2016 HIGHLIGHTS

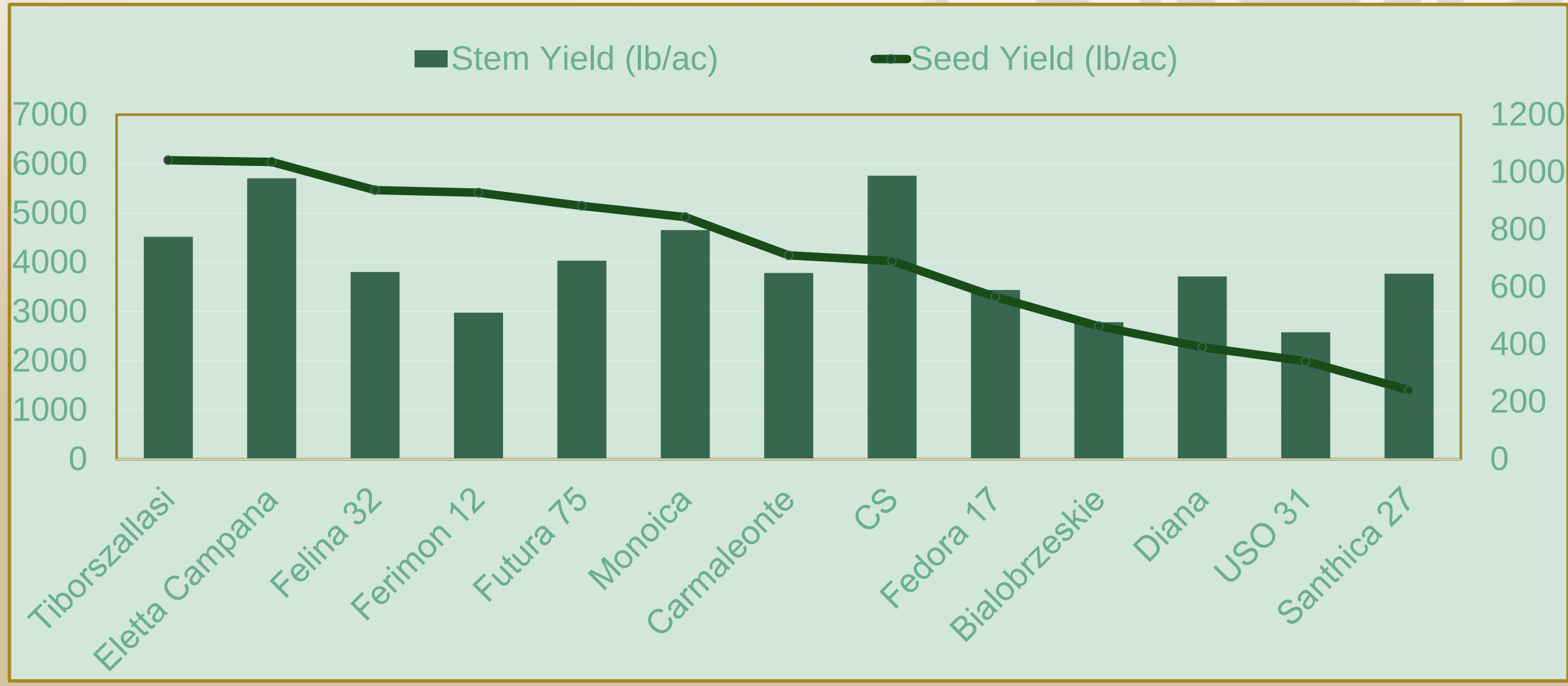
Abdel Berrada
Southwestern Colorado Research Center

Agricultural Experiment Station Research Center Conference
January 10-12, 2017

General accomplishments for the year - Any real exciting news or discoveries that you want to share?

