Colorado Basin Roundtable

Agricultural Summary

March 2009

Presented by Jacob Bornstein, CWCB

Outline

- Overall Context
- State Legislative Efforts
- Agriculture to Urban Water Transfers Report
- Agricultural Water Conservation Measures Report
- Yampa & Gunnison WSRA Grants
- Alternatives to Agriculture Transfer Program
- Other WSRA Grants
- Next steps?

Importance of CO Agriculture

- 13% of Colorado jobs dependent on Agriculture
- Major food provider nationwide, especially livestock
- Most of Colorado's geography is made up of rural communities and landscapes
- These communities are often dependent upon agriculture-based economies
- Return flows and seepage often have environmental benefits
- Open Space
- Cultural Values

Colorado farm and farm-related employment (2002)

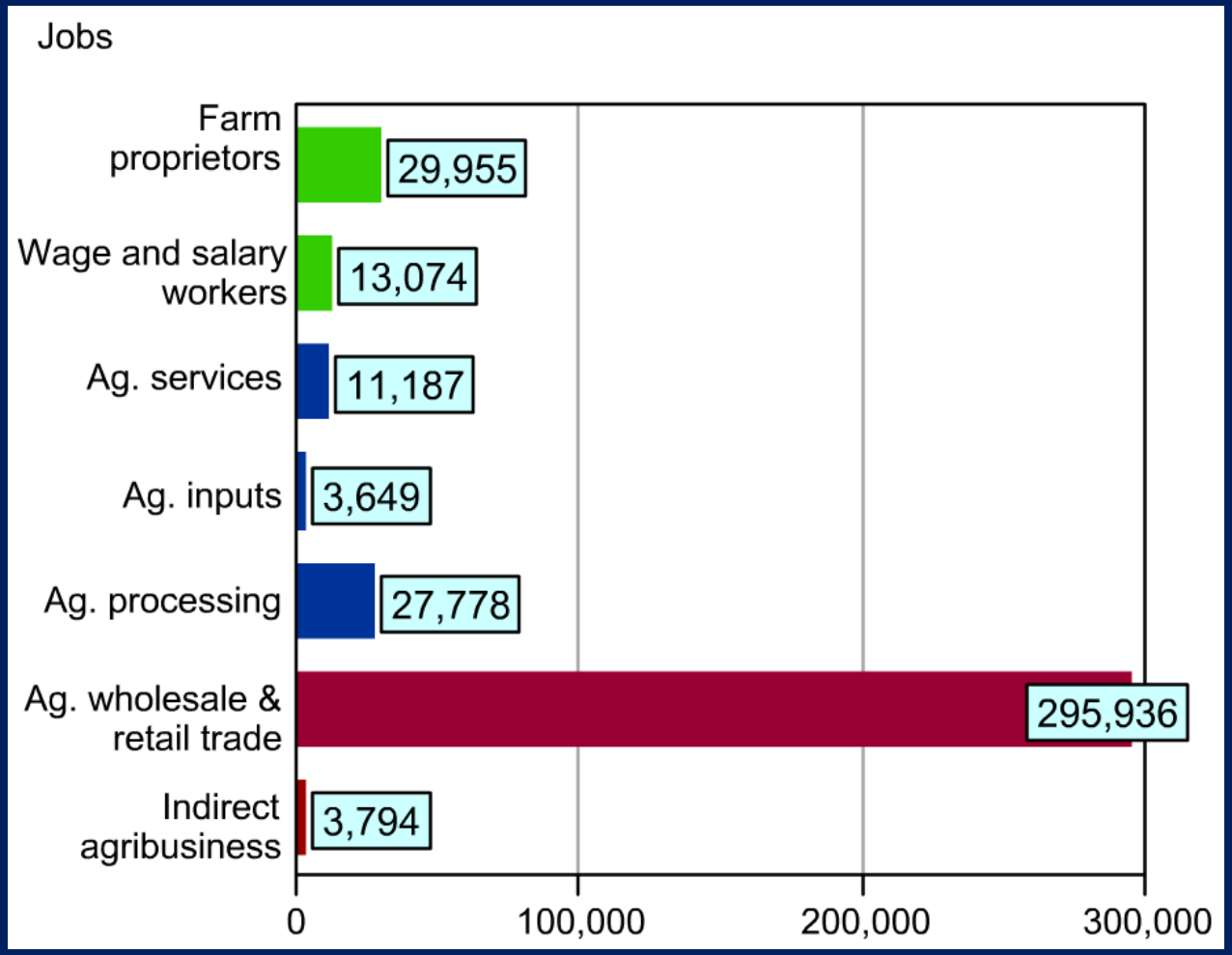
Agriculture Dependent Jobs: 385,373

Total Jobs in Colorado :

