Evaluation of Deny

A series of experiments was begun in 2002 to test products marketed as, or having promise for, reducing SCN (soybean cyst nematode) reproduction and/or increasing the growth and productivity of SCN-infested soybeans. Each year, several different products have been tested in a randomized complete block experiment containing both SCN-susceptible and SCN-resistant soybean varieties. For simplicity, only the results of Deny and the appropriate control treatment are described in this report. The LSD values given however, are from the overall analysis of the larger experiment.

2002

An experiment was established in a field infested with the soybean cyst nematode at the Iowa State University Woodruff Research Farm located approximately 5 miles (8 km) southwest of Ames, Iowa. The average initial soybean cyst nematode population density was 4,440 eggs per 100 cm^3 of soil. Individual plots consisted of four rows, 17 feet (5.2 m) long spaced 30 inches (76 cm) apart. All treatments were replicated six times in the experiment.

Plots were planted with the varieties Asgrow 2301 (susceptible to SCN), and Asgrow 2201 (resistant to SCN) at a rate of 10 seeds per foot (33 seeds per m) later. The seed furrows were held open on the plots designated for treatment with Deny by raising the row closers on the plot planter. Deny was mixed according to label instructions and applied using a 4-row-CO2 sprayer held just above the rows, and then the rows were manually closed using a garden rake. Weeds were removed from plots of all treatments by hand throughout the growing season.

Several weeks after planting, the number of plants per linear foot (emergence) was assessed in each plot, and average plant height and lodging (1=all plants fully erect, 5=all plants flat) were assessed just prior to harvest. The center two rows of each plot were mechanically harvested with a plot combine. The collected seed was returned to the lab where seed weight and seed moisture were determined, and plot yields were calculated.

Soil samples consisting of ten 1-inch-diameter (2.5-cm-diameter), 6- to 8-inch-deep (15- to 20-cm-deep) soil cores were collected from the center two rows of each plot immediately following planting. Soybean cyst nematode cysts were extracted from a subsample of each soil sample using a semi-automatic elutriator and were recovered on a 250-µm-pore sieve. Then the cysts were crushed with a motorized rubber stopper. The eggs that were released from the cysts were recovered on a 25-µm-pore sieve and subsequently were stained with acid fuchsin and counted with a dissecting microscope. Soil samples were collected from each plot again immediately after harvest. Soybean cyst nematode egg population densities were determined from these samples in the same manner as samples collected in the spring, following planting.

Data were analyzed by analysis of variance (ANOVA) for a treatment main effect. If a significant difference among the treatments was detected with ANOVA at $P \leq 0.05$, Fisher's least-significant-difference (LSD) test was performed ($\alpha=0.05$) to discern specific differences among treatment means.

For simplicity, only yield and fall SCN population densities are presented here. The LSD values given are from the overall analysis of the larger experiment.

Results:

Treatment	***Yield (bu/acre)***	***Fall SCN (eggs/100cc soil)***
Untreated SCN-susceptible	35.6	5,883
Deny treated SCN-susceptible	34.7	11,783
LSD	5.8	9,098

Conclusions:

There was no significant difference in yield or final SCN population densities between plots treated with Deny and the untreated control plots.