Survey Summary: Farm and Ranch Managers' Responses to the 2011 Drought

Prepared by

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July, 2012

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Executive Summary

Drought disrupts rural regional economies as farm and ranch managers adopt mitigating strategies to cope with less than adequate moisture. Farm and ranch operations absorb the direct impacts of a drought when production is reduced and costs increase, and these bottom line impacts ripple through the broader economy. A drought's impact can be far reaching, and the overall impact depends importantly on the drought's severity, persistence and geographic scope. At the same time, economic impacts are unevenly distributed with some sectors (e.g., cow-calf production) experiencing more distress than others.

In late 2010 and throughout 2011, southern Colorado experienced a drought whose reach has grown to the entire state during the summer of 2012. It's no surprise that impacts are significant, but stakeholders and policymakers seek more detailed information so that they can improve rural Colorado's resiliency to drought.

In order to better understand the drought's economic impact, the Colorado Water Conservation Board, Colorado Department of Agriculture and Colorado State University have initiated a collaborative project. The project's goal is straightforward: describe and quantify the impacts of the 2011 drought to southern Colorado. This document fulfills one portion of that objective by reporting the summary results of an agriculture producer survey. The survey's objective was to describe how farm and ranch managers changed their business practices in the face of a persistent drought.

The research team chose an internet based questionnaire, and then advertised the survey website heavily via newsletters, LISTSERV's and personal contacts with Colorado agricultural organizations and allied groups. Example institutions that advertised the survey included the Colorado Department of Agriculture newsletter and Farm Credit Services of Southern Colorado. Commodity organizations advertising the survey included, but were not limited to, the Colorado Wheatgrowers Association, Colorado Corn and the Colorado Cattlemen's Association. Respondents included a diverse set of 113 operations, although only 56 operations fully completed the survey. The respondents appear to be representative of the area, although small gross sales farm (less than $100,000 of gross sales) may be underrepresented relative to the 2007 USDA Agriculture Census.

Summary findings from the survey indicate that dryland farmers and cow-calf producers departed the most from traditional production practices, while irrigated farmers did not. It also indicated that ranchers were hit the hardest financially since they faced volatile forage prices and costs to production, while impacts to dryland producers were mitigated – to the extent a crop existed or was insured -- by high commodity crop prices and stable input prices.

Rancher responses can be characterized into two types: short term adjustment with management practices that tend not to affect 2012's production activities (e.g., buying hay, early weaning) and longer term strategies that impact later productive capacity (selling breeding livestock). Survey

respondents used both short and long term strategies, but a heavier emphasis was placed on longer term strategies than was expected. This may represent a self section bias in the survey – ranchers most impacted by the drought may have responded to the survey in greater proportion than those less affected. Sixty percent of ranching respondents indicated they had sold breeding livestock to cope with the 2011 drought, and ninety percent indicated they would consider selling or actually sell breeding livestock if the drought persists through 2012.

Management strategies for mitigating drought include reducing the use of other inputs (fertilizer, fuel, hired labor), delaying capital purchases such as equipment, or seeking employment off of the farm. Farm and ranch managers did all of these, but the timing of the drought was such that few cropping operations reduced their use of inputs and more sought off farm income. Maintaining input purchases softened the blow to the local economy, mainly because fuel and fertilizer are purchased locally, while equipment is purchased out of the region. This may not be the case in 2012 as operations have less cash resources to make purchases locally.

Farmers and ranchers both sought to delay debt payments or took on additional debt as a management strategy for dealing with drought. Debt service, additional collateralization and more borrowing were prevalent among ranchers that already carried debt (i.e., debt to asset percentages greater than 10%), while those with the little debt appeared to finance operations from their own equity reserves. Increased debt is troublesome given the worsening of drought conditions in 2012, and cash flow difficulties are likely to persist. About 25% of respondents indicate they are likely to leave the industry if drought persists in 2012, but this differs substantially by production type. Operations that have both livestock and irrigated farming were more likely to exit (36%). If conditions were to return to “typical” 14% of respondents with both livestock and irrigated farming suggested they would exit.

The 20ll drought was disruptive to rural, regional economics. Its impacts were unevenly distributed with dryland crop operations and livestock operations faring the worst. Crop producers’ losses were mitigated, to a certain extent, by higher commodity prices and insurance, but livestock producers found little relief from increased forage costs. Managers sought to mitigate drought impacts by reducing purchases, selling breeding livestock and taking on more debt. Resiliency to drought of all farm operations has been reduced, suggesting a worse outlook if the 2011 drought persists throughout the 2012 cropping year.

