In adopting this amendment the Commission has considered several additional statutory provisions beyond the authorities underlying this regulation. Section 25-3-205(5) restricts the Commission from adopting control regulations which require agricultural "nonpoint source dischargers" to utilize treatment techniques which require additional consumptive or evaporative use which would cause material injury to water rights. This section also provides that control regulations related to agricultural practices shall be promulgated only if incentive, grant and cooperative programs are determined by the Commission to be inadequate and such regulations are necessary to meet state law or the federal act. The Commission has determined, that discharges from Confined Animal Feeding Operations are point sources under federal and state law. Moreover, no grant or incentive programs are currently in place to address the water quality impacts which may be associated with confined animal feeding operations. The Commission heard testimony from the Colorado Cattle Feeders Association, to the effect that efforts are under way to develop a program which would offer technical assistance to its membership. The Commission feels that while such program, if developed may proved to be of valuable assistance to the Division in furtherance of the purposes of the amended regulation, such program alone would be inadequate to achieve the regulation's purposes. Given the limited scope of the program and the nature of the regulation and sources affected, the Commission has determined that the self-implementing regulations, as adopted, is the appropriate means to address potential impacts from confined animal feeding operations.

Section 25-8-504(2) restricts the Division from issuing a permit for animal or agricultural waste on farms and ranches except as may be required by the federal act or regulations. The Commission has chosen to regulate the discharge of process wastewater and manure through a control regulation which is "self implementing" rather than through a permit mechanism. The Commission has not made any findings with respect to the question of whether the discharges of pollutants associated with confined animal feeding operations may be subject to permitting requirements.

Section 25-8-202(8) provides that the Commission may promulgate rules more stringent than corresponding enforceable federal requirements only if based on sound scientific evidence in the record and the Commission determines that such rules are necessary to protect the public health, beneficial use of water, or the environment of the state. The Commission recognizes that certain elements of this regulation go beyond corresponding enforceable federal requirements. For example, the class of facilities which belong to the concentrated animal feeding operation category under this regulation is somewhat broader than would meet the federal criteria for determining a concentrated animal feeding operation. Evidence in the record demonstrates that significant quantities of nitrogenous wastes and oxygen demanding wastes are potentially associated with animal feeding operations which are smaller than 1,000 animal units. Unless proper measures such as best management practices are implemented, these operations may have significant impacts on the quality of ground waters. These potential impacts to the state's groundwater are not addressed by the federal regulations; therefore, there are no corresponding enforceable federal requirements with respect to ground water. The Commission has included facilities located in significant groundwater recharge areas, or where drinking water withdrawals are currently taking place, or where public drinking water system withdrawals are reasonably likely, within the definition of concentrated animal feeding operations, in order to provide such protection.

The Commission adopted requirements affecting animal feeding operations which do not meet the definition of concentrated animal feeding operations. While these requirements also go beyond corresponding enforceable federal requirements for surface water protection, the Commission was persuaded by the written and oral testimony which indicated that given the runoff associated with thunderstorms and large snowmelt events which occur in Colorado and the significant quantities of nitrogen compounds and biochemical oxygen demanding compounds which can accumulate at animal feeding operations, even small facilities should be controlled with accepted best management practices. Given the tendency of most streams in the state to exhibit extremely low flows from late summer to early spring each year, the Commission determined that the mandatory application of best management practices was necessary to protect the beneficial uses of state waters from runoff containing animal wastes. The Commission was also concerned with the need to prevent groundwater pollution, especially where existing or reasonably likely withdrawals for drinking water may occur. As indicated above, there are no corresponding enforceable federal ground water requirements.

81.16 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: JULY, 1997 RULEMAKING

The provisions of sections 25-8-202 and 25-8-401, C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

The Commission has adopted a revised numbering system for this regulation, as a part of an overall renumbering of all Water Quality Control Commission rules and regulations. The goals of the renumbering are: (1) to achieve a more logical organization and numbering of the regulations, with a system that provides flexibility for future modifications, and (2) to make the Commission's internal numbering system and that of the Colorado Code of Regulations (CCR) consistent. The CCR references for the regulations will also be revised as a result of this hearing.

81.17 FINDINGS REGARDING BASIS FOR EMERGENCY RULE AMENDMENTS ADOPTED ON OCTOBER 6, 1997

The Commission has previously included incorporation by reference provisions in both the Pretreatment Rules, Regulation #63 (5 CCR 1002-63) and the Confined Animal Feeding Operations Control Regulation, Regulation #81 (5 CCR 1002-81). As a part of its statutorily required review of regulations adopted by state agencies, staff in the Office of Legislative Legal Services brought to the Commission's attention an inconsistency between the incorporation by reference language in these two regulations and the requirements of the State Administrative Procedure Act, 24-4-103(12.5) C.R.S. To eliminate this inconsistency, the Commission is adding a statement to each rule that all material incorporated by reference may be examined at any state publications depository library. Both of these regulations are an important part of Colorado's overall water quality management system. Therefore, in order to avoid any interruption in the applicability of these regulations and to avoid the time and expense that would be required for the Committee on Legal Services to conduct a formal hearing to consider this matter, the Commission finds that adoption of these amendments is imperatively necessary to preserve public health, safety and welfare.

81.18 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: FEBRUARY, 1998 RULEMAKING

The provisions of sections 25-8-202 and 25-8-01, C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

The Commission held this rulemaking hearing to make permanent changes adopted in an Emergency Rulemaking Hearing that was held on October 6, 1997.

These changes add incorporation by reference language to assure compliance with the requirements of the State Administrative Procedure Act, 24-4-103(12.5) C.R.S.

81.19 FINDINGS REGARDING BASIS FOR EMERGENCY RULE FOR AMENDMENTS ADOPTED ON MARCH 9, 1999

The Commission adopted identical revisions to this Regulation #81 on both a permanent and emergency basis at its meeting on March 9, 1999. Amendment 14 requires the Commission to promulgate rules by March 31, 1999 to ensure the issuance and effective administration of permits by July 1, 1999. The Commission heard approximately fourteen hours of testimony at its February, 1999 meeting regarding

implementation of Amendment 14, but was unable to complete deliberations in the time available. The permanent rule adopted on March 9, 1999 will become effective in the normal course of business on April 30, 1999. The provisions of that rule, however, require that housed commercial swine feeding operations submit permit applications by April 15, 1999. This date cannot practically be delayed without potentially delaying issuance of permits beyond the July 1, 1999 deadline for issuance of permits under Amendment 14. In order to provide continuous regulatory coverage so that the implementation can begin promptly, an emergency rule is necessary to cover the period until April 30, 1999. Accordingly, the Commission finds that immediate adoption of the temporary rule is imperatively necessary in order to comply with the mandates and deadlines of Amendment 14. Adoption of the permanent rule implementing Amendment 14 complied with the requirements of section 24-4-103, C.R.S. (1998). The permanent and temporary rules are substantively identical. The Commission therefore further concludes that compliance with the provisions of section 24-4-103, C.R.S. (1998) in adoption of a rule for the period March 30, 1999 to April 30, 1999 would be contrary to the public interest. The Commission designates the effective period for this emergency rule as March 30, 1999 through April 30, 1999.

81.20 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: MARCH, 1999 RULEMAKING

The provisions of sections 25-8-202(1)(c) and (2), 25-8-205, 25-8-401, 25-8-501.1, and 25-8-504, C.R.S. provide the specific statutory authority for the amendments to this regulation adopted by the Commission. The Commission has also adopted, in compliance with section 24-4-103(4), C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE:

Amendment 14, approved by the Colorado voters on November 3, 1998, adds a new section 25-8-501.1 to the Colorado Water Quality Control Act. These provisions establish a new requirement that an individual discharge permit be obtained by any person who operates, constructs, or expands a "housed commercial swine feeding operation." In this rulemaking hearing, the Commission adopted revisions to the Colorado Discharge Permit System Regulations to implement these new requirements. Regulation #61 (5 CCR 1002-61). In addition, corresponding revisions were adopted for the Confined Animal Feeding Operations Control Regulation, Regulation #81 (5 CCR 1002-81) to avoid regulatory overlap. In particular, the Commission has added a new section 81.9 to this regulation, to clarify that housed commercial swine feeding operations that obtain a permit under new section 61.13 of the discharge permit regulations are excluded from coverage under this control regulation.

81.21 STATEMENT OF BASIS, SPECIFIC STATUTORY AUTHORITY AND PURPOSE: AUGUST, 2002 RULEMAKING

The provisions of sections 25-8-202(1)(c) and (2), 25-8-205, 25-8-401, 25-8-501.1, and 25-8-504, C.R.S. provide the specific statutory authority for the amendments to this regulation adopted by the Commission. The Commission has also adopted, in compliance with section 24-4-103(4), C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE:

Federal regulation 40 CFR 123.26 requires states that have been designated to administer federal regulations to adopt regulations that are at least as stringent as the corresponding federal regulations. Colorado has administered the federal Concentrated Animal Feeding Operations (CAFOs) under Regulation #81 since 1974. However, certain provisions of Regulation #81 are not as stringent as the federal CAFO regulations. The existence of these provisions has resulted in confusion among CAFO operators regarding what regulatory standards should be followed. In addition, some CAFOs may be in compliance with the state regulation but not with the federal regulations, which are still fully enforceable.

The Commission has determined that it is appropriate to modify the regulation by making certain provisions of the regulation equivalent to the federal CAFO regulatory requirements. Therefore, the regulation presently being adopted includes revisions to four (4) different sections. Section 81.2(2) was revised to reflect animal unit equivalency factors for animal species that are as stringent as those reflected in the federal regulations.

Sections 81.3(6) and 81.3(C)(2) were revised to reflect the federal requirement that all CAFO facilities be designed, constructed, and operated to contain all process generated wastewaters plus the runoff from a 25-year, 24-hour rainfall event for the location of the CAFO. Section 81.3(C)(5) was modified to delete Section 81.3(C)(5)(1) since it was inconsistent with this federal requirement.

The effect of the revisions to Sections 81.3(6), 81.3(C)(2), and 81.3(C)(5)(1) is that the regulation now consistently indicates that CAFOs can only discharge as the result of receiving within a 24-hour period rainfall that is in excess of a 25-year, 24-hour rainfall event. In contrast, CAFOs that do not have sufficient storage capacity in their retention structures to retain all process wastewater plus the runoff resulting from any series of rainfall events occurring over a short period of time (days or weeks) (also known as chronic storm events) cannot discharge as the result of such a series of events unless covered as point sources under a discharge permit, per Section 61.3 of the Colorado Discharge Permit System regulations.

81.22 STATEMENT OF BASIS, SPECIFIC AUTHORITY AND PURPOSE: FEBRUARY AND APRIL, 2004 RULEMAKING

The provisions of sections 25-8-202 and 25-8-401, C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

A. BACKGROUND

Revisions to the Federal concentrated animal feeding operation regulations under the National Pollutant Discharge Elimination System (NPDES) became effective on April 14, 2003. Revisions were made to the permitting requirements (40 CFR 122) and to the effluent limitation guidelines (40 CFR 412). The revised regulation requires, among others, a mandatory duty for CAFOs to apply for an NPDES permit and to develop and implement a nutrient management plan. 40 CFR Part 412.4(c)(3) of the revised federal regulations requires state NPDES permitting programs to be revised to reflect the regulatory changes within one year of the effective date of the new regulations, where no amended or enacted statute is necessary. Part 25-8-504(2) of the Colorado Water Quality Control Act prohibits the Division from issuing permits for animal or agricultural waste on farms and ranches except as may be required by the federal act or regulations. Therefore, Colorado does not need to amend or enact a statute for the purpose of revising its CAFO permitting program and has until April 14, 2004 to revise its CAFO permitting program to reflect the new federal regulations.

