

Effect of Row Width on Wheat Yield in a Modified Relay Intercropping System

Steve Prochaska, Agriculture and Natural Resources Extension Agent

Objective

To evaluate the effect of row width and modified relay intercropping on wheat yield.

Background

Modified Relay Intercropping is a system in which soybeans are planted into standing wheat around the time period of wheat pollination. Previous plot work over the last six years has resulted in soybean yields of 30 bushels per acre and wheat of 73 bushels per acre. (Yield averages over all treatments.)

Cooperator:	OSU Unger Farm	Herbicides:	PRE: Roundup (1 qt/A), POST: Roundup (1 qt/A)
County:	Crawford	Varieties:	Wheat: I9824 Soybean: Pioneer 93B35
Soil Types:	Pewamo silty clay loam Blount silt loam	Planting Date:	Wheat: October 7, 1999
Previous Crop:	Soybeans	Planting Rate:	Wheat: 120 lb/A Soybean: 211,000 seeds/A
Drainage:	Subsurface	Row Width:	7.5 inches and 15 inches
Tillage:	Chisel/ field cultivator	Harvest Date:	Wheat: July 5, 2000
Fertilizer:	32-81-120 lb/A actual N-P-K Topdressed 30 gal. 28%/A		

Methods

A completely randomized design (seven replications) in small plots (5 x 50 feet) was used. Treatments were 15-inch row-spaced soybeans intercropped into wheat in 15-inch rows alongside 7.5- and 15-inch row wheat with no soybeans. Wheat and soybeans were planted with a three-point hitch-mounted tool-bar planter equipped with Sunflower openers. Soybeans were interseeded on June 2. Wheat harvest was done on July 5 with a small plot combine.

Results

Table 1. Wheat Yields.

Treatments	Yield (bu/A)
7.5-inch row wheat	72.3 b
15-inch row wheat	70.8 b
15-inch row wheat interseeded	62.0 a
LSD (0.05) = 3.4 bu/A	
F value 24.6, CV 4.0%	

Means followed by the same letter are not statistically different.

Summary and Notes

Wheat yields at the two different row widths without modified relay intercropped soybeans were not significantly different from each other. However, wheat modified relay intercropped with soybeans yielded significantly less at a comparable wheat row width. This yield difference of about 12% is consistent with work done by other researchers (McCoy, S.M, T. J. Vyn, and T. D. West, Effect of Acrylic Polymer Seed Coating on the Feasibility of Relay Intercropping in Indiana, Purdue University) working with wide-row wheat in an intercrop system.

The difference in wheat yield may not be as large in narrower rows. Also, weather, as it affects wheat disease development and soil moisture, may impact wheat yield in a modified relay intercropping system.

For additional information, contact:

Steve Prochaska
The Ohio State University Extension
prochaska.1@osu.edu