

Looking Below The Surface: Do You Have A Corn Nematode Problem?

DR. SUZANNE BISSONNETTE

URBANA, ILL.

Is there a problem with corn nematodes in your crop? Is your use of a nematicide doing any good? Let's review some guidelines.

Unthrifty corn. Corn not looking so hot? Rather than a herbicide, nutrient, or environmental issue, unexplained

yield losses or patchy areas of low productivity or vigor may indicate an established corn nematode population. An extensive survey in 2009-2010 supported by our University of Illinois

whether nematodes are the cause of yield loss in a given field. You can start by examining the physical characteristics of the plants:

- If there are no symptoms, focus sampling on a representative area of the field, perhaps 10 acres or less. Nematodes can reduce yields without causing obvious symptoms. Record the GPS coordinates for the area. Sample in a zigzag or W-shaped pattern, and collect 20 to 25 cores in a bucket.

- If there are symptoms ("hot spots"), sample around the edges of symptomatic areas, collecting a total of 20 to 25 cores. Record the GPS coordinates for the area.

Keep these guidelines in mind as well during



NIFA-Extension IPM program showed that corn nematode populations are a bigger problem than previously thought.

The survey found, for example, that about half of the cornfields in Illinois have lesion nematode populations with densities at or above the threshold for moderate to severe risk of injury (yield loss). Not only can lesion nematodes injure corn roots, but they frequently act as vectors for the development of root rots. The common belief that corn nematodes are important only in very sandy soils is not accurate. Sandy soil is a risk factor for only a few species (needle, sting, and stubby-root nematodes throughout Illinois, and southern root-knot nematode in southern Illinois). Although needle nematode can kill corn seedlings, most nematodes will not cause injury that severe unless the infestation level is very high.

Corn nematodes include a number of damaging species, such as dagger, lance, lesion, ring, stunt, and occasionally spiral nematode, which may be found in heavy soils. While many companies produce chemicals to manage corn nematode, it is still important to check the product use indications before applying them. Different nematode situations require different types of product application, so it is best that you send in a sample for analysis before attempting nematode control. You have no other way of knowing the identification of your initial population or whether it is being controlled.

Sampling for diagnosis. Consider sampling for nematodes now, especially in cornfields that are at risk. Risk factors include corn-on-corn growing, minimal or no tillage, and the absence of nematode-suppressing soil-applied insecticides. Although the best time to sample for nematode diagnosis is about 4 to 6 weeks after planting, a couple of weeks more or less may not matter very much.

How and where you sample are determined by the reason you're sampling. Corn nematode management is determined by the species involved and how high their numbers are, so it is very important to get a good sample for a reliable diagnosis. Typically you just want to know

whether nematodes are the cause of yield loss in a given field. You can start by examining the physical characteristics of the plants:

- Sample as deeply as possible from within the rows when the soil is moist but not wet at least 6 to 8 inches. Use a 1-inch-diameter soil probe if possible.

- Treat the samples gently at all times – do not drop them or break up the cores. Some corn nematodes are very sensitive to manipulation, and you want to avoid killing them before they reach the lab.

- Put the sample in a plastic bag – not paper – to help preserve moisture during transport. Take a cooler along to store the samples and keep the nematodes from being cooked!

- Include the GPS coordinates for the samples along with your contact information when you submit samples.

- Sample around the edges of the hot spots in the field, not in the centers.

Diagnosis. Corn injury caused by nematodes cannot be diagnosed from symptoms alone. The symptoms of nematode parasitism look similar to those caused by other production problems, including poor or uneven crop development, yellowing or streaking, and reduced or brushy root systems. The only way to diagnose corn nematodes is to directly examine them under a microscope following an appropriate extraction method. Some private labs analyze soil for corn nematodes, as will the University of Illinois Plant Clinic.

The former nematology testing lab has merged with the Plant Clinic, and nematologist Dr. Alison Colgrove and her staff manage testing and analysis. Services include soil nematode analysis (\$40), root analysis (\$40), soybean cyst nematode (SCN) egg counts (\$20), and pinewood nematode analysis (\$20). Send your samples to the Plant Clinic; you can get more information on sample submission at our website. For specialty testing, including SCN Hg typing, variety screening, phytosanitary testing, and other nematode projects and diagnostics, contact Dr. Colgrove before sending any samples: acolgrove@illinois.edu, 217-333-9057. Δ

DR. SUZANNE BISSONNETTE: Plant Diagnostic Clinic and IPM Coordinator, University of Illinois