Soybean yields in an Modified Relay Intercropping versus Soybean only system

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Objective

To compare the yield of soybeans planted in a modified relay intercropping system of wheat then soybean compared to a conventional soybean system when planted on the same day.

Background

Crop Year:	2015	Tillage:	No-till
Location:	OSU Unger Farm	Soil Test:	pH-6.8, P-49 ppm, K-93 ppm
County/Town:	Crawford/Bucyrus	Planting Date:	May 22, 2015
Soil Type:	Blount/Pewamo	Variety:	S35-C3
Drainage:	Systematic	Seeding Rate:	250,000
Previous Crop:	Soybeans	Harvest Date:	October 13, 2015
Fertilizer:	90-76-82	Rain fall:	21.2 inches

Methods

Plots were laid out in a randomized complete block design with the treatments being MRI (wheat interplanted with soybeans) and conventional soybeans. The wheat was planted on October 7, 2014 at one million seeds per acre using a Great Plains YP 1225 twin row planter. The wheat received a split nitrogen application for a total of 90 pounds of N as 28%. On April 6th 2, 4-D was applied to the wheat. NK S35-C3 soybeans treated with Cruiser Maxx and Vibrance were planted on May 22nd using a twin row custom built modified relay intercrop planter to both the interseed and conventional treatments. The wheat was then harvested on July 9th using a 35 foot header cutting plots perpendicular to the row direction so that realistic wheel traffic damage is represented. Wheat yielded 67 bushels per acre. Plots were sprayed with 32 oz of glyphosate on July 20th to control weeds. Soybeans were then harvested on October 13th using a modified Gleaner K plot combine, harvesting plots that were 7.5 feet by 33 feet.

Results

Table 1. Soybean yields in two systems

	Yield (bushels/acre)
MRI soybeans	59.9
Conventional Soybeans	69.3
C.V. = 13.5 P>F=0.028	**LSD (0.05) 8.75**

Summary

There was a significant difference in yields between the MRI soybeans (that had wheat harvested from the same plots) and the Conventional soybeans. While the MRI soybeans yielded almost 10 bushels less than the conventional soybeans, there were 67 bushels per acre of wheat harvested from these plots which leads to an increased gross income of $238.84 per acre, or an increase in net income per acre of $86.80.

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