As a result of the revised Federal regulations, all but a very few CAFOs will be required to be covered under a permit. Part 25-8-504(2) states that provisions of any permit for animal or agricultural waste on farms and ranches shall not be any more stringent than, and shall not contain any condition for monitoring or reporting in excess of, the minimum required by the Federal Act or regulations. The revised Federal CAFO regulations focus on protection of the nation's surface waters and do not include provisions for protection of ground water from pollutants in manure or process wastewater. Therefore, surface water protection provisions must be included in a permit, and groundwater protection provisions cannot be included in a permit. As a result, the Commission has taken final action on revising this Regulation #81, which is a control regulation and not a permit regulation, to remove provisions pertaining to protection of surface waters and to monitoring of surface waters, and to retain provisions pertaining to protection of ground water

Also in this rulemaking hearing, the Commission adopted revisions to the Colorado Discharge Permit System Regulations [Regulation #61 (5 CCR 1002-61) to include regulatory requirements for CAFOs to protect surface waters, in response to the revised Federal CAFO regulations and to the revisions made to this Regulation #81.

B. REVISION OF TITLE OF REGULATION

The Commission is aware that the existing title of the regulation, “Confined Animal Feeding Operations Control Regulation” has been a source of confusion in the regulated community, primarily as a result of trying to discern the difference between a ‘confined’ animal feeding operation and a ‘concentrated’ animal feeding operation. The terms have often been used interchangeably, even though they do not mean the same thing. Since the regulation pertains to animal feeding operations, and a concentrated animal feeding operation must first meet the definition of an animal feeding operation before it is defined as a CAFO, the title of the regulation was revised to be the “Animal Feeding Operations Control Regulation.”

C. DISCUSSION OF AMENDED SECTIONS

Sections 81.3, 81.5, and 81.7: The adopted regulations deleted the existing sections 81.3 (Surface Water Protection Requirements), 81.5 (Beneficial Use and Disposal of Manure and Process Wastewater), and 81.7 (Manure and Process Wastewater Plans) of this Regulation #81. Provisions of these sections pertain to protection of surface waters and now must be included in a permit, pursuant to the revised Federal CAFO regulations. In addition, since information in the existing Appendices A, B, C, and D of this Regulation #81 pertain to surface water protection (and to the existing section 81.3 or 81.5), the four appendices were eliminated in the adopted rule.

Applicability: The Commission finds it appropriate to clarify near the beginning of this regulation the applicability of the regulatory provisions, including the fact that housed commercial swine feeding operations are excluded, since such operations are regulated under section 61.13 of Regulation #61. This exception is currently stated in section 81.9 (“Exclusions”). Therefore, the regulation was revised to add an “Applicability” section (81.1) and to delete the existing section 81.9.

Purpose of the regulation: As discussed above, a focus of the regulation has been changed to ensure protection of ground water by CAFOs, instead of protection of both surface and ground waters. The “Purpose” section of this Regulation #81 was revised accordingly. The existing purpose of animal feeding operations using best management practices to protect waters of the state was retained.

Definitions: The revised Federal CAFO regulations modified the definition of a concentrated animal feeding operation by, for example, deleting reference to animal equivalency factors and adding operations that can now be defined as CAFOs (for example, veal calf operations). Instead of using equivalency factors, the revised Federal regulation specifies threshold numbers of animal species that define a CAFO. It also defines Large, Medium, and Small CAFOs. In addition, the existing definition for “animal feeding operation” is not consistent with the federal definition. Since today's adopted rule retains provisions pertaining to AFOs and CAFOs, the Commission revised the existing definitions to include new Federal definitions of “animal feeding operation” and of “concentrated animal feeding operation.” Regarding the definition of an AFO, the Commission clarifies that wildlife and other non-traditional livestock animals, such as elk and llamas, are considered “animals” within the definition.

The Commission added the following definitions that pertain to ground water protection requirements: closed facility, conveyance structure, discharge, ground water, ground water recharge, impoundment, new source, open-lot wastewater, permit, process-generated wastewater, production area, raw material, setback, tank, tank overflow, wastewater, and water quality standard. The Commission intends that a conveyance structure be interpreted as runoff diversion structures, and does not include natural sheet flow within a production area.

The definition of ground water was taken from Colorado's Basic Standards for Ground Water regulation [Regulation No. 41 (5 CCR 1002-41)]. The definitions of discharge, impoundment, new source, permit, tank, and water quality standard were taken from Regulation #61. The definition of ground water recharge was taken from page 211 of "Groundwater" by R. Allan Freeze and John A. Cherry, Prentice-Hall, Inc. 1979.

The production area, as defined, includes the raw materials storage area, which includes but is not limited to feed silos, silage bunkers, and bedding materials. The Commission finds it appropriate to clarify that the raw materials storage area does not include locations where harvested dry forage (such as hay bale stacks) is stored outside of the production area or in hay fields.

The Commission finds it appropriate to clarify the definition of "new source" by adding the following new source criteria language from 40 CFR 122.29(b)(1) and (2): "Except as otherwise provided in an applicable new source performance standard, a source is a "new source" if it meets [this] definition of "new source", and: 1) it is constructed at a site at which no other source is located; or 2) it totally replaces the process or production equipment that causes the discharge of pollutants at an existing source; or 3) its processes are substantially independent of an existing source at the same site. In determining whether these processes are substantially independent, the [Division] shall consider such factors as the extent to which the new facility is integrated with the existing plant, and the extent to which the new facility is engaged in the same general type of activity as the existing source. A source meeting the requirements of the [1), 2), or 3) above] is a new source only if a new source performance standard is independently applicable to it. If there is no such independently applicable standard, the source is a new discharger."

Regarding the definition of "closed facility", the Commission clarifies that it is not the intent of this regulation to define a CAFO as closed where it has ceased operation but intends to sell the facility within a reasonable amount of time, or where the facility will restock animals within two years, or within some other reasonable period of time.

The Commission finds it appropriate to exclude harvested dry forage from being defined as a "raw material." Such forage is commonly found and stored in rural areas, runoff from such forage is not common, and contaminant concentrations in runoff are insignificant. In addition, water quality regulations do not contain provisions regarding runoff from dry harvested forage stored on farm fields or farmsteads.

A best management practice for AFOs is to apply manure and wastewater at agronomic rates. Since the existing regulation does not define "agronomic rate", the Commission added a definition of this term in order to clarify the performance standard for land applications of manure and wastewater. The expectation for meeting the requirements of the definition is use of the most current fertilizer suggestions of Cooperative Extension in Colorado or neighboring states, use of a qualified consultant's fertilizer calculation, or use of the fertilizer calculation in the most current United States Department of Agriculture-Natural Resources Conservation Service Comprehensive Nutrient Management Plan that has been prepared for the AFO.

The Commission also adopted the Federal definition of "land application site" since it is applicable to AFOs. The definition of "land application site" makes reference to land under the control of an AFO or CAFO. The Commission finds it appropriate to clarify that such land is under the control of an AFO where it is owned or leased by the AFO, where cropping and/or nutrient budget decisions for the site are made by the AFO, or where the AFO land applies wastewater or manure to such land. Such land is not under the control of an AFO where the AFO simply agrees to release wastewater or manure to the owner/operator of land that does not otherwise meet the criteria of being under the control of the AFO.

The Commission added a definition of "surface water" since it is this specific subset of waters of the state that is of concern in the process that the Division must use to designate an AFO as a CAFO. In keeping with the Federal interpretation, surface water includes subsurface water that may be hydrologically connected to surface water. The Commission intends that the hydrological connection aspect is pertinent only where it results in a contribution of pollutants being conveyed from ground water to surface water.

The Commission revised the definitions section to delete the following definitions that are obsolete as a result of the new federal CAFO regulations, that are no longer applicable to today's adopted rule, or have been superseded by definitions of other terms: animal unit, average working capacity, expanded facility, housed animal feeding operation, hydrologically sensitive area, new facility, no-discharge, open animal feeding operation, process wastewater, reactivated facility, reconstructed facility, significant groundwater recharge, 'ten year twenty-four hour storm and twenty five year twenty-four hour storm', and vadose zone.

To provide clarification of language in the rule and to be consistent with other regulations, the Commission revised the existing definitions of operator, man-made drainage system, and manure, deleted the definition of director, and added definitions for 'Division' and 'person'.

Designation of an AFO as a CAFO: The Federal regulatory language for the process of determining if an AFO will be designated a CAFO was separated from the CAFO definition and placed into its own section (new Section 81.4) for the purpose of more readily finding and identifying the process. As presented in Part A, above, of today's statement of basis, the Federal regulations focus on protection of surface water and a permit can address only protection surface water. This means that an AFO can be designated as a CAFO only where it could reasonably be expected to adversely affect surface water. The existing regulation has language that provides for an AFO to be designated as a CAFO where it is located in a hydrologically sensitive area, which includes areas where contamination of ground water could occur. Therefore, the "hydrologically sensitive area" language was removed in favor of the Federal criteria. However, the ground water protection aspects of the language were added to the "Practices to Protect Groundwater" subsection of the Animal Feeding Operations – Best Management Practices" section [section 81.6(6)].

The Commission understands that as part of the process of determining whether an AFO should be designated as a CAFO, the Division will consider the five criteria listed in today's adopted regulation in order to conclude whether an AFO could cause significant degradation of surface water subject to antidegradation review, or could cause an exceedance of any adopted surface water quality standard. The latter standards are specified in Regulation No. 31, "The Basic Standards and Methodologies for Surface Water."

Since the preamble of the Federal regulation allows States to provide an opportunity for an AFO that may be designated a CAFO to take actions that eliminate conditions that pose a risk to surface water quality, the Commission included provisions in the regulations that provides for such an opportunity in the form of an approvable work plan that is developed in consultation with the Division. The Commission is aware that some AFOs may have no easy solutions for eliminating or significantly abating risks to surface water. Such AFOs may indicate to the Division that it intends to remain in its location and operate as a CAFO and apply for a permit. Where an AFO does not complete and implement a work plan as required, the Commission added language that the Division may designate the AFO as a CAFO and be required to submit a complete CAFO discharge permit application.

AFOs can be designated as CAFOs where they directly discharge wastewater or manure into surface water through man-made drainage systems. The Commission clarifies that an overflow from an AFO impoundment or conveyance structure into surface water, or sheet flow runoff from an AFO into surface waters, are not direct discharges through man-made drainage systems.

Clarification of AFO definition: The Commission finds it appropriate to provide clarification of what confined animal feeding operations are AFOs, and what are not AFOs. To be an animal feeding operation (AFO), a lot or facility must have animals stabled or confined for at least 45 days out of any 12 month period, and crops, vegetation, forage growth, or post-harvest residues are not sustained in the normal growing season over any portion of the lot or facility. Using this criteria, it is not the intent of this regulation to include true pasture and rangeland operations as AFOs. Nor is it the intent of this regulation to include properly grazed crop residues or winter-feeding sites on pastures or rangeland as AFOs. A winter feeding site is not an AFO where it shows no vegetation during the winter but shows regrowth of desirable forage in the spring. However, pasture and grazing operations may have confinement areas (e.g., feedyards, barns, pens) that may meet the definition of an AFO.