2,915,339

13.2% of all jobs are ag. related; 2.94% closely related, 22% of "nonmetro" areas

Source: USDA, Economic Resource Service



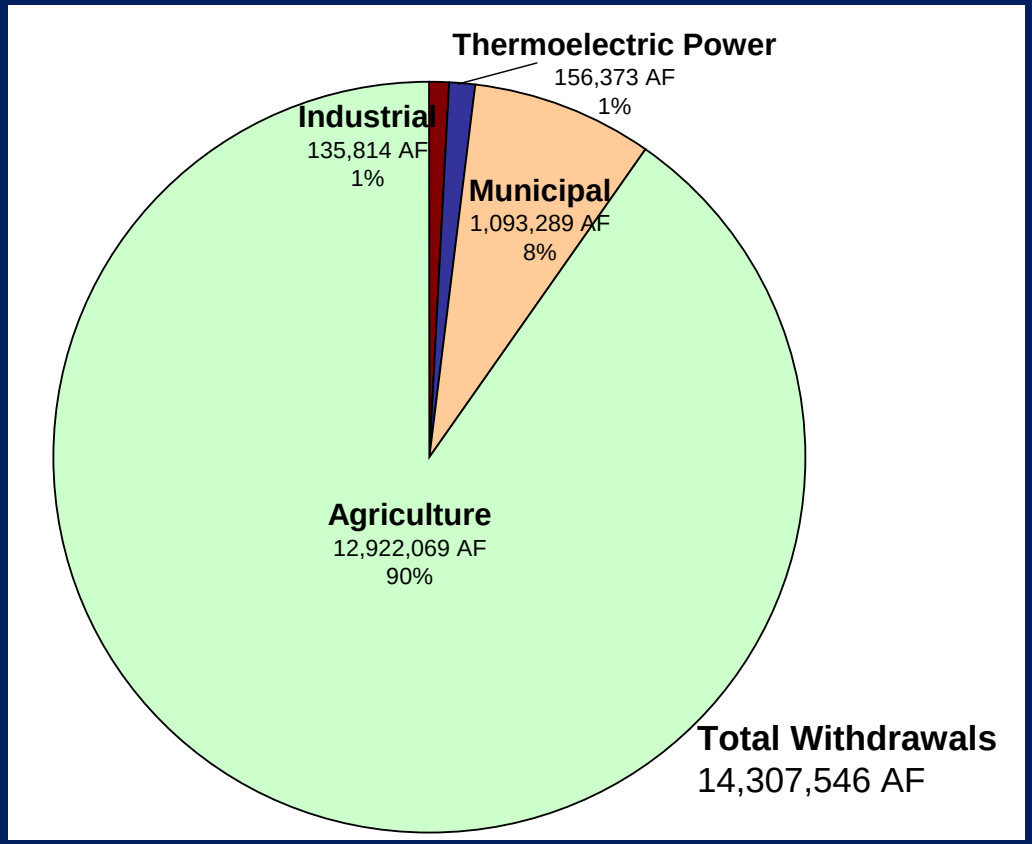
www.ers.usda.gov/Data/FarmandRelatedEmployment/ViewData.asp?GeoAreaPick=STACO_Colorado&YearPick=2002&B1=Submit

Value of Agriculture Products

Item	Quantity	U.S. Rank
MARKET VALUE OF AGRICULTURAL PRODUCTS SOLD ($1,000)		
Total value of agricultural products sold	4,525,196	16
Value of crops including nursery and greenhouse	1,216,278	24
Value of livestock, poultry, and their products	3,308,918	12
VALUE OF SALES BY COMMODITY GROUP ($1,000)		
Grains, oilseeds, dry beans, and dry peas	448,378	21
Tobacco		
Cotton and cottonseed		
Vegetables, melons, potatoes and sweet potatoes	297,752	12
Fruits, tree nuts, and berries	15,735	26
Nursery, greenhouse, floriculture, and sod	261,426	16
Cut Christmas trees and short rotation woody crops	398	41
Other crops and hay	192,590	14
Poultry and eggs	113,256	28
Cattle and calves	2,632,740	4
Milk and other dairy products from cows	247,095	21
Hogs and pigs	179,415	14
Sheep, goats, and their products	72,479	2
Horses, ponies, mules, burros, and donkeys	21,365	13
Aquaculture	28,805	11
Other animals and other animal products	13,763	21

