

Pest Management

Managing Soybean Cyst Nematode with Resistant Soybean Varieties



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Quick points

SCN is a widespread, damaging soybean pest in Iowa, causing yield losses every year.

Greatest yield losses from SCN occur when conditions are very dry.

Early detection of SCN in fields when numbers are relatively low is key to successful management.

There are hundreds of SCN-resistant soybean varieties from which to pick.

Rotate soybean varieties with different sources of SCN resistance in different years.

Resistant soybean varieties should be grown in rotation with corn, a non-host crop.

In print

Single copies available by calling (515) 294-1741

Soybean Cyst Nematode-resistant Soybean Varieties for Iowa

ISU Publication PM 1649

Evaluation of Soybean Varieties Resistant to Soybean Cyst Nematode in Iowa – 2006

ISU Publication IPM 52

Online

SCN-resistant soybean varieties

www.extension.iastate.edu/Publications/PM1649.pdf

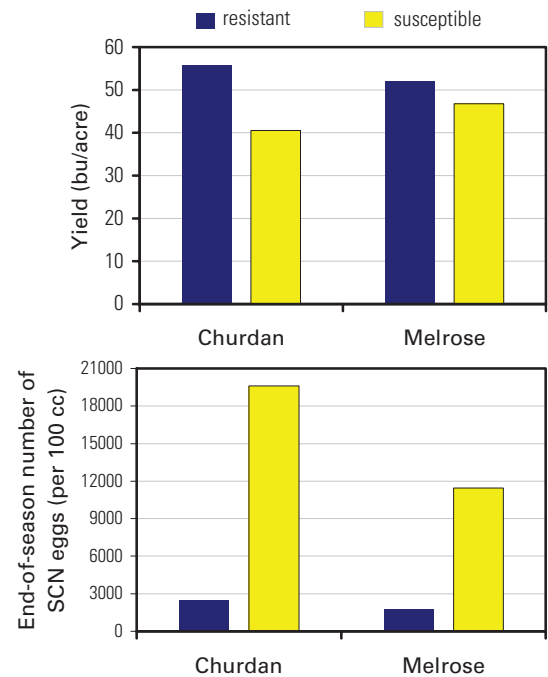
Results of the SCN-Resistant Variety Trial Program, 1996 – 2006

www.isuscnavarietytrials.info

Biology, distribution, and management of SCN

www.soybeancyst.info

Average yield and end-of-season SCN population densities of >40 SCN-resistant soybean varieties (blue bars) compared to that of four SCN-susceptible varieties (yellow bars) in the Melrose and Churdan, Iowa, locations of the Iowa State University SCN-resistant Variety Trial Program in 2006.



The soybean cyst nematode (SCN) was a serious yield-limiting pest of soybeans throughout Iowa in 2006, causing severe damage in several areas of the state, especially those that received less-than-normal rainfall. SCN is widely distributed throughout Iowa and does not flare up in dry years, although damage is more severe under drought conditions. Up to 40% yield loss can occur without symptoms appearing.

Management Options

Managing SCN involves maximizing soybean yields and minimizing reproduction of the nematode, by 1) scouting for early detection of infestations, 2) growing resistant soybean varieties, and 3) growing nonhost crops, like corn, in infested fields.

The Different Sources of SCN Resistance

Soybean varieties available to Iowa growers possess resistance genes from one of three breeding lines or “sources” of resistance – PI (Plant Introduction) 88788, Peking, and PI 437654. Resistance from PI 437654 sometimes is called “Hartwig” resistance. Currently there are 743 SCN-resistant soybean varieties for use in 2007, 94 in late group 0/group 1, 337 in maturity group 2, and 312 in maturity group 3. All but 24 of these varieties get their SCN resistance genes from PI 88788.

SCN-resistant soybean varieties are not immune, they can allow up to 10% reproduction. Nevertheless, resistant varieties yield greater than susceptible varieties and also prevent large increases in SCN population densities in SCN-infested fields (see bar graphs above).

Summary

Although SCN is very damaging, long-lived, and widespread, it can be effectively managed. Successful management is accomplished by scouting (sampling or digging roots) for early detection followed by use of SCN-resistant soybean varieties in rotation with the nonhost crop corn. Rotate SCN-resistant varieties with different sources of resistance to reduce the chances of selecting for a SCN population that can reproduce on resistant varieties. Growers who have been managing SCN with SCN-resistant soybean varieties for several years should check the SCN population densities in their fields to determine if the resistance is losing its effectiveness.