Regarding the “no vegetation” cover part of the criteria, page 7189 of the revised Federal regulations states that incidental vegetation existing in a part, or parts, of a confined area, does not exclude the feeding operation from meeting the definition of an AFO. The Commission encourages the Division to use common sense and sound judgment in evaluating confined areas with incidental vegetation for meeting the definition of an AFO.

Part of the AFO definition refers to no vegetative cover being present during the normal growing season. However, Page 7189 of the revised Federal regulations states that the “no vegetation” criteria in the definition is meant to be evaluated during the winter, if animals are confined during that time. The Commission is aware that backgrounding operations are common in the State, where cattle weaned in the fall are fed in pens through the winter until they are turned out to pasture or rangeland in the spring. In keeping with the Federal preamble language, the Commission finds that backgrounding feedlots are AFOs where no vegetation is present for 45 days or more (whether during the winter or normal growing season), and animals are confined for 45 days out of any 12-month period. The Commission encourages the Division to use common sense and sound judgment in evaluating backgrounding feedlots for meeting the definition of an AFO.

Ground water protection requirements: As discussed above, the revised Federal CAFO regulations focus on protection of the nation's surface waters and do not, therefore, require provisions for protection of ground water from pollutants in manure or process wastewater. As a result, ground water protection provisions cannot be included as a condition in a CAFO permit, pursuant to section 25-8-504(2) of the Colorado Water Quality Control Act. The Commission recognized in 1992 the need to protect ground water under CAFOs by including in this Regulation #81 the previously existing section 81.4, “Ground Water Protection Requirements – Concentrated Animal Feeding Operations.” Therefore, the Commission finds that such provisions should be retained in this control regulation, with the following revisions.

The previous provisions were revised to retain a maximum seepage rate of 1×10^{-6} cm/sec as the baseline liner requirement for impoundments. This seepage rate standard is consistent with the allowable seepage standard provided in subsection 61.14(9) of Regulation No. 61 (the ground water permit regulations) which states that where the seepage from an impoundment, “does not exceed 1×10^{-6} cm/sec” such an impoundment “will be considered not to have a discharge to waters of the state, by virtue of the insignificant nature of the seepage...” This standard also is consistent with the statement of basis and purpose language (in Regulation #61) for the July 10, 1989 ground water permitting regulation hearing which states that, “the Division's design criteria requires that domestic wastewater and storage impoundments be sealed such that the seepage from the impoundment does not exceed 1×10^{-6} cm/sec. This criteria has been used in the design of numerous domestic facilities, and it generally is considered to require an “impervious” liner to meet it. “

For impoundments that collect wastewater runoff only, the previous provisions were retained that required a maximum seepage rate of 7.35×10^{-6} cm/sec (1/4” per day). The Commission recognizes that this weaker seepage standard, relative to the baseline standard, is appropriate for the more dilute nature of the retained wastewater and the short retention time allowed (see statement of basis and purpose for 1992 revisions to this regulation), but it may not be sufficiently protective of ground water where porous, low nutrient-retaining soil, such as sands, exists below an impoundment. The primary constituent of concern regarding ground water quality that typically seeps below impoundments is ammonium-nitrogen, which has a positive charge. Where ammonium-nitrogen is exposed to air (such as after an impoundment is abandoned), it can rapidly be converted to nitrate-nitrogen, which is negatively-charged and soluble and can move rapidly to ground water in sandy-type soils. Positively-charged ions can be adsorbed by negatively-charged soil particles, thereby being deterred from leaching to any significant depth in the soil. Therefore, the adopted rule specifies that the more lenient seepage rate can be used only where the ten (10) foot soil depth zone immediately beneath the impoundment has a cation exchange capacity (CEC) of at least 15 meq/100 g of soil, which is based on information in the Journal of Environmental Quality (Volume 29, November-December 2000) entitled, “Toward Site-specific Design Standards for Animal-Waste Lagoons: Protecting Ground Water Quality.” The intent of these regulations is that the required CEC must exist below the entire surface of the impoundment, which requires that

representative soil sampling be made in multiple locations, including perimeter and interior locations, within the “foot print” surface area of the impoundment.

As discussed above, ground water protection measures cannot be included as conditions in CAFO permits. While the existing rule required some, but not all, CAFOs to have evidence of a completed liner having been constructed in impoundments, the amended rule specifies that such evidence is required of all CAFOs, that it be prepared by a professional engineer certified in Colorado, and that it be provided to the Division upon request. The Commission recognizes that most CAFOs do not currently have the newly required evidence. To allow time for the CAFOs to obtain the evidence, the Commission set a deadline of April 13, 2006 by which CAFOs must have the evidence. This date is the latest deadline by which existing CAFOs must have applied for a permit under the revised federal CAFO regulations. After the deadline, the Division will request the evidence when a permit application is received, and during an inspection.

The Commission is aware that ground water located too close to impoundment bottoms can cause functional problems with construction and maintenance of impoundments. It also recognizes that impoundments pose a greater risk to ground water quality where they are located in close proximity to ground water. This risk is heightened where ground water supplies drinking water for the public. The Commission also recognizes that existing impoundments may be difficult to re-locate, but that it is appropriate to subject newly-constructed lagoons at new source CAFOs to location constraints. In order to provide for reasonable locations of impoundments, but not where they pose a potentially high risk to ground water quality or to proper construction and maintenance, the adopted rule specifies setbacks for impoundment locations for new source CAFOs.

The Commission added language requiring that manure and wastewater be removed from impoundments in a manner that does not damage the integrity of the liner. Liner integrity is at risk where manure is removed from impoundments using mechanical equipment and where it is difficult to discern the bottom of settled out manure versus the top of a soil liner, or where liquid remains in the impoundment. Mechanical equipment includes rubber-tired or track machinery, track hoes, and agitator pumps. It does not include other pumps such as floating pumps. Where an impoundment will be dewatered via pumps, agitators, or the like, the potential impacts to the structure should be considered and necessary protective features should be put into place, such as concrete pads, rip rap or additional sacrificial material, or an indicator of the impoundment bottom to signal an equipment operator where to stop pumping.

The Commission believes that a high level of assurance needs to exist that the liner standard continues to be met after manure removal, in order to assure the public that ground water is being protected. Therefore, the regulation was revised to require CAFOs to submit to the Division for approval a Standard Operating Procedure (“SOP”) that the CAFO will use and that demonstrates how manure will be removed such that the liner integrity is not damaged. Examples of appropriate methods include, but are not limited to, removing teeth from mechanical cleaning equipment and adding a protective “lip” to mechanical cleaning buckets to prevent digging. The adopted regulation also requires the operator to certify that manure was removed according to the SOP, maintain on-site copies of the SOP and certifications, and submit the SOP or certifications to the Division upon request. Where the SOP was not followed, it is appropriate to require that the liner be made available for inspection and, where just cause exists upon inspection, to require that the liner be re-certified by a professional engineer.

The Commission added an additional provision to the regulations that requires an operator to visually inspect exposed liners weekly to assure that a liner is maintained to minimize seepage. The requirement is applicable to exposed liners since the liner on impoundment bottoms is commonly not visible, being hidden by wastewater or manure sludge. The exposed liners would be inspected to identify physical changes or deficiencies that may affect the liner, such as rodent burrows, deep-rooted plants, rills, and step erosion caused by wave action. The weekly inspection frequency is the same as required for other inspections that must be made of impoundments, in accordance with the CAFO permit provisions in section 61.17 of the Colorado Discharge Permit System Regulations. Where deficiencies are found, the adopted regulation requires that they be corrected within 30 days, unless a longer correction period that was used by the operator is accompanied by an explanation of why the longer time period was

necessary. These provisions are also consistent with the CAFO permit provisions in section 61.17 of the Colorado Discharge Permit System Regulations.

The existing regulation has language regarding the design, construction, and performance standards of wastewater conveyance structures. The existing language requiring that conveyance structures be constructed to prevent exceedances of water quality standards was deleted since wastewater is conveyed by such structures for only a short period of time (during storms) and the depth of flow is minimal. In addition, the process of determining whether seepage in a structure will prevent an exceedance of ground water quality standards can be complicated and expensive. The existing language requiring seepage of wastewater from conveyances to be limited through the use of very low permeability materials and proper compaction was revised in response to stakeholder input and information provided by the Colorado conservation engineer for the United States Department of Agriculture- Natural Resources Conservation Service. Based on this information, conveyance structures constructed in soils with less than 35 percent gravel do not need to be compacted or lined. Structures placed in soils with greater than 35 percent gravel need to be compacted or lined in order to sufficiently minimize seepage in the structures.

The Commission is aware that conveyance structures that carry process-generated wastewater have a higher risk of seepage from the structures impacting ground water as a result of the higher concentrations of pollutants in the wastewater and the greater frequency of flow of the wastewater. The Commission also is aware that the extent of seepage below a conveyance structure can be greater where the structure is constantly in a wetted condition, such as where process-generated wastewater flows daily from a milking parlor. The Commission considers such a structure to be essentially an impoundment and, therefore, required in the adopted regulations that conveyances that carry process-generated wastewater non-intermittently (48 hours or less between conveyance events) be constructed and maintained to seep at a maximum rate of 1×10^{-6} cm/sec.

The existing section 81.8 (Monitoring) was deleted since it addressed water quality monitoring that may be required of either surface or ground water, or both. Since ground water protection provisions are being retained in today's adopted rule, ground water monitoring language was added to the new section 81.5. The Commission believes that ground water monitoring beneath impoundments is not justified, except where the liner in an impoundment is not being properly maintained, or where required evidence of ground water protection measures does not exist or is not provided to the Division upon request. In such situations, the Commission found it appropriate to specify the factors the Division shall consider before determining whether ground water monitoring is required. Where the Division determines that ground water monitoring is necessary, it is reasonable to allow the monitoring to be done using, to the extent practicable, existing facility wells, such as irrigation wells and drinking water wells.

Impoundment Closure: Closed impoundments are a risk to ground water quality once they become dry since ammonium-nitrogen that has seeped below a lagoon can be exposed to air. The oxygen in air can convert the ammonium to nitrate-nitrogen, which is negatively-charged and soluble and movable to ground water. Therefore, the Commission revised the regulation to include the requirement that a closed CAFO remove wastewater and manure from impoundments and backfill the impoundments with at least five feet of soil to minimize the access of oxygen to soil ammonium. Because backfilling may be difficult during the winter, the Commission allowed 120 days for the backfilling to be completed. It also included language that provides a CAFO the opportunity to submit to the Division for approval an alternative closure procedure that provides for protection of ground water.

Practices for AFOs to Protect Ground Water: As presented in the "Designation of an AFO as a CAFO" section above, the ground water protection provisions of the existing "hydrologically sensitive area" language can no longer be included as criteria for designating an AFO as a CAFO. As a result, these provisions were added to subsection 81.6(6) as a best management practice for protecting ground water quality. In this way, the Commission's intent is maintained whereby ground water is protected where it is at risk from an AFO being located above it.

The Commission finds it appropriate to clarify in today's rulemaking the existing "hydrologically sensitive area" language pertaining to ground water. Regarding an AFO being in a location where significant ground water recharge occurs, stakeholders indicated their preference that specific criteria be stated in the regulation for how such recharge will be determined, so that AFOs are aware of the standard to which they may be held. Stakeholders also agreed that the following publication be used for making a determination: the United States Department of Agriculture- Natural Resources Conservation Service's current "Agricultural Waste Management Field Handbook, Part 651, Chapter 7, Geologic and Ground Water Considerations." The Commission found it appropriate to specify in the regulation use of this document.

