PLANT HEALTH INITIATIVE
AN NCSRP PROGRAM

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Want to Increase Your Soybean Yield?

Manage Soybeans from the Ground Up. Part III.

Managing SCN is essential to achieving profitability.

SCN is considered the most economically important pathogen of soybean in the United States. In fact, it occurs in 93.5 percent of the area where soybean is grown as a major crop. It causes an estimated $1 billion in losses annually. Much of that loss occurs with no visual symptoms of the damage that has occurred below ground. With adequate soil moisture, the soybean can produce visually appealing plant canopy at the expense of setting pods.

There are no cultivars that are completely resistant to SCN. Some varieties marketed under the CystX Brand are very close, but are not immune to SCN feeding. However, any reduction in damage to the soybean root will result in a healthier more productive plant. Producers should take any opportunity to improve the root health of their soybean crop; planting a SCN resistant variety, reducing soil compaction and improving drainage go a long way toward improving root health and YIELD.

Managing SCN

Managing SCN is a simple three-step process: 1) rotation with non-host crops, 2) periodic sampling of the soil, and 3) selection of resistant varieties that actually suppress nematode reproduction when planted.

Most farmers employ an annual rotation of soybean with corn, a good non-host for SCN. This helps but simply isn't the answer. It actually takes several years of growing a non-host crop for the population of SCN to decline significantly, and cysts containing eggs can remain dormant in the soil for several years.

Periodic sampling of the soil is the first tactic a producer should use to optimize their soybean production. It can tell the producer that a SCN management program should be implemented and tell them if their current management strategy is effective. Sampling is critical because infected plants are often symptomless – until harvest.

Signs of SCN on soybean roots. Photo credit: Craig Grau, University of Wisconsin

The right high-yielding SCN variety can be elusive. Not all SCN resistant varieties are created equal. Research conducted at the University of Illinois has shown that the level of resistance varies among varieties and that SCN can rapidly reproduce on varieties labeled resistant. The reason for this variability is unknown but likely is lack of adequate testing by the seed supplier.

Results from the University of Illinois studies can be found at www.ilsoy.org behind the VIPs link. Although there are no direct comparisons to yield, the resistance information is merged with yield data from the state yield trial. Assumptions on competitiveness can be made based on the yield information. However, be aware that the SCN resistance information is for race 3 only; all fields contain many races of SCN.

A more direct comparison of yield and suppression of SCN can be found at www.soybeancyst.info behind the Extension Publications link. These data compare not only the yield of SCN resistant varieties from SCN infested fields, but also list SCN numbers after the growing season. Comparing those numbers to the SCN counts from the beginning of the season growers can easily see the dramatic reduction in SCN numbers and the clear benefit of using a SCN resistant product. Unfortunately, the data do not show an eradication of SCN following the single use of a resistant variety. Research has shown that a susceptible soybean variety can be damaged by cyst still remaining in the soil following 10 years of a non-host crop. Once you have SCN you always have SCN.

For more information on improving soybean plant health visit www.planthealth.info.