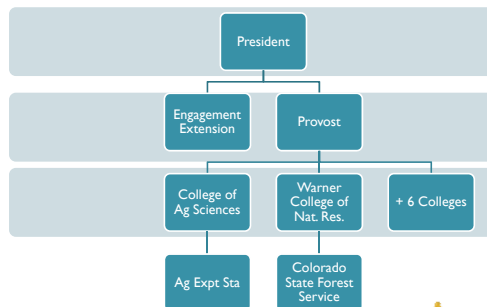


Future Directions of the Agricultural Experiment Station at CSU

Lee Sommers
 Director, Ag Experiment Station
 Associate Dean for Research



Administrative Structure

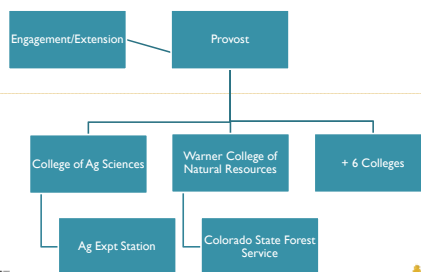


Outline

- Funding and changes in AES programs
- Characteristics of agriculture
- Stakeholder input on AES programs
- Proposed WCRC positions
- Initiatives in College of Ag Sciences



Administrative Structure



What is Agricultural Experiment Station?

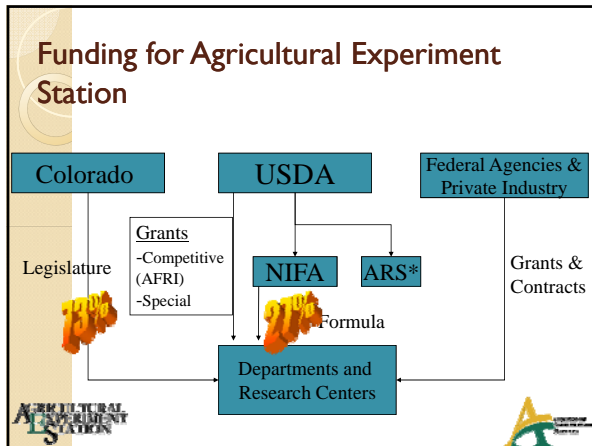
- Component of CSU as a land-grant university
- Authorized by federal and state statutes
- Mission oriented research to meet state needs
- Research conducted by
 - Departments on-campus at CSU-Fort Collins
 - Research Centers located off-campus facilities
- Many programs are joint with teaching (campus) and extension(on- and off-campus)



Departments with AES Research

- | | |
|---|---|
| <ul style="list-style-type: none"> • Animal Sciences • Horticulture & Landscape Architecture • Bioagric. Sciences & Pest Management • Soil & Crop Sciences • Agric. & Resource Economics • Forest, Rangeland, and Watershed Stewardship | <ul style="list-style-type: none"> • Civil & Environmental Engineering • Atmospheric Sciences • Food Science & Human Nutrition • Health & Exercise Science • Statistics • Biology • Biomedical Sciences • Sociology |
|---|---|

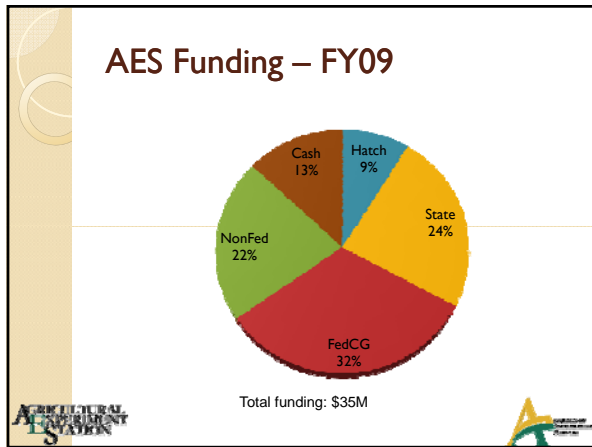




10 Year Comparison: Economic and Caseload Indicators FY 01 to FY 10

	FY 2000-01	FY 2009-10	% change
Colorado Population	4,339,000	5,018,000	15.7%
K-12 Student Enrollment	742,145	818,443	10.3%
Higher Education Enrollment	123,256	144,577	17.3%
Prison Population	16,833	22,633	34.5%
Medicaid Recipients	263,107	489,612	86.1%
General Fund Revenues (millions)	\$6,553	\$6,500	-0.8%