Regarding protection of future drinking water system withdrawals, the Commission added language that requires the Division to perform a water source susceptibility analysis. The goal of the analysis is to reveal whether an AFO has a "medium-high" or "high" potential for contaminating existing or reasonably likely future drinking water system withdrawals from ground water. The Commission clarifies that "reasonably likely future drinking water system withdrawals" refers to any new development or public facility, such as a new housing area or school, proposed to be located within a Source Water Assessment area. In addition, the Commission intends that the Division use its current "Source Water Assessment Methodology for Ground Water Sources" document for conducting the water source susceptibility analysis, and that the Division may accept the use of other methodologies that appropriately evaluate the physical setting of the ground water and the contaminant threat from the AFO, using the factors stated in the regulation.

Where an AFO could adversely affect ground water quality, the Commission adopted language requiring that the AFO protect ground water by installing a liner such that the seepage rate from each impoundment does not exceed 1×10^{-6} cm/sec, which is the same seepage rate standard required of CAFOs. Language also was added that provides for liners to be installed according to an approvable plan that is developed in consultation with the Division.

PARTIES TO THE RULEMAKING HEARING

1. Colorado Livestock Association, the Livestock Government Affairs Project, the Colorado Cattleman's Association, Dairy Farmers of America, the Colorado Farm Bureau, the Colorado Corn Growers Association and the Colorado Horse Council (Colorado Livestock Association, et al.)
2. R. Dean Jarrett, Jr. and/or M Sue Jarrett
3. AGPROfessionals, LLC
4. City of Grand Junction, Department of Public Works and Utilities
5. Seaboard Farms, Inc.
6. Heritage & Mountain Prairie
7. Brink, Inc.
8. Colorado Pork Producers Councils
9. Manuello's Inc.
10. Veeman Dairy
11. ContiBeef, LLC.

81.23 STATEMENT OF BASIS, SPECIFIC AUTHORITY AND PURPOSE: APRIL, 2008
RULEMAKING, EFFECTIVE DATE OF JUNE 30, 2008

The provisions of sections 25-8-202, 25-8-205 and 25-8-401, C.R.S., provide the specific statutory authority for adoption of the attached regulatory amendments. The Commission also adopted, in compliance with section 24-4-103(4) C.R.S., the following statement of basis and purpose.

BASIS AND PURPOSE

A. BACKGROUND

This hearing was held to consider changes as recommended in the triennial review informational hearing for this regulation on May 14, 2007, and in subsequent testimonies provided by stakeholders and parties to the hearing process.

As a result of this rulemaking proceeding, the Commission adopted the following amendments to this regulation.

B. DISCUSSION OF AMENDMENTS

Section 81.1 (Applicability): On February 28, 2005, the U.S. Second Circuit Court of Appeals in Waterkeeper Alliance et al., v. EPA, 399 F. 3d 486 (2nd Cir. 2005) (Waterkeeper), vacated the requirement that a concentrated animal feeding operation (CAFO) has a “duty to apply” for a National Pollutant Discharge Elimination System (NPDES) permit. This requirement was specified in the federal CAFO rule that became effective on April 14, 2003 (“federal CAFO rule”). Therefore, the Commission revised Section 81.1 to delete the requirement that all CAFOs are subject to permitting requirements, and to add a sentence that reflects the permitting requirement as found in the current federal CAFO rule.

Section 81.2 (Purpose): As discussed below, today’s adopted rule added the requirements that non-permitted CAFOs protect surface water and register with the Division. The “Purpose” section, therefore, was revised accordingly.

In addition, the four purposes were arranged to cite the ground water protection purpose first, since it applies to all CAFOs, whether permitted or not, to cite as second and third the purposes pertaining only to non-permitted CAFOs, and to list in fourth position the purpose pertaining to AFOs.

Section 81.3 (Definitions): The Commission added definitions of the following words, which are used in today’s adopted regulation: best management practice, chronic storm, facility, freeboard, medium animal feeding operation, solid/liquid waste separation facility, stock watering point, stormwater, “25-year, 24-hour storm”, wastewater treatment strip, and waters of the U.S. The definitions of chronic storm and “25-year, 24-hour storm” were taken from the Colorado Discharge Permit System Regulations (Regulation No. 61, 5 CCR 1002-61) in order to have consistency.

Regarding the stock watering point definition, the Commission intends for the term “hardened surface” to mean one that protects against water erosion, and includes surfaces made of gravel, concrete, cushioned padding, or stone cobbles.

The Commission revised for clarity the definitions of surface water and tank overflow. The surface water definition was revised to change “subsurface waters” to “ground water” and to make two minor edits. The tank overflow definition was revised to delete the word “cattle” and the word “process” in front of “wastewater.”

The Commission deleted the definition of closed facility since this term is not used in today’s adopted rule.

In the statement of basis and purpose for the 2004 revisions to this regulation, the Commission stated that: "The Commission finds it appropriate to exclude harvested dry forage from being defined as a 'raw material'." The Commission now notes that in some circumstances dry forage, or hay, meets the definition of a raw material, including, e.g., when it is stored for use in a location in or immediately adjacent to an animal confinement area. In view of the complexity reflected in the discussion during this hearing regarding drawing precise lines as to when hay is or is not a raw material subject to regulation as part of an animal feeding operation, the Commission believes that it is not appropriate to attempt to further define these terms in this rulemaking. Rather, interpretation and application of the regulatory language will be left to the case-by-case judgment of those implementing the regulation, taking into account the potential for adverse water quality impacts.

Section 81.4 (Designation of an AFO as a CAFO): The Commission amended this section to change "surface water" to "waters of the U.S." so that it reflects the language in the federal CAFO rule; that is, the federal CAFO rule provides for the designation of an AFO to a CAFO to be tied to waters of the U.S. This revision also makes the language consistent with that in section 61.17(4) of Regulation No. 61.

The Commission revised the word "wastes" to read "manure and wastewater" in order to clarify the regulatory meaning and intent of the word.

Because the Waterkeeper ruling removed the "duty to apply" for a permit provision in the federal CAFO rule, the Commission revised section 81.4(3)(b) to provide a designated CAFO the option to either apply for a permit or comply with the CAFO surface and ground water protection provisions of the regulation. In addition, section 81.4(4) was revised to require that a designated CAFO apply for a permit where it has discharged to waters of the U.S., which is required by section 61.17(2)(c) of Regulation No. 61.

New Section 81.5 (Register with Division): CAFOs are, by definition, point sources of pollution [per Section 25-8-103(14), C.R.S., of the Colorado Water Quality Control Act]. The Commission believes that CAFOs have the potential to discharge to waters of the state as a result of, for example, blizzards, sudden and intense rainfall events, or operational errors. Where a discharge is to waters of the U.S., it is subject to permit requirements (except those that are agricultural stormwater discharges as described in section 81.7(1)(c)), in accordance with sections 61.17(2)(b-c) of Regulation No. 61. However, as a result of the Waterkeeper ruling, a CAFO no longer has a duty to apply proactively for a NPDES permit. Where a CAFO elects to not apply for a permit, the Division may not have knowledge of its location and contact information. Such knowledge is important to help ensure that non-permitted CAFOs are in compliance with this regulation, including the ground water and agricultural stormwater exemption provisions, and with the permit requirement language in section 61.17(2)(b) of Regulation No. 61.

The information also is important for use by the Division to respond in a timely and effective manner to citizen complaints about a facility, including allegations of a discharge to waters of the U.S. Therefore, this regulation was revised to include a new section that requires non-permitted CAFOs to register with the Division by submitting information such as facility name, location, facility phone number, mailing address, and number of animals to be confined.

Regarding the number of animals that will be confined, the Commission intends for the number to represent the maximum number that a facility will confine in a year, and for the number to be broken down by the type of animals that will be confined (e.g., cattle, horses, dairy heifers, mature dairy cows, buffalo). It is not intended to be the cumulative or additive number of animals to be confined in a year.

New Section 81.6 (Facility Management Plan): Agreement among parties existed of the need for core documents required by the regulation (as opposed to dynamic documents, such as inspection records) to be located in one discrete place on a CAFO site for the benefit of the producer and for facilitation of inspections. As a result, the Commission created a new section that requires non-permitted CAFOs to compile a Facility Management Plan (FMP) that contains specified information under the following categories: 1) surface water protection elements –production area; 2) surface water protection elements – land application sites; 3) ground water protection elements – production area. The term Facility Management Plan was selected because the plan contains more than one category of information (e.g., it

addresses more than nutrient management), has information about both the production area and land application sites, and to distinguish it from the nutrient management plan required of permitted CAFOs.

1. Surface water protection elements (background information). The Commission is aware that surface water protection provisions existed in the regulation prior to May 2004 and were removed because, as a result of the 2003 federal CAFO rule, all CAFOs would protect surface water as a result of having the duty to apply for a permit. However, as a result of the Waterkeeper ruling on February 28, 2005, a CAFO no longer has a duty to apply for a NPDES permit unless it discharges to waters of the U.S. As a result of this ruling, it is anticipated that a majority of the estimated 200 CAFOs in the state will elect to not apply for a NPDES permit. Some of these CAFOs are located where a release of wastewater could discharge into surface waters of the state (from either the production area or a land application site), but not waters of the U.S. While such a discharge would not require a permit, it would be allowed under the previous Regulation No. 81 and would cause pollution of state waters.

Similarly some CAFOs that elect to not hold a discharge permit are located where a release of wastewater could discharge into waters of the U.S. Where such a CAFO elects to not hold a permit, significant discharges to surface waters (albeit unauthorized discharges) can result from either no or a minimum of wastewater runoff controls being in place. In addition, wastewater runoff could flow unabated onto a crop field or neighboring property, which could be considered a nuisance.

Agreement among parties to the hearing existed of the desire to have non-permitted CAFOs design their production areas, and to operate their production areas and application sites, substantially consistent with the standards specified for permitted CAFOs in section 61.17 of Regulation No. 61. This results in greater water quality protection, as well as a less confusing regulatory environment and equalization of economic positions among facilities.

The Commission is aware, based on the above discussion, that such standards would affect all non-permitted CAFOs, whether or not a facility could discharge into waters of the U.S. In addition, the Commission considered the fact that where a non-permitted CAFO implements such standards and discharges to waters of the U.S., the discharge is a violation of sections 61.17(2)(b-c) of Regulation No. 61 (i.e., no discharge without a permit).

The Commission concluded that, in the interest of protecting surface waters, and in light of the fact that surface water protection requirements for CAFOs existed in the regulation prior to May 2004, it is appropriate to have non-permitted CAFOs proactively protect surface waters by amending this regulation to require surface water protection provisions that reflect, where reasonable, those required of permitted CAFOs. Specifics of the requirements are discussed below.

2. Surface water protection elements – production area. The regulation was revised to include a subsection containing surface water protection requirements for the production area of non-permitted CAFOs. The main requirement is that wastewater control structures be designed and constructed to be capable of storing the volume of all liquid manure and wastewater, including the runoff resulting from a 25-year, 24-hour storm or chronic storm, whichever is greater, plus two feet of freeboard. These are the same standards required of permitted CAFOs. The regulation also provides for, as an option to conventional impoundments, the use of a solid/liquid waste separation facility in conjunction with a wastewater treatment strip. The Commission is aware that, depending on the storm size or intensity, wastewater could exit the end of the treatment strip and discharge into waters of the U.S. Where a non-permitted CAFO operator elects to use this wastewater control system, and a discharge to waters of the U.S. occurs, it is clear from sections 61.17(2)(b-c) of Regulation No. 61 that such a discharge is subject to permit requirements.

