

Impact

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

Improving wheat variety adoption through Collaborative On-Farm Testing

By helping wheat farmers make better planting decisions, Extension's on-farm testing program is improving wheat variety adoption around the state.

Issue

Wheat variety selection can be challenging. With so many good university and commercial varieties available, Colorado wheat farmers rely on a range of information sources to select seed that is well suited for soil type and that works for either irrigated or dryland farming practices. To demystify wheat selection, CSU Extension and the university's wheat improvement team annually publish results from wheat performance variety trials, hold wheat field days that highlight research findings, and conduct wheat planting decision meetings.

While objective reports, field days, and research-based recommendations can offer unbiased data and observations, these useful decision-making tools don't always change farmer behavior or help them adopt new and improved varieties. When it comes to variety adoption, word-of-mouth recommendation is sometimes more effective.

Extension's Response

In 1996, CSU Extension created the Collaborative On-Farm Testing (COFT) program to directly involve farmers in testing new varieties of wheat on their own farms, and to complement traditional wheat performance variety trials. As part of the program, Extension agents assist COFT farmers with planting seed, monitoring fields, harvesting wheat, collecting samples, determining yield, and reporting results. Seed is funded by the Colorado Wheat Research Foundation and provided by Extension.

Now in its fourteenth year, COFT complements traditional wheat performance variety trials which annually compare more than 40 varieties of experimental, new, and established public and private wheat. In these trials Extension grows wheat at 11 different dryland field sites and three irrigated trial locations across Eastern Colorado. In COFT trials, all participating farmers test the same five or six new and established varieties in long strips in one of their commercial wheat fields. They use their own management practices, resources and equipment.

The most recent COFT trial compared the performance and adaptability of three popular and newly-released CSU varieties with one promising commercial variety from WestBred and Watley Seed. In the fall of 2009, 21 COFT wheat producers planted each of these varieties. Nineteen farms produced viable harvest results while two tests failed due to severe hail damage.

Extension reports results from both traditional and COFT trails in early July immediately following harvest.



The Bottom Line

- COFT increases wheat farmer confidence in the performance of new wheat varieties and thereby speeds the overall adoption of new varieties around the state.
- COFT is unique to Colorado—no other state engages farmers in wheat development through on-farm variety testing.

By the Numbers

- Percent of CSU-bred wheat planted each year in Colorado: 70
- 2010 Colorado record yield for bushels per acre: 45
- Estimated value of the 2010 bumper crop: \$560 million
- Colorado's rank in U.S. wheat production: 4th
- Wheat is the second largest commodity crop in Colorado

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Participating COFT farmers value the opportunity to test the most current wheat technology on their own farm and witness both good and bad wheat performance. By harvest, they have increased confidence in which varieties will and won't work on their farm. According to Ron Meyer, agronomy agent in Kit Carson County, that benefit alone keeps wheat producers involved in COFT, even when test yields are low.

However, Extension encourages farmers to make a variety decision not based on a single on-farm test, but by considering the results of a large number of on-farm tests, in addition to the results from traditional Colorado variety trials. It is also imperative to consider results from multiple years.

As COFT farmers follow the crop throughout the growing season, they not only share their observations with Extension agents who regularly visit COFT plots, but they also share variety strengths and weaknesses with their neighbors. In this way, trusted, word-of-mouth recommendation spreads throughout the community and adoption increases over time.

Rapid adoption of new varieties is a primary goal of COFT. Scott Haley, who leads CSU's wheat breeding and genetics program, says the value and benefit for rapid adoption comes down to economics. Since CSU released Hatcher in 2004, it has become the most planted variety in Colorado because of its consistent yield. On average, Hatcher yields 10 percent more bushels per acre than Akron, a known variety that was popular in the late 1990s. "If farmers wait four or five years to plant a new variety," says Haley, "They miss out on the opportunity to make more money." In a bumper crop year like 2010, that difference could translate into thousands of dollars.

Highlights of CSU wheat development and adoption include:

- In 2006, CSU released Hatcher, which, two years later was planted in 33 percent of wheat-producing acres in Eastern Colorado. Since 2008, Hatcher has been the most planted variety in Colorado.
- A recent survey of 297 wheat growers show COFT trial results as the top information source used by farmers in their variety selection. The four most important sources of grower information for making wheat selection decisions come from CSU & their collaborators.

Colorado is the only wheat producing state in the country that complements performance variety trials with systematic and uniform Collaborative On-Farm Testing.

Environmental variables such as precipitation, hail, and spring freeze heavily influence yearly wheat yields. Wheat variety also plays a significant role. CSU and other land grant universities, as well as private companies, develop and release new wheat varieties that resist diseases or insects, are herbicide-resistant for controlling serious weeds, or diversify wheat markets through improved quality.

CSU wheat breeding research is supported by a partnership between the CSU Agricultural Experiment Station, the Colorado Seed Growers Association, the Colorado Wheat Administrative Committee, and the Colorado Wheat Research Foundation.

Without the support of each of these groups, wheat breeding research at CSU would not be possible.

"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

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Golden Plains Area Extension
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