20/20 Tech Bulletin

What is Soybean Cyst Nematode (SCN)?

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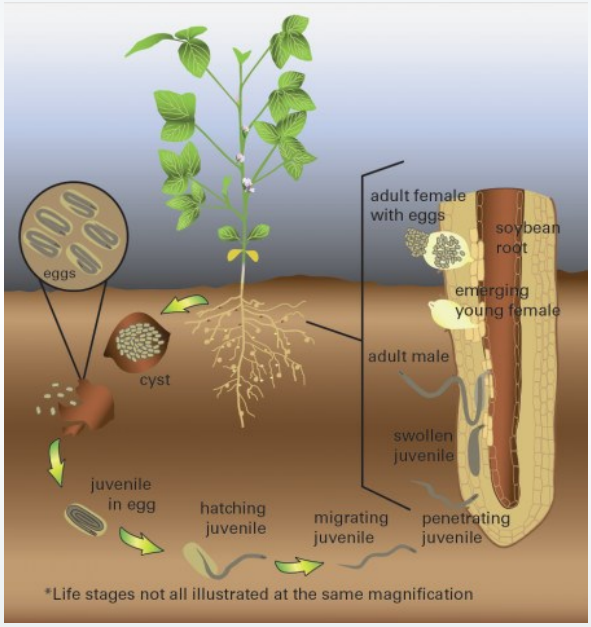
SCN, caused by the microscopic parasitic worm *Heterodera glycines*, feed on soybean plant roots forming recognizable small white lemon-shaped cysts. Nematode activity restricts the plant's ability to take up nutrients, by reducing the number of nitrogen fixation nodules. Additionally, openings in the root from the cysts can increase the chance of root rot, sudden death syndrome, and seedling diseases. SCN is considered a major pest but is often undiagnosed since they result in few above ground symptoms. Therefore, testing for the presence of SCN is crucial as yield losses can be experienced without any visible stress to the plants above ground.

How do you test for SCN?

Traditionally the Baermann funnel test is used to determine SCN presence, however it is limited in effectiveness. The Baermann funnel test can underestimate SCN presence as it only isolates living, motile nematodes that requires specialty training and careful microscope work.

20/20 Seed Labs Inc. has developed a new test for SCN that does not require the identification of living, motile nematodes. 20/20 Seed Labs can detect both living and dormant forms (live nematodes, cysts, and eggs) of SCN throughout its life stages.

DNA / PCR Testing – 20/20 Seed Labs can test both root tissue and soil for the presence of SCN using DNA based testing methods.



Soybean cyst nematode life cycle. Source: Crop Protection Network

Submitting Root Tissue Samples for SCN Testing:

- Visually survey the field, look for patches of yellowing plants.
- Root samples may be taken at anytime during the growing season.
- Gently remove plant from ground to avoid breaking off cysts. Soak in water to remove soil as needed.
  - Highest concentration of nematodes will be in the feeder root zone. Mature females may be visible as white, lemon-shaped specks attached to the roots of plants.
  - Lowest numbers will be in roots from dead plants where the nematodes have died or moved away from the host.
- Collect symptomatic plants from the field, wrap the plant samples in a paper towel and place in a plastic, resealable bag. A cooler is not required.

Submitting Soil Samples for SCN Testing:

Samples are best gathered in fall when the plants are mature.

- Don't sample in wet fields.
- Highest soil nematode populations generally occur in September and October after the plants have died. Fall is the preferred sampling window.
- Cores should be taken in damaged areas or along the margin of affected areas, in the spring after the soil has warmed up or, preferably, in the fall after harvest.
- Using a narrow-bladed shovel, a garden trowel or soil probe collect soil to a depth of 2.5-5 cm (2-8 inches) in a zig-zagging manner across the rows. Take 15 to 20 subsamples for each 5 to 10 acre area to be sampled.
- Samples should be collected as close to the old crop as possible preferring soil within the row.
- Fresh soil samples are recommended as subsequent storage will affect the number of "live" nematodes present—some reverting to a dormant form and others dying.

Ship or drop off samples to our Nisku Location: 507 11ave Nisku AB, T9E 7N5

Agronomy and scouting

Fields infected with SCN may have dormant eggs present and not show symptoms on soybean crops.

Stressed plants will appear yellowed and stunted with drooping leaves and pods will be smaller.

Yield losses can occur in plants that are not visibly stressed, it is important to test soil for SCN and adjust crop rotations to manage SCN infections.

High risk areas include:

- Approaches and entrances
- Low spots
- Shelter belts
- High pH areas
- Other low yielding areas

Additional Resources:

https://cropprotectionnetwork.org/encyclopedia/soybean-cyst-nematode-of-soybean

https://www.winnipegfreepress.com/the-carillon/local/2023/02/26/scouting-for-nematodes

Contact support@2020seedlabs.ca for further details on testing, and how to be involved in trials.

2020 Seed Labs Inc.
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