In recognition that a number of CAFOs currently do not have in place the required control structures, the Commission determined that three-years was a reasonable amount of time for the

structures to be constructed. Therefore, a deadline of May 31, 2011 was placed in the regulation for production area requirements to be developed, implemented, and included in the FMP.

The adopted regulation includes language from section 61.17(8)(c)(i)(B) of Regulation No. 61 indicating when an impoundment must be dewatered once the storage capacity is less than that required to store runoff from the designed storm event ("pumping level"). The language from section 61.17(8)(c)(i)(A) requiring that a minimum of two feet of freeboard exist in an impoundment was not included in today's adopted rule since it is a moot requirement where it is the pumping level that must be maintained and this level is lower than two feet of freeboard.

Section 81.6(1)(c) of the adopted rule includes the requirement from section 61.17(8)(g)(vii)(D) of Regulation No. 61 that depth markers be clearly marked, at minimum, in one (1) foot increments. The Commission intends that the markers show the depth of the impoundment, beginning at the top of the impoundment. In addition, Section 81.6(1)(c) specifies that only impoundments that are necessary to hold the runoff from the applicable storm event must have depth markers.

3. Surface water protection elements – land application sites. The regulation was revised to include a subsection containing surface water protection requirements for the land application sites. In order to have consistency with section 61.17(8)(c) of Regulation No. 61, a deadline of February 27, 2009, was set for the elements to be developed, implemented, and included in the FMP.

The surface water protection requirements are the same as those required of permitted CAFOs, except as follows: (1) The permit regulation requirement that process wastewater not be applied to either frozen or flooded land application sites was revised to state that "there shall be no discharge to surface water from land application activities when the ground is frozen or saturated." The Commission determined that the revision is appropriate because the permit regulation requirement is a technical standard not specified in the federal rule and the revised standard is protective of surface waters while providing flexibility in application timing. This provision also is applicable to where applied wastewater freezes on the soil surface and subsequently melts and runs off of the application site. (2) The permit regulation requirement that the soil water holding capacity of the soil cannot be exceeded when wastewater is sprinkler-applied was omitted since it would conflict with the revised language noted in number (1) above.

As in the CAFO permit regulation (section 61.17(8)(c)(x)(A) of Regulation No. 61), the adopted regulation requires that phosphorus transport risk assessments be made using a screening tool approved by the Division that is current, readily available, peer-reviewed, and appropriate for use in Colorado. The Commission is aware that one evaluation tool, the Colorado Phosphorus Index Risk Assessment published by the United States Department of Agriculture – Natural Resources Conservation Service ("P Index"), exists for phosphorus transport risk assessments and that this tool is useful and applicable to Colorado agronomic conditions. This tool rates transport risks as 'low', 'medium', 'high', or 'very high'. Therefore, today's adopted language specifies that assessments of phosphorus transport risk be made using a screening tool that results in a risk score of 'low', 'medium', 'high', or 'very high'. The Commission intends that the most current P Index be the preferred assessment tool, unless the Division has approved an equivalent or better tool.

The Commission is aware that a published tool suitable for assessing nitrogen transport risk does not currently exist. Therefore, it finds that use by operators of the technical standards specified in sections 81.6(2)(b)(i) and (iii), in conjunction with the requirement that land application sites be evaluated for phosphorus runoff risk, will result in nitrogen transport to surface waters being minimized.

The Commission is aware that an evaluation of the risk of phosphorus runoff from land application sites has not previously been a requirement for CAFOs applying process wastewater or manure, and that some land application sites may have a very high risk of such runoff. Therefore, the Commission adopted language that provides for a three (3) year phased

implementation of phosphorus-based nutrient management for land application sites that have a very high risk of phosphorus runoff when first evaluated after the adoption of today's rules.

Regarding soil sampling protocols, the Commission clarifies that the appropriate soil sampling depth be governed by commonly accepted nutrient budget methodologies, such as Colorado State University Cooperative Extension fertilizer recommendations or a nutrient management plan that meets United States Department of Agriculture – Natural Resources Conservation Service standards. Where a methodology indicates that a certain sampling depth is necessary and a deeper depth is preferred, sampling to the former depth meets the intent of these regulations.

The adopted regulation requires that land application equipment be inspected for leaks. The Commission intends that such inspections be made within the six-month period prior to the first application of manure or wastewater being made in any given year. In addition, such equipment shall be inspected at least once daily when applying process wastewater.

The adopted regulation requires that manure and wastewater be applied as uniformly as possible with properly calibrated equipment. Dry manure is notably difficult to apply uniformly and evenly. Testimony in the record showed that contract haulers typically apply dry manure at a rate of between 10%-20% of the target agronomic rate (e.g., 20 tons/acre) and that Colorado State University research shows that the amount of manure applied to a field as calculated from two common calibration methods is not significantly different from the amount that contract haulers stated that they applied to the same field. In addition, where manure is applied within 10%-20% of the calculated agronomic rate, the nitrogen loading of the soil will self-balance over time as the result of subsequent soil samples and agronomic rate calculations based on the nitrogen concentration in those samples. Therefore, the Commission concludes that where the amount of dry manure applied to a field with properly calibrated equipment is within 10%-20% of the calculated agronomic rate, the application is compliant with this adopted provision. In addition, the Commission recognizes as an appropriate calibration method where a contract hauler adjusts his/her application rate "on-the-go" during application to a field. The Commission emphasizes that the expectation of the regulation is that dry manure be applied at the calculated agronomic rate using an appropriate calibration method.

4. Ground water protection elements – production area. As noted above, one purpose of the FMP is to have core documents (not records) required by the regulation to be located in one discrete location on a CAFO site for the benefit of the producer and for facilitation of inspections. Thus, the regulation was revised to specify that certain documents required by the ground water protection provisions of this regulation, such as the approved Standard Operating Procedure, be placed in the FMP. The Commission determined that these documents should be in the FMP by February 27, 2009, which is the same date that surface water protection provisions must be in place.
5. New Section 81.7 (Additional requirements): The Commission established a new section of this regulation to include certain performance standards, and recordkeeping and discharge reporting requirements, as they are not appropriate for inclusion in other previous or revised parts of this regulation. The provisions of new sections 81.7(1)(b) and 81.7(2)(c) pertain to the agricultural stormwater discharge criteria specified in section 61.17(2)(b-c) of Regulation No. 61, and are included here to have the criteria be enforceable outside of the permitting regulation.

The Commission decided that the discharge reporting requirements are necessary because the Division does not have adequate staff to monitor, in real time, all discharges to waters of the U.S. Certain timely information is needed about a discharge prior to making the determination that a CAFO must apply for a discharge permit, in accordance with sections 61.17(2)(b-c) of Regulation No. 61.

Section 81.7(2)(c) includes language allowing the Division to approve an alternative to recording weekly depths of wastewater as indicated by depth markers. For example, depths could be measured and recorded using sonar or pressure transducers. Requests from operators to use an alternative method should demonstrate why the alternative will be at least as accurate as using depth markers, how an alternative instrument will be calibrated (for example, by comparing monthly the wastewater levels shown on the depth markers with those recorded by the alternative instrument), and how records of wastewater measurements will be taken and maintained (for example, on the web).

New Section 81.8 (Ground water protection – CAFOs): This section previously existed as section 81.5. The section title was revised to show that it applies to both permitted and non-permitted CAFOs, as opposed to the new sections 81.6 and 81.7, which are applicable to only non-permitted CAFOs.

1. Liner certifications. Subsection 81.8(2)(b) was revised to move liner certification deadlines to new subsections 81.8(2)(b)(i-iii). Subsection 81.8(2)(b)(ii) carries forward previously existing language in section 81.8(2)(b), but which today's ruling revised to remove the requirement that a liner certification for a new impoundment needs to be in place 30 days prior to wastewater entering the impoundment. It is sufficient simply to have the certification be in place prior to wastewater entering the impoundment. In addition, the subsection was revised to pertain to impoundments constructed after June 30, 2004 and before February 27, 2009. The reason for this revision was to separate these impoundments from those constructed after February 27, 2009, which now are required by subsection 81.8(2)(b)(iii) to have available both the liner certification and, where applicable, the seepage rate calculations using Darcy's Law.

The previous regulation required that liner certifications be available on facility sites. Today's ruling retains this requirement and adds as section 81.8(2)(b)(iv) the requirement that certifications for impoundments constructed after February 1, 2007, be submitted to the Division by specified deadlines so that the Division has assurance that these important documents pertaining to ground water protection have been generated. As a result of an operator self-certification process conducted by the Division, liner certifications for impoundments constructed prior to February 1, 2007, should have been submitted to the Division.

The Commission revised subsection 81.8(3)(b) to show that a liner re-certification needs to be made by a professional engineer registered in Colorado.

2. Liner inspections. The Commission is aware that both earthen and synthetic (e.g., plastic) liners are subject to damage from various causes. Thus, subsection 81.8(2)(c) was revised to delete the word "earthen" prior to "impoundment" to have the provision require that both earthen and synthetic liners be inspected weekly.
3. Manure removal certifications. To have the requirement be more appropriately positioned and more easily identified, the requirement that the approvable standard operating procedure (SOP) be on-site (previously part of subsection 81.8(3)(d)) was moved to become the new subsection 81.8(3)(a).

The Commission modified for clarity section 81.8(3)(c) to have the phrase "a new CAFO" read "a CAFO that comes into existence after December 31, 2004."

Subsection 81.8(3)(d) requires an operator to certify after each manure removal event that the manure was removed in accordance with the approved SOP. Implementation of this provision revealed that some concrete-lined impoundments are cleaned of manure daily, and some are cleaned a number of times daily, such as slurry pits in some dairy freestall barns. For such impoundments, it is not reasonable to expect an operator to certify after each cleaning that manure was removed in accordance with the approved SOP. However, where a certification is not provided after each removal event, the Commission is aware that concrete liner integrity can deteriorate with time, which can result in the rate of seepage exceeding the 1×10^{-6} cm/sec

threshold. Therefore, the Commission provided the option that where the operator does not complete a certification after each manure removal event, the impoundment must be drained and cleaned every five years and evaluated for liner integrity. The Commission expects that the evaluation determine whether the concrete is free of visible defects and distress that would reasonably cause the liner to not be capable of having a maximum seepage rate of 1×10^{-6} cm/sec. It is appropriate to have the operator use best professional judgment in making the integrity evaluation as opposed to having a professional engineer make the evaluation. The adopted regulation specifies that damaged concrete liners be repaired and that evidence of liner evaluations and repairs, such as photographs, be kept and be submitted to the Division.

4. Impoundment setbacks. The previous subsection 81.8(6)(a) required a setback distance to ground water of 20 feet for earthen-lined impoundments at new source CAFO sites. As the result of testimony, the Commission concludes that this requirement is not relevant for the purpose of protecting ground water from impoundment seepage and for protecting impoundment liners from the affects of hydrostatic pressure. Therefore, this previous subsection was deleted by today's rulemaking.

