

Eyes On Corn

Specialist: Consider Disease Management Before Planting Begins

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Know the symptoms of corn diseases. That's the main message of Dr. Carl Bradley, plant pathologist with the University of Illinois.

Bradley spoke recently about the emerging old diseases of corn, and focused mainly on Goss's wilt.

"Often times as a plant pathologist, we deal a lot with fungal diseases as the major types of pathogens in corn; but in this case, we are dealing with a bacterium," he said.

Goss's wilt, caused by a species of the bacterium, *Clavibacter*, was first found in Illinois in the early 1980s and, since then, it has been rather sporadically found in Illinois. The past couple of years, especially in 2011, Goss's wilt became more widespread in the state than ever before. In fact the University of Illinois Plant Clinic has found Goss's wilt in 31 counties in the state this past year in samples that were submitted to the plant clinic.

Since this is relatively new to some people, and they need to be able to identify it, Bradley focused his talk on the symptoms.

"One of the major ways we can identify this disease is that it causes foliar lesions on the leaves," he said. "Lots of times those lesions will have very wavy margins. The major thing we look for is what we call 'freckles.' These freckles are dark spots that you can see inside the lesions."

When farmers see symptoms like that it's important to get a real confirmation. Samples should be sent to a lab such as the U of I Plant Clinic, where they'll do an ooze test. They will take a piece of infected leaf area and put it on a drop of water under a microscope slide and they'll look for the actual bacterial cells that will ooze out of the plant tissue and into the water.

"Once we see that and see the symptoms as well, then we can confirm that it's probably Goss's wilt," Bradley said.

Unfortunately, if Goss's wilt is found during the season, there's nothing that can be done. For that season there are no sprays that can be applied. Farmers have to plan for the next year instead.

"One of the major management options is to rotate away from corn," he said. "Grow a non-host crop such as soybeans in that field. That's the first thing to do."

Tillage may also help break up some corn residue, which harbors the bacterium. That way, the residue will decompose a little quicker, and that might help.

The third remedy if the farmer plans to grow corn in that field is to choose a hybrid that has a higher level of resistance to Goss's wilt.

Bradley discussed a few other diseases, northern leaf blight, Grey leaf spot, and a relatively new disease to the area, Diplodia leaf streak. All three are fungal diseases.

"Some of the ways we manage fungal diseases are through resistant varieties, resistant hybrids as well as foliar fungicides," he said. He showed some of his data from the last four years on corn fungicides that were evaluated throughout the state.

"We have a total of 28 trials that we have across those four years, about seven locations each year, so 28 total," he said. "What we see is

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that we get the highest average yield response when we have higher levels of disease.

"We were looking at five bushels an acre as a benchmark. If you are able to get a return of five bushels an acre then you're probably breaking even or maybe even being profitable, according to the cost of the fungicide applications as well as how much you're getting for your corn.

"With the higher level of disease pressure, we often times are able to achieve at least that five bushel an acre yield response," Bradley explained. "So we find that yield responses are highly correlated to the amount of disease that is out in the field as well."

Bradley's take home message is to be able to identify what's in your field.

"That's one of the things I'm focusing on, especially with Goss's wilt, because it can look a lot like some of these other diseases," he said. Farmers need to recognize these diseases or at least know where to send samples to get a confirmation on what it is.

Crop rotation is very important, he said. A lot of these pathogens are surviving in corn residue so crop rotation is very important as well as growing resistant hybrids.

"And if you need to spray a fungicide for some of the fungal diseases I'm talking about, then it's important to go out and scout and take into account the level of risk that you might have based on the susceptibility of the hybrid or disease history and use those to help make a decision on spraying fungicides," he summed. Δ

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