Introduction

Drought disrupts rural regional economies as farm and ranch managers adopt mitigating strategies to cope with less than adequate moisture. Farm and ranch operations absorb the direct impacts of a drought when production is reduced and costs increase, and these bottom line impacts can lead to associated disruption in the broader economy. For example, drought management options include purchasing fewer inputs locally, purchasing higher priced feed inputs outside the region, selling seed stock, or choosing alternative marketing plans. These options ripple beyond the farm gate to local input cooperatives, feed yards, banks and others entities. A drought's impact can be far reaching, and the overall effect depends importantly on the drought's severity, persistence and geographic scope. At the same time, economic impacts are unevenly distributed with some sectors (e.g., cow-calf production) experiencing more distress than others.

In late 2010 and throughout 2011, southern Colorado experienced a drought whose reach has grown to the entire state during the summer of 2012. It's no surprise that impacts are significant, but stakeholders and policymakers seek more detailed information so that they can improve rural Colorado's resiliency to drought.

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The remainder of this document describes the questionnaire developed for the survey effort, characterizes how the questionnaires were disseminated and reports summary statistics of respondents and specific survey questions. Overall findings and themes conclude the report.

Survey Scope

The survey effort was targeted at farm and ranch managers who had operations in Colorado counties that received a primary or secondary disaster designation in 2011. The counties were categorized into three areas: Arkansas Valley, San Luis Valley and Mountain counties (Table 1). The time frame for survey questions was focused on the 2011 cropping year, which would include crops sown in Fall 2010.

Table 1: Drought Survey County Categories		
Arkansas Valley	*San Luis Valley*	*Mountain*
Baca	Alamosa	Fremont
Bent	Archuleta	Lake
Chaffee	Conejos	Park
Cheyenne	Costilla	Teller
Crowley	Gunnison	
Custer	Hinsdale	
El Paso	Mineral	
Elbert	Rio Grande	
Huerfano	Saguache	
Kiowa		
Las Animas		
Lincoln		
Otero		
Pueblo		

Survey Questionnaire Type and Sampling Strategy

This study's objective is describing and quantifying farm and ranch managers' mitigating responses, if any, to the 2011 drought. Survey results better represent actual conditions when the survey questionnaire can be widely distributed to farm and ranch managers in southern Colorado, and when survey responses are representative of existing operations. At the same time, the survey questionnaire needs to be relatively easy to complete for respondents, be designed for a variety of diverse livestock and farm operations and be cost effective in its design, dissemination and results tabulation. Based on these factors and a relatively short timeline, the research team chose an internet based questionnaire, and then advertised the survey website heavily via newsletters, LISTSERV's and personal contacts with Colorado agricultural organizations and allied groups. Example institutions that advertised the survey included the Colorado Department of Agriculture newsletter and Farm Credit Services of Southern Colorado. Commodity organizations advertising the survey included, but were not limited to, the Colorado Wheatgrowers Association, Colorado Corn and the Colorado Cattlemen's Association.

An internet survey questionnaire has many advantages. As an example, respondents' completion time is reduced via 'point and click' questions, relevant questions can be targeted to respondents with logical sequencing, it is less costly and results are relatively easy to tabulate. Disadvantages

of the internet approach are the potential to under-sample those producers that do not use computer based communications or the Internet. Our approach of advertising the survey to commodity organizations and advocacy institutions may also omit some potential respondents as compared to a traditional mail survey effort. Unfortunately, this approach does not allow for a traditional measure of response rate (i.e., number of questionnaire responses divided by the number of valid mailings), but comparisons can be made between the demographics of respondents and responses to the USDA Agriculture Census. Survey demographics are reported in a later section.

Developing the Questionnaire

The questionnaire was collaboratively designed by agriculture economists at Colorado State University and reviewed by a selected group of extension specialists and farmers for accuracy, consistency and relevance. Sections in the questionnaire include asking respondents to designate their operation's location, operation characteristics, input buying and marketing behavior, irrigated crop production, dryland crop production, livestock and dairy production, drought mitigation alternatives, use of drought/climate information and personal demographics. In total 77 questions are found in the instrument, but use of logical sequencing means that a respondent answers only relevant questions. As an example, if a producer does not produce irrigated crops, the internet survey logic automatically skips irrigated crop questions. Selected summary information is provided in this report, and a copy of the questionnaire and summary results to all questions are available from the authors on request.

Administering the Survey

The survey was hosted via Survey Monkey, a company specializing in online survey development, distribution and tabulation. The survey was given a distinctive URL, and this URL was embedded as a hyperlink into an email to commodity organizations and distributed to their members. Likewise, the URL was embedded in commodity organization newsletters and LISTSERV's when appropriate. A short paragraph of text explaining the survey purpose and asking for assistance preceded the URL hyperlink. When arriving at the survey website, the questionnaire's purpose was explained in greater length and respondents were asked to signal their consent to participate. If the respondent indicated 'yes' then questions followed. The survey was open from April 5, 2012 to May 30, 2012 and a total of 113 were collected. Of these, 56 surveys were completed in their entirety.

