Panicle Blight Affecting Arkansas Rice

LONOKE, ARK.

Hot nights are accelerating panicle blight, a seed-borne bacterial rice disease that can cut yields by up to 60 bushels per acre.

The rod-shaped bacteria responsible for panicle blight destroy or rot the developing rice grains, resulting in what's known as kernel blanking, or partial blanking.

"This year in June and July, we had nights above 80 degrees quite often," creating perfect conditions for the disease, said Rick Cartwright, extension plant pathologist for the University of Arkansas Division of Agriculture.

That's unwelcome news for rice producers whose crop is forecast to be the largest ever in Arkansas, according to USDA. Production for the state is forecast at 116 million hundredweight, up 16 percent from last year's production of 99.9 million hundredweight.

"If realized, this will be the largest rice crop on record, ahead of the 2005 crop of 108.8 million hundredweight," USDA said in its 2010 production forecast released Thursday.

When panicle blight appears, it also brings uncertainty. Unlike other diseases, there's no sure cure.

"Unfortunately, we don't really have any management options to control the disease," Cartwright said. Research has found tactics that have proven somewhat helpful, including:

- Planting earlier to avoid extended periods with warm overnight temperatures.
- Reducing plant density, with the idea that "the less seed you put out there, the less bacteria," he said.
- Using less nitrogen fertilizer and maintaining high levels of potassium in the soil.

While panicle blight usually favors medium-grain rice varieties, he said it was also being found in long-grain rice.

"For some reason, long-grain varieties usually are not affected in commercial fields, but this year, damage will likely be widespread," Cartwright said.

One rice variety, "Jupiter," shows partial resistance to the bacteria, but the same is not true for Bengal, a common medium grain variety.

"When the Bengal variety was released, it seemed to bring the bacteria out of the background," he said, adding that panicle blight could kill Bengal as a profitable variety.

Since coming to the fore with Bengal's introduction, the disease seems to be cyclic, with high infection rates occurring in 1995, '98, 2001 and '02, he said.

Cartwright said the bacteria's workings in rice are still something of a mystery.

"Other than its seed-borne nature, little is know about how the bacterium gets around in rice fields to cause damage," he said. "One theory being evaluated this year is whether mites and insects move the bacterium from plant to plant."

The study is being conducted by two U of A Division of Agriculture researchers: Ashley Dowling, assistant professor-entomology, and Ron Saylor, assistant professor-plant pathology, both based at Fayetteville.

"We need more research on this problem," Cartwright said. "So far, it's overcome our best efforts."

For more information on rice production see the online "Rice Production Handbook," at www.uaex.edu/Other_Areas/publications/PDF/MP192/chapter10.pdf, or contact your county extension office. Δ

This photo shows blanked and partially blanked grains in rice.

University of Arkansas Division of Agriculture photo courtesy Rick Cartwright

This closeup shows grain infected by bacteria causing panicle blight.

University of Arkansas Division of Agriculture photo courtesy Rick Cartwright