

Effect of Warrior Applied on R3 to R4 Soybeans in a Modified Relay Intercrop (MRI) System

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Objective

To evaluate grain yield response of MRI soybeans to Warrior (lambda-cyhalothrin) insecticide applied at soybean growth stages R2-R4.

Background

Crop Year:	2013	Row width:	10 inches
Location:	OSU Unger Farm	Fertilizer (lbs N-P-K):	95-58-78
County/Town:	Crawford	Soybean Planting Date:	June 5, 2013
Soil Type:	Blount/Pewamo	Soybean Variety:	Pioneer P93Y24
Drainage:	Systematic	Seeding Rate:	225,000 seeds/acre
Previous Crop:	Wheat	Herbicide (Post):	1 qt Glyphosate (7/22)
Tillage:	No – tillage	Treatment Dates:	August 1, 14, 23, 2013
Soil Test:	pH 6.2, P 34 ppm, K 152 ppm	Date of Harvest:	October 29, 2013
SCN Count:	(MRI area):1160 eggs/100cc	Rain fall:	25.57 inches (5/16-10/2)

Methods

Soybeans were interseeded into standing wheat with 10 inch row spacing on June 5, 2103 with a Great Plains 2010P precision drill mounted on a 3 point hitch with lift assist wheels. Pioneer P93Y06 were planted at a rate of 225,000 seeds per acre. Wheat was harvested on July12, 2013. Wheat averaged 70 bushel per acre in the field. An application of 1 quart of Glyphosate was applied on July 22.

This study used a randomized complete block design with two treatments replicated 4 times to compare the treatment yield effect of lambda-cyhalothrin @ 3.2 ounces and a control. Three trials were conducted on the following dates: August 1, 14 and 23, 2013. Soybeans were in the R3 to R4 growth stages over the trial dates (R3 on 8/1, R3.5 on 8/14 and R4 on 8/23). Insects present in low numbers at time of application included: grasshoppers, Japanese beetles and bean leaf beetles. Each plot was sprayed with a CO2 small plot sprayer calibrated to deliver 15 gallons per acre at 40 PSI. For the application dates of 8/1 and 8/23, plot size was 10 feet wide by 40 feet long and these plots were trimmed to 35 feet in length. For the 8/14 application date, the larger trimmed plots averaged 42 feet in length. Plots were harvested on October 29, 2013 using a Kincaid 8-XP small plot combine harvesting the center five feet of each plot.

Treatments

- 1) Warrior (lambda-cyhalothrin) insecticide @ 3.2 ounces /acre
- 2) Control

Results

Table 1. MRI soybean yield (adj. to 13% moisture) from 8/1/13 application

<u>Treatment</u>	<u>Mean yield (bu/acre)</u>
lambda-cyhalothrin	56
<u>Control</u>	<u>56.1</u>

F=0, NS; CV =11.54

Table 2. MRI soybean yield (adj. to 13% moisture) from 8/14/13 application

<u>Treatment</u>	<u>Mean yield (bu/acre)</u>
lambda-cyhalothrin	55
<u>Control</u>	<u>54</u>

F=.14, NS; CV =8.64

Table 3. MRI soybean yield (adj. to 13% moisture) 8/23/13 application

<u>Treatment</u>	<u>Mean yield (bu/acre)</u>
lambda-cyhalothrin	61
<u>Control</u>	<u>60</u>

F=.14, NS; CV =5.29

Summary

This study was conducted at OSU Unger Farm in north central Ohio where Modified Relay Intercropping (MRI) is practiced. However, a perceived production problem of intercrop soybeans has been the observation foliage and pod feeding damage from insects such as bean leaf beetle, Japanese beetle and grasshopper. In 2013 there was not a significant difference in soybean yield observed between the insecticide treatment and control over the 3 dates of treatment. There was less than 7 % insect leaf feeding/damage observed at time of insecticide applications and no significant pod feeding (< 2%). Warrior cost \$10.38 per acre plus another \$10.00 for application to total \$20.38. At harvest soybean price was \$12.87/bushel. Therefore 1.6 bushels/acre were needed to break even. In 2 years of previous work of insecticide applications (different products and timing) in MRI soybeans, there have not been significant differences observed over treatments.

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