Survey Results

The following is a brief summary and interpretation of the survey. The section is organized as follows; we begin by describing the farm/ranch demographics of respondents, report respondents' origin of sales and input purchases, illustrate how respondents' production practices

changed due to the drought, summarize the self reported profit and costs impacts and close by discussing overall themes emerging from the survey summary.

Respondents' Characteristics

It is useful to categorize responses so that comparisons can be made across operation types and geography. Responses are grouped in two ways: by operation location (Arkansas Valley, San Luis Valley and Mountain) and production activities. Production activities are further decomposed into subcategories because many farmers are diversified into several production enterprises. The tables below indicate that the majority of respondents and acreage reside in the Arkansas Valley.

Table 2. Responses and Acres Represented by Region

	Observations	Number of Acres
Arkansas Valley	41	519,072
San Luis Valley	20	55,894
Mountain	5	13,110

Table 3. Responses Categorized According to Production Activities

	Dryland	Irrigated	Dryland and Irrigated	Dryland and Livestock	Irrigate and Livestock	Livestock	Total
Total Acres Reported	60,400	17,253	10,000	70,900	187,184	287,040	**632,777**
Observations	8	15	1	9	15	20	**68**

The following questions provide the demographics associated with the producers that were surveyed. Most participates were the owner/operator and have greater than 20 years of experience in farming or ranching. Respondents' education levels and gross sales are evenly distributed among the categories provided. This is in contrast to the 2007 USDA Agriculture Census (Ag Census) data for the area, which suggests a higher proportion of farms in lower gross sales categories (smaller producers) and with lower educationally levels. Similar to the Ag Census, operations are more frequently organized as sole proprietorships rather than other business types.

Table 4. Respondents' Experience in Farming and/or Ranching	
How many years of farming or ranch experience do you have?	**Response Percent**
1-5 Years	0.0%
5-10 Years	2.4%
10-20 Years	28.6%
Greater than 20 Years	69.0%

Table 5. Respondents Reported Business Organization					
	In what county is your farm or ranch primarily located?				
What is your form of business organization?	**Arkansas Valley**	**San Luis Valley**	**Mountain Counties**	**Response Percent**	**Response Count**
Sole Proprietorship	16	6	2	57.1%	24
Partnership	5	0	0	11.9%	5
Limited Liability Corporation	2	7	0	21.4%	9
Limited Liability Partnership	0	0	0	0.0%	0
Corporation	2	1	1	9.5%	4

Table 6. Respondents' Reported Level of Education					
	In what county is your farm or ranch primarily located?				
What is your highest level of education?	**Arkansas Valley**	**San Luis Valley**	**Mountain Counties**	**Response Percent**	**Response Count**
High School	2	2	1	11.9%	5
Bachelor's degree	9	4	0	31.0%	13
Some college	7	3	1	26.2%	11
Graduate or Professional degree	5	5	0	23.8%	10
Technical/Vocational Degree	2	0	1	7.1%	3

Table 7. Respondents Reported Level of Gross Sales in a "Normal" Year					
	In what county is your farm or ranch primarily located?				
Check your estimated annual gross farm and ranch sales	Arkansas Valley	San Luis Valley	Mountain Counties	Response Percent	Response Count
less than $50,000	3	2	0	11.9%	5
$50,000 - $99,000	4	2	1	16.7%	7
$100,000 - $249,000	4	2	2	19.0%	8
$250,000 - $499,000	5	3	0	19.0%	8
$500,000 - $1,000,000	8	1	0	21.4%	9
over $1,000,000	1	4	0	11.9%	5

Respondents' Characteristics Summary

While the number of partially and fully completed questionnaires is small, respondents appear representative of typical farming operations in the Arkansas and San Luis Valley. The largest number of respondents come from the Arkansas Valley (41 or about two-thirds) representing one half million farmed acres. (Table 2). Respondents have significant farm and ranch experience (Table 6) are representing a broad spectrum of gross sales levels (Table 7). About 2/3 of respondents report farming as their primary activity, and 40% of these respondents had some dryland farming acres (Table 3). Anecdotally, dryland farmers and livestock producers with extensive grazing systems were most affected by the drought, so it stands to reason that these respondents will provide a representative sample of these impacts.

Regional Sales and Spending

Water shortages lead to immediate reductions in output and lost revenues for agricultural producers. Given the critical role that agriculture plays in most rural communities, the initial revenue losses associated with decreased production represent only a portion of the true impact. Reduced spending by agricultural producers on inputs to their farming operation and for their households negatively impact other businesses and households, both locally and throughout Colorado. These ripple effects can amount to two times the initial loss in ranch or farm gate sales. The following questions were an attempt to quantify the broader ripple effects of drought by inquiring about respondents' expenditures and sales before and during the drought.

