

The Effect of Crop Rotation on Soybean Cyst Nematode Management

Alan Sundermeier, Agriculture and Natural Resources Extension Agent

Objective

Determine differences in planting time soil conditions in three tillage systems for corn planted into soybean residue and their impact on corn yield.

Background

Cooperator:	Beck Bros.	Cropping History:	1995- soybeans
County	Henry		1996- corn
Soil Type:	Millgrove loam		1997- corn
Tillage:	No-till		1998- resistant soybeans

Methods

In 1995, four soybean-cyst-nematode-resistant varieties (Asgrow 3134, Asgrow 3431, AgriPro 3460, Callahan 3377) and two susceptible varieties (Resnick, Asgrow 3237) were replicated three times and randomly planted into a nematode-infested field. Individual plots were 15' by 500'. Soil samples for cyst nematode egg counts were randomly collected at four-inch depths in each plot. Samples were taken in June and September each year. Corn was planted in the entire study area in 1996 and 1997 and cyst nematode resistant soybeans in 1998.

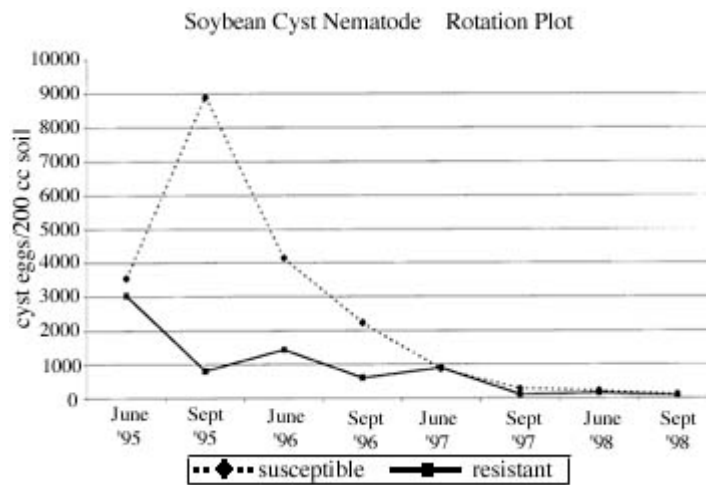
Results

Variety (Resistant/ Susceptible)	Average Number of Cyst Nematode Eggs/200 cc Soil							
	Soybean		Corn		Corn		Soybean (R)	
	June 1995	Sept. 1995	June 1996	Sept. 1996	June 1997	Sept. 1997	June 1998	Sept. 1998
Asgrow 3134 (R)	2880	213	1427	373	1120	120	0	67
Resnick (S)	3813	9947	5093	2840	907	133	67	147
AgriPro 3460 (R)	3827	667	1467	1053	773	120	200	93
Asgrow 3431 (R)	2840	1840	1760	680	867	93	373	107
Callahan 3377 (R)	2560	533	1067	307	800	107	53	40
Asgrow 3237 (S)	3280	7840	3200	1613	813	427	360	93
Average Susc.	3547	8893	4147	2227	860	280	213	120
Average Res.	3027	813	1430	603	890	110	157	77
LSD (P = 0.05)	1521	2161	1568	1065	374	145	277	57
Sig. Difference	No	Yes	Yes	Yes	No	Yes	No	No

Summary and Notes

One year of corn following susceptible soybeans did not lower cyst counts (2,227 eggs/200cc soil) to safe levels compared to one year of corn following resistant soybeans, which reduced cyst levels to 603 eggs/200 cc soil. Two years of corn were needed to lower soybean-cyst-nematode egg counts (below 500 eggs/200cc soil) to safe levels. In 1998 resistant soybeans did not allow cyst counts to increase.

This study confirms soybean-cyst-nematode control recommendations. After nematode infection is confirmed when planting susceptible SCN soybean varieties, plant two years of corn followed by one year of SCN resistant soybeans. Then, with counts below 500 eggs/200 cc soil, farmers may again use susceptible SCN soybeans in rotation.



For additional information, contact:

Alan Sundermeier
The Ohio State University Extension
sundermeier.5@osu.edu