<http://www.lobbycolorado.com/FileRepository/documents/2011PreviewFinal.pdf>

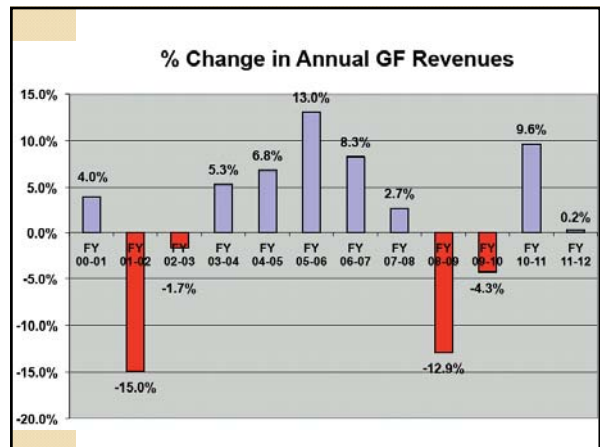


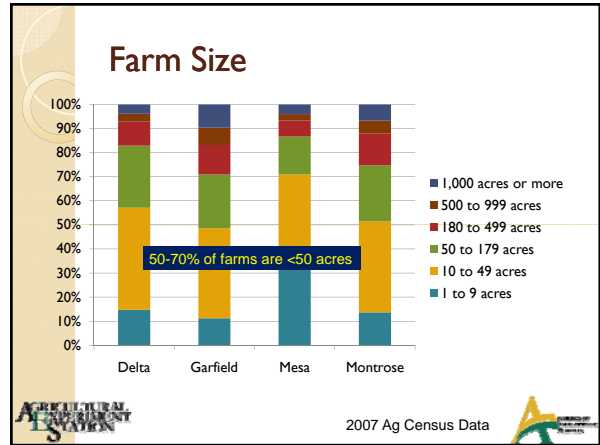
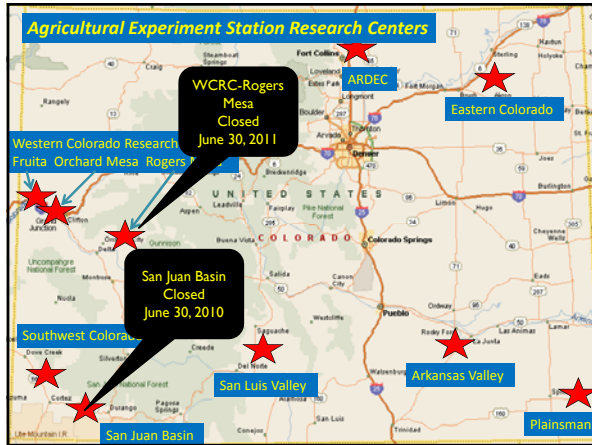
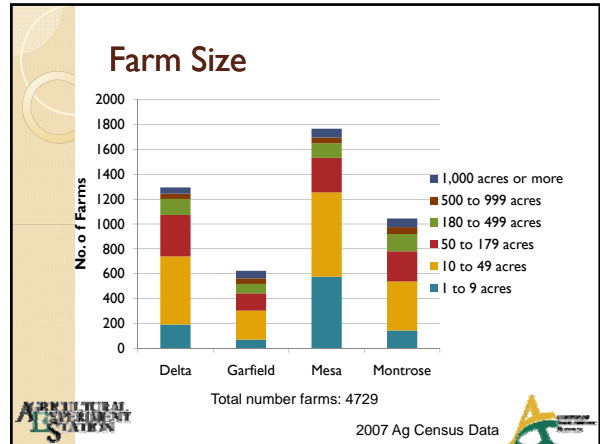
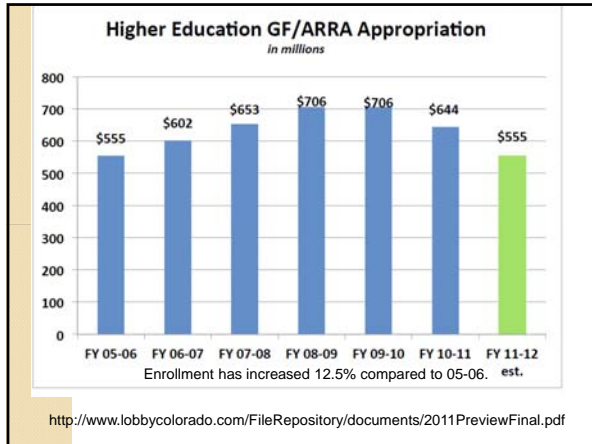
Sales Tax and Income Tax Per Capita: A 10 Year Comparison