Specifically, respondents were asked "We would like to know where you purchase your inputs so that we can measure the impact of the drought to the local community. Could you please select the percent of inputs that you purchase locally (in the Arkansas/San Luis/ Mountain Region)". We used the responses to calculate a weighted average in order to rank each of the purchases sales. The tables below show the results by region.

Table 8. Ranking of Expenditure Categories Sorted by Those Greatest Percentage Purchased Locally		
Arkansas Valley	**San Luis**	**Mountain**
Hourly Labor	Fuel, Oil and Lubricants	Chemical Herbicides and Pesticides
Chemical Herbicides and Pesticides	Fertilizer	Insurance for business
Custom Services (e.g., spraying)	Seed	Fuel, Oil and Lubricants
Fertilizer	Custom Services (e.g., spraying)	Fertilizer
Insurance for business	Insurance for business	Supplies for production activities (e.g., fencing materials)
Fuel, Oil and Lubricants	Chemical Herbicides and Pesticides	Feed
Feed	Hourly Labor	Livestock
Supplies for production activities (e.g., fencing materials)	Feed	Hourly Labor
Seed	Supplies for production activities (e.g., fencing materials)	Custom Services (e.g., spraying)
Equipment Purchases	Equipment Purchases	Seed
Livestock	Livestock	Equipment Purchases

From the above table, the purchasing of livestock and equipment from outside the region represent leakages of economic activity from the "home" area to region outside the local economy. Notably, equipment and livestock represent significant purchases to agricultural operations, and the expenses do not circulate as profits within the region.

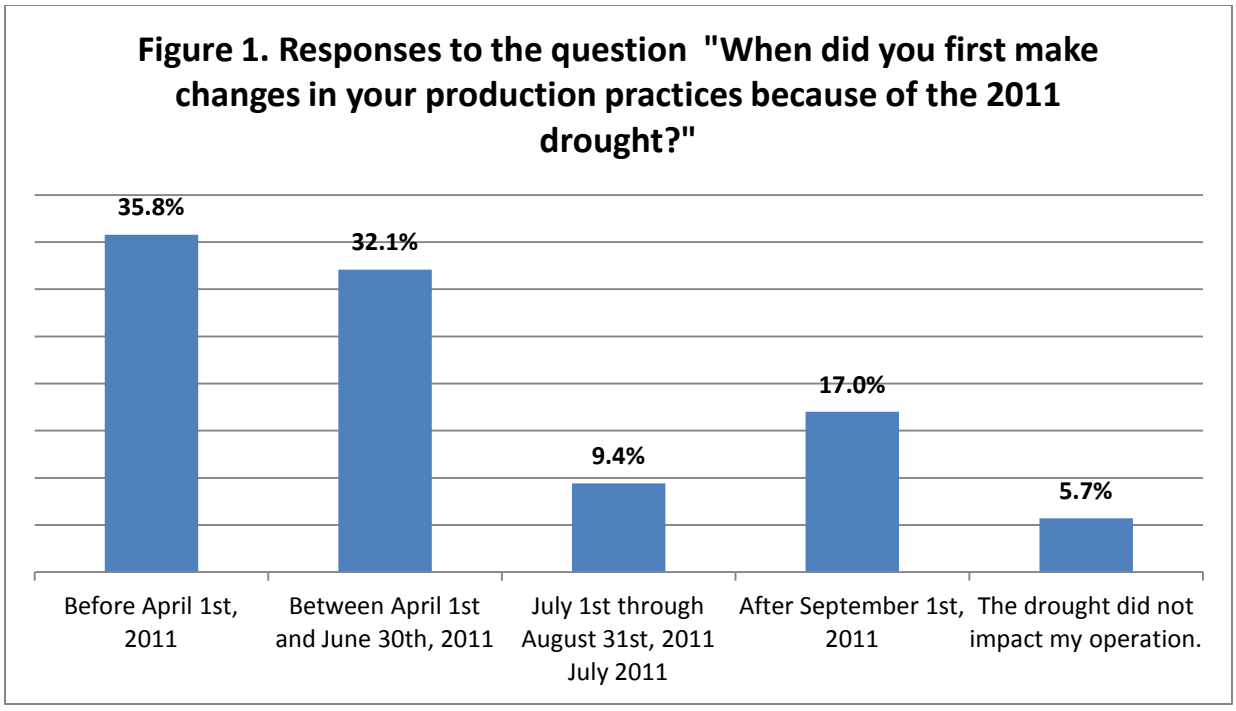
In the next question, attention was shifted to sales of agricultural goods. When goods are sold outside the region, gross income increases economic activity in the local area all things being equal. The specific question is "just like with input purchases, we would like to know where you sell your products so that we can measure the impact of the drought to the local community. Please select the percentage of the goods you sell locally (in the Arkansas/San Luis/ Mountain Region)".