Market value of Colorado agricultural products sold in 2002
Source: 2002 Census of Agriculture State Profile, United States Department of Agriculture, Colorado Agricultural Statistics Service

Statewide Impact



Colorado water withdrawals in 2000.
Source: Calculated from "Estimated Use of Water in the United States in 2000," USGS

State Ag. Receipts:
$1,405,000,000

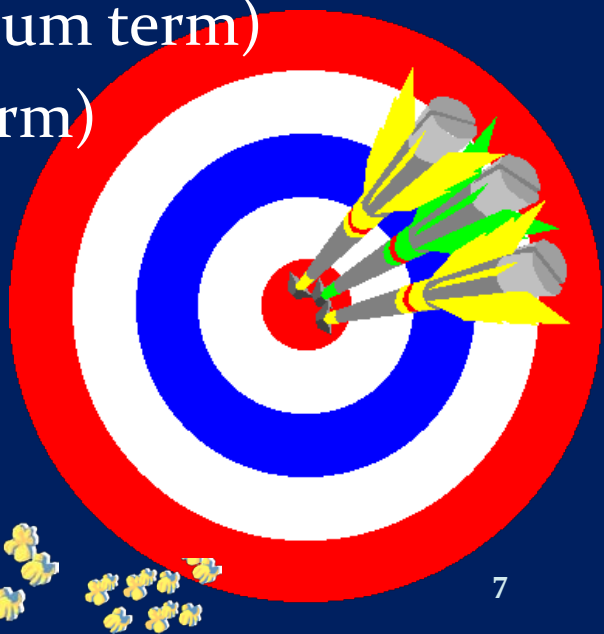
State GDP:
$226,266,000,000,

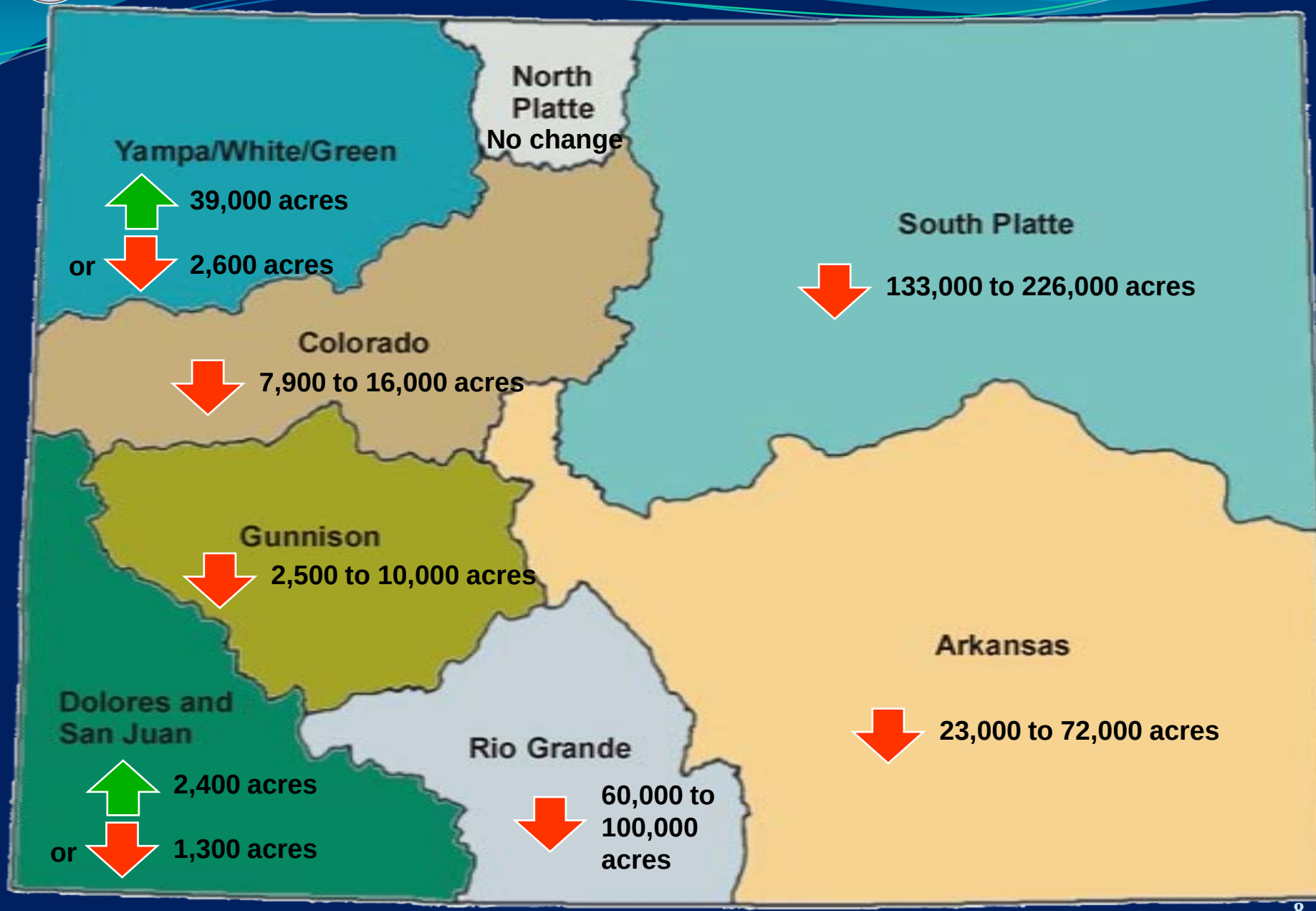
Percent Agriculture:
0.62% of Colorado's GDP