	FY 2000-01	FY 2009-10	Change	
			\$	Percent
Excise/Sales Taxes per Capita	\$450	\$402	(\$48)	-10.8%
Personal Income Tax per Capita	\$902	\$783	(\$119)	-13.2%

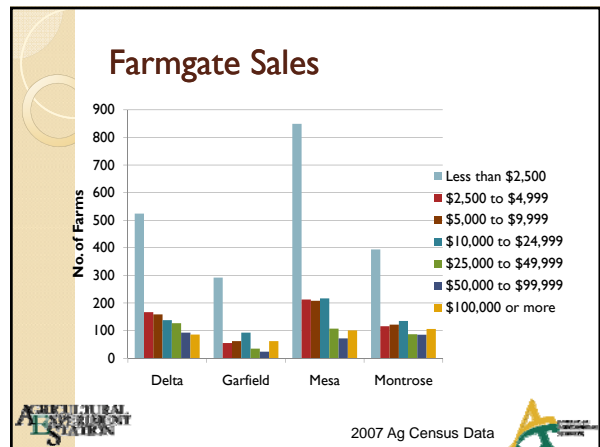
As shown above, in FY 2009-10 Colorado collected \$48 less per capita in excise/sales taxes, and \$119 less per capita in personal income taxes. The state has more people, more people on Medicaid, more students in K-12 and higher education, and is collecting less money per person from the two primary revenue sources. Again, please remember that these are not inflation-adjusted numbers.