Table 9. Ranking of Sales Product Categories Sorted by Those Greatest Percentage Sold Outside the Local Region		
Arkansas Valley	**San Luis**	**Mountain**
Feed	Custom Services Provided to Others	Grain Crop Sales
Custom Services Provided to Others	Grain Crop Sales	Forage Crop Sales
Grain Crop Sales	Milk Sales	Feed
Forage Crop Sales	Forage Crop Sales	Custom Services Provided to Others
Feeder Livestock Sales	Feed	Calf Sales
Breeding Livestock Sales	Breeding Livestock Sales	Feeder Livestock Sales
Calf Sales	Feeder Livestock Sales	Breeding Livestock Sales
Milk Sales	Calf Sales	Milk Sales

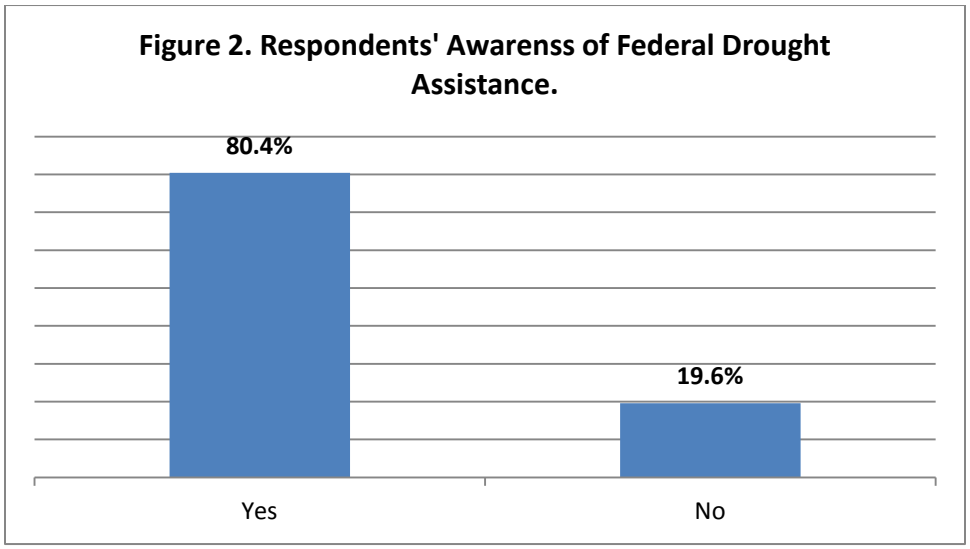
A common sale within the regions seems to “custom services provided to others”. This type of sale does not have large profit margins and again will not lead to large impacts to the economy, in part because equipment expenditures are not made locally.

Drought Response

The previous questions characterize the economic web that links production agriculture to the local economy in a typical year. An important question is how economic activity changes when agriculture producers change their management practices in a drought. To this end, a set of questions were included that aimed to inform policy makers of when farmers first make production changes (and therefore are initially impacted by the drought), if more timely information aides them in their decision making, their awareness of state and federal aid and their short term resiliency to drought.



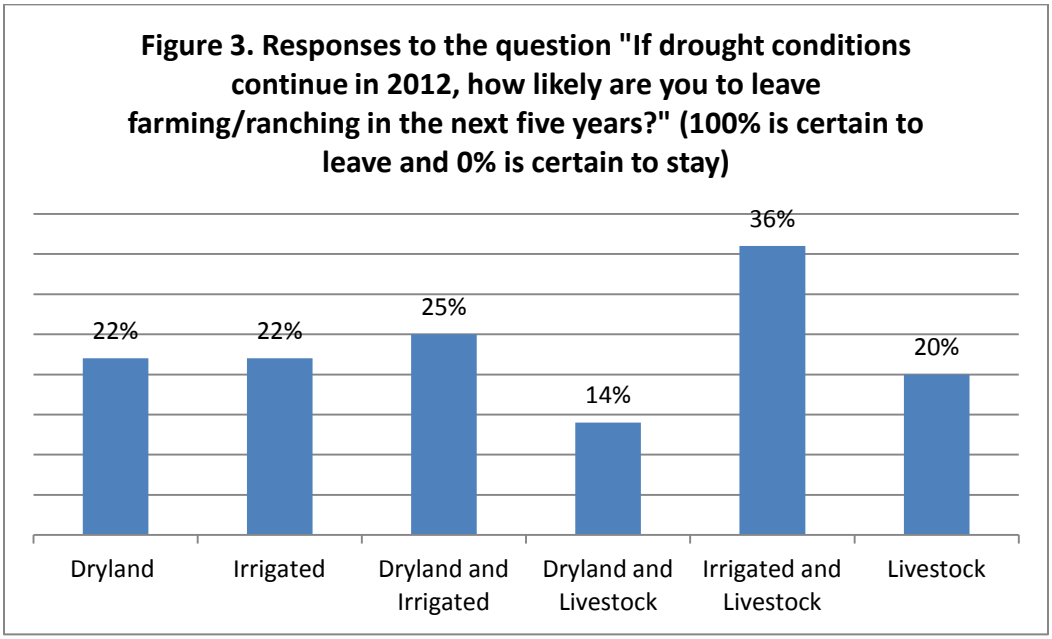
A follow up question asked whether or not knowing about the drought sooner would have changed their production decisions. Interestingly, producers' responses were evenly split --- at least half felt that earlier knowledge would have assisted their decision making. Dryland producers indicated that they would not change their production decisions, particularly, winter wheat producers whose crop had been planted the previous fall. Irrigated farmers and ranchers indicated that they would change their production decisions.

