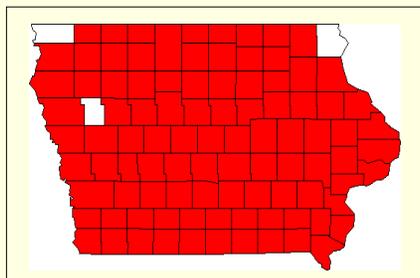


# Distribution of the Soybean Cyst Nematode in Iowa: 1995-1996 versus 2007

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The soybean cyst nematode (SCN) was first discovered in Iowa in Winnebago County, in extreme north central Iowa, in 1978. Currently, the nematode has been found in 96 of 99 Iowa counties (all except Allamakee, Ida, and Lyon Counties).

Known distribution of soybean cyst nematode among Iowa counties. SCN has been found in all counties in red.



In 1995 and 1996, a survey of Iowa was conducted, in cooperation with the USDA National Agricultural Statistics Service, to better define the distribution of SCN in Iowa. The survey was repeated in 2007 to assess the change in distribution of SCN throughout the state in the decade.

Information about the tillage practices used in the sampled fields was collected, so another objective of the research was to assess the incidence of SCN in fields that were tilled compared to those that were no till.

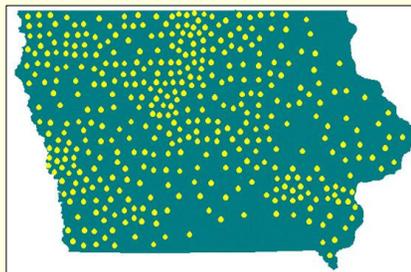
## Field selection and soil sample collection:

- Fields were randomly selected using an area-frame-sampling design by USDA National Agricultural Statistics Service personnel each year (Workneh et al., 1999).
- NASS enumerators collected a trowel-full of soil, 8 inches deep, from 10 arbitrarily selected places in each selected field.
- Enumerators interviewed the growers who farmed the selected fields to determine the tillage practices that were used in the fields.
- Soil samples were collected between late July and harvest in 1995-1996 and in 2007.
- Soil samples were placed in plastic bags and were sealed and shipped to Iowa State University for processing.

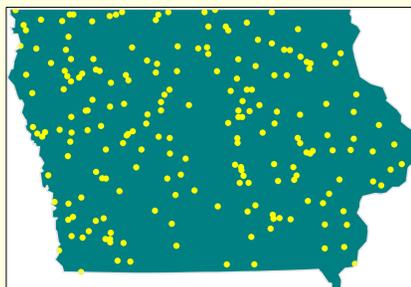
## Sample processing and data analysis:

- SCN cysts were extracted from soil via wet-sieving and decanting (Gerdemann, 1955).
- Eggs were released from cysts with a motorized rubber stopper (Faghihi and Ferris, 2000).
- Eggs were stained with acid fuchsin (Niblack et al., 1993) and then counted microscopically.
- The percentage of fields in which SCN was discovered (prevalence) was calculated.
- The prevalence of SCN was summarized by tillage category, and the differences in prevalence between the tillage categories were determined by the chi-square test.

Locations of the 399 fields sampled in Iowa 1995-1996.



Locations of the 205 fields sampled in Iowa in 2007.



## Results:

In 1995-1996, 74% of the 399 fields sampled in Iowa were found to be infested with SCN (Workneh et al., 1999). Of the 205 fields sampled in 2007, 71% were infested with the nematode.

There was a significant difference in prevalence of SCN infestations between tilled and no-till fields in 1995-1996 (Workneh et al., 1999). The difference does not appear to be present in the 2007 data (analyses not yet conducted)

Prevalence of SCN among randomly selected tilled and no-till fields in Iowa.

sample years	no-till		tilled		$\chi^2$ P value
	# fields	% infested	# fields	% infested	
1995 -1996	87	64%	312	77%	0.02
2007	60	72%	90	73%	not yet determined

## Conclusions:

- The overall prevalence of SCN in Iowa has not changed considerably between 1995-1996 and 2007.
- Currently, >25% of fields in Iowa are not infested with SCN.
- The difference in prevalence of SCN in no-till vs tilled fields in 1995-1996 was not detected in 2007.
- Scouting for SCN in Iowa fields is still needed to identify new SCN infestations.

## Literature cited:

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