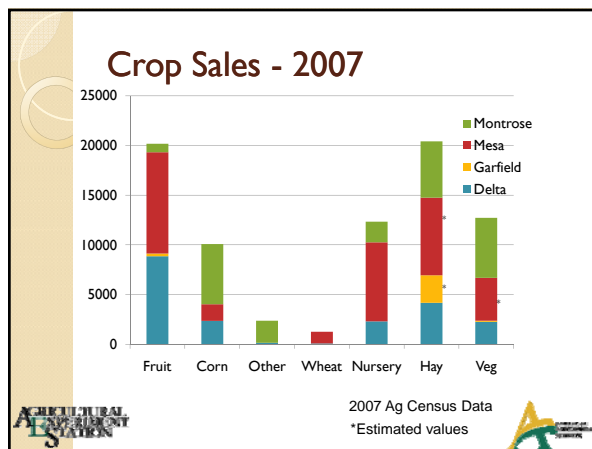
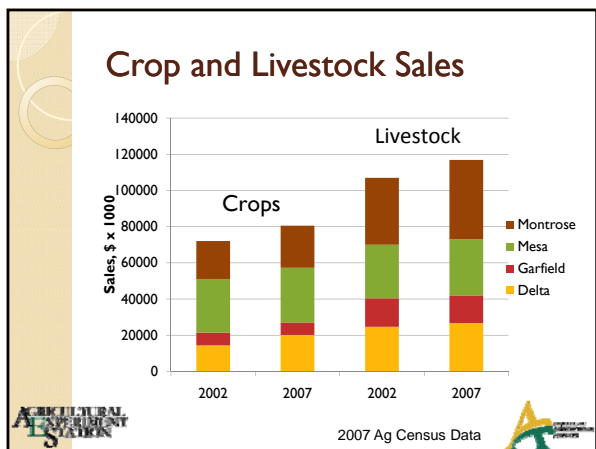
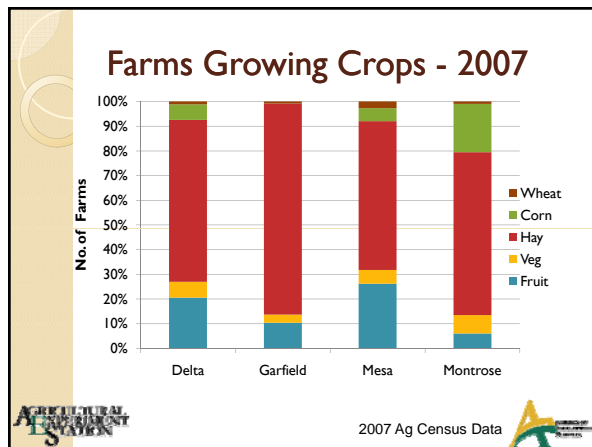
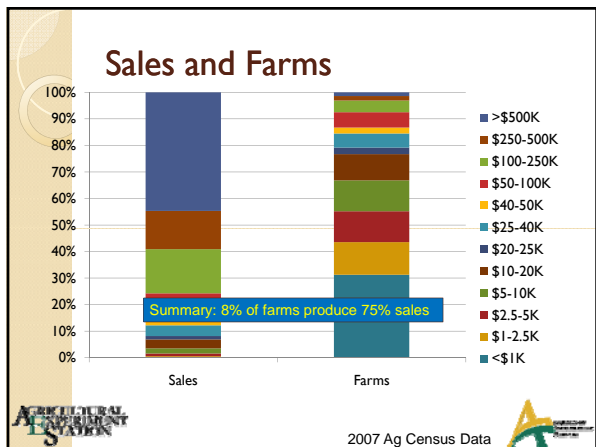
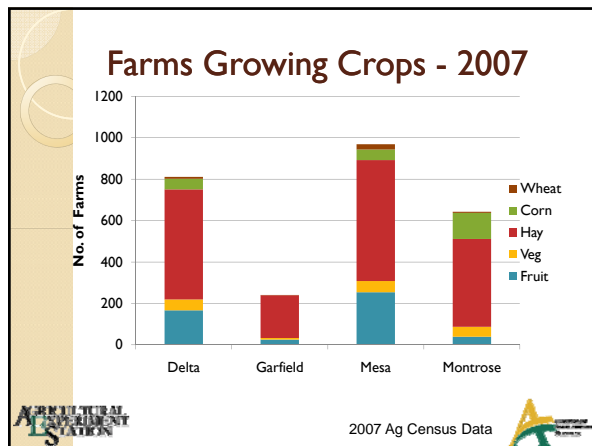
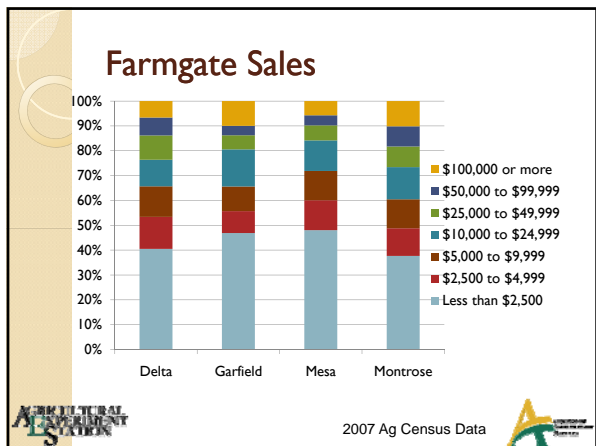
- ### AES Budget Reductions
- FY03-04 18%
 - FY09 (mid year 2%)
 - FY10 5%
 - FY11 4.8%
 - Sum 27.8%**
- FY12 – plans being developed for 5%, 7.5%, 10% (\$403K - \$806K)
Vertical cuts proposed







