

SCN Biology and Management Slide Set Script

- Slide 1 Soybean cyst nematode (SCN) is a microscopic worm that lives in the soil and feeds on the roots of soybean plants. Other than weeds, SCN is the most important pest of soybeans in much of the soybean-producing areas of the US. This image shows an SCN egg (left) and the juvenile that hatches from it (right).
- Slide 2 Once in the soybean root, the juvenile SCN worm attaches to the vascular tissue of the root and begins to develop and grow. This image shows an SCN juvenile that is developing and is swollen.
- Slide 3 As the SCN female matures, it enlarges to the extent that it eventually ruptures through the root tissue and becomes exposed on the surface of the root. The adult SCN female produces 50 eggs or so outside of the body in an egg mass, then fills up internally with another 100 to 200 eggs. The entire SCN life cycle can be completed in 28 days.
- Slide 4 Eventually, the adult SCN female dies and forms a hardened cyst around the 200 or so eggs that were laid within the female. The cyst eventually falls off of the root and is free in the soil. Live eggs within the cyst can survive in a dormant condition for up to 10 to 12 years in the absence of a soybean crop.
- Slide 5 SCN is a serious threat to soybean production in the US because: 1) it is widespread in many soybean-producing states, 2) it does not cause obvious symptoms for years after first being introduced into a field, 3) it can reproduce very quickly, 4) some eggs can survive for 10 or more years without a host soybean crop being grown, and 5) soybean yield loss can range from a few percent to more than 60%.
- Slide 6 In a random survey funded by the soybean checkoff and conducted in the mid 1990s, SCN was detected in 47% to 83% of the fields sampled in these six states.
- Slide 7 Close observation of roots of plants in fields that look completely healthy will often reveal numerous SCN females.
- Slide 8 Unfortunately, severe crop damage and yield loss often are the first indication to a grower that SCN is present in a field.
- Slide 9 Three tactics comprise an integrated SCN management program: scouting for early detection and then growing nonhost crops and resistant soybean varieties in infested fields.
- Slide 10 **The key to effective SCN management is early detection of infestations.** Because above-ground symptoms (yellowing and stunting) are completely undependable, there are only two reliable ways to scout for SCN: to dig roots during the growing season to look for the presence of adult SCN females and cysts

on infected soybean roots, and 2) to collect a soil sample and have it processed by a qualified lab for the presence of SCN cysts and eggs.

- Slide 11 The adult SCN females appear as small white dots the size of a period at the end of a sentence. If scouting for SCN by looking for females on roots, one should wait until at least 5 or 6 weeks after planting and should be careful to dig roots from the soil and to gently shake the soil from the roots. Looking for SCN females on roots can be done from late June through the month of August. After August, it is best not to look for SCN females on roots, but instead to collect a soil sample for detection of the pest.
- Slide 12 A soil sample can be collected at any time of the year for testing for SCN except when the ground is frozen or when the soil is muddy. Ten to 20 soil cores, each 6 to 8 inches deep, should be collected from an area no larger than 20 acres. Cores should be combined in a bucket and mixed very well, then one to two cups of mixed soil should be placed in a plastic bag or paper soil sample bag and submitted to a qualified laboratory for testing for SCN cysts and eggs.
- Slide 13 The second SCN-management tactic is to grow nonhost crops in fields infested with the nematode. The agricultural crops listed on this slide are not hosts for SCN
- Slide 14 In a year that a nonhost crop is grown, some of the SCN eggs hatch and the emerged juveniles starve, resulting in an overall decrease in SCN soil population densities. In Iowa, SCN population densities will decrease from 5% to 50% in one year of corn and densities decrease less in a second consecutive year of corn.
- Slide 15 The third SCN-management tactic is to grow SCN-resistant soybean varieties in fields infested with the nematode. SCN-resistant soybean varieties will produce acceptable yields while keeping SCN soil population densities from increasing during the season. There are hundreds of SCN-resistant soybean varieties to pick from in maturity groups I through VII.
- Slide 16 Additional information about the biology and management of SCN can be obtained at the web sites listed on the slide.