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Soil Sample Results Can Reveal if SCN Management is Working

By Greg Tylka, Department of Plant Pathology

Fall soil sampling has been promoted for many years as an effective way to detect the soybean cyst nematode (SCN) in fields. But many Midwestern soybean producers already know which fields are infested with SCN and have been growing SCN-resistant soybean varieties for numerous years to manage SCN population densities. The key to profitable long-term soybean production in SCN-infested fields is to prevent SCN population densities (numbers) from increasing.

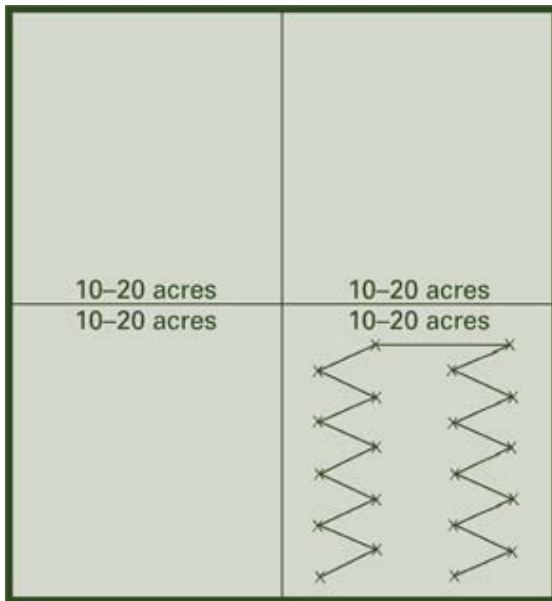
Recently, data from Iowa and surrounding states have shown that reproduction of SCN populations is increasing on the PI 88788 source of SCN resistance, the source of resistance used in most every SCN-resistant soybean variety. Increased SCN reproduction on resistant soybean varieties will lead to increases in SCN population densities.

How would you know if the SCN population densities are building up in your fields? Compare the results of soil samples collected and analyzed for SCN population densities in the fall after every third or fourth soybean crop to know whether SCN numbers are increasing.

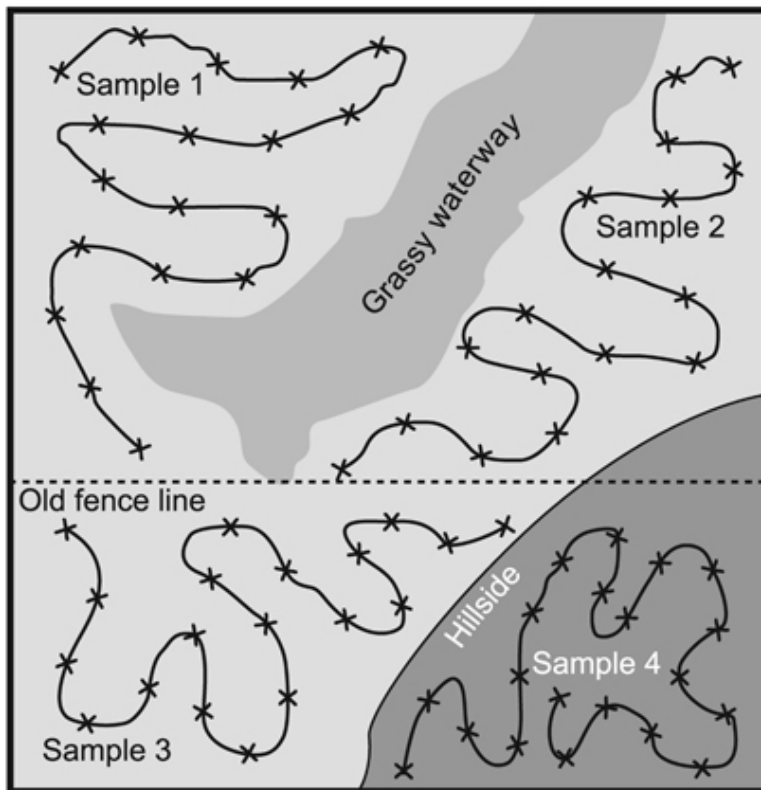
Comparing results of soil samples collected 6 to 8 years apart requires good record keeping and also consistent soil sample collection methods. Accurate and detailed notes of when and how samples were collected are needed so the same methods can be used in future years. Details should include the specific areas of fields that are sampled, the numbers of cores that are collected and their depth, the specific sampling date, whether samples are collected before or after a soybean or other crop, and which laboratory processes the samples.

Other general soil sampling guidelines for this purpose

- Collect soil samples in the fall after the previous crop has been harvested or in the spring, before the new crop is planted.
- The more soil cores collected and the smaller the area sampled, the more accurate the results will be.
- Soil cores should be from the upper eight inches of soil.
- If corn or some other nonhost crop was last grown in the field, it doesn't matter if soil cores are collected in the previous crop's row.
- It is better to collect soil cores after the previous corn or other nonhost crop's rows have been destroyed by tillage.
- If soybeans were last grown in the field, collect soil cores from under the old crop rows.
- If sampling conventionally (not grid sampling), collect 15 to 20 soil cores in a zigzag pattern from no more than 20 acres. The 20-acre parcels of the field do not need to be square or rectangular; samples can be collected from zones according to the agronomic features of the field.
- If grid sampling: collect one or two soil cores from every grid cell sample and combine these extra cores from the number of cells that represent approximately 20 acres.



Collect 20 or more soil cores from areas in the field no larger than 20 acres.



The 20-acre sampling areas can be according to the agronomic features of the field.

It is important to note what SCN life stage is reported in the soil sample results. The Iowa State University Plant and Insect Diagnostic Clinic and most other soil test laboratories in Iowa count and report the number of SCN eggs. But some laboratories report results as numbers of SCN cysts or juveniles in the soil. Also, laboratories may report results as numbers per 100, 250 or 500 cubic centimeter of soil. When comparing the results of soil sampling for

SCN over years, be sure the same volumes of soil and the same SCN life stages are being compared.

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
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.

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