AG STATISTICS







Summary

- Small acreage farms predominate
- Sales: livestock > crops
- Crops
 - Hay – largest number of farms
- Crop value
 - Fruit
 - Vegetables



Current Programs at WCRC

- Orchard Mesa
 - Fruit production and pathology
 - Harold Larsen – retired spring 2010
 - Ramesh Pokharel – post doc thru 2011
 - Larsen position available now
 - 2nd position available in 2012

Plans for WCRC





- Maintain two sites
 - Orchard Mesa and Fruita
- Enhance facilities at Orchard Mesa
- Regional engagement center is long-term goal
 - AES Research programs
 - Western Region Extension
 - Discussions with Distance Education, CSFS and CVMBS

Current Programs at WCRC

Fruita


- Agronomy – Calvin Pearson
- Foundation Bean Seed – Fred Judson




Current Programs at WCRC

Orchard Mesa

Viticulture – Horst Caspari





Enology – Steve Menke

Stakeholder Input

- Jointly planned with Western Region CSU Extension – Nathan Moreng
- Meetings – Craig, Grand Junction, Delta, Gunnison
- Feedback identified possible program areas
- Web based survey
 - 425 email addresses obtained
- Results will guide job descriptions

Desired Feedback

- Identify challenges and opportunities in agriculture for western Colorado
- Identify major research and extension needs for western Colorado
- Is industry funding available to support program?
 - Example: wine grape program funded by checkoff



Cropping Systems/Alternative Crops

- Emphasis includes existing as well as new or alternative crops
- Emerging lavender industry; high quality oil is needed; research funding may be possible from growers
- Alternative crops suggested include hops, osha and other herbs, tomatoes, onions, forages, grasses, other vegetables
- Consider crops that could be grown as a source of biofuels
- Marketing issues and agri-tourism opportunities also exist



Proposed Programs Based on Feedback from Stakeholder Meetings

- Fruit Production
- Cropping Systems Emphasizing Alternative Crops
- Range Management and Livestock
- Soil Sustainability and Health



Range Management

- Emphasis on policy issues impacting use of private and public land by ranchers
- Issues related to livestock grazing and recreational use of rangelands
- Management of rangelands for grazing and protection of endangered species
- Value and future impacts of conservation easements and other land use policies
- Non-point source pollution issues in riparian areas used for grazing or forage production



Fruit Production

- Systems approach needed including variety evaluation, cultural practices, irrigation, pest control, replant problems, and orchard layout and management
- Pathogens remain a major issue such as Cytospora
- Environmental factors are important including winter injury, freeze damage, desiccation
- Soil management issues include Yellow tree syndrome and micronutrients
- Marketing issues and agri-tourism opportunities also exist



Soil Sustainability

- Systems approach is needed for long-term crop productivity – soil health is key issue
- Topics could include salinity, erosion, fertility, pest control, soil pH
- Requires a long-term commitment of 5-10 years or more with multiple disciplines contributing to the program
- Environmental issues affecting production agriculture such as water quality are also important



