

Facing the corn nematode problem in Illinois

February 16 2010

Illinois farmers know corn nematodes are a problem. Nearly 80 percent of attendees at the Illinois Corn & Soybean Classics agreed this was true in surveys conducted across the state by U of I Extension Nematologist Terry Niblack. However, fewer than 20 percent plan to do anything about it.

"Farmers think corn nematodes are a big problem, but they're someone else's problem," Niblack said. "Nematodes are the most frequently overlooked cause of disease in Illinois corn."

Nematodes are transparent roundworms that can't be seen with the naked eye. They can cause above-ground symptoms similar to those caused by almost any stress and can intensify expression of specific symptoms due to nutrient deficiency, herbicide injury and other causes. Because the symptoms are nonspecific, the [nematode](#) problem is often ignored in Illinois.

But science shows nematode injury to corn is not rare. It's simply hard to identify.

"Corn injury due to nematodes is not often a one nematode - one disease situation," she said. "The practical implication of corn injury as an 'interaction disease' is that it requires highly trained people to diagnose and supply management recommendations."

More than 15 years ago, corn yield losses due to nematodes were valued at \$81 million in Illinois alone. Niblack believes losses have increased

dramatically since 1994 due to current production practices that favor certain nematodes including increase of corn-on-corn planting, increased use of GMOs to manage insects instead of traditional chemicals that may have suppressed nematodes, and an increase in no-till.

Jim Morrison, a northern Illinois Extension educator, received a USDA NIFA-Illinois EIPM grant in 2008 to survey fields in northern Illinois for corn nematode populations. In 2009, his team received additional funding to survey the entire state.

A total of 73 counties have been surveyed to date. Results show 90 percent of fields sampled have lesion nematodes and two-thirds of those fields have high enough numbers to be at risk for yield reduction. Six species of lesion nematodes were identified. The four most common nematodes found were spiral, lesion, stunt, and lance.

The best way to know if your fields suffer from a corn nematode problem is to take 30 minutes out of your day to get a soil sample, Niblack said.

She recommends taking samples when the corn is at vegetative growth stage 3 or 4 using a standard 12-inch soil probe in a one-acre area where yields are lower than expected. Record GPS coordinates so you can sample the same area again, she adds.

After the sample is taken, package it in plastic - not paper. Insulate the box for transport and treat the samples gently. Most important, send the samples to a trusted lab. Niblack said most land grant institutions have quality nematology labs. There are also many good commercial labs across the country.

If a nematode problem is discovered, Niblack offers a few management tips.

"You can rotate to soybean, wheat or other crops," she said. "The two most pathogenic nematodes in Illinois don't like soybean, so rotating to soybean will cause them to drop. You can also turn soil over as some nematodes are sensitive to soil disturbance. Other nematodes survive in pieces of root. If the root is turned over and dries out, that can suppress nematode increases. Finally, you can apply the more traditional chemical products."

Many companies will be unveiling new corn nematode management products, but Niblack fears incorrect use could lead to problems.

"Nematodes are a natural part of soil communities," she said. "Some can be beneficial such as nematodes that feed on bacteria and drive nutrient cycling. However, if nematode populations get out of balance by something we do, such as improperly using a corn nematode management product, it could open the door to something worse. Sampling your soil is the only way to discover if a management product is needed."

Provided by University of Illinois at Urbana-Champaign

Citation: Facing the corn nematode problem in Illinois (2010, February 16) retrieved 25 April 2024 from <https://phys.org/news/2010-02-corn-nematode-problem-illinois.html>

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