

Foliar Fungal Disease And RCS3 Gene

Strobilurin Resistance Shows Up

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University of Illinois Plant Pathologist, Dr. Carl Bradley spoke recently at the 45th Annual Belleville Field Day. Bradley updated the gathering on two major foliar fungal diseases of soybeans that cause yield reduction. “Frogeye leaf spot and Septoria brown spot, both of these diseases can be found in southern Illinois. Frogeye leaf spot (*Cercospora sojina*) is generally a little worse in southern Illinois. We have seen big yield losses when looking at susceptible varieties, susceptible varieties that do not have the RCS3 gene which can control all of the different races of this pathogen that we have in Illinois. If you have problems with this disease, check with your seed dealer about identifying a more resistant variety to plant.”

Bradley and Dr. Jason Bond, University of Illinois, have compared notes gathered from their foliar fungicide trials. Looking at yield responses, “we have seen that we can achieve somewhere around a nine to 11 bushels an acre yield response, when we’ve had pretty good frogeye leaf spot pressure. This one can cause yield reduction. Septoria brown spot is very common, but it doesn’t always cause yield losses.”

Septoria brown spot overwinters in the soil or on soybean debris that is on the soil explained Bradley. “Rain splashes spores up onto lower leaves, you get lesions. These lesions then develop spores; you get more rain it splashes up to the next level of the canopy, and so on. Rainfall is extremely important for this disease to get into the upper canopy. As long as Septoria brown spot is down in the lower canopy, it is not really that important. Those leaves can go ahead and fall off because they those leaves aren’t really important in contributing to yield. We only see yield losses with this disease when it gets up into that upper canopy and causes defoliation. We only see that happen when we have a lot of late season rainfall.”

Bradley presented data from last year regarding frogeye leaf spot. “When we had pretty high levels of frogeye leaf spot, we saw about 11 bushel an acre yield response when we applied a fungicide to a susceptible variety. However, on varieties with better resistance levels, we had really low levels of frogeye leaf spot and saw anywhere from a two to six bushel an acre yield response when we applied fungicide to those varieties.” Fungicides were applied at the R3 growth stage.

Bradley said data collected revealed good yield responses in Belleville, Monmouth and Perry. Ridgway data suggest negative yield responses.

Regarding Ridgway Bradley said, “The beans looked okay. I didn’t see any phytotoxicity, I can’t explain it. Sometimes we see that when we do field research.”

Resistance to strobilurin fungicides also showed up. “We started this project in 2008, but began to find fungicide resistant isolates in 2010. This goes across several states. At Lauderdale County Tennessee, 100 percent of the

Dr. Carl Bradley, Plant Pathologist with the University of Illinois discusses two soybean diseases, frogeye leaf spot and Septoria brown spot.

Photo by John LaRose, Jr.



isolates out of that field were resistant. At Gibson County Tennessee, we saw some resistance. At Western Kentucky in Cardwell County, we found a few resistant isolates. In Gallatin and Pope County, Illinois we also found a few resistant isolates. Keep in mind that if you have frogeye leaf spot, and it’s a disease that causes you problems, you may want to think about growing a resistant variety. The most important thing with controlling this disease is to plant a variety that has the RCS3 gene, then you may not need a fungicide.”

For growers who need a fungicide to control frogeye leaf spot Bradley said, “think about spraying a fungicide that contains both a triazole and a strobilurin fungicide. That way you have two different modes of action.” Δ

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