

Effect of Sugar Applied on R3 Soybeans in a Modified Relay Intercrop System

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Objective

To evaluate grain yield response of modified relay intercropped soybeans (MRI) to sugar applied at soybean growth stage R3.

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 14, 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 P93Y24 were planted at a rate of 225,000 seeds per acre. Wheat was harvested on July12, 2013. Wheat averaged 70 bushel per acre. 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 sugar at 3 pounds/acre (in the form of baking sugar, sucrose) and a control (no sugar). Plots were treated on August 14, 2013 when soybeans were in the R3 growth stage. Each plot was sprayed with a CO2 small plot sprayer calibrated to deliver 15 gallons per acre at 40 PSI. Plot size was 10 feet wide by 40 feet long. Plots were trimmed to 35 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.

Treatment 1

- 1) Sugar at 3 lbs/acre
- 2) Control (no sugar)

Results

Table 1. MRI soybean yield (adjusted to 13% moisture)

Treatment	Mean yield (bu/acre)
Sugar	53.1
Control	53.8

F=.05, NS; CV =7.72

Summary

This study was conducted at OSU Unger Farm in north central Ohio where Modified Relay Intercropping (MRI) is practiced. In 2013 there was a not a significant difference in soybean yield observed between the sugar application and the control. It would take 0.95 bushel of soybeans (price \$12.87 bushel at harvest on 10-29-13) to cover the cost of the sugar (\$ 2.22), adjuvants and application (\$10.00/acre).

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