Source: Bureau of Economic Analysis, 2006

Agricultural Realties

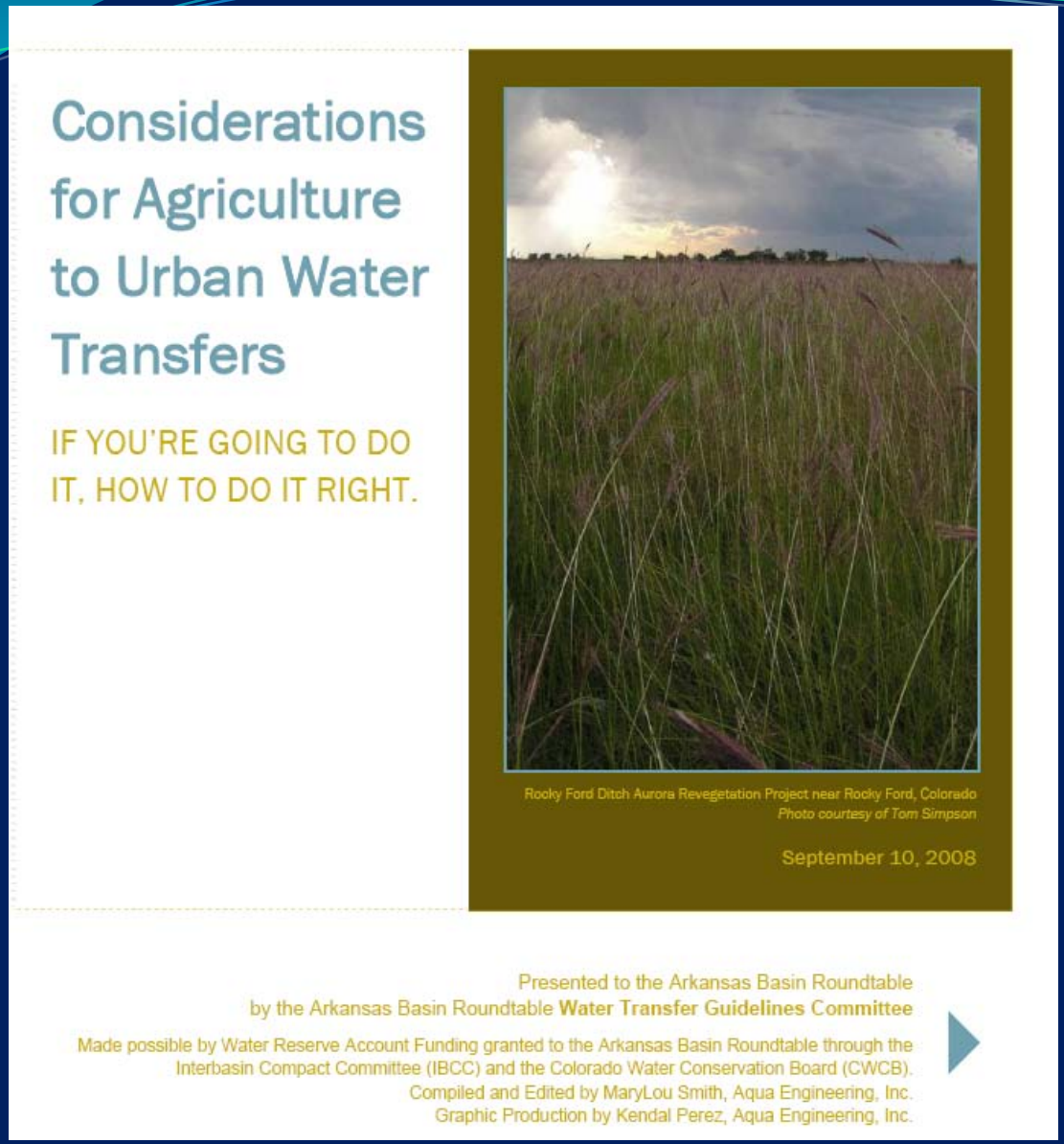
- Limited Water Statewide, especially Front Range
- Increasing Population, especially on Front Range
- Municipal Gap in meeting water needs
  - Conservation and Reuse (short term)
  - Sharing infrastructure (short and medium term)
  - Agricultural Transfers (short to long term)
  - New Water Development (long term)
- Urbanization
- Global Economic Pressures




