

Impact

Sharing the difference CSU Extension makes in people's lives and their communities.

Partners in Colorado wheat development

Improved wheat development, variety adoption, and agronomy practices are yielding high returns for Colorado's \$600 million wheat industry.

Issue

Colorado State University develops locally adapted wheat varieties that thrive despite Colorado's extreme environmental conditions, unpredictable weather, and daunting pests. Developing a superior performing wheat variety requires university-wide research and outreach.

Extension's Response

Colorado State University Extension specialists from the College of Agricultural Sciences are integral to the University's wheat development. Specialists conduct research and outreach in plant pathology, entomology, soils, irrigation, precision agriculture, crops production and integrated pest management. They work closely with Scott Haley, director of CSU's wheat breeding and genetics program. It takes an average 8 years for this team—which includes several other agricultural research, industry and grower partners—to develop and release a new variety.

Post-release, Extension agents work closely with crops production specialist Jerry Johnson and wheat growers across Colorado to help growers maximize yield by adopting proven, high performing varieties. They do this through:

- Annual variety performance trials: methodical comparison of more than 40 varieties of experimental, new, and established public and private wheat at 14 locations across Eastern Colorado.
- [Collaborative On-Farm Testing \(COFT\)](#): More than 30 wheat growers test the same five or six new and established varieties using their own management practices, resources and equipment.
- Wheat Field Days: On-farm visits, held annually in 11 Eastern Colorado locations in June, provide farmers with firsthand knowledge of new and established varieties.
- Wheat Planting Decision Meetings: Johnson, Haley and Colorado wheat industry representatives deliver a series of presentations every August to showcase variety trial and COFT plot surveys results.
- Publications: Individual trial results are posted online within several days after harvest. Results from multiple years and locations are published in the High Plains Journal and in a technical report (also posted online) that is distributed to Colorado wheat producers.

CSU Extension also provides growers the latest, best production practices for improving soil composition, water application, and weed, insect, and plant disease management.



The Bottom Line

- Wheat development at Colorado State University is a highly integrated process that has resulted in Colorado growers adopting new varieties of wheat faster than growers in any other state.
- The rapid adoption of new, superior yielding and high quality wheat varieties developed at CSU generates extraordinary economic return for growers. Analysis of just three CSU varieties planted in the 2010 crop produced an estimated \$18,000,000 impact.

By the Numbers

For the 2011 wheat crop

Estimated total acreage seeded: 2.5 million

Percent seeded with CSU varieties: 65

Percent of crop exported: 80

Value of Colorado's 2010 bumper Crop:
\$600.6 million

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Since 1963 Colorado State University has developed and released more than 30 varieties of superior yielding, high quality wheat. CSU Extension specialists and agents have significantly contributed to the development and adoption of these varieties, as well as the overall sustainability of Colorado's wheat industry. This has resulted in:

Locally-adapted varieties that get results

- CSU wheat varieties are specifically bred to withstand regional altitude, dry conditions, high temperatures and erratic weather, as well as disease and pest concerns. This has resulted in Colorado growers making substantial yield gains. According to the Colorado Wheat Research Foundation (CWRF), the benefit of locally-bred wheat varieties was clear in 2010, when Colorado growers set a record yield of 45 bushels per acre.

Widespread adoption and use of CSU-developed varieties

- 'Hatcher', released in 2004, has become the most planted wheat variety in Colorado. In 2011, Colorado growers seeded 30.3 percent of an estimated 2.4 million acres in 'Hatcher.' In 2012, seven of the top 10 varieties most seeded were developed by CSU.
- Colorado wheat growers who responded to a 2010 CSU Extension survey ranked COFT trials as the most important source of information for wheat variety selection.
- According to Darrell Hanavan, Executive Director of the Colorado Wheat Administrative Committee and CWRF, Colorado wheat growers adopt new wheat varieties faster than growers in any other state.

Positive economic impact for Colorado's wheat industry

- The rapid adoption of improved wheat varieties increases the returns of Colorado growers. According to Jay Parsons, CSU agricultural economist, three CSU varieties—'Hatcher', 'Ripper' and 'Bill Brown'—resulted in a positive \$18,000,000 economic impact to Colorado's wheat industry, in 2010 alone.
- In a 2010 wheat grower survey conducted by CSU Extension, 92 percent of the 297 growers who responded reported that CSU varieties increased yield by three to more than five bushels per acre. Bruce Bosley, CSU Extension agent in Logan and Morgan counties, says this increase represents an economic gain of \$25.20 per acre—for those respondents.
- A unique partnership between CSU and CWRF supports the ongoing development of locally-adapted wheat varieties. Since 1995, CWRF has provided nearly \$1.4 million in royalties from the sale of certified seed to support continued wheat research and breeding at CSU.

Sustainable production practices

- Colorado wheat farmers are adopting new wheat-based, no-till cropping systems that lead to improved soil health and water conservation, as well as practices that minimize wind and water erosion and build organic soil matter.
- A growing number of Colorado farmers are practicing precision agriculture, such as air-seeding, that allow producers to plant the precise amount of seed to the right place. Equipment also delivers the precise amount of essential plant nutrients, improves wheat stands without wasting seed or fertilizer, and helps control pests.
- Reduced tillage and integrated pest management help growers increase their yields and the quality of Colorado produced wheat.

"Colorado wheat producers are smart and conscientious. They adopt new practices that are economically sound. Many producers sacrifice time and effort for their common good to participate in wheat grower organizations. They are good stewards of the land. It seems like we learn as much or more from farmers as we teach."

— Jerry Johnson

CSU Extension crops production specialist

Colorado's Wheat Industry

Wheat breeding at CSU would not be possible without the support of Colorado's wheat industry. In 2010-11 alone, the Colorado Wheat Administrative Committee and Colorado Wheat Research Foundation (CWRF) provided nearly \$800,000 to support CSU wheat breeding and wheat-related research. CSU transfers ownership of new cultivars to CWRF, which works with the Colorado Seed Growers Association to produce and distribute certified seed. CWRF collects royalties on the sale of certified seed and returns a net amount to CSU for wheat-related research. The Colorado Agricultural Experiment Station also provides more than \$1.5 million annually in state, federal and grant funds to advance wheat development and production.

Learn More

Visit <http://wheat.colostate.edu>

Contact Information

Frank Peairs
Colorado State University Extension Specialist
College of Agricultural Sciences
Department of Bioagricultural Sciences & Pest
Management
(970) 491-5945
frank.peairs@colostate.edu