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ISU SCN-resistant soybean variety trial results available

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Abstract
The soybean cyst nematode (SCN) is a very wide-spread and serious pest of soybeans in Iowa and the other soybean-producing states of the Midwest. The nematode can survive in the soil without a host for up to 10 years, and it often causes significant yield loss without causing noticeable symptoms on the aboveground parts of the crop. An effective way to manage SCN is by growing corn, a nonhost crop, in rotation with SCN-resistant soybean varieties.

Keywords
Plant Pathology

Disciplines
Agricultural Science | Agriculture | Plant Pathology
The soybean cyst nematode (SCN) is a very widespread and serious pest of soybeans in Iowa and the other soybean-producing states of the Midwest. The nematode can survive in the soil without a host for up to 10 years, and it often causes significant yield loss without causing noticeable symptoms on the aboveground parts of the crop. An effective way to manage SCN is by growing corn, a nonhost crop, in rotation with SCN-resistant soybean varieties.

There are hundreds of SCN-resistant soybean varieties available for Iowa soybean growers to choose. Although these varieties can be grouped by maturity group, source of resistance, and other agronomic traits, yield performance and control of SCN population densities vary tremendously among the varieties. In 1990, the ISU SCN-resistant soybean variety trial program was established to provide unbiased and complete information on the performance of SCN-resistant soybean varieties to assist Iowa soybean growers and agribusiness personnel in selecting varieties for management of SCN.

The ISU SCN-resistant soybean variety trial program conducts evaluations in three districts of the state—north, central, and south. There are evaluations conducted in three locations in each of the districts each year. Roundup Ready® and non-Roundup Ready® varieties are evaluated in the locations of the northern
and central districts; only Roundup Ready® varieties are evaluated in the southern district. At each location, several commonly grown SCN-susceptible soybean varieties are included in the experiments as well.

After planting the variety trials, a soil sample is collected from each individual four-row plot in each evaluation site, and SCN cysts and eggs are extracted from the soil samples and counted to confirm the presence of SCN in all plots. This sampling is necessary because SCN can be extremely patchy in its distribution in naturally infested fields, even in relatively small areas of these fields. Soil samples are collected from each individual plot again following harvest at the end of the season, and SCN cysts and eggs are extracted and counted to assess the amount of SCN reproduction that occurred in each plot throughout the growing season. The end-of-season SCN soil population densities are important because SCN-resistant soybean varieties that yield comparably, even the top-yielding varieties, do not necessarily control SCN reproduction the same. And keeping SCN population densities from increasing is critical for long-term management of this pest.

In recent years, researchers have discovered a consistent relationship between iron deficiency chlorosis (IDC) in high pH soils and relatively high SCN soil population densities. So the ISU SCN-resistant soybean variety trial program also evaluates SCN-resistant soybean varieties for tolerance to IDC in two field locations each year.

Print copies of the 2005 ISU SCN-resistant soybean variety trial report can be obtained by calling (515) 294-1741 or e-mailing charris@iastate.edu. Results from the ISU SCN-resistant soybean variety trials from 1996 through 2005 can be obtained on the Internet at www.isuscnvarietytrials.info.

The results of the 2005 trials illustrate that yield and SCN control offered by the SCN-resistant soybean varieties varies considerably. The data presented in the report are from a limited number of locations and should be used only as a starting point for developing an SCN management program for any specific field. Performance of individual SCN-resistant soybean varieties in SCN-infested fields will vary among locations and years. Growers and agribusiness personnel are encouraged to evaluate several SCN-resistant soybean varieties to determine the best varieties for their location conditions.

Greg Tylka is a professor of plant pathology with extension and research responsibilities in management of plant-parasitic nematodes.