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# Comparing Yields of Soybean Varieties with Different Sources of SCN Resistance in Strip Trials

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# Comparing Yields of Soybean Varieties with Different Sources of SCN Resistance in Strip Trials

## **Abstract**

The primary method of managing yield loss due to the soybean cyst nematode (SCN) is through the use of resistant soybean varieties. Most SCN-resistant varieties available in Iowa have the PI 88788 source of SCN resistance. There are concerns that over time, SCN will be able to overcome the PI 88788 resistance. Small plots (two or four rows wide and up to 20 ft long) often are used to evaluate yields and nematode control of SCN-resistant soybean varieties. Yield results are more variable in small plots than in larger strip plots, but data from soil samples in small plots more accurately represent SCN population densities from the areas in which yield data are being collected.

## **Keywords**

RFR A9111, Plant Pathology

## **Disciplines**

Agricultural Science | Agriculture | Plant Pathology

# Comparing Yields of Soybean Varieties with Different Sources of SCN Resistance in Strip Trials

## RFR-A9111

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### Introduction

The primary method of managing yield loss due to the soybean cyst nematode (SCN) is through the use of resistant soybean varieties. Most SCN-resistant varieties available in Iowa have the PI 88788 source of SCN resistance. There are concerns that over time, SCN will be able to overcome the PI 88788 resistance.

Small plots (two or four rows wide and up to 20 ft long) often are used to evaluate yields and nematode control of SCN-resistant soybean varieties. Yield results are more variable in small plots than in larger strip plots, but data from soil samples in small plots more accurately represent SCN population densities from the areas in which yield data are being collected.

In this experiment, varieties with SCN-resistance from PI 88788, Peking, and PI 437654 (CystX<sup>®</sup>) were compared. We attempted to capture the strengths of strip plots and small plots by growing the varieties in strips and taking multiple soil samples from each strip.

### Materials and Methods

Four replications of seven soybean varieties were planted in randomly ordered strips on May 24, 2008. Each strip had six rows, 185 ft long, and spaced 30 in. apart. Five of the varieties were resistant to SCN and two were susceptible. Two varieties had SCN resistance from PI 88788, two varieties had Peking SCN resistance, and one variety had PI 437654

(CystX<sup>®</sup>) SCN resistance. Each 185-ft-long strip was sampled in 25-foot increments; seven different soil samples were collected per strip. Each soil sample consisted of 10 soil cores from the center two rows of the 25-ft increment. Spring soil samples were taken on May 22, the plots were harvested on October 11, and soil samples were collected a second time on October 28, 2009.

### Results and Discussion

Initially, there were 441 SCN eggs/100 cc soil in the field overall. At the time of this report, the fall SCN counts are not completed, so no conclusions regarding the ability of the tested varieties to control SCN can be made.

In this experiment, both of the PI 88788 varieties yielded more than the susceptible varieties. The two Peking varieties had yields similar to those of the susceptible varieties. The single CystX<sup>®</sup> variety yielded significantly less than the susceptible varieties (Table 1). When results were combined by source of SCN resistance, only the varieties with PI 88788 SCN resistance had yields greater than the susceptible varieties. The yield of varieties with Peking SCN resistance were numerically lower than the susceptible, but the difference was not statistically significant. The CystX<sup>®</sup> variety was the lowest-yielding variety in the experiment (Table 2).

### Acknowledgements

We thank Dave Rueber and the staff of the ISU Northern Research and Demonstration Farm for their help with this study. This work was funded by the soybean checkoff through a grant from the North Central Soybean Research Program.

**Table 1. Soybean yield and SCN reproduction by variety.**

Soybean variety	Source of SCN resistance	Yield (bu/acre) <sup>1</sup>
Latham E2658R	PI 88788	51.7 a
Latham L2620RX	CystX <sup>®</sup>	43.6 c
Latham L2646R	None	47.7 b
Pioneer 92M11	Peking	46.2 b
Pioneer 92M53	Peking	46.9 b
Pioneer 92M54	PI 88788	52.7 a
Pioneer 92M91	None	48.0 b

<sup>1</sup>Numbers in columns followed by the same letter are not statistically different (P = 0.10).

**Table 2. Soybean yield and SCN reproduction by resistance source.**

Source	Yield <sup>1</sup>
None	47.8 b
PI 88788	52.2 a
Peking	46.6 b
CystX <sup>®</sup>	43.6 c

<sup>1</sup>Numbers in columns followed by the same letter are not statistically different (P = 0.10).