- Second year of the dryland cover crops project. We are Starting to get a sense of what works and what doesn't.
- Second year of the industrial hemp trial
  - Earlier planting, better stand, higher yields
  - Still many unknowns and opportunities

2016 Industrial Hemp Variety Trial



The Feasibility of Cover Crops in Dryland Cropping Systems in SW Colorado and SE Utah

WESTERN SARE
Sustainable Agriculture Research & Education

Colorado State University
College of Agricultural Sciences
Agricultural Experiment Station

USDA NRCS
U.S. Department of Agriculture
Natural Resources Conservation Service

http://drylandcovercrops.agsci.colostate.edu/

Winter Peas, Berseem Clover, Sorghum-Sudan, Proso Millet, Teff, Nitro Radish, Purple Top Turnip, Sunflower, Buckwheat

- Preliminary results: Increased infiltration & microbial mass / Less water and less NO3-N
- January 18: Farmer appreciation and mid-term review
- February 9: Soil health workshop

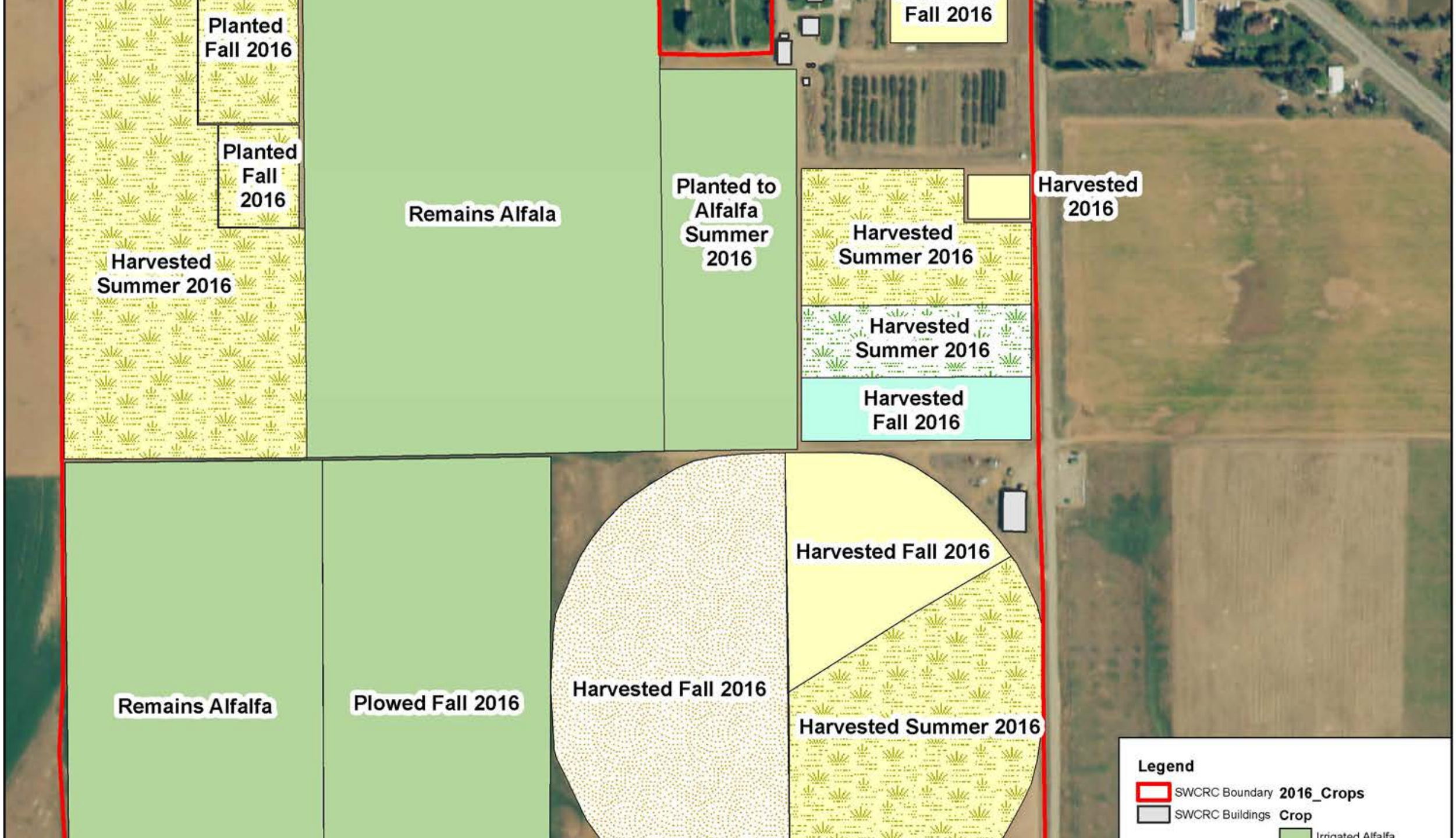
- Jerry Mahaffey—Technician III, full-time
- Courtney Roseberry—RA I/Cover Crops Project
- Neeta Mahaffey—Admin. Assistant I, 1 day/wk
- Summer help (2016): Dennis Pottorff
- New manager soon!