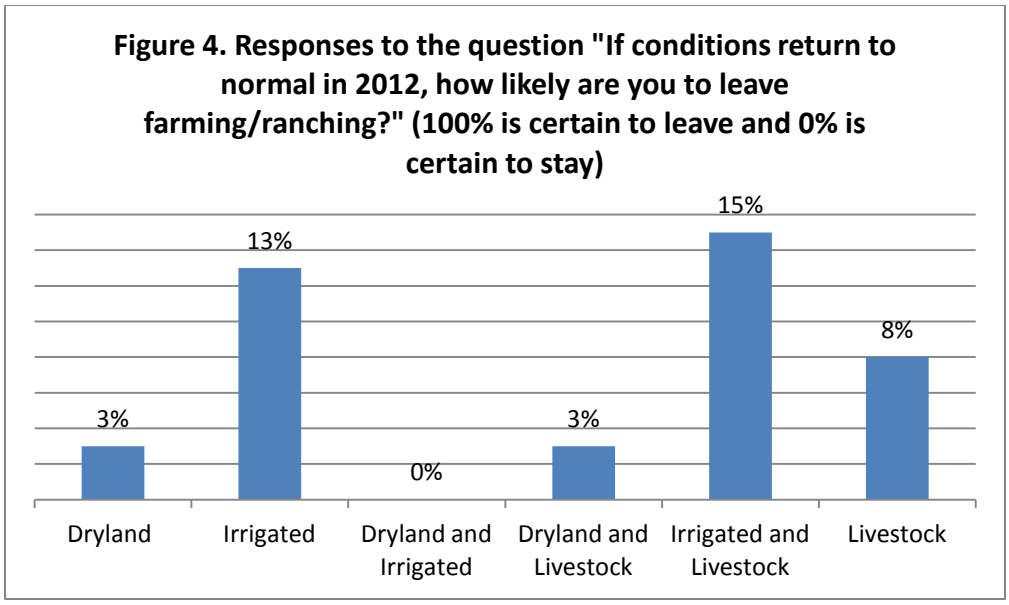


Federal drought assistance was available to farmers in most of the surveyed counties in 2011. A large share was aware that assistance was available (80%). Of the approximately 80% that were aware of assistance, over 50% received state or federal assistance during 2011.

Resiliency to drought can take many forms, but one of the most important is the ability of farms and ranches to weather the drought and remain in production. Agricultural managers self-awareness of resiliency is demonstrated in the next two figures (Figure 3 and Figure 4). Figure 3 reports an average percent across respondents. Responses are consistent across categories with a 1 in 5 chance for most. Exceptions are the irrigated and livestock responses (36%) and the dryland and livestock (14%).

The next question juxtaposed a drought year against a normal year. Figure 4 reports average percent responses to the question "If conditions return to normal in 2012, how likely are you to leave farming/ranching" . By comparing Figures 3 and 4, it appears that irrigated farmers are more likely to exit due to non-drought conditions, but the drought significantly influences the likelihood of farmers with at least some dryland production to exit.





Impacts to Production Practices and Yields

Dryland and Irrigated Production

One of the goals of the survey was to observe production changes that occurred during the drought. Below displays the differences in acres planted and harvested and expected and actual yields. Producers were asked how many acres were planted and harvested in 2011, and what the actual 2011 yield was and what their typical yield was for the crop. This information gives us the ability to develop a “with the drought” and “without the drought” scenario.

A percentage was then calculated by dividing harvested by planted acres and typical by actual yields. For example, of the dryland wheat that was planted 73% of it was harvested, and the yield was 46% of what they would typically receive. As is evident from the table below, dryland farmers were hit much harder with crop failures and low yields.

Table 10. Drought Impacts on Harvested Acres and Yields		
Please enter the following information about your 2011…	**% Difference in planted and harvested acreage**	**% Difference in actual and expected yields**
dryland wheat crop.	73%	46%
dryland corn crop.	91%	40%
dryland sorghum crop.	84%	24%
irrigated barley.	95%	81%
irrigated potatoes.	100%	101%
irrigated wheat.	100%	82%

Livestock

In this section, attention is directed to respondents indicating they have livestock as part of their business. The primary enterprise of these respondents is cow calf production, followed by the grazing of stockers/yearlings, cattle feeding and backgrounding heifers (Table 11).

