

# Rice Blast Disease Epidemic Provides Setting For International Conference

FAYETTEVILLE, ARK.

The Rice Blast Blues sung by Delta farmers may be the theme song for the Fifth International Rice Blast Conference at the Peabody Hotel in Little Rock Aug. 12-14. Scientists from around the world will discuss their research on one of the world's most destructive crop diseases at the conference hosted by the University of Arkansas Division of Agriculture and the USDA Dale Bumpers Rice Research Center near Stuttgart.

Professor Rick Cartwright, a Division of Agriculture plant pathologist based in Little Rock, said a leaf blast epidemic is underway in the Delta region from northern Louisiana to southern Missouri. Many farmers have planted varieties rated susceptible or highly susceptible to the blast fungus, *Magnaporthe oryzae*, he said.



Plant Pathologist Fleet Lee shows leaf blast disease lesions on a rice plant during a field day at the University of Arkansas Division of Agriculture's Rice Research and Extension Center near Stuttgart in 2009.

It is the second year in a row for a blast disease epidemic in the region, which produces about half of the rice grown in the United States. Yield losses were minimal in 2009, due to effective management by farmers, Cartwright said.

In both years, frequent May rains provided conditions favorable to blast infection of rice plants, and the early leaf blast stage of the disease persisted in fields suffering erratic flood management during June drought conditions, Cartwright said.

Farmers often accept the risk of blast disease in exchange for the chance of very high yields from varieties such as CL 151, CL 261 and Francis, which are rated highly susceptible to blast disease, and varieties rated susceptible, such as Jupiter and Wells, Cartwright said.

The first line of defense is to plant resistant varieties, especially in fields with limited flood irrigation capability, but they often have lower yield potential than susceptible varieties, Cartwright said. Current hybrid rice varieties

have both high yield and resistance to blast disease, but the seed is more expensive.

Cartwright said rice yields may not be reduced unless the infection progresses to neck blast. In the neck blast stage, disease lesions can reduce the flow of water and nutrients to the grain, and lesions can weaken stems, causing them to break under the weight of the grain, he said.

Research by Professor Fleet Lee, a plant pathologist at the Division of Agriculture's Rice Research and Extension Center near Stuttgart, found that the neck blast stage can be minimized in some susceptible varieties by keeping a deep flood on the field until draining for harvest. Lee's research on this practice in the early 1990's provided a major breakthrough in blast disease management.

However, many farms in eastern Arkansas lack the irrigation capacity to keep rice fields flooded under drought conditions at a time when soybean fields also must be watered, Cartwright said.

"Keeping a deep, continuous flood of four inches or more in the field is our second line of defense after planting resistant varieties," Cartwright said. "The third line of defense is carefully timed fungicide applications, which can be quite expensive."

Division of Agriculture extension specialists and agents will work with farmers to monitor infected fields and help decide if and when to apply fungicides, he said.

Professor Jim Correll, a Division of Agriculture plant pathologist based in Fayetteville, and Yulin Jia, a molecular plant pathologist at the USDA Dale Bumpers National Rice Research Center at Stuttgart, are co-chairs of the local committee organizing the August 12-14 conference in Little Rock. Although research presentations are highly technical, anyone interested in rice blast disease may attend and can register at [www.ars.usda.gov/irbc2010](http://www.ars.usda.gov/irbc2010).

The conference will include a tour of blast-infected fields and the U of A Division of Agriculture and USDA research centers near Stuttgart. The side-by-side centers and rice industry operations in and around Stuttgart make it one of the world's leading locations for rice research, Correll said.

Jia will be a keynote speaker at the conference. His research at the USDA center has been instrumental in developing rice varieties with increased resistance to blast disease. He developed genetic markers that help plant breeders incorporate genes for blast resistance into improved varieties. Δ



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