12-18-2012

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Abstract
The amount of damage caused by the soybean cyst nematode (SCN) is determined, in large part, by the population densities or numbers of the nematode present in the field. More severe yield losses generally occur in fields with high SCN population densities compared to damage in fields with low or moderate numbers of SCN. Long-term, profitable soybean production in fields infested with SCN requires growing SCN-resistant soybeans and nonhost crops, such as corn, to keep nematode population densities in check.

Keywords
Plant Pathology and Microbiology

Disciplines
Agricultural Science | Agriculture | Plant Pathology

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Soybean Cyst Nematode Reproduction High in 2012

By Greg Tylka, Department of Plant Pathology and Microbiology

The amount of damage caused by the soybean cyst nematode (SCN) is determined, in large part, by the population densities or numbers of the nematode present in the field. More severe yield losses generally occur in fields with high SCN population densities compared to damage in fields with low or moderate numbers of SCN. Long-term, profitable soybean production in fields infested with SCN requires growing SCN-resistant soybeans and nonhost crops, such as corn, to keep nematode population densities in check.

Research assesses yields and nematode control of SCN-resistant varieties

Soybean checkoff funds from the Iowa Soybean Association support the Iowa State University SCN-resistant Soybean Variety Trial Program, the most extensive and longest-running program of its kind in the nation. Hundreds of SCN-resistant soybean varieties are studied for effects on SCN population densities and for yield at numerous locations throughout Iowa annually. Intensive soil sampling of every research plot at planting and again at harvest in all nine experiments (see Figure 1) reveals how SCN numbers change throughout the season.

Figure 1. Locations of the field experiments conducted by the Iowa State University SCN-resistant Soybean Variety Trial Program in 2012.
Yields were good, but SCN reproduction on resistant soybeans was high in 2012

Yields of the SCN-resistant soybeans in the 2012 experiments were greater than expected, considering the dry growing season. An earlier ICM News article explained how damage due to SCN is greater in dry soils. The article also explains how there may be increased feeding of SCN on vascular tissue in dry years, leading to greater SCN reproduction, perhaps through better nutrition.

There were high levels of SCN reproduction on SCN-resistant and susceptible soybean varieties in the 2012 variety trial experiments. Normally, SCN may increase in numbers from three- to five-fold during the growing season on susceptible (non-resistant) plants and numbers generally stay the same or increase only slightly on SCN-resistant soybean varieties. In 2012, there were 10-fold or greater increases in SCN numbers on resistant soybeans and 25- to 30-fold or greater increases on susceptible soybeans in the variety trial experiments. It is not clear why dry soil conditions result in greater SCN reproduction than in soil with adequate or excess moisture. More research is needed to understand what is occurring.

Prospects for 2013

The effects of increased SCN reproduction in 2012 will not become immediately apparent because fields cropped to soybeans in 2012 will not likely be cropped to soybeans again next year. But similar extreme increases in SCN reproduction may occur in 2013 because dry conditions are likely next year (see ICM News article here).

Farmers should continue to be vigilant about SCN. It would not be wise to grow an SCN-susceptible soybean variety in a field infested with the nematode in 2013. Also, considering the high SCN reproduction that occurred on resistant soybean varieties in 2012, farmers are advised to look for resistant varieties that control nematodes well, which includes some varieties with PI 88788 SCN resistant and most all of the varieties with Peking SCN resistance. There are more than 750 SCN-resistant soybean varieties from which Iowa soybean farmers can choose for 2013 (see earlier ICM News article here), and the results of the ISU SCN-resistant Soybean Variety Trial Program experiments reveal how well the varieties control SCN reproduction.

More information about the biology and management of SCN is available online at www.soybeancyst.info.

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This article was published originally on 12/18/2012. The information contained within the article may or may not be up to date depending on when you are accessing the information.

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