The previous subsection 81.8(6)(b) [which is now subsection 81.8(6)(a)] required a setback distance of four feet from seasonally high ground water to the liner of a new source impoundment. The intent of this setback was to ensure that hydrostatic pressure from ground water will not affect the liner integrity; that is, it provided an insurance factor that allowed for some increase in the ground water level after impoundment construction to occur without the ground water contacting the liner. The Commission believes that the four foot setback is still appropriate as an insurance factor, but finds that a liner can also be protected from hydrostatic pressure where ground water is less than four feet from the liner by installation of an engineered feature (such as a dewatering system) that prevents ground water from contacting the liner. Thus, the adopted regulation includes a new subsection 81.8(6)(a) that allows for a liner to be constructed closer than four feet to ground water where the impoundment is constructed and maintained in accordance with the design by a professional engineer registered in Colorado that prevents ground water from contacting the impoundment liner. The purpose of such a design is to prevent hydrostatic pressure from affecting liner integrity.

As a result of the addition of subsection 81.8(6)(a), any new impoundment, not just one at a new source facility, can comply with the ground water setback requirements. In addition, a significantly expanded impoundment can be designed to protect the liner from shallow ground water. Thus, the Commission revised section 81.8(6) to pertain to new and significantly expanded impoundments, instead of to just new source impoundments. The Commission finds it reasonable to have a significantly expanded impoundment mean one that is expanded by 50 percent or more of its existing storage capacity.

To provide needed clarity, section 81.8(6)(a) was revised to refer to the bottom of an impoundment liner instead of to an impoundment bottom.

The Commission is aware that it may be desirable to construct a CAFO impoundment nearby to a structure that contains surface water, such as a berm of an irrigation canal. Where such an impoundment meets the liner construction and protection requirements of this regulation, a release of pollutants from the liner to ground water is not considered a discharge to the ground water, in accordance with subsection 61.14(9) of Regulation No. 61. The Commission clarifies, however, that where a release of pollutants from the liner is to surface water (for example, the irrigation canal water), such a discharge is a discharge to surface water that is subject to the permitting requirements of section 61.17(2)(b) of Regulation No. 61.

5. Ground water remediation (new subsection). The Commission recognized in its 1992 rulemaking the need to protect ground water under CAFOs by including in this regulation the "Ground Water Protection Requirements – Concentrated Animal Feeding Operations." Where the Division determines that an operator caused ground water contamination through non-compliance with

this regulation, the Commission finds it is appropriate that the operator remediate such contamination. To this end, a “Ground Water Remediation” subsection was added that specifies that the Division must determine that non-compliance by the CAFO with these regulations caused or contributed to the exceedance of ground water quality standards and, where so determined, the requirement that the CAFO submit to the Division certain information, such as investigation and remediation plans, by specified deadlines. The new subsection also requires implementation of plans by specified deadlines.

6. Impoundment closure. The previous impoundment closure language pertains only to where a CAFO facility closes. Implementation of this language revealed that situations exist where an impoundment needs to be closed even though the facility as a whole is not closing. The previous language also specifies that the default requirement for a closed earthen impoundment is backfilling with at least five feet of soil. Depending on the impoundment depth, such backfilling could cause ponding of rainfall and stormwater, which may cause material injury to state water rights. Therefore, the Commission revised the regulation to have impoundment closure pertain to any closed CAFO impoundment, to require that soil fill be sufficient to prevent ponding, and to have the soil fill requirement pertain to any closed impoundment, including synthetic-lined impoundments.

The Commission retained the provision that an operator can close an impoundment using an alternative procedure and timeline approved by the Division. The Commission intends that one approvable alternative is backfilling with at least two feet of soil that is graded to reasonably prevent water ponding and provides for stormwater to drain from the impoundment through, for example, a breached berm of the impoundment.

In addition, the adopted language requires that manure and wastewater be removed from a closed pond within 60 days of closure, but flexibility is provided to have the Division approve an alternative timeline proposed by an operator that addresses site specific needs, conditions, and/or circumstances.

New Section 81.9 (Animal Feeding Operations - BMPs): This section previously existed as section 81.6. The following revisions were adopted as a result of this rulemaking.

1. Collect manure frequently. This best management practice (BMP) currently exists under the general BMP category of “Practices to decrease open lot surface area.” The Commission determined that this BMP was more appropriate under the general BMP category of “Practices to minimize manure transport to surface water”, and moved it accordingly.
2. Practices to decrease wastewater discharges to watercourses. The word “watercourses” in this general BMP header was changed to “surface water”, which is a defined term in this regulation.

An existing BMP provides for an AFO to “collect and allow wastewater to evaporate.” The Commission has concerns that storage and evaporation of open-lot wastewater (which results primarily from runoff from pens as a result of precipitation) may cause material injury to state water rights. As a result, the BMP was modified to have it pertain to process-generated wastewater only. In addition, since process-generated wastewater typically has a higher concentration of pollutants than open-lot wastewater, and a Medium AFO can produce a significant volume of process-generated wastewater (such as from a dairy milking parlor), and inadequately controlled process-generated wastewater can have a significant impact on surface water quality, the Commission added a design standard that a Medium AFO have the capability of storing process-generated wastewater for 180 days, at minimum. However, where a Medium AFO anticipates eventually confining enough animals to be defined as a Large CAFO, the Commission encourages the operation to construct the impoundment to meet the capacity standard required of CAFOs.

An existing BMP provides for an AFO to “collect and evenly apply wastewater to land application sites at an agronomic rate.” Since a Medium AFO can produce a significant volume of wastewater (open-lot plus process-generated wastewater), and a number of Medium AFOs operate with animal numbers that are close to the Large CAFO threshold numbers, and inadequately controlled wastewater can have a significant impact on surface water quality, the Commission established a minimum design standard that a Medium AFO have the capability of storing wastewater for 120 days, at minimum. This is a reasonable length of time during which no land application can typically occur due to conditions during winter months (e.g., cold weather). However, where a Medium AFO anticipates eventually confining enough animals to be defined as a Large CAFO, the Commission encourages the operation to construct the impoundment to meet the capacity standard required of CAFOs.

Where a BMP requires that manure or wastewater be applied at an agronomic rate, the Commission finds it appropriate that an AFO keep records showing that agronomic rate applications have occurred. Thus, sections 81.9(4)(b) and 81.9(5)(e) of the regulation were revised accordingly.

The Commission has become aware that management methods other than impoundments, such as a wastewater treatment strip, are available that can appropriately satisfy the intent of decreasing wastewater discharges to surface water. In addition, impoundments typically are not appropriate for AFOs located over shallow ground water. Therefore, the Commission added flexibility to this regulation by adding a wastewater treatment strip as a BMP, and stating that other methods are appropriate where approved by the Division. These methods are appropriate for managing open-lot wastewater only, for reasons previously discussed above.

As specified in sections 81.3(19) and 81.4 of the regulation, where animals at an AFO have direct contact with waters of the U.S., the AFO is either defined as a Medium CAFO or is at risk of being designated as a CAFO. Because of these provisions, the Commission added to section 81.9(4) a BMP prohibiting animal access to surface water. However, the Commission is aware that a number of AFOs were historically located adjacent to flowing water, which served as the water source for the confined animals. This flowing water often is the sole source of water for the animals because, for example, a well permit or diversion right (which could be used to divert water from a river to a stock tank) can't be acquired in these times of heavily appropriated water. In recognition of these realities, the Commission concluded that it is reasonable to allow animals to obtain drinking water from surface water where the animals do not reasonably have access to any other source of drinking water, and that for such situations, surface water will be reasonably protected by animal access to the surface water being strictly limited via a constructed stock watering point. The Commission provided in the BMP and in the definition of a stock watering point the design and operational standards for a stock watering point.

Improperly handled animal mortalities can be a significant source of surface water contamination. In recognition of this, section 25-1-612, C.R.S., specifies that dead animals shall not be placed in surface water or other specified areas. The Commission decided to emphasize the need for AFOs to properly handle mortalities by requiring that a discharge from mortalities to surface water be prevented.

3. Practices to minimize manure discharges to watercourses. The word “watercourses” in this general BMP header and in subsection 81.9(5)(a) was changed to “surface water”, which is a defined term in this regulation.
4. Practices to protect ground water. As discussed previously, a Medium AFO can produce a significant volume of wastewater (open-lot and/or process-generated wastewater), especially those that operate with animal numbers that are just below the Large CAFO threshold numbers. Where an impoundment is in place to store the wastewater, ground water quality is at risk from pollutants (especially nitrogenous compounds) percolating through the vadose zone under the impoundment. In light of this risk, the Commission revised the regulation to add a new

subsection 81.9(6)(c) requiring that an impoundment at a Medium AFO be lined such that the seepage rate from the impoundment does not exceed 1×10^{-6} cm/sec, which is the same standard required of CAFOs. In addition, the facility must have at the facility documentation from a professional engineer registered in Colorado certifying that a liner of an impoundment does not allow a seepage rate in excess of 1×10^{-6} cm/sec.

As a result of this regulatory addition, the Commission amended sections 81.9(6)(c) and 81.9(6)(c)(i) to have them not pertain to Medium AFOs.

The Commission recognizes that Medium AFOs will need time to test existing liners and, where a seepage rate is in excess of 1×10^{-6} cm/sec, time to install a compliant liner. Therefore, a deadline of May 30, 2011, was set for a Medium AFO to have at the facility the required documentation from a professional engineer for an impoundment constructed on or prior to December 31, 2008. This is the same deadline by which non-permitted CAFOs must have constructed in the production area the surface water protection structures specified in section 81.6(1). For an impoundment constructed after the effective date of this rulemaking, the documentation from a professional engineer must be available prior to wastewater entering the impoundment.

Administrative Revisions

The Commission added the following phrase to the first sentence of the introductory paragraph of this regulation because the acronym C.F.R. is used in the regulation: "including references to the Code of Federal Regulations (C.F.R.)."

In sections 81.8(2)(b), 81.8(5)(b and d), and 81.8(7), the Commission amended references to section 81.5 to be section 81.8, because section 81.5 was changed to be section 81.8.

The Commission modified for correctness section 81.8(2)(a)(ii) to have the outline notations I, II, III, and IV read A, B, C, and D, respectively.

The Commission modified for correctness section 81.9(3)(a) to have "caterers" read "waterers."

In order to segregate two requirements, the Commission moved the phrase "avoid applications on saturated soils and lands subject to erosion" from section 81.9(5)(e) and placed it in a new subsection 81.9(5)(f).

The Commission modified for clarity section 81.9(5)(g) to have the phrase "edge of field, grassed strips filter fences" read "edge of field grassed strips, filter fences."

The Commission modified for correctness sections 81.9(6)(c)(i) to have the outline notation I, II, and III read A, B, and C, respectively.

The Commission modified for correctness sections 81.9(6)(c)(ii) to have the outline notation I and II read A and B, respectively.

PARTIES TO THE RULEMAKING HEARING

1. Colorado Livestock Association



11111 West 95th Street
Overland Park, KS 66214

September 4, 2015

Kirby Harper
Trans Pecos Real Estate, Inc.
120 Pecan Valley Lane
Waxahachie, TX 75165

RE: Appraisal Assignment - RIMS Project No. 15-001986-01-01
Agricultural - Agribusiness-Dairy
2689 State Highway 10 East
Walsenburg, CO 81089

Dear Kirby:

Per your acceptance via RIMS, Community Banks of Colorado has retained your services as an independent fee appraiser to complete an appraisal of the above-referenced property. A qualified staff appraiser may perform the appraisal, but you must at a minimum fully review and sign the report. The appraisal may not be subcontracted to an outside individual or firm without our prior written consent.

