Field Evaluation of SCN-resistant Soybean Varieties in Iowa

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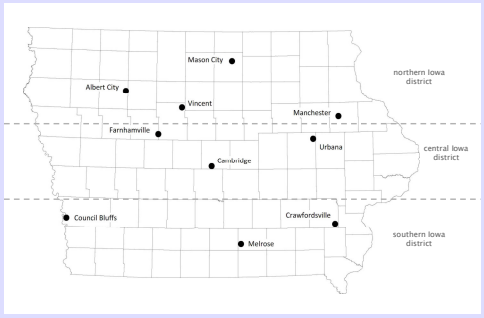
The soybean cyst nematode (SCN) is a very widespread and serious pest of soybean in Iowa. SCN reproduces quickly and prolifically and can survive in the soil for many years. SCN not only causes yield losses directly, it also makes some other soybean diseases, like brown stem rot and sudden death syndrome of soybean, worse.

SCN-resistant soybean varieties are an important SCN management tool. There are hundreds of resistant varieties available for Iowa growers.

The overall objective of the Iowa State University (ISU) SCN-resistant Soybean Variety Trial Program is to assess and compare the agronomic performance and SCN control of SCN-resistant soybean varieties in SCN-infested fields throughout Iowa.

Locations of the ISU SCN-resistant Soybean Variety Trial Program experiments in 2007.



Experimental details:

- 9-10 locations organized into 3 districts - northern, central, and southern Iowa
  - four replicate 4-row plots per variety
  - plots 17 feet long (center 2 rows x 14 feet harvested)
- Roundup Ready® and conventional soybeans evaluated
  - public and private SCN-resistant varieties
  - selected widely grown SCN-susceptible varieties

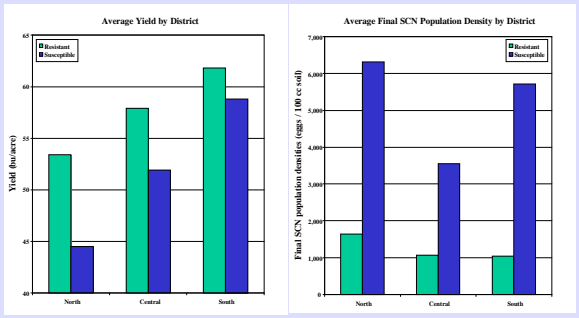
Data collected:

- plant stand 35-40 days after planting
- maturity date, plant height and lodging at harvest
- yield (mechanical harvesting)
- SCN egg population densities at planting and harvest

Results:

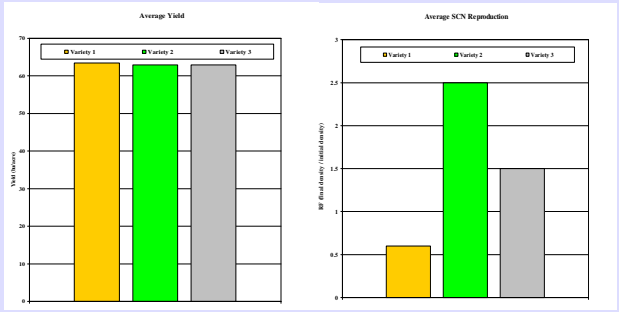
In all districts, SCN-resistant varieties produced consistently greater yields and lower nematode population densities than the widely grown susceptible varieties.

District-wide comparisons of yield and SCN reproduction on SCN-susceptible and SCN-resistant soybeans in 2007.



Top-yielding SCN-resistant soybean varieties with similar yields can allow different amounts of SCN reproduction (see below). Allowing SCN population densities to build up could seriously affect future soybean yields.

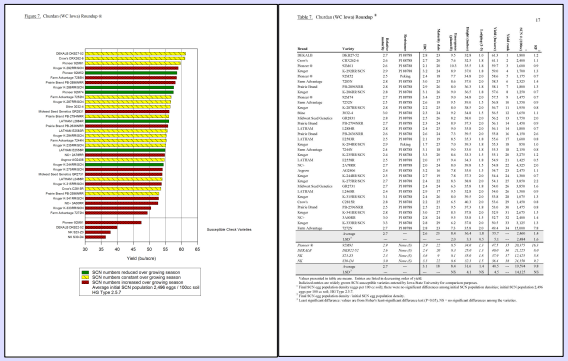
Average yield and SCN reproduction on the three top-yielding SCN-resistant, Roundup Ready® varieties in southeast Iowa (Crawfordsville) in 2006.



RF = final SCN population density divided by initial SCN population density. An RF of 2.0 indicates that fall SCN numbers are twice the spring numbers. An RF of 0.5 indicates that the fall SCN population density is ½ the spring population density.

Results are presented on the Internet at www.isuscntrials.info and in print (ISU Extension publication IPM 52). Yield and SCN reproduction are presented in easy-to-read bar graphs (left, below) and all agronomic and SCN data are presented in corresponding tables (right, below).

Example of data presentation in annual report of the ISU SCN-resistant Soybean Variety Trial Program.



Conclusions:

- SCN-resistant soybean varieties almost always yield greater than SCN-susceptible varieties in fields infested with SCN.
- SCN reproduction is suppressed and SCN population densities usually do not increase when SCN-resistant soybean varieties are grown.
- Not all SCN-resistant varieties are equal in yield or SCN control.
- High yield and control of SCN reproduction are needed for long-term profitable soybean production in SCN-infested fields.

Benefits to soybean growers:

- The ISU SCN-resistant Soybean Variety Trial Program provides comprehensive information about the yield and SCN control from SCN-resistant soybean varieties that are available to Iowa soybean growers.
- Selection of resistant varieties that offer both high yield and effective SCN control in the field is necessary for sustained profitable soybean production in the future.

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