

IOWA STATE UNIVERSITY

Extension and Outreach

Integrated Crop Management

Have Our SCN Sorrows Been Drowned?

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Those looking for any bit of good news in all of the rain-soaked suffering we have endured this spring have asked if the extreme overabundance of moisture has drowned soybean cyst nematode (SCN). Unfortunately, the answer is no.

Nematodes are worms (animals) that require oxygen. And they absorb oxygen through their body wall or cuticle, which is made almost exclusively of proteins (and no chitin). Waterlogged soils may have greatly reduced levels of oxygen. But many plant-parasitic nematodes, including SCN, can survive long periods of time with little oxygen.

In the early 1970s, scientists in Arkansas conducted experiments to determine whether SCN could survive in flooded conditions. They found that SCN juveniles (see figure below) survived in water up to 630 days (probably longer, but the experiment ended after 630 days!). They also tested survival of SCN in flooded soils, and the juveniles survived 7 to 19 months depending on soil texture. The research paper is available online [here](#).

SCN eggs (see figure) can survive in a dormant state for many years in the absence of soybeans, particularly the eggs that occur within the body of the dead female or cyst (see figure). Typically, eggs are more tolerant of environmental stresses than hatched juveniles. So it's likely that SCN eggs in infested fields are not adversely affected by waterlogged soils either.



Figure: Egg-filled cyst (left) and egg and hatched juvenile (right) of the soybean cyst nematode - both images are of the same magnification.

More bad news...

A bit of additional bad news is that soil moved by erosion due to heavy rains and flood waters may spread SCN to new places. It is not possible to quantify the magnitude or frequency of this movement. And considering how widespread SCN already is in Iowa and the Midwest, perhaps the spread of SCN in soil moved by rainfall and flood waters will not have a great impact. Nonetheless, it is quite possible that some fields may have had SCN introduced in soil from other fields this spring. Consequently, soil samples should be collected this fall to test for SCN in fields where soybeans will be grown in 2020. Guidelines for collecting SCN soil samples can be found online [here](#).

A possible silver lining to the storm clouds?

Multiple SCN generations occur (likely 4 to 6 or more) throughout a normal growing season in Iowa. And it takes about 30 days for SCN to complete a single generation once soils warm up in late spring and summer. If soybean planting is delayed by several weeks, as in 2019, there likely will be one or two fewer generations of SCN during the season. This means less of an increase in SCN numbers simply because there are fewer weeks for SCN to reproduce on soybeans in 2019.

But beware! The potential for large increases in numbers and for severe damage always exists with SCN, especially if the weather turns hot and dry - ideal conditions for SCN reproduction. The numbers of SCN eggs in soil can build up quickly over multiple generations. A few hundred eggs can increase to nearly 40,000 in just three generations, as shown in the infographic that is available online [here](#).

Manage SCN for the long term

Successful, long-term management of SCN requires an active, integrated approach of growing nonhost crops such as corn in rotation with SCN-resistant soybean varieties. Farmers should seek out and grow soybean varieties with different sources of resistance in different years. And nematode-protectant seed treatments are available to bolster the performance of SCN-resistant soybean varieties. For more information about the biology and management of SCN, visit soybeancyst.info, soybeanresearchinfo.com and thescncoalition.com.

Category: [Plant Diseases](#)

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Crop:

[Soybean](#)

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