

12-10-2007

Surveying Iowa for SCN

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Recommended Citation

Tylka, Gregory L. and Robertson, Alison E., "Surveying Iowa for SCN" (2007). *Integrated Crop Management News*. 990.
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Surveying Iowa for SCN

Abstract

Most crop professionals in the Midwest recognize the soybean cyst nematode (SCN) as a widespread, yield-limiting factor. But until the mid-1990s, little was known about the actual distribution of SCN throughout the region. In 1995 and 1996, Iowa State University plant pathologists collaborated with the USDA National Agricultural Statistics Service (NASS) personnel to collect samples from hundreds of randomly selected fields in Minnesota, Iowa, Missouri, Illinois, Indiana, and Ohio. The work was supported by the soybean checkoff through funds from the North Central Soybean Research Program.

Keywords

Plant Pathology

Disciplines

Agricultural Science | Agriculture | Plant Pathology

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Surveying Iowa for SCN

by Greg Tylka and Alison Robertson, Department of Plant Pathology

Most crop professionals in the Midwest recognize the soybean cyst nematode (SCN) as a widespread, yield-limiting factor. But until the mid-1990s, little was known about the actual distribution of SCN throughout the region.

In 1995 and 1996, Iowa State University plant pathologists collaborated with the USDA National Agricultural Statistics Service (NASS) personnel to collect samples from hundreds of randomly selected fields in Minnesota, Iowa, Missouri, Illinois, Indiana, and Ohio. The work was supported by the soybean checkoff through funds from the North Central Soybean Research Program. Soil samples were tested for SCN and *Phytophthora sojae*, and stems were assessed for brown stem rot disease symptoms. Growers provided background information about the production practices used in the fields that were sampled for the survey. The results of the survey revealed that 74 percent of the 399 Iowa fields sampled were infested with SCN, and significantly fewer no-till fields were infested with SCN than tilled fields.

It has been more than a decade since Iowa fields were comprehensively surveyed for SCN, and it was not known to what extent, if at all, the pest had spread in that time. In 2007, Iowa State University researchers collaborated with USDA NASS personnel again to obtain soil samples from randomly selected fields in the state. The sampling was done in conjunction with collection of plant samples for the Iowa Soybean Disease Survey, a checkoff-funded statewide survey of soybean stem and leaf diseases in its third and final year in 2007. The soil sampling from the randomly selected fields will continue through 2009 and is supported by soybean checkoff funds from the Iowa Soybean Association.

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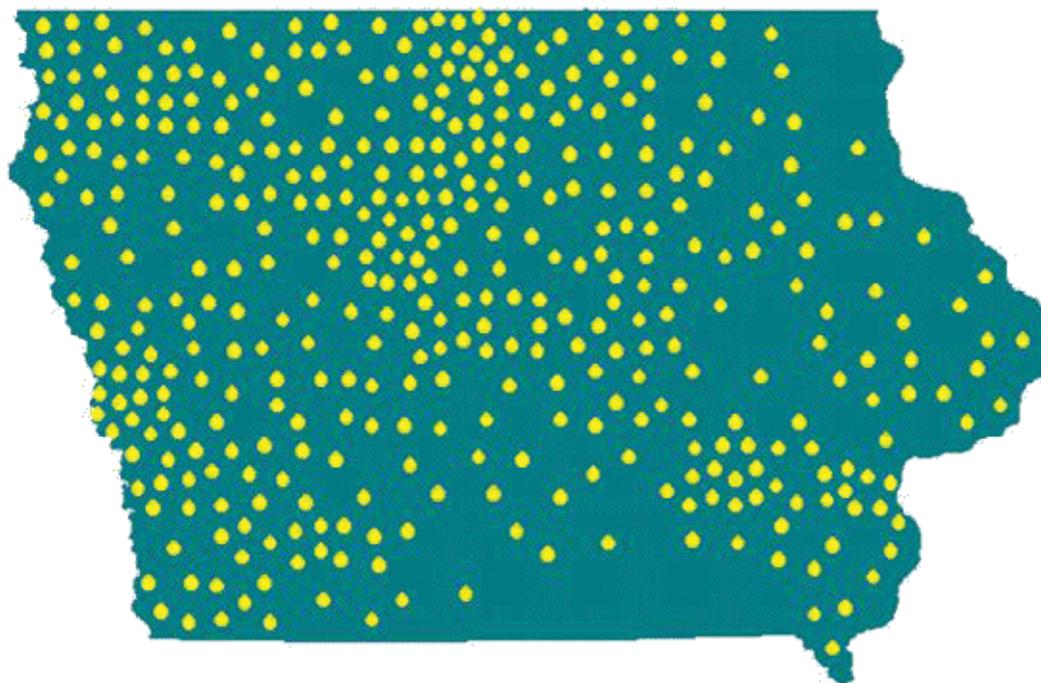
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Distribution of randomly selected fields in Iowa that were sampled in 1995-1996 survey.

Soil samples were obtained from 205 Iowa fields by NASS personnel in 2007, and the number of SCN eggs per 100 cc of soil (a little less than a half cup) was determined for each sample. SCN was found in 71 percent of the 205 samples. When sample results were analyzed by the tillage practice reportedly used in the fields, nearly the same percentage of tilled fields and no-till fields were infested with SCN.

The results of the first year of this study indicate that SCN hasn't spread much in the last 10 years, but its distribution hasn't receded either. Based on these results, more than one-quarter of Iowa fields are not infested with SCN, which emphasizes the importance of scouting the fields to discover SCN infestations. Furthermore, it appears that no-till and tilled fields are infested with SCN at an equal frequency. Data on the ability of the SCN populations to reproduce on PI 88788 and other sources of SCN resistance used to breed soybean varieties will be obtained in the upcoming months and years as the greenhouse testing of the SCN populations collected in 2007 is completed.

For more information about SCN biology, symptoms, and management, several Iowa State University Extension publications are available free of charge from county extension offices and on the Internet at www.soybeancyst.info.

Occurrence of soybean cyst nematode in randomly selected Iowa fields sampled in 1995–1996 and 2007.

Survey Years	All Fields		No-till Fields		Tilled Fields	
	Number of Samples	Incidence of SCN	Number of Samples	Incidence of SCN	Number of Samples	Incidence of SCN
Survey Years	of Samples	of SCN	of Samples	of SCN	of Samples	of SCN
1995-1996	399	74%	87	64%	312	77%
2007	205	71%	60	72%	90	73%

Note: Tillage information was not provided for 55 samples in 2007.

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This article originally appeared on page 289 of the IC-498(26) -- December 10, 2007 issue.

Updated 12/12/2007 - 5:45pm

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