Benchmarking forage requirements is an important component of understanding the impacts of the 2011 drought. Table 12 reports the forage AUMs required by respondents in a typical year, and these responses have been averaged across the responses.

Table 11. Reponses to the question "(w)e would like to know about whether you were raising cattle, sheep or operating a dairy in 2011. Please check all livestock enterprises that were part of your operation in 2011.		
Answer Options	**Response Percent**	**Response Count**
Cow-Calf Production	87.8%	43
Backgrounding Heifers	14.3%	7
Dairy Production	2.0%	1
Stockers or Yearlings	28.6%	14
Feeding/Fattening Cattle	16.3%	8
Feeding/Fattening Lambs	0.0%	0
Sheep Production (ewes and lambs)	6.1%	3
No Cattle, Sheep or Dairy Enterprise in 2011	6.1%	3
answered question		**49**

Table 12. Annual AUM's Typically Used for Livestock Production			
	Response Average	**Response Total**	**Response Count**
Owned Pasture/Range (# of AUMs)	1,278	34,526	27
Private Lease (# of AUMs)	1,056	19,019	18
Federal Lease/Permit (# of AUMs)	541	4,330	8
State Lease Permit (# of AUMs)	3,585	35,851	10
Purchased Hay (# of AUMs)	494	6,923	14
		answered question	**30**

Table 13. Annual AUM's Actually Used in 2011 for Livestock Production			
	Response Average	**Response Total**	**Response Count**
Owned Pasture/Range (# of AUMs)	1,125.61	25,889	23
Private Lease (# of AUMs)	938.89	16,900	18
Federal Lease/Permit (# of AUMs)	464.29	3,250	7
State Lease Permit (# of AUMs)	3,060.38	24,483	8
Purchased Hay (# of AUMs)	626.05	12,521	20

Table 14. Respondents' Average Shortfall of AUMs in 2011	
	Actual AUMs Produced Minus Typical AUMs Produced
Owned Pasture/Range (# of AUMs)	-153.13
Private Lease (# of AUMs)	-117.72
Federal Lease/Permit (# of AUMs)	-76.96
State Lease Permit (# of AUMs)	-524.72
Purchased Hay (# of AUMs)	131.55

Table 14 indicates the shortfall of forage that the livestock producers experienced in 2011. Since the productivity of local land dropped they were forced to purchase hay from outside the region.

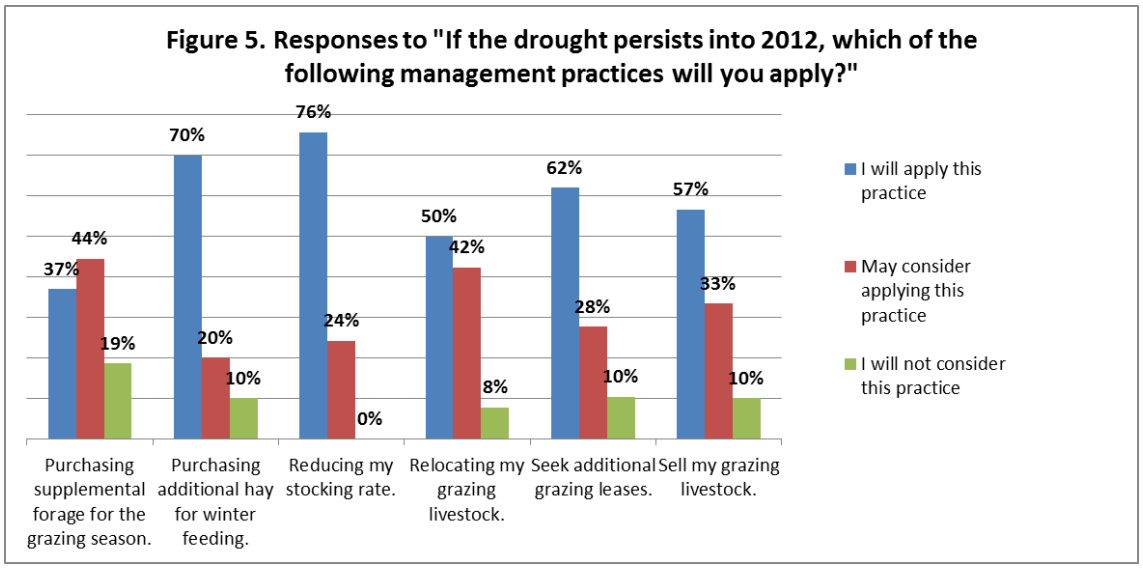
Table 15. Percent of Respondents Reporting Livestock Performance Levels				
Answer Options	**Less Than a Typical Year**	**About The Same as a Typical Year**	**More Than in a Typical Year**	**Response Count**
Calving Rate	23%	77%	0%	31
Weaning Percentage	19%	77%	3%	31
Weaning Weight	61%	35%	3%	31
Breeding Rate	58%	35%	6%	31
Cow Condition Going Into Winter	64%	36%	0%	33
Rate of Gain of Fed Livestock	46%	50%	4%	26
Cost per Pound of Gain	18%	7%	75%	28
Incidence of Respiratory Disease	10%	62%	28%	29
Percent of Dead Animals	13%	69%	19%	32
Percent of Sick Animals	9%	59%	32%	34