What are the major things that limit your operation? What are the key vulnerabilities?

- Staffing: Limited staff, difficulty hiring qualified personnel
- Ideally there should be a manager and separate faculty/research staff
  - Farm manager, 1-2 RA, 1-2 Faculty or RS
  - 1-2 Extension Specialists housed at the SWCRC such as forage/grazing, specialty crops (apples, wine grapes, other)
- Alternative: Western Colorado Research & Outreach Center with a YJ outpost to reach a critical mass of faculty & support personnel
  - Importance of farming, ranching, and hunting in SW Colorado

What are the major things that limit your operation? What are the key vulnerabilities?

- Difficulty attracting graduate students due to distance. Housing would help.
- Aging equipment (center pivot, combines, planter, etc.)
- No lab or greenhouse facility


Planted Fall 2016
Planted Fall 2016
Harvested Summer 2016
Remains Alfala
Planted to Alfalfa Summer 2016
Fall 2016
Harvested 2016
Harvested Summer 2016
Harvested Summer 2016
Harvested Fall 2016
Remains Alfalfa
Plowed Fall 2016
Harvested Fall 2016
Harvested Fall 2016
Harvested Summer 2016
Legend
SWCRC Boundary
SWCRC Buildings
2016_Crops
Crop
Irrigated Alfalfa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General update on facilities and advisory committee - what would you change?

- Facilities update: Nothing new to report
- What would I change?
  - Get some sort of housing to attract graduate students.
  - Upgrade the farm/research equipment (e.g., combine with yield monitor, no-till planter, better sprayer).
  - Get a small but well-equipped lab to do basic soil & plant analyses.
  - Build a greenhouse to supplement field research. We have a long winter!

General update on facilities and advisory committee What would you change?

- Advisory Committee history & activities
- What would I change?
  - A representative core group (6-8) of stakeholders/advisors (NOT Board of Directors!) that meets 2-3 times/year to help CSU-SWCRC with well-defined role and rules (e.g., elect chair person and members every three years)
    - Help shape the mission of the Research Center
    - Be an advocate for the Research Center
    - Reach out to stakeholders
    - Review progress and provide feedback
    - Help secure resources to meet goals

Connection to campus? How important to you and your team? What needs to improve?

- Fairly well connected to campus [Scott Hailey, Mark Brick, Jerry Johnson, Jessica Davis, Mary Stromberger, Joe Brummer, Steve Fonte, Meagan Schipanski, Jim Ippolito, Gary Peterson, Dwayne Westfall, Grant Cardon, Israel Broner, Ardell Halvorson (USAD-ARS), John McKay, Try Bauder, Tim Gates, Luis Garcia…]
- Very important to work and make connections with on-campus faculty as well as with regional faculty and extension specialists
- Challenges: Distance, tenure/graduate students

Connection to campus? How important to you and your team? What needs to improve?

- Joint projects ironed out with faculty, department head, and AES with unequivocal time/effort commitments and expected outcomes

Scientific challenges and pathways to address them?

- Dryland and irrigated agriculture
  - Low & erratic precipitation
  - Relatively short growing season
  - Relatively low crop yields & returns (dryland) → Sustainability
  - Soil erosion
  - Limited water supply
- Long distance from consumers/markets (shipping cost)
  - Add value to locally grown crops
- Address climate change (Climate Smart Agriculture)

Scientific challenges and pathways to address them?

- Meet the needs of the community and produce scientifically sound results that are relevant, impactful & and publishable?
- Identify the needs & resources
- Prioritize
- Cultivate partnerships
- Develop clear goals and objectives
- Plan & design scientifically sound studies
- Execute, evaluate, disseminate

Looking Forward (5-10 years)

- Develop crop varieties that are adapted to SW Colorado
  - Challenges: dwarf bunt, unique environment, etc.
  - Collaboration with Utah & Idaho
- Continue assessing cover crops as a way to enhance the sustainability of dryland cropping systems and develop BMPs.
- Design and execute a program that meets the needs of irrigated agriculture, in collaboration or partnership with:
  - Ag producers in Dolores and Montezuma counties
  - The Dolores Water Conservancy District
  - The Southwestern Colorado Water Conservation District
  - USDA-NRCS
- Alternative or Specialty Crops—Apples, wine grapes, malting barley, hemp (agronomics, genetics, uses, added value, economics, markets, resources)!