North Platte
No change
Yampa/White/Green
39,000 acres
or
2,600 acres
South Platte
133,000 to 226,000 acres
Colorado
7,900 to 16,000 acres
Gunnison
2,500 to 10,000 acres
Arkansas
23,000 to 72,000 acres
Dolores and San Juan
2,400 acres
or
1,300 acres
Rio Grande
60,000 to 100,000 acres

Recent Legislative Action

- Goal: To help Colorado municipalities provide for their water needs, while reducing impacts to agricultural communities.
  - Water "loans" by agricultural interests during times of drought, which provide instream flows for environmental or municipal use.
  - Rotational Crop Management, which can now be managed by the same approval criteria applied to changes in water rights.



Arkansas BRT

Water Transfer Guidelines Committee

Funding Source: WSRA Basin Funds

Grant Sponsor: SE Water Conservancy District

Grant Amount: $23,860

www.colorado.edu/ibs/eb/wiener/papers/Ag%20to%20Urban%20Report%20Submitted%20to%20Ark%20Basin%20RT%20Sept%2010,%202008.pdf

Framework for Evaluating Water Transfers: A Template

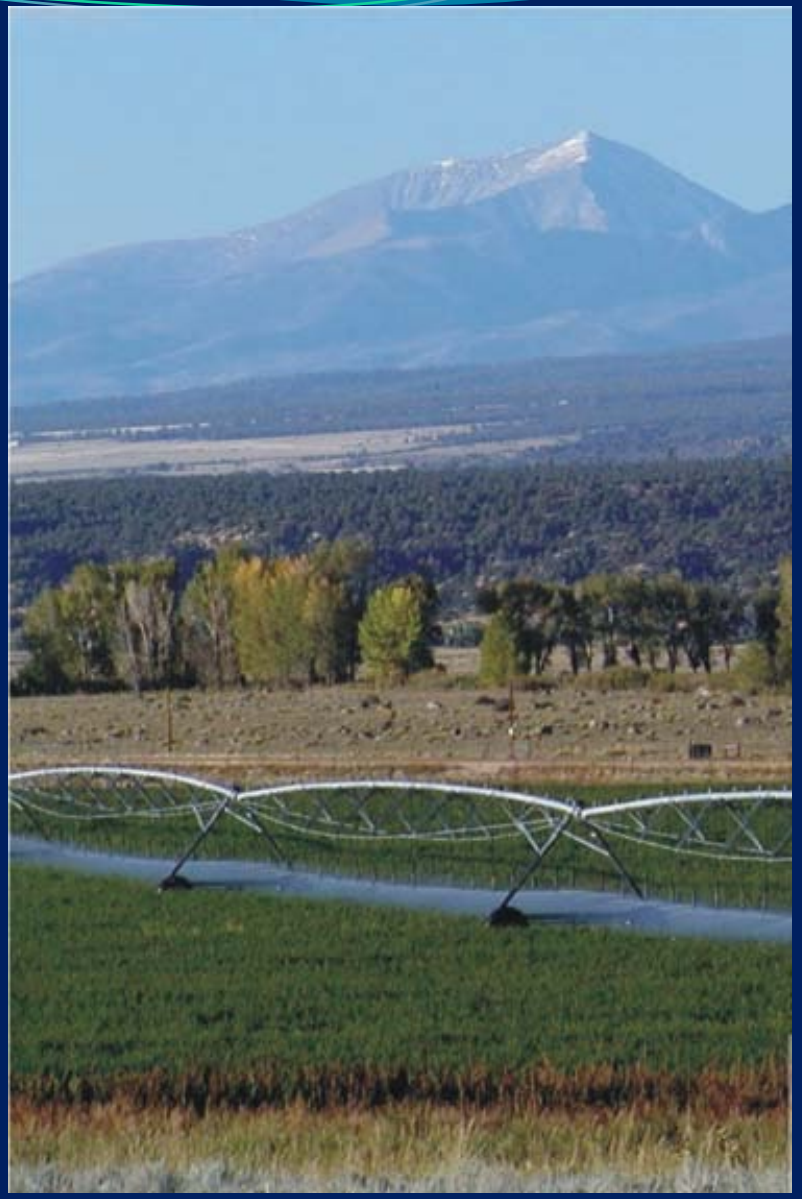
A. Size of Transfer Relative to Affected Areas
B. Location of Transfer Relative to Affected Areas
C. Period of time to Implement Transfer
D. Point of Diversion
E. Time of Diversion
F. Means of Conveyance
G. Storage Issues
H. Water Quality Impacts
I. Impact on Environment
J. Impact on Recreation
K. Economic Impact to Affected Communities
L. Non Economic Social Impacts
M. Local Government Interests

