Soybean Cyst Nematode Spreading in Nebraska

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Soybean cyst nematode (SCN), *Heterodera glycines*, is an increasing production problem for Nebraska's soybean producers. It has now been confirmed in 39 counties in eastern and central Nebraska. Over 24,000 eggs per 100 cc (three ounces) of soil have been recorded in surveys of some Nebraska fields. That translates into over 1,000 eggs per teaspoon of soil, each egg capable of hatching and initiating an infection in the roots. Once established in a field, SCN egg numbers continue to increase unless proper management actions are taken.

Field Symptoms

Symptoms of SCN infestation can be difficult to identify. Usually, the first indication of a problem is when yields are below expectations. Moderate levels of SCN may not produce any visible above-ground symptoms, yet yields may be reduced 5-10 bushels per acre. The first visual sign of an SCN infestation is usually a slight variation in the height of otherwise healthy looking, dark green plants. Higher SCN levels can cause plant stunting and yellowing and increased levels of yield loss.

Above-ground symptoms can be confused with damage from compaction, nutrient deficiencies, drought stress, low-lying wet areas, herbicide injury and other plant diseases. Circular to oval areas of stunted, yellowed plants can be observed. Areas of SCN injury often are elongated in the direction of tillage practices, since the cysts are spread by tillage equipment. Susceptible soybeans grown in SCN-infested soils are slower to reach canopy closure.

Nebraska state map showing counties with soybean cyst nematodes present as of 2006.

Free Soil Sampling

Soil sampling is the first step to managing SCN.

To increase the awareness of SCN and to better define the extent of its distribution in Nebraska, a postage paid sampling kit ($20 value) has been provided by the Nebraska Soybean Board. These can be picked up at University of Nebraska Extension offices in counties where soybeans are grown. Each kit contains a bag for you to submit a sample to the Plant & Pest Diagnostic Clinic at the University of Nebraska–Lincoln and directions for collecting a soil sample. You will need to collect a sample and submit it to the clinic before December 31, 2007 to take advantage of this offer.

Since there is a limited quantity of the free sampling kits available, they will be distributed on a first-come, first served basis to farmers stopping by the extension office to pick them up. To benefit as many farmers as possible, limit one kit per farm operation.

Soil samples can be collected at any time of the year, but the best time to sample is right after harvest. Collect 10 to 15 cores around the roots to a depth of six to eight inches and mix them in a bucket. Fill a standard soil-sampling container with the mixed soil sample. Store samples in a cool place (not in the sun), and ship as soon as possible.

FOR MORE INFORMATION

UNL Extension NebGuide G1383, "Soybean Cyst Nematode Biology and Management," available at the extension office online at www.ianrpubs.unl.edu/sendit/g1383.html

Maintain Grain Quality in Storage

Harvest will be upon us before we know it and now is the time for producers to think about storage before you fill your bins. Grain quality can be maintained in storage if managed properly. It is a wise investment of time to spend a few hours to maintain the $25,000 to $40,000 value of grain stored in a 10,000-bushel bin.

The following steps are suggested for preparing a bin for storage:

Repair any holes that may allow water to enter. Look for holes by looking for sunlight coming into the bin. However, do not seal openings intended for aeration. Clean the inside of the bin using brooms and/or a vacuum. Examine the inside of aeration ducts for debris and insects.

Service the aeration ducts, fans and vents to ensure proper operation. Clean around the outside of the bin.

Grain stores best when it is dry, clean and cool. Weed seeds and fine foreign material, which are usually wetter than the grain, will accumulate in the center when loaded into a bin, causing storage problems. This material should be removed from the grain. Use a grain cleaner before storage, unload some grain using a center take out after the bin has been filled or distribute the material while filling the bin.

Temperature plays an important role in grain storage. The optimum temperature for insects is between 70 degrees F and 90 degrees F. Therefore, grain should not be stored at this temperature. Cooling below 70 degrees F reduces insect reproduction and feeding activity, cooling below 50 degrees F causes the insects to become dormant. The optimum temperature for mold growth is also about 80 degrees F but mold growth is extremely slow below 30-40 degrees F. The expected grain allowable storage time is approximately doubled for each ten degrees the grain is cooled.

Aeration should be used to cool the grain whenever outdoor temperatures are 10-15 degrees F cooler than the grain. It should be cooled to a temperature of about 30-35 degrees F for winter storage. The time required to cool grain weighing 56-60 pounds per bushel using aeration can be estimated by dividing 15 by the airflow rate. For example, the grain will cool in about 75 hours using an airflow rate of 0.2 cubic feet per minute per bushel. Air takes the path of least resistance, so cooling times will vary in the storage. Measure grain temperature at several locations to assure that all the grain has been cooled.