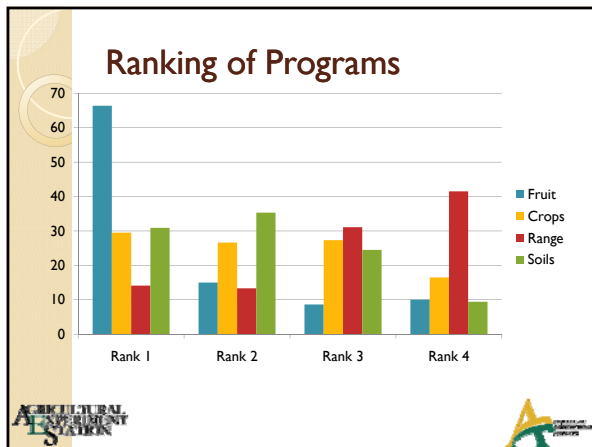
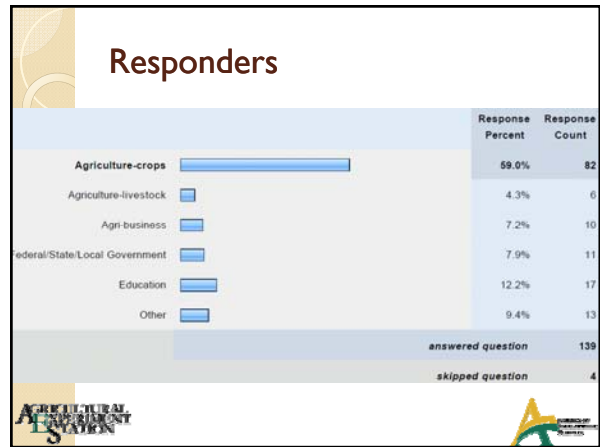
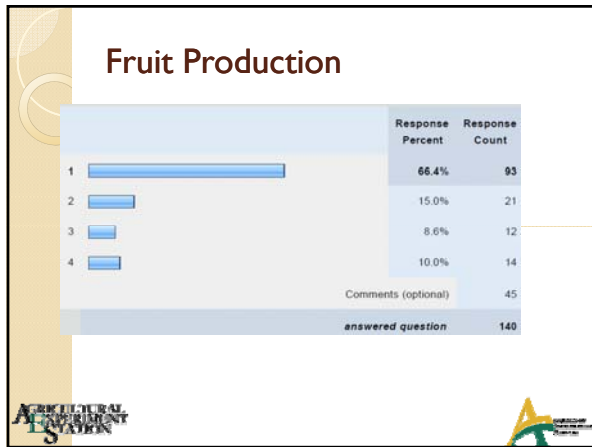
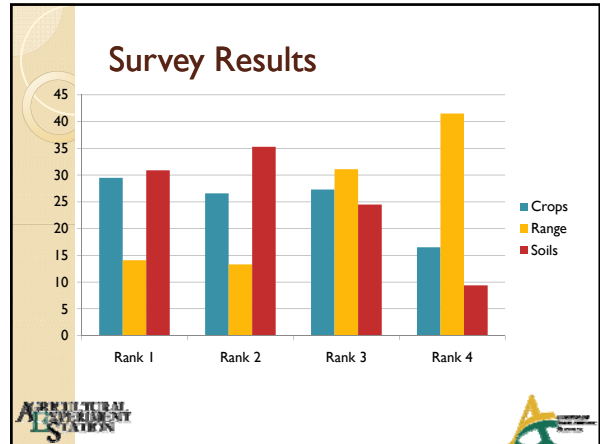


Survey Monkey

1. Fruit Production:
 Systems approach needed including variety evaluation, cultural practices, irrigation, pest control, replant issues, and orchard layout and management. Plant diseases remain a major issue such as Cytospora. Environmental factors are important including winter injury, freeze damage, and desiccation. Soil management issues include yellow tree syndrome and micronutrient use. Marketing issues and agritourism opportunities also exist.