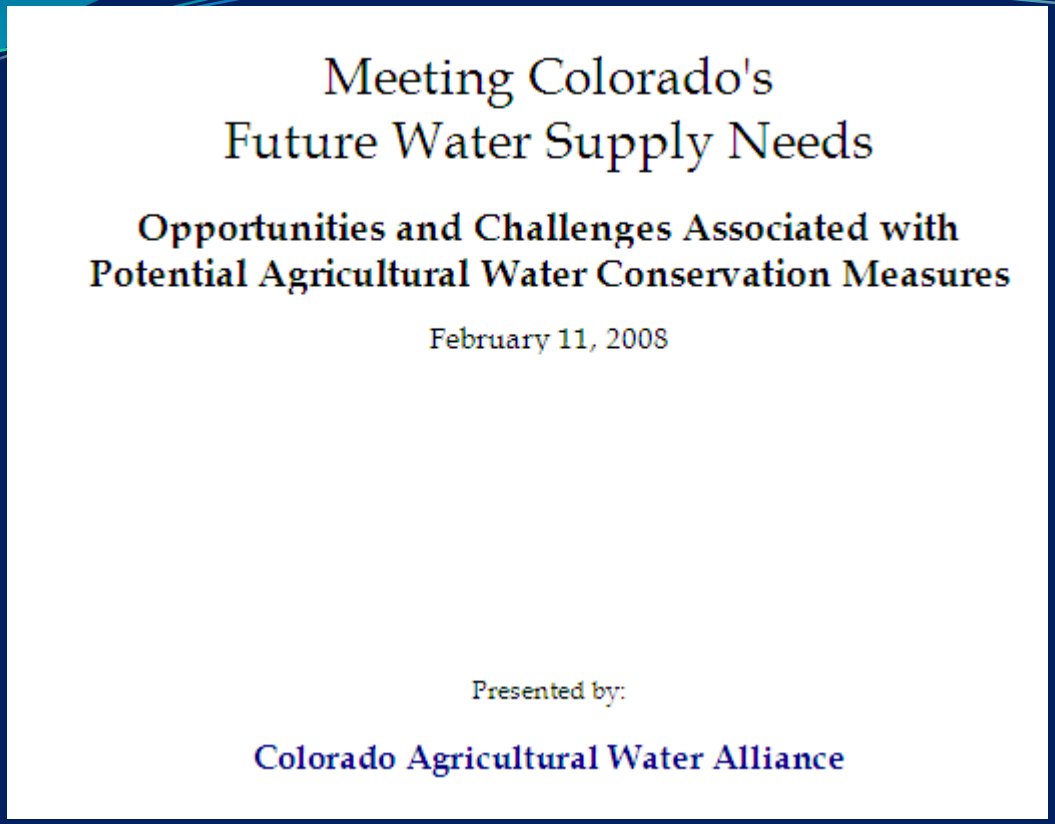
Framework for Evaluating Water Transfers: A Template