Drought negatively impacts a number of performance factors for livestock operations. As indicated in Table 15, livestock owners saw the greatest impacts of the drought in cow condition, weaning rates and breeding rates. Responses indicate that higher feed costs may be an immediate effect of the drought (e.g., an observed lower rate of gain, lower weaning weight and higher feed costs), but the droughts impacts will also carryover into the next season (lower breeding rate and poorer cow condition). Table 16 suggests that ranchers stocked less heavily, but a significant share sold breeding livestock to cope with drought.

Table 16. Percentage of Respondents Reporting Changes in Herd Management		
	Response Percent	**Response Count**
Reduced stocking rate on pastures.	85%	30
Sold breeding livestock.	60%	21
Rotated pastures more frequently.	51%	18
Decreased the length of the grazing season.	62%	22
Weaned animals earlier.	40%	14
Placed animals in a drylot for supplemental feeding.	22%	8
Fed supplemental forage during the grazing season.	62%	22
Shipped animals out of my "normal" operating area.	31%	11
	answered question	**35**

Table 16, directly above, had an open ended portion for “other management changes to the operation”. In summary, many farms had increased feeding costs from decreased grazing, had to move livestock elsewhere, substituted with an alternative feed, and/or had to sell off part of their herd.

Figure 5, on the next page, looks forward to 2012. If the drought persists, ranchers will first seek more forage for winter feeding, and 90% will either consider or actually sell some breeding livestock.



Revenues and Profits

As is evident by the survey results to this point, the 2011 drought greatly impacted the production practices of dryland and livestock producers while irrigators were impacted to a lesser degree. Later questions asked producers to consider the relationship of prices and yields (revenues) and the interaction of revenues and costs to their operation. In particular, respondents compared their financial situation in 2010 to 2011 as summarized by Tables 17.

Table 17. Percentage of respondents reporting changes in revenues when comparing 2010 and 2011.

	Increased	Remained the Same	Decreased
Dryland	14%	28%	57%
Irrigated	33%	11%	55%
Dryland and Irrigated	100%	0%	0%
Dryland and Livestock	33%	0%	66%
Irrigated and Livestock	66%	8%	25%
Livestock	42%	35%	21%

Table 18. Percentage of respondents reporting changes in profits when comparing 2010 and 2011			
	Increased	**Remained the Same**	**Decreased**
Dryland	14%	28%	57%
Irrigated	30%	10%	60%
Dryland and Irrigated	0%	100%	0%
Dryland and Livestock	11%	11%	77%
Irrigated and Livestock	33%	16%	50%
Livestock	14%	50%	35%

Tables 17 and 18 indicate the uneven distribution of drought impacts due to the mitigating influence of high commodity prices. Irrigated operations received greater or similar profits as they had a crop that could be sold at relatively high prices. However, a majority of operations faced decreased profits in 2011 compared to 2010.

Table 19. Percentage of respondents indicating Debt to Asset Ratio categories before and after the drought.						
Answer Options	**10% or Less Debt Financing**	**11% to 20% Debt Financing**	**21% to 30% Debt Financing**	**31% to 40% Debt Financing**	**Greater than 40% Debt Financing**	**Response Count**
BEFORE the drought	46%	10%	23%	15%	6%	48
AFTER the drought	40%	17%	10%	19%	15%	48

Table 20. Percentage of respondents who report planning or reporting financial management strategies			
Answer Options	**I took this action ...**	**I will do this if the drought continues ...**	**Response Count**
Custom farmed for others	85%	15%	20
Took off-farm employment	62%	46%	13
Reduce family living expenses	79%	23%	39
Pursue federal/state assistance	88%	23%	26
Sold breeding livestock	77%	43%	30
Sold equipment	46%	54%	13
Sold land	0%	100%	3
Paid interest only on loans	70%	30%	10
Put up more collateral for loans	89%	11%	9
Rolled the operating note into next year	79%	21%	19

Farm and ranch managers have a variety of tools for dealing with financial stress that comes with a drought. Some of these tools are short term in nature (e.g., reducing input purchases, taking off farm employment), while others have longer lasting effects (e.g., selling breeding livestock and land). Table 20 indicates managers are considering all alternatives should the drought persist, but with the exception of selling breeding livestock, will seek less disruptive remedies for the operation. If conditions worsen, more drastic measures might be taken.