Other conditions under which this assignment is predicated are outlined below.

Deliverables

Unless otherwise indicated in this engagement letter, the appraisal report must be submitted in .pdf format. When applicable, a discounted cash flow analysis should be performed using the most recent version of ARGUS. Please upload a copy of the ARGUS data file to RIMS upon completion.

Compensation

The agreed upon fee for this assignment is \$5,500.00. This fee includes all expenses that you may incur as a result of this assignment.

Timely Completion/Delivery Instructions

Timely completion of the assignment is essential. The appraisal and all addenda shall be uploaded to RIMS on or before **11/13/2015** or Community Banks of Colorado may reduce your total compensation by three percent (3%) per day. However, this penalty will not apply if, within three (3) business days prior to the due date, you have notified Mike Hohmann at mhohmann@nbhbank.com of the anticipated delay and have been granted an extension in writing.

Termination

NBH reserves the right to terminate this assignment without cause. Upon termination, NBH will remain obligated to pay for all undisputed fees and expenses incurred prior to the effective date of termination.

General Performance Standards

By accepting this award you warrant that you and/or your personnel will perform your duties in a diligent and professional manner using the degree of duty and care ordinarily exercised by reputable members of your profession. At a minimum, this appraisal assignment must conform to OCC appraisal guidelines, which incorporates the Uniform Standards of Professional Appraisal Practice and Advisory Opinions as set forth by the Appraisal Foundation, as well as to the Financial Institutions Reform, Recovery, and

[1] Alternative delivery methods are acceptable if arrangements have been made in advance.

[2] Office of the Comptroller of the Currency (OCC), Title 12 of the Code of Federal Regulation, Part 34, Subpart C - Appraisals.

Enforcement Act of 1989 (FIRREA).



[1] Alternative delivery methods are acceptable if arrangements have been made in advance.

[2] Office of the Comptroller of the Currency (OCC), Title 12 of the Code of Federal Regulation, Part 34, Subpart C
- Appraisals.

Confidentiality

By accepting this award, you agree to comply with the Graham-Leach-Bliley Act, which pertains to the protection of personal information that is not of public record. Additionally, as the appraisal report is prepared solely for the use of NBH, you agree to report your conclusion of value only to the undersigned. You are specifically directed to not divulge an estimate or direction of value to the borrower, borrower's designees, Realtors, or to any bank personnel other than the undersigned.

Specific Performance Standards - Checklist

✓ The RIMS Project No. shall be prominently displayed on the letter-of-transmittal.

✓ The amount of any delinquent property taxes on the subject property shall be included in the report but not deducted from the value conclusion.

n/a

If an associate appraiser provides significant real property appraisal assistance, the undersigned appraiser shall sign the certification indicating personal supervision of the named associate appraiser in the preparation of the report.

If any questions arise during the course of this assignment, please feel free to contact me. My contact information is included in the pages that follow.

Sincerely,

Mike Hehmann

Agreed and Accepted

I hereby acknowledge that I have read this engagement letter and agree to the terms of this engagement.

Kirby Harper
Kirby Harper
Trans Pecos Real Estate, Inc.

October 15, 2015
Date

KH

[1] Alternative delivery methods are acceptable if arrangements have been made in advance.

[2] Office of the Comptroller of the Currency (OCC), Title 12 of the Code of Federal Regulation, Part 34, Subpart C - Appraisals.

ADDENDUM TO ENGAGEMENT LETTER RIMS Project#: 15-001986-01

Property Data

Borrower: Corsentino Dairy Farm, Inc.
Property Contact: Harold Goldback
Affiliation: Account Officer
Property Contact Phone: 720-529-3318, Email: hgoldback@nbhbank.com
Subject Address: 2689 State Highway 10 East, CO 81089
Property Type: Agricultural - Agribusiness-Dairy
Property Description: The subject property is an organic dairy farm that consists of 1,018.78 acres of land and an 8,063-square foot "Double 12 Herringbone" milking parlor with an attached covered holding pen. It also includes additional improvements that are required for a dairy operation. There is also a 2,148-square-foot home that is occupied by an employee. Approximately 228.9 acres is Class II irrigated land, 156.3 acres is Class III irrigated land, 558.58 acres is native and improved pasture, 65.0 acres are used for the dairy building site and farmstead; and, 10.0 acres is roads and waste. Do not include livestock in the appraisal. Please estimate an "as-is" value as a going-concern. Allocate the going-concern value between real property, FF&E, and business and intangibles.

Legal Description:

Appraisal Assignment:

Appraisal Fee: \$5,500.00
Due Date: 11/13/2015

Job Manager

Mike Hohmann
Phone: 816-298-2129
Email: mhohmann@nbhbank.com

Report Addressee(s)

Mike Hohmann
Community Banks of CO
11111 West 95th Street
Overland Park, KS 66214

Delivery Instructions

Electronic copies: 1 Uploaded to RIMS upon Completion, along with all supporting Files

Intended Use: Use - Other Use
Description: The intended use of this appraisal is for other purposes. See comments box to the right of this Scope Item
Note: Collateral loan monitoring

Intended User: User - NBH, N.A. and Affiliates
Description: The intended use of this appraisal is for loan underwriting and-or credit decisions by NBH Bank, N.A. and Affiliates
Note: Collateral loan monitoring

Approaches to Value: Approach - Sales Comparison

[1] Alternative delivery methods are acceptable if arrangements have been made in advance.

[2] Office of the Comptroller of the Currency (OCC), Title 12 of the Code of Federal Regulation, Part 34, Subpart C - Appraisals.



Description: Sales Comparison Approach

Approach - Income
Description: Income Approach

Approach - Cost
Description: Cost Approach

Inspection Requirements: Inspect - Full Subject
Description: An interior and exterior inspection of the subject property in sufficient detail to determine marketability

Additional Work Scope: Please estimate an "as-is" value as a going-concern. Allocate the going-concern value between real property, FF&E, and business and intangibles. Do not include livestock in the appraisal. Please develop ONLY the relevant approaches to value.

The engaged appraiser is required to sign the appraisal report.

Delivery Date: If you are unable to meet the desired delivery date, please respond with your earliest possible delivery date and fee.

Report Type: Appraisal Report

Appraisal Premise: Market Value

Premise Qualifier: As-Is

Interest Appraised: Fee Simple

Award Comments: We do not have any flexibility with the November 13, 2015 delivery date. Please ensure that the appraisal is delivered no later than November 13, 2015.

The engaged appraiser is required to sign the appraisal report.

Thank you.



[1] Alternative delivery methods are acceptable if arrangements have been made in advance.

[2] Office of the Comptroller of the Currency (OCC), Title 12 of the Code of Federal Regulation, Part 34, Subpart C - Appraisals.

RIMS Customer: NBH Holding
Project #: 15-001986-01-1

- Award Information

Date Awarded: 9/4/2015
Canceled: No
Fee: \$5,500.00
Property Contact(s): Harold Goldback, 720-529-3318, hgoldback@nbhbank.com
Award Comments: We do not have any flexibility with the November 13, 2015 delivery date. Please ensure that the appraisal is delivered no later than November 13, 2015.
The engaged appraiser is required to sign the appraisal report.
Thank you.
Job Attachments: There are currently no job attachments

- Bid Information

Proposed Fee: \$5,500.00
Signatory Information: Proposed Delivery Date: 11/13/2015
Office Location:
Prior Services: Have you performed or provided any services regarding the subject property within the prior three years, as an appraiser or in any other capacity? If Yes, please provide details in the Comments field.
Yes
Bid Comments: Appraised this property twice in the past three years.



-RFP Information

Purpose Of Request: Special Assets Group
 Response Deadline: 9/04/2015
 Desired Delivery Date: 10/23/2015

RFP Contact: Mike Hohmann
 Contact Phone: 816-298-2129

ADDRESSEES:

First name	Last name	Company	Address	
Mike	Hohmann	NBH Bank, N.A.	11111 West 95th Street	Overland Park, KS 66214

Total Addressees: 1

DISTRIBUTION:

Number Of Copies	First Name	Last Name	Company	Address	
0	Mike	Hohmann	NBH Bank, N.A.	11111 West 95th Street	Overland Park, KS 66214

Total # Hard Copies: 0

SCOPE OF SERVICES:

Intended Use Use - Other Use
 The intended use of this appraisal is for other purposes. See comments box to the right of this Scope Item
Note: Collateral loan monitoring

Intended User User - NBH, N.A. and Affiliates
 The intended use of this appraisal is for loan underwriting and-or credit decisions by NBH Bank, N.A. and Affiliates
Note: Collateral loan monitoring

Approaches to Value

- Approach - Sales Comparison
Sales Comparison Approach
- Approach - Income
Income Approach
- Approach - Cost
Cost Approach

Inspection Requirements Inspect - Full Subject
 An interior and exterior inspection of the subject property in sufficient detail to determine marketability

Additional Work Scope Please estimate an "as-is" value as a going-concern. Allocate the going-concern value between real property, FF&E, and business and intangibles. Do not include livestock in the appraisal. Please develop ONLY the relevant approaches to value.

The engaged appraiser is required to sign the appraisal report.

Delivery Date If you are unable to meet the desired delivery date, please respond with your earliest possible delivery date and fee.

Report Type: Appraisal Report
 Report Format: Narrative

VALUATION SCENARIOS:

Valuation Premise	Premise Qualifier	Property Interest	Comment
Market Value	As-Is	Fee Simple	

RFP Comments: Please estimate an "as-is" value as a going-concern. Allocate the going-concern value between real property, FF&E, and business and intangibles. Do not include livestock in the appraisal. Please develop ONLY the relevant approaches to value.

The engaged appraiser is required to sign the appraisal report.

Property Information

Project Name: Corsentino Dairy Farms
Property Description / Construction Type: The subject property is an organic dairy farm that consists of 1,018.78 acres of land and an 8,063-square foot "Double 12 Herringbone" milking parlor with an attached covered holding pen. It also includes additional improvements that are required for a dairy operation. There is also a 2,148-square-foot home that is occupied by an employee. Approximately 228.9 acres is Class II irrigated land, 156.3 acres is Class III irrigated land, 558.58 acres is native and improved pasture, 65.0 acres are used for the dairy building site and farmstead; and, 10.0 acres is roads and waste. Do not include livestock in the appraisal. Please estimate an "as-is" value as a going-concern. Allocate the going-concern value between real property, FF&E, and business and intangibles.
Property Comment: Note that the bank does not have a lien on the livestock.
Property Type: AB1 - Agricultural - Agribusiness-Dairy - Agricultural enterprise devoted to the production of bovine milk products on a large-scale basis. Facilities may or may not include processing equipment for converting milk into derivative butter and cheese products.
Address: 2689 State Highway 10 East, Walsenburg, CO 81089
County: Huerfano
Improvement Size (Primary): 1,018.78 Acres
Improvement Size (Secondary): 16 Bldgs
Land Size: 1,018.78 Acres
Parcel Numbers: 17676,17680,411231,411653,17674,17675
Year Built: 1930
Property Status: Existing
Property Tenancy: NA
Proposed Renovation?: No
Listed for Sale?: No
Pending/Recent Sale?: No

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KJ

Appraiser Qualifications

Trans Pecos Real Estate, Inc.

