11-11-2011

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Fall Time to Sample for SCN – But Not for Nematodes That Feed on Corn

By Greg Tylka, Department of Plant Pathology and Microbiology

Plant-parasitic nematodes are microscopic worms that live in the soil and feed on plant roots. Nematodes that feed on corn occur in almost every field in Iowa, but most do not reduce corn yields measurably until they increase to high population densities (numbers). Fall is not a recommended time to check fields for damaging population densities of nematodes that feed on corn. The ideal sampling times and methods for nematodes that feed on corn were discussed in an earlier article in ICM News.

The soybean cyst nematode (SCN) is considered by many to be the most damaging pathogen on soybeans in Iowa, the Midwest and the United States. SCN has a very unique biology that allows it to cause great yield loss (greater than 50 percent), to reproduce very quickly and to survive 10 years or more in the absence of a host crop.

Fall is a great time to sample fields for the presence and population densities of SCN. Specific reasons to sample fields this fall for SCN include:

1. Discover if SCN is present before growing soybeans in 2012
2. Determine if SCN is responsible for lower-than-expected soybean yields in 2011
3. Monitor SCN population densities after growing SCN-resistant soybean varieties

General guidelines for fall sampling for SCN

- Collect samples from harvested cornfields to determine if SCN is present before growing soybeans in 2012 (figure 1).
- Collect soil cores from under the old crop rows if soybeans were grown this season (figure 2). There is no need to do this if corn was grown.
- If grid sampling, collect one or two extra soil cores from every grid cell sample and combine these extra cores from the number of cells that represent approximately 20 acres.
- If sampling conventionally (not grid sampling), collect 15 to 20 soil cores in a zigzag pattern from no more than 20 acres (ideally). The 20-acre sampling areas do not need to be square or rectangular; samples can be collected from zones according to the agronomic features of the field (see figure 3).
- In fields where SCN has not been discovered, high-risk areas where SCN may be first found include high pH spots, low spots, and near fence lines and other places where soil from other fields may have been introduced (figure 4).
- Soil cores should be a total depth of 8 inches.
- Do not sample if fields are frozen or wet and muddy.
Numerous private soil testing laboratories in Iowa offer SCN analysis of soil samples. Additionally, the Iowa State University Plant and Insect Diagnostic Clinic tests soil samples for SCN. Mail samples to:

Plant and Insect Diagnostic Clinic  
327 Bessey Hall  
Department of Plant Pathology and Microbiology  
Iowa State University  
Ames, IA 50011-1020

The current fee for SCN analysis at the ISU Plant and Insect Diagnostic Clinic is $15 per sample for samples from Iowa. Samples sent to the Plant and Insect Diagnostic Clinic should be accompanied by a completed Plant Nematode Sample Submission Form.

Greg Tylka is a professor of plant pathology with extension and research responsibilities in management of plant-parasitic nematodes.

Figure 1. Soil sampling in a harvested cornfield to check for SCN in advance of next year’s soybean crop.

Figure 2. Collecting soil core from within the root zone of a harvested soybean crop to check for SCN.
Figure 3. Sampling areas for SCN according to the agronomic features of the field.

Figure 4. Areas of a field where soybean cyst nematode is more likely to be found for the first time.

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