Soybean Seeding Rate by Row Spacing Comparison

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Objective

To compare 5 soybean seeding rates by 2 row spacing for maximum over yield and gross profit less seed costs.

Background

Cooperator:	O.A.R.D.C. NW Branch		
County:	Wood	Fertilizer:	200lb/ac 10-26-26 fall 2010
Nearest Town:	Hoytville	Planting Date:	6-8-11
Drainage:	Tile, well-drained	Planting Rate:	see below
Soil type:	Hoytville, clay	Row Width:	7.5 in. and 15 in.
Tillage:	fall disk, harrow	Herbicides:	Envive, 2,4-D ester, Roundup Weathermax, liquid AMS
Previous Crop:	corn		
Variety:	Pioneer 93Y05	Harvest Date:	10-17-11
Soil test:	OM 3.4%, P 23 ppm, K 165 ppm, pH 5.9		

Methods

The entries were replicated four times in a randomized complete block design. Plot size- 10 x 70 feet each entry. Harvest data was collected from the center 6.5 feet of a 10 feet wide entry. All treatments received the same tillage, herbicide, and pre-season fertilizer applications. A White splitter planter was used for 15 inch row spacing. Seeding rate was drill or planter setting calibrated for population desired, harvest population was actual plant count.

Results

Treatment	Row Width	Seeding Rate Plants/acre	Harvest Population	Yield Bu/acre	
1	7.5 in	50,000	81,600	63.0	A
2	7.5 in	75,000	88,000	65.4	ABC
3	7.5 in	125,000	116,800	64.9	AB
4	7.5 in	175,000	131,200	69.5	CDE
5	7.5 in	225,000	150,400	69.8	DE
6	15 in	50,000	81,600	64.3	A
7	15 in	75,000	91,200	65.2	AB
8	15 in	125,000	147,200	68.7	BCD
9	15 in	175,000	193,600	71.9	DE
10	15 in	225,000	230,400	73.4	E

LSD (.05) 4.1

Seed Cost Table

All calculations on a per acre basis

Seed costs $0.43/ 1,000 seed x harvest population Market Price = $11.25 /bu

Treatment	Yield	Income	Seed Cost	Income Remaining
1	63.0	$708.75	$35.09	$673.66
2	65.4	$735.75	$37.84	$697.91
3	64.9	$730.12	$50.22	$679.90
4	69.5	$781.87	$56.42	$725.45
5	69.8	$785.25	$64.67	$720.58
6	64.3	$723.37	$35.08	$688.29
7	65.2	$733.50	$39.21	$694.29
8	68.7	$772.87	$63.30	$709.57
9	71.9	$808.87	$83.25	$725.62
10	73.4	$825.75	$99.07	$726.68

Summary

In all comparisons, row spacing did not have a significant effect on yield at the same seeding rate, however there were significant differences from lowest to highest seeding rate
The yield of 15 in row spacing at 125,000 seeding rate (68.7 bu/ac) was not significantly different vs 7.5 in row spacing at 225,000 seeding rate (69.8 bu/ac).

Regardless of row spacing, income remaining was not significantly different when comparing 175,000 vs 225,000 seeding rates (treatments 4,5,9,10).

Anticipated seed drop varied significantly form harvest population in some cases. This illustrates the need to properly calibrate planting equipment.

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