Check stored grain, at least monthly, during the winter months and more often during the warmer months of the year. Probe to examine grain below the surface. Bring a grain sample indoors if the grain temperature is below 50 degrees F; allow it to warm to room temperature, then place the grain on a white surface and examine for any insect activity.

For more information about grain drying and storage, consider ordering "Dry Grain Aeration Systems Design Handbook," MWPS 29; or "Grain Drying, Handling and Storage Handbook," MWPS-13. Both are available through MidWest Plan Service. As a further value, these books are available in a grain handling package along with "Managing Dry Grain in Storage," AED-20 and "Low Temperature and Solar Grain Drying Handbook," MWPS 22. The four publications together are a great reference set and available for $40 for the bundle. For more information, go to www.mwps.org email mwps@iastate.edu or call 800-562-3618.

Source: Adapted from a news release by Ken Hellevang, NDSU Ag Engineer

Winterize Your Underground Sprinkler System

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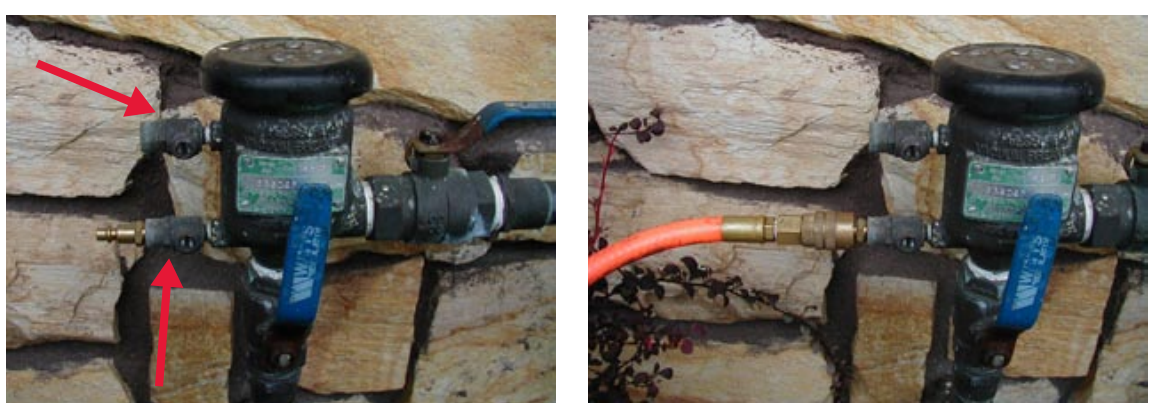
Many urban and rural homeowners have automated underground lawn sprinkler systems. Spending an hour or so to winterize your system in the fall can save many hours of work and considerable expense next spring.

The most important action you can take in the fall is to drain the system so you don't get ice damage to the pipes and valves. Begin by locating the water shut-off valve for the sprinkler system inside the house and turn off the water at that point. Next, set the irrigation timer so the first set is on. This will relieve water pressure in the plumbing for the system.

To get water to drain out of a pipe, you must allow air into the pipe, as anyone who has held their thumb on the end of a soda straw can attest. You can let air into the sprinkler system by opening the small valves (petcocks) on the vacuum relief valve assembly on the side of the house. Cycle through each irrigation set, allowing several minutes for all the water to drain through the lowest sprinkler(s) in the set. If you don't have access to an air compressor, turn off the irrigation controller and close the petcocks to prevent dirt or insects from getting into the plumbing.

For most installations, the procedure above is sufficient to eliminate damage from freezing. To be extra safe, one can attach an air compressor or portable air supply tank to the plumbing at the lower petcock valve on the vacuum breaker assembly. With about 65 PSI in the air tank, turn on the first irrigation set and open the air supply valve. You will see water trapped in low spots in the system blowing out of the sprinklers. With a new charge of air in the tank, start the next irrigation set on the controller and open the air supply valve. Repeat for each irrigation set. After blowing the water out of all irrigation sets, disconnect the air supply and close the petcock. Turn off or unplug the irrigation controller. Next spring, simply open the water supply valve, set the date and time on the controller and set your irrigation schedule and you are ready for another year.



Photos by UNL Extension Educator Tom Dorn

To let air into lawn sprinkler systems, open the small valves (petcocks) on the vacuum relief valve assembly (shown at left), or to be extra safe, attach an air compressor to the lower petcock valve (shown at right).