



CAUSING ECONOMIC LOSS IN MISSISSIPPI, SOYBEAN RUST SHOWS IT'S STILL A CHALLENGE

By Steve Werblow

When the Asian soybean rust pathogen was found in the U.S. in 2004, fears were rampant of devastating outbreaks of the disease, which had proven to be a virulent crop killer in South America. Fortunately, the crippling outbreaks didn't materialize – newly labeled fungicides, diligent research, a web of closely scrutinized Sentinel plots, an alert farm community and unfavorable weather kept Asian soybean rust in check. But a handful of growers in Mississippi learned first-hand last season that when conditions are right, soybean rust can still cause significant economic losses.

“We saw little changes, then all of a sudden, it was like, ‘bang!’ My neighbor and I had it, and it seemed it started exploding after that,” says Wilbert Koehn of Brooksville, Miss., who experienced an Asian soybean rust outbreak last year in a 100-acre field and watched a neighbor's unprotected crop suffer a substantial loss. “It didn't take long and there were just sticks and pods out there in two or three intensely infected spots in the field.”

Koehn notes that he had applied four ounces of Quadris per acre when the crop was in the R4 stage about six weeks before. Koehn figures he lost about 13 percent of his crop to soybean rust in 2009. While yields in the upper-40-bushel range eased the sting, he says he's got a new respect for the power of the pathogen.

That's what Tom Allen, Mississippi Delta extension plant pathologist with Mississippi State University, wants to hear. One grower hit hard by the disease harvested an impressive 45 bushels per acre, Allen notes, but may well have hit 60 bushels if soybean rust hadn't defoliated his crop.

“This is the part that concerns me most – that some might look at the situation and simply say, ‘he still harvested a tremendous yield when compared with the normal

dryland late-planted yield for that part of the state,” he says. “But it goes without saying that a 25-percent yield reduction is tremendous, no matter what the final result would be.”

Widespread Fungus

Allen points out that soybean rust has traveled widely throughout the South, East and Midwest. “Over the past six years, soybean rust has been found in 1,740 cumulative counties in the U.S.,” he notes. “Thirty one percent of them are in the Mid-South.” Kudzu is also a known host of the pathogen. With hundreds of thousands of acres of kudzu across the South, it’s difficult to determine how many of those acres may also be infected.

Perhaps more remarkable than the mobility of the disease is the fact that it hasn’t been more destructive, Allen points out. The Noxubee County fields infected with soybean rust last year lost eight to 25 percent of their yield, though the disease was overshadowed throughout the South by seed quality and rot problems from other pathogens.

Still, farmers who saw the symptoms recognized the scope of the challenge soybean rust can present.

“You could see it was kind of a brownish cast on the field,” says Randall Hiebert of Macon, Miss, whose neighbor had Asian soybean rust in a field adjacent to 60 acres of his beans. “It was unusual. It wasn’t like the crop was drying down naturally. On my side, where I had sprayed Quadris, the top leaves were fine – it was more natural looking. But the rust was down in there, too.”

The lesions that cause the telltale brownish cast of Asian soybean rust are not to be trifled with, notes agronomist David Wright at the University of Florida’s North Florida Research and Extension Center in Quincy, Fla.

“It only takes about 10-percent infection of the leaf area to reduce photosynthesis by 75 percent, so it does not take very much to make a severe difference,” Wright explains.

Still Many Unknowns

Experience from Brazil with rust-resistant varieties indicates that there's no silver bullet. Claudia Godoy of Brazil's national agricultural research agency, EMBRAPA, in the state of Parana, studied resistant soybean varieties in the field. "The only advantage we promise is that the farmer has some stability in case of delayed control," she says.

Godoy also notes that in some states in Brazil, populations of the soybean rust appear to be getting less sensitive to triazole fungicides by the end of the season. Brazilian farmers are fighting resistance by adhering to a host-free period between crops to let tolerant strains of the pathogen die off.

The Brazilian sensitivity data highlight the genetic diversity among the populations of the soybean rust pathogen. Unique strains and races may respond differently to variables such as weather conditions, time, resistant varieties and fungicides.

"One of the best fungicides they have in Brazil did not show up that well here," points out Wright in Florida. "I'm sure populations of the rust are somewhat different, and that does make a difference."

Staying Ahead

Growers need to stay tuned to news from Sentinel plots, extension specialists, the Arkansas, Louisiana and Mississippi soybean rust hotline (866-641-1847) and local scouts to stay ahead of soybean rust in the years to come, cautions Allen. If conditions favor a good crop, they may well also favor the development of soybean rust. If that's the case, Allen suggests an R4 application of a full six-ounce rate of a strobilurin fungicide could delay disease incidence and allow more long-term protection. "This year, in Noxubee County, that may have translated into three to six bushels," he notes.

In Macon, Miss., Hiebert says he'll be watching. "If I get a good prospect for a good crop, I'll spray, whether it's a rust threat or not," he says. "Rust is always in the back of my mind – I want to be prepared for it."

Hiebert notes that his experience with rust in 2009 helped put the disease into perspective. “I was probably more fearful of it back when they first told us it was coming,” he notes. “It was here and it was bad and we didn’t lose our entire crop like I thought we would a couple of years ago.”

Koehn agrees, but points out that his 2009 bout with soybean rust proved that the disease is a real challenge on U.S. soil. “I thought earlier that this had been a South American issue,” he says. “It made me realize, ‘hey, it can strike here.’”

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