1 2 3 4

Comments (optional)



Location of Responders

Area	No. Responses
Canon City	1
Cortez	3
Delta	11
Denver/Boulder	3
Fort Collins/Windsor	2
Grand Junction	30
Gunnison	1
Hotchkiss	10
Meeke	1
Montrose	2
Olathe	3
Orchard Mesa/Palisade	42
Paonia	8
Penrose	1
Steamboat Springs	2

Next Steps

- Hort position emphasizing fruit will be hired
- Funding for research and extension at WCRC
 - Federal grants
 - National objectives may not relate to W. Colorado
 - CAVE and CWIDB significant funders of existing program for wine/grapes
- Local industry support
 - Check-off?
 - Other funding options?









Criteria for strategic initiatives

- Must be relevant to Colorado and U.S.
- Attract undergraduate and graduate students
- Compete for extramural funding
- Multidisciplinary
- Reflect current college expertise
- Encompass all three mission areas




Initiatives in College of Ag Sci

- Enhancing our Food System
 
- Enhancing our Environment
 


1. Food Safety and Quality

- Food safety threats to human health
- USDA: national need area
 
- Lack of food safety professionals acute problem
- Considerable expertise on campus (Food Safety cluster)
 




Strategic Initiatives

- Enhancing our Food System
 - Assuring Food Safety and Quality
 - Improving Food for Enhanced Health
 - Developing Profitable and Environmentally Sound Beef/Dairy Production Systems
- Enhancing our Environment
 - Developing Land Use Strategies for Sustainable Agriculture and Urban Environments
 - Optimizing Agriculture's Water Footprint




Center for Meat Safety and Quality

Program of Research and Scholarly Excellence




- Study the behavior of pathogenic bacteria
- Reduce the incidence of food borne illness
- Develop techniques and biosensors for rapid detection
- Enhance nutritional value of meat
- Develop science-based strategies to ensure exports







2. Improving food for enhanced human health



- Chronic diseases associated with diet
- Crops for health relates food production with nutrition
- Programs are nationally visible and relevant

Measuring Gas Emissions from Livestock Operations



Making science-based decisions to establish production guidelines

Crops For Health Program: Foods that Fight Chronic Disease

Dry edible beans contain high levels of disease-fighting compounds, antioxidants, relative to commonly consumed foods




Mark Brick, S&C



Henry Thompson, HLA





Institute for Livestock and the Environment




S&C



S&C



S&C



S&C



Ani. Sci.



NREL



Liberal Arts



Vet. Med.







Liberal Arts








3. Profitable and environmentally sound beef/dairy production systems

- Goals: Increase production and production efficiency, reduce emissions, improve air and water quality
- Strong infrastructure: ~ 2,000 mother cows, research ranches and feedlot facilities
- Strong collaborative history: Institute for Livestock and the Environment, Center for Meat Safety and Quality, Beef Team



4. Developing land use systems for sustainable ag/urban environments

- Evaluating and assessing land use options
- Addresses competition for water, land, natural resources
- Increase economic viability in rural Colorado



Future Efforts

- Design decision aid tools that recognize the loss of prime ag land and provide for uses on alternative areas
- ID opportunities for additional economic return from agricultural lands, i.e. ecosystem services
- Work with local decision makers such as county commissioners to aid in decisions of land use
- Develop a Center for Land Use Analysis
 - Develop workshops and short courses for diverse stakeholders




Future Efforts

- Conduct fundamental research in plant drought stress physiology
- Focus plant breeding and genetics on drought tolerance and water productivity
- Develop applied production management systems for improved water productivity
- Create Ag water resources undergraduate track in existing water resources interdisciplinary studies program
- Establish an off campus Water Optimization Center

5. Utilizing limited water resources

- Improve use efficiency of limited water resources
- Develop water conservation practices for crop and animal production
- Develop water-efficient urban landscapes
- Assist with water policy decisions

THANK YOU

Recycled wastewater study on golf courses and parks in Colorado



Castle Pine International