Prepared by Arkansas Basin Roundtable Water Transfer Guidelines Committee

A. Size of Transfer Relative to Affected Areas

Questions--No Particular Order	Potential Mitigation Examples--No Particular Order
QA-1. What are the affected areas?	
QA-2. What percentage of the affected areas' water supply does this transfer represent?	
QA-3. Will there be sufficient remaining water for viable **agricultural** operations/economy in the affected areas?	**MA-3.1** Assist in transition to alternate crops or irrigation methods requiring less water **MA-3.2** Leaseback Arrangements **MA-3.3** Infrastructure investments, e.g. rehabilitation, efficiency measures, etc. **MA-3.4** Compensate for loss via other mitigation, e.g. financial payment, job relocation to community, assistance with economic development efforts, provision of alternate water supply, etc.
QA-4. Will there be sufficient remaining water for other **non-agricultural** economic undertakings in the affected areas?	**MA-4.1** Modify transfer timing **MA-4.2** Develop alternate transfer mechanisms, i.e. leaseback arrangements **MA-4.3** Assist in planning/assessment efforts for local governments/communities to determine alternative visions, i.e. provide land use planning expertise **MA-4.4** Infrastructure Investments
QA-5. Will there be sufficient remaining water for anticipated growth, drought, or emergencies in the affected areas?	**MA-5.1** Develop alternate transfer mechanisms **MA-5.2** Modify quantity of water transferred **MA-5.3** Locate alternate water supply **MA-5.4** Assist with water conservation **MA-5.5** Infrastructure Investments





The Colorado Agricultural Water Alliance: A new statewide group addressing how agriculture can face changing water demands and help find solutions to the problems those changes present. The Colorado Agricultural Water Alliance agriculture leaders from across the state representing all facets of the industry, intends to empower Colorado's agricultural producers to make the most informed and viable decisions regarding the state's water.

Origination:
Stemmed out of SWSI Technical Roundtable

Authored by:
Reagan Waskom, Todd Doherty, Kelly DiNatale

Project:
Explores mechanisms for *Conserved Consumptive Use Water*

www.cwi.colostate.edu/other_files/Ag%20water%20conservation%20paper%20Feb%2011.doc

Reduction in crop CU can occur if:

- Irrigated acres are decreased
- Crop selection is changed from summer crop to a cool season crop
- Crop selection is changed to one with a shorter growing season
- Deficit irrigation is practiced
- Evaporative losses from the field surface are reduced (conservation tillage, mulching, and or drip irrigation)

