

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

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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[®]) 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 5, 2010. Each strip had six rows 185 ft long 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[®]) SCN resistance. Each 185-ft-long

strip was sampled in 25-ft 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 21, the plots were harvested on September 30, and soil samples were collected a second time on October 19, 2010.

Results and Discussion

At the time of this report, the SCN counts were not completed, so no conclusions regarding the ability of the tested varieties to control SCN were made.

When performance of the seven varieties were compared individually (Table 1), both PI 88788 varieties yielded more than the susceptible varieties. One of the Peking varieties yielded similarly to the susceptible varieties, and the other yielded significantly less. The CystX[®] variety yielded similarly to the susceptible varieties.

When results were combined by source of SCN resistance (Table 2), only the varieties with PI 88788 SCN resistance, as a group, had yields greater than the susceptible varieties. The varieties with Peking SCN resistance, as a group, yielded less than the susceptible varieties. Although the CystX[®] variety had numerically greater yield than the susceptible varieties, the difference was not statistically significant.

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Table 1. Soybean yield by variety.

Soybean Variety	Source of SCN Resistance	Yield ¹ (bu/acre)
Latham L2648R	PI 88788	48.1 a
Pioneer 92M54	PI 88788	47.8 ab
Latham L2120RX	CystX ®	45.8 abc
Pioneer 92M91	None	45.3 bc
Latham L2635R	None	45.2 bc
Pioneer 92M53	Peking	43.8 cd
Pioneer 92M11	Peking	42.6 d

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

Table 2. Soybean yield by resistance source.

Source	Yield ¹
PI 88788	48.0 a
CystX®	45.8 b
None	45.2 b
Peking	43.2 c

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