



(Above) Wheat test plots at the LSU AgCenter Macon Ridge Research Station.

Photos by Rick Bogren

(Left) LSU AgCenter plant breeder Steve Harrison reviews how each wheat variety performed in variety trials at the LSU AgCenter Macon Ridge Research Station during a field day.



Researchers Develop Wheat To Grow In 'Wet' Southern Climate

BATON ROUGE, LA.

Wheat growers have a saying that "wheat doesn't like wet feet." With winters often damp and dreary, Louisiana is not conducive for growing this crop, which has its origins in dry climates. But LSU AgCenter wheat breeder Steve Harrison has developed lines that can tolerate local conditions and allow farmers to grow wheat profitably.

Harrison has enlisted help of other universities to make this possible. The LSU AgCenter is a partner in SUNGRAINS, a consortium of six southeastern universities cooperating on wheat and oat research and variety development. They include the universities of Florida, Georgia, Arkansas, North Carolina State and Texas A&M.

"SUNGRAINS provides the majority of wheat and all of the oat varieties grown in the Southeast," Harrison said.

Varieties developed at the AgCenter used to be tested at just three locations within the state. Now they are tested multiple places across the Southeast, allowing for collection of better data more quickly.

"Looking at how varieties perform across the Southeast region helps make the breeding program much more efficient," Harrison said.

Through its work with SUNGRAINS, the LSU AgCenter's wheat and oat breeding program will release several varieties this year, the most significant being the wheat breeding line named LA01110D-150. This release adds another high-yielding and adapted variety for farmers to plant.

Harrison said the breeding program partnered with the Georgia Seed Development Commission in Plains, Ga., to produce 1,200 bushels of this variety this year.

"This line has done extremely well across the region for the past three years," he said.

Harrison also is planning to release another line called LA02015E-201. Although it is a good variety for the Deep South, it is not as broadly adapted as LA01110D-150, Harrison said.

The wheat breeding team focuses on developing high-yielding, disease-resistant varieties adapted to the Gulf Coast region, Harrison said.

"We're bringing in new genes for stripe rust resistance and looking at a new disease, wheat blast," he said.

Wheat blast recently showed up in the United States, and Harrison said it has a potential to

be a major problem. He has been testing for blast resistance for several years through collaborative screening nurseries in Brazil.

Harrison also is looking at resistance to the Hessian fly, the major insect pest of wheat.

"Any wheat grown in this region has to have a good defensive package in addition to high yields and high test weight," Harrison said. Test weight refers to the average weight of grain usually expressed in pounds per bushel.

The AgCenter wheat breeding team includes plant pathologists Boyd Padgett and Don Groth, entomologist Fangneng Huang, and agronomist Rick Mascagni, who focuses on characteristics such as plant height and test weight. Also on the team are research associates Kelly Arce-niaux, Lucas Bissett, Katie McCarthy and Myra Purvis.

The team has had a hard time collecting data because of warm and wet weather conditions that damaged the wheat or complicated its development. Warm temperatures caused the wheat to develop early, and in many areas the crop did not receive the required chilling hours needed to head.

The wheat breeding team is working on a molecular marker project to help map genes that influence heading dates and other traits.

"We try to develop selectable markers that allow us to screen for and identify those lines that have the genes and traits we are looking for in terms of agronomic characteristics and disease resistance."

Harrison and his team also work with oats. LSU AgCenter's oat program is one of only a handful in the United States and is well-known around the world.

"We coordinate an international oat program for the exchange of breeding material. As a result we have a very broad genetic base and develop lines that work well in other parts of the world," Harrison said.

He is releasing three oat varieties this year. One will be released in cooperation with a government institution in Uruguay. Another will be used in California's dairy industry. And the third will be used in Germany for the fodder industry.

These lines are offshoots of research aimed at producing oats for the southern United States, Harrison said. Δ