

Soil Sampling for Soybean Cyst Nematode (SCN)

The soybean cyst nematode has been reported to be the most important pathogen of soybeans in North America. Although classic symptoms of stunting and yellowing can be observed when SCN populations are extremely high, most infections cause no visible symptoms. Because significant yield reductions can often occur with no above-ground symptoms, sampling of fields to determine whether this pest is present and at what levels is key to effective management.

Although sampling can be done at any time, the most optimum time to sample is at the end of the season when populations are at their highest level. This is generally from one week before harvest until the ground freezes. Certain areas such as entryways, low spots and high pH soils can be at higher risk of infestation.

For diagnostic samples, collect 6-10 soil cores at a slight angle through the rooting zone of soybean plants, located in the transition areas between healthy and symptomatic plants. For monitoring overall populations within a field, collect a composite sample of at least 10-20 soil cores using a zig-zag or other pattern. The area sampled should represent no more than 20 acres, and have a similar soil texture and cropping history.

1. Use a cylindrical probe to collect soil samples.
2. Collect soil cores to a depth of 6 to 8 inches.
3. Thoroughly mix the cores in a bucket or container.
4. Place approximately 1 pint of mixed soil into a properly labelled SureTech Labs soil bag.
5. Store in a cool area away from sunlight, and ship to the laboratory as soon as possible.
6. When submitting samples, please use a SureTech Labs "Soil Analysis Request Form" and write-in "SCN" under other testing.

Ship to: 7501 Miles Drive, Indianapolis, IN, 46231

Being pro-active and keeping populations at low levels, is much easier than trying to bring high populations under control. Sampling for SCN will help determine whether this pest is present and at what levels, to help determine effective management strategies.

---over---

Each state has developed their own interpretations of SCN population values, and the recommended practices to follow based on these interpretations. The following information is provided to offer guidance for your SCN soil test results.

University of Kentucky:

| SCN EGGS PER ½ PINT OF SOIL | POTENTIAL YIELD LOSS OF A SCN-SUSCEPTIBLE VARIETY* |
|-----------------------------|--|
| 0 | 0% |
| 1 – 500 | 0 – 5% |
| 501 – 1000 | 5 – 15% |
| 1000 – 3000 | 15 – 20% |
| 3001 – 5000 | 20 – 40% |
| 5000 + | 25 – 60% |

*Note: A greater yield loss potential is associated with crops being impacted by other stresses, such as other pests, drought, herbicide injury, etc. Healthy crops are capable of compensating for some SCN damage; thus, the lower yield loss potential at the same SCN population. Thresholds are based on the best available information. Actual yields achieved at specific SCN levels may vary from the above due to the occurrence of random factors that impact crop yield, both positively and negatively.

Purdue University:

| Rotation | Infestation Level ^a | | |
|----------|--------------------------------|---------------------------|---------------------------|
| | Low | Medium | High |
| 1st | Non-host ^b | Non-host | Non-host |
| 2nd | PI88788 Resistant Variety | Peking Resistant Variety | Peking Resistant Variety |
| 3rd | Non-host | Non-host | Non-host |
| 4th | Peking Resistant Variety | PI88788 Resistant Variety | Peking Resistant Variety |
| 5th | Start Over | Non-host | Non-host |
| 6th | | Peking Resistant Variety | PI88788 Resistant Variety |
| 7th | | Start Over | Start Over |

^aLow level of infestation = less than 200 eggs or 1 full cysts per 100 cc of soil; medium level = 200-2000 eggs or 1-10 full cysts per 100 cc of soil; high level = more than 2000 eggs or 10 full cysts per 100 cc of soil.
^bRefer to Table 1 non-host list.

University of Illinois & The Ohio State University:

| SCN Egg Count per 100cc of soil | SCN Level | Overall management plan |
|---------------------------------|------------------|---|
| 0 | Not detected | Monitor with periodic SCN egg counts, at least every 3 rd year soybean is grown |
| Up to 500 | Very low | Plant SCN resistant variety (can focus on higher yielding varieties) and incorporate rotation to a non-host crop into your management plan, monitor SCN egg counts |
| 500 to 2000 | Low to moderate | Plant SCN resistant variety with greater resistance and include rotation to a non-host crop into your management plan, monitor SCN egg counts after growing soybean |
| 2000 to 5000 | Moderate to high | Plant and rotate with SCN resistant varieties (most effective using resistance matched with identified SCN Type test results) and rotate to a non-host crop (each year after soybean is grown until high count decreases) |
| 5000 and higher | High | Rotate to a non-host crop, sample for SCN egg count before returning to soybean |