

Sampling Soybean Fields for Soybean Cyst Nematode Analysis

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INTRODUCTION

The soybean cyst nematode (*Heterodera glycines*, SCN) causes many millions of dollars worth of damage to Kentucky soybean fields each year. This occurs even though damage is mostly preventable and controls are inexpensive. This situation exists because a large number of soybean producers are unaware that cyst nematode is damaging their crops. In most cases soybean cyst nematode will cause significant yield reductions without producing any detectable symptoms in soybeans. When symptoms do occur, they are frequently thought to be associated with some other factor, such as soil compaction or low soil fertility. The point is, what you do not see, can be hurting you. To make matters worse, many farmers are so used to certain fields producing moderate yields, that they never consider the possibility that those fields may be capable of producing much higher yields.

The first step in managing SCN is to find out if the pest is a problem on your farm. Laboratory-based SCN analyses will tell you whether or not specific fields are infested with SCN, as well as the severity and possible

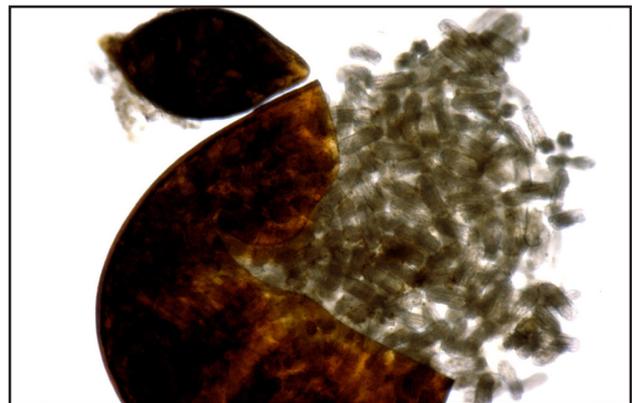


FIGURE 1. AN INTACT SCN CYST (TOP) AND A RUPTURED CYST SHOWING EGGS WITHIN.

consequences of the infestation when SCN is detected. The laboratory also provides short and long term management strategies to farmers with problem fields.

FREQUENTLY ASKED QUESTIONS

Which fields do I need to sample?

Sample only those fields that are slated for soybean production next spring. This is especially important if you are planning on producing an SCN-susceptible variety. There is no need to sample fields that will be planted to corn next spring; however, make sure those fields are sampled in subsequent years prior to planting soybeans.

How often do I need to sample?

Once every 4 to 5 years is adequate in most situations.

When should I collect an SCN sample?

Fields may be sampled for SCN anytime from mid-September through early May. However, fall is generally considered to be the best time to collect soil samples because:

- (1) SCN populations will be at their peak
- (2) Soil conditions tend to be more favorable for sampling, and
- (3) Fall sampling allows you more time to make adjustments in your production plan for the following spring if SCN problems are detected.

How many samples should I collect from each field?

Most producers submit one composite soil sample per field, and this is adequate in most situations. However, it would be better to divide each field into four quadrants and submit four composite samples for each field. This method will help to identify portions of a field which are “hotter” for SCN than others. Some producers opt to submit soil samples based on a 2 to 5 acre grid sampling pattern. Grid sampling may be instructive for mapping purposes, but adequate SCN management decisions can be made without going to the cost and effort of sampling on a grid basis. Regardless, the critical point is to have the entire area represented in the sample, whether collecting from four quadrants per field or from the field as a whole. This will require walking the entire field. In addition, you should include areas of a field which historically show poor growth or yield poorly, but do not allow the entire sample to be comprised of such areas.

How do I collect samples?

It is important to remember that SCN analysis results are only as good as the original sample submitted. Thus, it is imperative that

you do the best job possible of collecting soil samples. Soil can be processed for SCN in almost any condition; however, your ability to collect a “good” sample may be compromised when attempting to sample very wet or very dry soil. It is usually best and easiest to sample fields when the soil is damp, but not wet.

Use a soil probe or small spade to collect soil 6 to 8 inches deep from at least 20 locations (i.e. 20 sub-samples) throughout the sampling area. Follow a systematic zigzag pattern when sampling (FIGURE 2). The number of steps between each of the 20 sub-samples will depend on the size of the area being sampled, but remember to walk the entire area. Collect the sub-samples in a bucket as you proceed and make sure to include areas that have been yielding poorly. If you are sampling a field that has most recently been in soybeans, make an effort to collect cores from within the rows of the previous crop. Once the 20 sub-samples have been collected, thoroughly mix the contents in the bucket, and immediately place one pint in a fertility soil testing sample box or double plastic bags. Mark the field names and/or number on the box or bag. Protect the sample from extreme heat and/or excessive drying. Do **NOT** air-dry the soil!

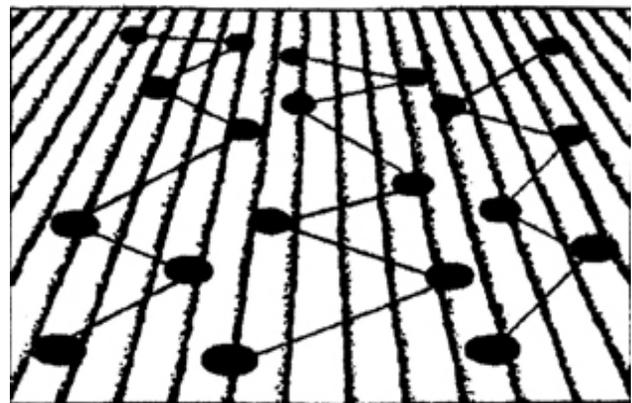


FIGURE 2. COLLECT SAMPLES FOR SCN ANALYSIS BY FOLLOWING A ZIGZAG PATTERN THROUGH THE FIELD.

Where do I send samples for processing?

SCN analysis services in the UK Soybean Cyst Nematode Laboratory have been suspended indefinitely. However, all growers and researchers who desire to have soil tested for SCN are encouraged to use the services of the University of Missouri Plant Nematology Laboratory (contact information is below). It will be necessary to use the Missouri lab's sample submission form, which is available via a link on their Web site. Samples that cannot be mailed the same day in which the sample was taken should be stored in a shady location, a refrigerator, or insulated cooler. Any prolonged storage should be done at refrigerator temperatures (approximately 40° F); do not freeze the sample.

What is the SCN analysis fee?

The University of Missouri Plant Nematology Lab charges \$20 per sample for an SCN egg count. The lab also offers HG (race) testing services, if needed, for an additional fee.

What can I expect once my samples have been submitted?

Samples will be processed as soon as possible; results and recommendations will be sent to you at the address indicated on the Nematode Soil Sample Submission Form sent with the sample. Remember that the results and recommendations you receive from the Laboratory are directly related to the quality of the sample you send. Samples submitted that are not representative of the field situation, samples not submitted during the recommended time frame, or samples handled improperly may yield misleading and/or erroneous results.

Send SCN analysis soil samples to:

UNIVERSITY OF MISSOURI PLANT NEMATOLOGY LABORATORY

23 Mumford Hall, Columbia MO 65211

<http://soilplantlab.missouri.edu/nematode>

Phone: (573) 884-9118

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Photo of SCN cysts by Cheryl A. Kaiser