Trans Pecos Real Estate, Inc.

Ranch Brokerage and Appraisals

Kirby Harper
432-386-2066 or 972-923-2979
kirbyha@swbell.net



Introduction

Kirby Harper, Owner and President of Trans Pecos Real Estate, Inc., specializes in brokerage and appraisals of cattle and hunting ranches, irrigated and dryland farms, feedyards, dairies, livestock auction facilities, horse training and breeding facilities, and other types of specialized agricultural properties. The company has an extensive background and contacts in the agricultural brokerage and appraisal communities and is dedicated to providing professional brokerage services and quality appraisal reports.

Experience

Kirby Harper has 25 years of experience in agricultural and commercial real estate appraisal and brokerage. Prior to being in the real estate profession, he was a self-employed farmer and rancher. The farming and ranching operation included farming cotton, wheat, and milo and running cow-calf pairs and yearlings on native pasture and winter wheat pasture. While running his farming and cattle business, he also operated three grain elevators, a cotton gin, and a fertilizer and chemical sales and application business. Mr. Harper was also foreman and trainer for Larry Reeder Cutting Horses in Stephenville, Texas in the early 1980's.

License, Certifications, and Professional Organizations

Texas Real Estate Broker License Number 0399634
New Mexico Qualifying Real Estate Broker License Number 19375
Texas State General Certified Real Estate Appraiser Number TX-1331201-G
New Mexico State General Certified Real Estate Appraiser Number 03440-G
Colorado State General Certified Real Estate Appraiser Number CG-40042526
Appraisal Institute SRA Designated Member
American Society of Appraisers Accredited Senior Appraiser Real Property Rural Principal
American Society of Appraisers Accredited Senior Appraiser Real Property Urban Principal
American Society of Appraisers Accredited Senior Appraiser Real Property Residential Principal
Texas Cattle Feeders Association Industry Associate Member

MEMBERSHIP CERTIFICATE

This Certifies That

Kirby Don Harper

has been admitted to membership as an

SRA Member

in the Appraisal Institute and is
entitled to all the rights and privileges of membership
subject only to the limiting conditions set forth from time to time
in the Bylaws and Regulations of the Appraisal Institute.

In Witness Whereof, the Board of Directors of the Appraisal Institute has
authorized this certificate to be signed in its behalf by the President, and the
Corporate Seal to be hereunto affixed on this *20th* day of *June*, 19*96*


(President)

THIS CERTIFICATE IS THE PROPERTY OF THE APPRAISAL INSTITUTE
AND MUST BE RETURNED TO THE SECRETARY UPON DEMAND OR CEASING MEMBERSHIP





The American Society of Appraisers

Attests that

KIRBY D. HARPER, ASA

has successfully participated in the

Society's mandatory Reaccreditation Program

and has complied with its continuing education requirements,

as set forth in the organization's Constitution, Bylaws and

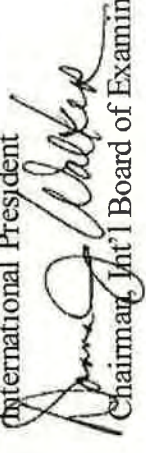
Administrative Rules. Therefore, formal reaccreditation has

been granted by the International Board of Governors and will

remain valid through

May 22, 2018




International President

Chairman, Int'l Board of Examiners

American Society of Appraisers



The Society's Board of Examiners Certifies That

Kirby D. Harper

Is hereby awarded the designation

Accredited Senior Appraiser

Real Property/Rural

*and is entitled to use the designation in accordance with
the society's bylaws and administrative rules.*

Signed, Sealed and Attested

This 22nd day of May, 2008

[Signature]
International Secretary/Treasurer

This certificate is the property of the American Society of Appraisers and must be returned to the International Office upon membership termination.



[Signature]
John B. Willey
International President

American Society of Appraisers



The Society's Board of Examiners Certifies That

Kirby D. Harper

Is hereby awarded the designation

Accredited Senior Appraiser

Real Property / Urban

and is entitled to use the designation in accordance with
the society's bylaws and administrative rules.

Signed, Sealed and Attested

This 12th day of December, 2008

Robert C. Salas

International Secretary/Treasurer



Ronald W. Leman

International President

This certificate is the property of the American Society of Appraisers and must be returned to the International Office upon membership termination.

American Society of Appraisers



The Society's Board of Examiners Certifies That

Kirby Harper

Is hereby awarded the designation

Accredited Senior Appraiser

Real Property / Residential

and is entitled to use the designation in accordance with
the society's bylaws and administrative rules.

Signed, Sealed and Attested

This 13th day of February, 2009

Robert M. Lenn
International Secretary/Treasurer



Robert M. Lenn

International President

This certificate is the property of the American Society of Appraisers and must be returned to the International Office upon membership termination.

You may wish to laminate the pocket identification card to preserve it.

KIRBY DON HARPER
120 PECAN VALLEY LN
WAXAHACHIE, TX 75165

The person named on the reverse is licensed by the Texas Appraiser Licensing and Certification Board.

Inquiry as to the status of this license may be made to:

Texas Appraiser Licensing and Certification Board
P.O. Box 12188
Austin, Tx 78711-2188
www.talcb.texas.gov
(512) 936-3001
Fax: (512) 936-3899

Texas Appraiser Licensing and Certification Board

P.O. Box 12188 Austin, Texas 78711-2188

Certified General Real Estate Appraiser

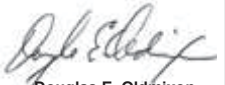
Number#: **TX 1331201 G**

Issued: **07/17/2014**

Expires: **07/31/2016**

Appraiser: **KIRBY DON HARPER**

Having provided satisfactory evidence of the qualifications required by the Texas Appraiser Licensing and Certification Act, Texas Occupations Code, Chapter 1103, is authorized to use this title, Certified General Real Estate Appraiser.


Douglas E. Oldmixon
Commissioner

Texas Appraiser Licensing and Certification Board

P.O. Box 12188 Austin, Texas 78711-2188

Certified General Real Estate Appraiser

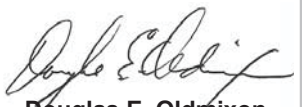
Number: **TX 1331201 G**

Issued: **07/17/2014**

Expires: **07/31/2016**

Appraiser: **KIRBY DON HARPER**

Having provided satisfactory evidence of the qualifications required by the Texas Appraiser Licensing and Certification Act, Texas Occupations Code, Chapter 1103, is authorized to use this title, Certified General Real Estate Appraiser.


Douglas E. Oldmixon
Commissioner

THIS IS TO CERTIFY THAT

Kirby Don Harper

is licensed / registered by the New Mexico Regulation and Licensing Department
in accordance with provisions of laws in the State of New Mexico

License / Registration No.	License / Registration Type
03440-G	General Certified Appraiser
Issue Date	Expiration Date
08/12/2015	04/30/2017

The bearer is prohibited by law from using this identification card to give the
impression that they are in any way connected with a governmental agency

Signature of holder:
Kirby Don Harper

Kirby Don Harper
120 Pecan Valley Lane
Waxahachie, TX 75165

State of New Mexico

REAL ESTATE APPRAISERS BOARD

PO Box 25101 Santa Fe, NM 87505 (505) 476-4622



This is to certify that

Kirby Don Harper #03440-G

Having complied with the provisions of the New Mexico Real Estate Appraisers
Act is hereby granted a license to practice as a

General Certified Appraiser

This appraiser is eligible to perform in Federally Related Transactions

Issue Date: 08/12/2015 Date Expires: 04/30/2017

THIS LICENSE MUST BE CONSPICUOUSLY POSTED IN PLACE OF BUSINESS

YOUR REGISTRATION HAS A NEW FORMAT, DESIGN, COLOR AND ADDED SECURITY FEATURES. The wallet card provided below is your official authorization to practice. This card has security features and is printed on heat sensitive paper. Do not duplicate this document. Photocopies are not considered official documents.

The right-side portion can be used to update your HOME address only with the Colorado Division of Real Estate. After completing this form, please mail to:

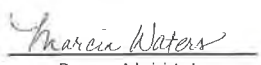
Colorado Division of Real Estate
Attn: Licensing Section (Address Change)
1560 Broadway, Ste. 925
Denver, CO 80202

To Remove Document Fold and Tear Along This Perforation

KIRBY DON HARPER

Type: CG

Number: 40042526

STATE OF COLORADO		
Department of Regulatory Agencies		
Division of Real Estate		
Active	PRINTED ON SECURE PAPER	
Cert Gen Appraiser		
40042526	Jan 1 2014	Dec 31 2016
Number	Issue Date	Expires
KIRBY DON HARPER WAXAHACHIE, TX 75165		
 Program Administrator		
 Licensee Signature		

HOME Phone
AREA 972 -- 923 -- 2979
HOME Address – Include City State, Zip

▲ Use the area above for a HOME address change only

◀ THIS IS YOUR WALLET CARD

You may wish to laminate the pocket identification card to preserve it.

KIRBY DON HARPER
120 PECAN VALLEY LANE
WAXAHACHIE, TX 75165

Inquiry as to the status of this license may be made to:

Texas Real Estate Commission
P.O. Box 12188
Austin, Tx 78711-2188
www.trec.texas.gov
(512) 936-3000
Fax: (512) 936-3864



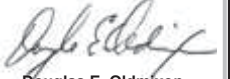
Texas Real Estate Commission
P.O. Box 12188 Austin, Texas 78711-2188
Real Estate Broker License

Broker License# **399634**

License Expires: **05/31/2016**

KIRBY DON HARPER
120 PECAN VALLEY LANE
WAXAHACHIE, TX 75165

The Texas Real Estate Commission certifies that the above named broker has fulfilled all of the requirements of law and is authorized to transact real estate business in Texas.


Douglas E. Oldmixon
Administrator



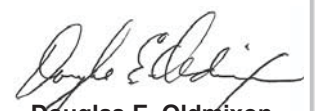
Texas Real Estate Commission
P.O. Box 12188 Austin, Texas 78711-2188
Real Estate Broker License

Broker License# **399634**

License Expires: **05/31/2016**

KIRBY DON HARPER
120 PECAN VALLEY LANE
WAXAHACHIE, TX 75165

The Texas Real Estate Commission certifies that the above named broker has fulfilled all of the requirements of law and is authorized to transact real estate business in Texas.


Douglas E. Oldmixon
Administrator

THIS IS TO CERTIFY THAT

KIRBY DON HARPER

Real Estate Qualifying Broker

License Number: 19375

License Location:

Trans Pecos Real Estate, Inc. / Kirby Harper
120 Pecan Valley Lane
Waxahachie, TX 75165

Date Issued: 02/27/2015

Expires: 02/28/2018

is licensed by the New Mexico Real Estate Commission
in accordance with provisions of laws in the State of New Mexico

NEW MEXICO REAL ESTATE COMMISSION

KIRBY DON HARPER

is duly licensed to act as a

Real Estate Qualifying Broker

Trans Pecos Real Estate, Inc. / Kirby Harper
120 Pecan Valley Lane
Waxahachie, TX 75165

License Location:

120 Pecan Valley Lane
Waxahachie, TX 75165

License Number: 19375

Date Issued: 02/27/2015

Expires: 02/28/2018

THE STATE OF NEW MEXICO

has issued this license pursuant to the Real Estate License Law,
Section 61-29-1, NMSA 1978, as amended.

Kurstin S. Johnson,
Commission President