

# Impact

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

## Improving wheat variety adoption through Collaborative On-Farm Testing

Colorado farmers are more rapidly adopting new, high yielding wheat varieties with help from CSU Extension's on-farm testing program.

### Issue

Every year Colorado wheat producers select which wheat varieties to plant from a pool of high-yielding cultivars. Public and private wheat breeders develop cultivars for superior adaptation to Colorado's unpredictable and diverse growing conditions. As new, promising, research-proven varieties enter the market, farmers might be reluctant to change varieties without credible proof that a new variety will work on their farm.

### Extension's Response

In 1996, CSU Extension crop production specialist, Jerry Johnson, created the Collaborative On-Farm Testing (COFT) program to help speed adoption of new, high-performing wheat varieties. Through COFT, wheat producers test new wheat varieties in their fields, before the seed is marketed and available to the public. COFT is a partnership between farmers, CSU Extension field agents, CSU campus-based Extension specialists and the Colorado Wheat Research Foundation (CWRf).

Each fall CSU Extension agents recruit farmers from across Eastern Colorado to plant four to six recently released public and private wheat varieties. Extension agents provide farmers with seed and help with field selection and planting. Agents then help producers monitor fields and harvest wheat, collect samples, determine yield and report results to Johnson. COFT farmers use their own management practices, resources and equipment.

The overall objective of the COFT program is to compare performance and adaptability of popular and newly released varieties. The 2011 program included four CSU releases (Hatcher, 2004; Ripper, 2006; Bill Brown, 2007; and, Snowmass, 2009) with promising commercial varieties from West Bred (Winterhawk, 2007) and Watley Seed (TAM 112, 2006).

In the fall of 2010, 23 Eastern Colorado wheat producers planted approximately 1.25 acres of each variety in side-by-side strips. Plots were located in Baca, Prowers, Kiowa, Cheyenne, Kit Carson, Washington, Yuma, Phillips, Logan, Adams and Weld counties. Despite early season below average moisture in 2010-2011, viable harvest results were obtained from 20 of the 23 tests.

CSU's crops testing program publishes COFT trial results online at [www.csucrops.com](http://www.csucrops.com) and in its annual "Making Better Decisions" report, which includes results from all variety performance trials conducted across Eastern Colorado. The CSU wheat improvement team and a representative from Colorado's wheat industry present the report at several planting decisions meetings held across Eastern Colorado every August. The Colorado Wheat Research Foundation sponsors the meetings.



### The Bottom Line

- Supported by the Colorado Wheat Research Foundation since its inception, COFT is unique to Colorado—no other state engages farmers in wheat development through large-scale, uniform on-farm variety testing.
- COFT speeds the overall adoption of new varieties around the state, increasing total annual wheat production. CSU reports that its varieties led to an economic impact worth \$18 million in 2010 alone.

### By the Numbers

- Percent of CSU-bred wheat planted each year in Colorado: 70
- Record state average wheat yield (bushels per acre set in 2010): 45
- Wheat's rank in Colorado commodity crop production: Second (with a \$600 million industry)
- Colorado's rank in U.S. wheat production: Sixth

## Impact

Rapid adoption of new wheat varieties is the primary goal of COFT. Scott Haley, who leads CSU's wheat breeding and genetics program, says the value and benefit of rapid adoption comes down to economics. "If farmers wait four or five years to plant a new variety, they can miss out on the opportunity to make more money," Haley says. In a bumper crop year, such as 2009-10, that difference could translate into thousands of dollars.

For example, 'Hatcher' has become the most planted variety in Colorado. According to the National Agriculture Statistics Service (NASS), in 2010 Colorado growers seeded 26.5 percent of an estimated 2.4 million acres in 'Hatcher' alone. Haley says the hard red winter wheat variety averages 10 percent more bushels per acre than many other known varieties. In 2010, 'Ripper' was the second most seeded variety (12.5 percent of acres). Six of the top 10 most seeded varieties in 2010 were developed by CSU.

According to Jay Parsons, CSU agricultural economist, analysis of just three CSU varieties—Hatcher, Ripper and Bill Brown—indicate an \$18,000,000 economic impact on Colorado's wheat industry in 2010. Variety selection is a business decision that comes with risk. CSU Extension COFT trials, as well as its performance variety trials, are organized specifically to provide information that can lead to decisions that might minimize this risk. Results from a 2010 CSU Extension survey of 297 Colorado wheat growers strongly suggest this is occurring. Growers ranked COFT trials as the most important source of information for wheat variety selection.

CSU Extension encourages farmers to make a variety decision not based on a single on-farm test, but by considering results from a large number of on-farm tests, as well as results from CSU's performance variety trials. "It is imperative that farmers consider results from multiple years," says Johnson. COFT farmers are at an advantage in this regard. According to Ron Meyer, CSU Extension agronomy agent in the Golden Plains area, participating COFT farmers value the opportunity to test leading edge wheat technology on their own farm. By harvest, they have increased confidence regarding which varieties will work.

COFT also builds a valuable communication network among Extension agents, participating farmers and their neighbors. Farmers track variety performance throughout the growing season and share their observations with Extension agents, who regularly visit COFT plots. Agents and farmers also share observed wheat variety strengths and weaknesses with other area farmers. During these visits, agents and farmers discuss other crop, pest, and farm systems management issues. In this way, word-of-mouth recommendation—that is trusted—spreads the adoption of cropping systems and new, high-yielding varieties.

The number of wheat growers participating in the 2011-2012 COFT trial will increase significantly. According to Johnson, the program's expansion is due to the significant potential of two new high-performing hard red varieties—Byrd and Brawl CL—that were released in 2011 and have the potential to significantly increase yields across the state. Golden Plains Area Extension agent Ron Meyer says expansion is also a result of more wheat producers requesting COFT participation.

*"We find in Extension that when you work with people who are the early adopters, their neighbors really do pay attention to what they do. You can make a big impact with a few because their neighbors learn from them."*

– Bruce Bosley  
Cropping Systems and Natural Resources Agent  
Logan County

*"COFT gives us hands-on, real time exposure to the varieties early in the process. This means we can make verifiable decisions sooner than if we didn't participate."*

– Kent Kalcevic  
COFT participant and wheat producer

## County & Area Partners

Logan & Morgan County Extension  
Bruce Bosley, Cropping Systems & Natural Resources Agent

Golden Plains Area Extension  
Ron Meyer, Agronomy Agent  
Alan Helm, Weed Science Agent

Southeast Area Extension – Prowers County  
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