Each of these may limit crop yields and increase exposure to risks

Yampa/White Agricultural Study

Funding Source: WSRA Basin Funds

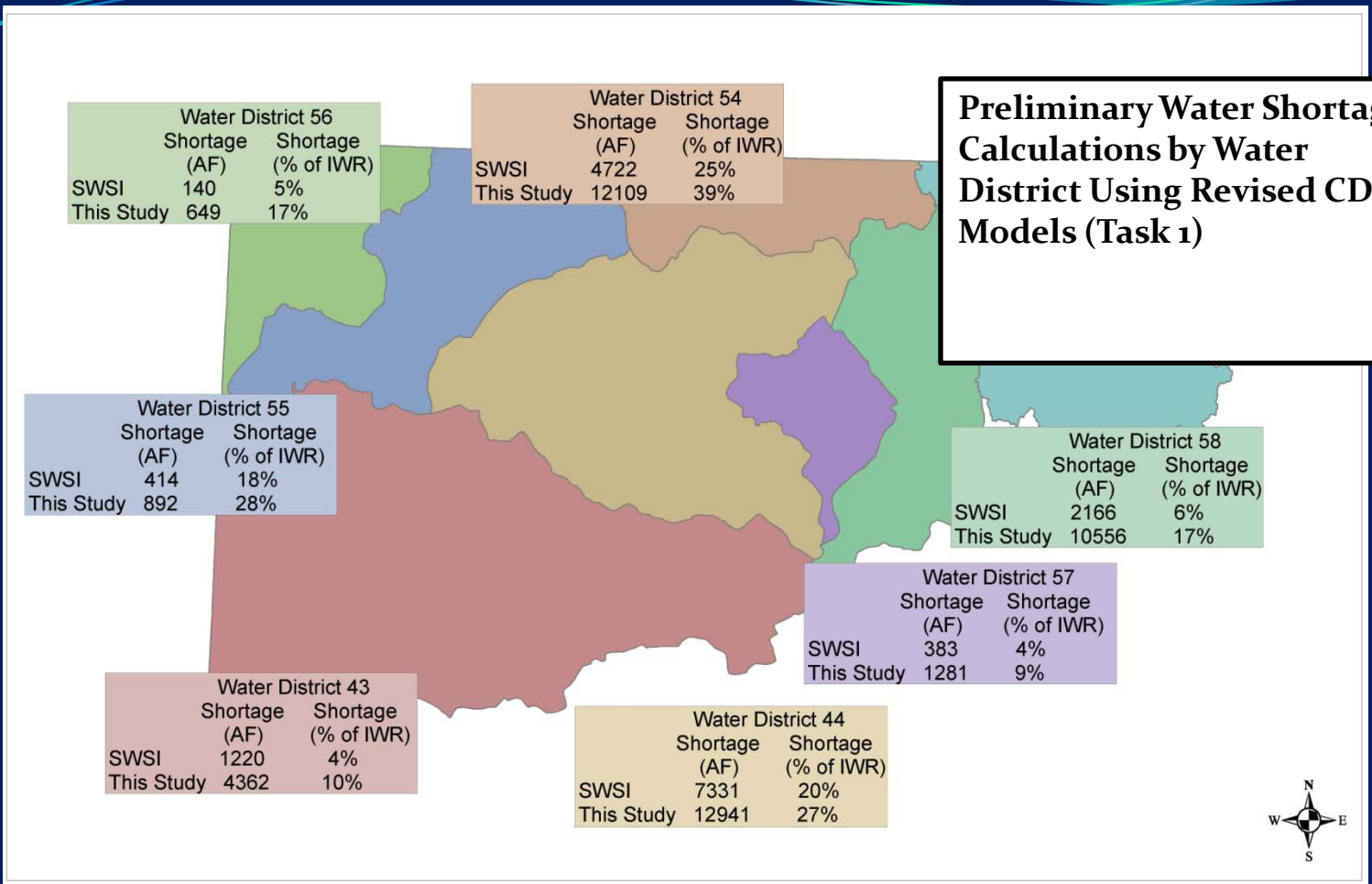
Grant Sponsor: Moffat County

Grant Amount: $201,410

Yampa/White Agricultural Study

- **Updates:** Refine and update previous estimates for current agricultural water demands, supplies, and shortages
- **Agriculture Shortages:** Identify and evaluate future agriculture shortages
- **Climate Change:** Assess climate change impacts on agruculture water availability
- **Energy Impacts:** Assess energy sector water supply development impacts on agricultural
- **Alternatives:** Assess water supply development alternatives to satisfy shortages identified in Tasks 1, 2, and 3
- **Return Flows:** Assess the effects on return flows of various irrigation practices
- **Multiple Objectives:** Investigate creative solutions that benefit multiple interests

Preliminary Water Shortage Calculations by Water District Using Revised CDSS Models (Task 1)



Gunnison Agricultural Water Needs Assessment

Funding Source: Not Approved Yet

Grant Sponsor: Upper Gunnison River Water Conservancy District

Grant Request: $111,480 WSRA Basin Funds

$74,320 WSRA State Funds

Gunnison Agricultural Study

- **Determine Water Supply Issues:** Interview water users and others
- **Update:** refine and update previous estimates of current agricultural water demands, supplies, and shortages for the Gunnison River Basin
- **Compare:** Compare water user identified water short agricultural water systems with those in the updated DSS models and State Mod.
- **Revise DSS Models:** Revise to reflect water user knowledge of water short systems.
- **Needs Assessment:** Provide detailed Basin level needs assessment information for BRT and Colorado River Water Availability study.

Alternatives to Ag Dry Up Grant Program

Jay Winner	Super Ditch Co / LAVWCD
Kelly DiNatale	FRICO / CDM
Don Ament	CO Corn Growers / B&C
Dan Henrichs	Highline Canal Co
Perry Cabot	CSU—Corn Fallowing
Neil Hensen	CSU / Parker WSD

- $1.5 Million in grant funds dedicated to Front Range already allocated
- Current projects bill has another $1.5 million statewide

Other WSRA Projects

- **Corn Growers, Ducks Unlimited, Aurora:** Alternative to dry-up scenarios that help wetlands.
- **Ducks Unlimited Wetland Recharge on S. Platte:** Using recharge credits for augmentation
- **Rio Grande Initiative Project:** Pays for 5 conservation easements along Rio Grande
  - Wetland component from recharge

Discussion

- Which projects seem most interesting?
- What topics should be explored further?
- How else can CWCB help the Colorado Basin focus

Todd Doherty is IWMD section's Agricultural point person. He'll be available for more information.