

Evaluation of Cruiser/ApronMaxx Seed Treatments on Soybeans

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Objectives

The objective of this study was to evaluate the yield benefit of applying Cruiser insecticide in conjunction with ApronMaxx fungicide as a seed treatment for soybeans. The treatments were evaluated in both an earlier planting and a later planting to see if there were any differences.

Background

Soil Type:	Hoytville clay, Hoytville silty clay loam, and Haskins loam	Herbicide (Late planting date):	
Drainage:	Tile- nonsystematic	PRE(May 31):	1.5 pt/A Boundary 6.5EC + 16 oz/A Touchdown + 17 lb/100 gallons AMS
Previous Crop:	Wheat	POST(July 2):	1 qt/A Touchdown + 17 lb/100 gallons AMS
Tillage:	Fall disk/ripper; spring field cultivate (2x)	Variety:	NK Brand S31-V3
Soil Test (2005):	pH 6.7, P 47 ppm, K 156 ppm	Row width:	7.5 inches
Fertilizer:	285 lb/A 4-19-38 surface broadcast and incorporated (May 2005)	Planting Rate:	210,000 seeds/A
Herbicide (Early planting date):		Planting Date:	Early- May 11, 2005 Late- May 31, 2005
PRE(May 11):	1.5 p/A Boundary 6.5EC	Harvest Date:	October 3, 2005
POST(June 23):	1 qt/A Touchdown + 17 lb/100 gallons AMS		

Methods

This study was set up as three treatments with three replications of each treatment in a complete randomized block design. The treatments and replications were planted at two different timings to look for possible yield benefits that might be associated with an early planting (May 11) as compared to a later planting (May 31). Since Cruiser insecticide seed treatment is not commercially available as a stand alone seed treatment but is marketed as a package with ApronMaxx fungicide, it was evaluated in conjunction with ApronMaxx fungicide seed treatment. The treatments were:

- 1) Cruiser/ApronMaxx seed treatment
- 2) ApronMaxx only seed treatment
- 3) Untreated Check

By adding the ApronMaxx seed treatment alone to the trial, it should be possible to pick up any differences in yield from the addition of Cruiser insecticide to the seed. The application rate for the Cruiser was 1.28 oz/100 lb seed. The application rates for the ApronMaxx was 0.32 oz of Apron plus 0.08 oz of Maxim per 100 lb seed. These ApronMaxx rates were the same for the ApronMaxx only seed treatment and the Cruiser/ApronMaxx seed treatment.

All plots were planted using a 15 foot John Deere 750 drill. The outside seed holes on each end of the drill were plugged to create a gap between the drill passes. This gap allowed for distinguishing between the different treatments, and it adjusted the plot width to 13.75 feet wide so the plots could be harvested with a 15 foot grain head. Plot length was 1090 feet.

Early emergence populations were taken June 10 for the early planted plots and on June 17 for the late planted plots. Both early emergence and harvest populations (September 22) were estimated by counting the number of plants in the row on each side of a 10 foot section at three different locations in each plot. The average number of plants counted per 10 feet was converted to plants per acre. Yields were determined by harvesting each entire plot with a John Deere 6620 combine equipped with a calibrated AgLeader PF3000 yield monitor. Plot weights were determined with a calibrated weigh wagon. Moistures were taken from the combine yield monitor. All yields were adjusted to a 13% moisture standard.

Results

Table 1. Early planting date- early emergence population, harvest population, moisture, and yield means for each treatment.

Treatment	Early Emergence Population (plants/A)	Harvest Population (plants/A)	Moisture (%)	Yield (bu./A)
Cruiser/ApronMaxx ST	182,000	175,400	11.9	53.7
ApronMaxx ST only	180,000	185,500	12.0	53.1
Untreated Check	160,700	174,200	11.9	53.3
LSD (P=0.05)	NS	NS	NS	NS
F-test	3.3	<1	2.0	<1
CV (%)	6.4	8.3	<1	4.2

NS= not significant

Table 2. Late planting date- early emergence population, harvest population, moisture, and yield means for each treatment.

Treatment	Early Emergence Population (plants/A)	Harvest Population (plants/A)	Moisture (%)	Yield (bu./A)
Cruiser/ApronMaxx ST	176,200	222,300	10.9	49.1 a
ApronMaxx ST only	170,000	207,500	10.9	45.8 b
Untreated Check	159,100	193,200	10.9	45.5 b
LSD (P=0.05)	NS	NS	NS	2.3
F-test	<1	1.8	<1	11.4
CV (%)	9.9	9.0	<1	2.2

¹ Means followed by the same letter in the same column are not significantly different.
NS= not significant

Summary

The results from this one year trial do not show any statistical differences between treatments for early emergence populations, harvest populations, or moisture in both the early and late planted plots. Even though there are some fairly large differences in the population counts between the different treatments, the relatively large CV% indicates there was as much variation in population checks within a treatment as there was between the treatments.

The results do show a statistical difference in yield in the late planted treatments, but not in the early planted treatments. This improvement in yield in the late planted Cruiser/ApronMaxx plots could possibly be due to partial control of the aphids since there was less time elapsed between when the seed was planted and when the aphids arrived in the field in numbers greater than economic threshold. Observations of aphid numbers in all the plots indicated that aphid threshold was reached, regardless of treatment. Syngenta, the manufacturer of Cruiser does not make a claim concerning aphid control if this seed treatment product is used. Insect pressure from bean leaf beetle was also monitored during the growing season, but the numbers were always well below economic threshold in all the plots. Cruiser is newly registered for use on soybeans and as such there is very limited data from on-farm research to indicate how well this insecticide seed treatment will perform over time and with varying degrees of insect pressure.

Soybean fungicide seed treatments have shown over time that it does pay to use them for seedling disease control, but in this trial this year the fungicide seed treatment alone did not show a yield advantage. This is why OSU promotes the use of multiple years and sources of research results when deciding the value of a product or practice.

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