

# Soybean seeding Rates for Modified Relay Intercropping

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## Objective

To determine the optimal twin row soybean seeding rate per acre for modified relay intercropping (MRI) in twin row wheat.

## Background

Crop Year:	2015	Tillage:	No-till
Location:	OSU Unger Farm	Soil Test:	pH-6.8, P-49ppm, K-93ppm
County/Town:	Crawford/Bucyrus	Planting Date:	May 22, 2015
Soil Type:	Blount/Pewamo	Variety:	S35-C3
Drainage:	Systematic	Seeding Rate:	Variable
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. Wheat was planted on October 7, 2014 at a seeding rate of one million seeds per acre using a Great Plains YP1225 twin row (Two rows 8 inches apart with a 22 inch gap between row pairs) planter. The wheat received a split nitrogen application for a total of 90 pounds of N as 28%. On April 6<sup>th</sup> 2, 4-D was applied to the wheat. NK S35-C3 soybeans treated with Cruiser Maxx and Vibrance were planted on May 22<sup>nd</sup> using a twin row custom built modified relay intercrop planter. This study consisted of 4 treatments of different respective soybean seeding rates: 150,000 sd/ac, 200,000 sd/ac, 250,000 sd/ac, and 300,000sd/ac.

The wheat was then harvest on July 9<sup>th</sup> using a 35 foot header cutting plots perpendicular to the row direction to so that realistic wheel traffic damage is represented. Wheat yielded 67 bushels per acre. Plots were sprayed with 32 oz of glyphosate on July 20<sup>th</sup> to control weeds. Soybeans were then harvested on October 13<sup>th</sup> using a modified Gleaner K plot combine, harvesting plots that were 7.5 feet by 33 feet.

## Results

Table 1. Soybean yields at various populations

	Yield (bushels/acre)
150,000 sd/ac	64.5
200,000 sd/ac	60.9
250,000 sd/ac	62.7
300,000 sd/ac	58.7
<b>C.V. = 11.01 P&gt;F=0.669</b>	<b>Not significant</b>



## Summary

There was not a significant difference in yields between the four different seeding rates of MRI soybeans. Our current recommendations for seeding rate are 225,000-250,000 sd/ac but these recommendations were developed in 10 inch wheat row spacings. The increased light and better seeding equipment may allow for decreased seeding rates, increasing profitability. Since this is only based on one years' worth of data, and weather trends in 2015 were unusual with six inches more rain fall during the growing season than average, more data is needed to make recommendations on seeding rates in MRI soybeans.

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