Seeding Rate and White Mold Development in Soybeans

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Objective

To evaluate the effect of seeding rate on white mold development in soybeans.

Background

Cooperator:	Jim Becher	Soil test:	Unavailable
County:	Auglaize	Fertilizer:	None
Nearest Town:	Wapakoneta	Planting Date:	June 4, 2002
Drainage:	Naturally well-drained	Planting Rate:	See treatments
Soil type:	Blount and Pewamo silt loam	Row Width:	7.5-inch
		Herbicides:	Roundup Ultra 1 qt/A + AMS
Tillage:	No till	Variety:	Asgrow AG3302
Previous Crop:	Corn	Harvest Date:	October 8, 2002

Methods

Experimental design was a randomized complete block with three treatments replicated five times. Treatments were three seeding rates: 110,000; 165,000; and 220,000 seeds/ A. A John Deere 750 Drill was used at planting. Plots were 30 feet wide and 400 feet long. The center of each plot (20 feet wide) was harvested for grain yield. Grain weight was estimated by a weigh wagon. A Dickey John tester was used for grain moisture. Yield was adjusted to 13% moisture. Harvest population was estimated by counting plants from four adjacent rows for 50 feet.

Results

Even though the field has a history of white mold, environmental conditions were not conducive for disease development. Thus, the results only discuss the relationship between grain yield and seeding rate.

Table 1. Soybean Grain, Harvest Moisture, and Population Response to Seeding Rate.[a]

Planted Population (seeds/A)	Yield (bu/A)	Harvest Moisture (%)	Harvest Population (plants/A)
165,000	42.8 a	11.4 a	141,622 b
220,000	42.4 a	11.2 b	169,431 a
110,000	39.8 b	11.2 b	80,359 c
LSD (0.05)	2	0.2	18,898
F-test	6.9	3.3	62

[a] Means followed by the same letter in the same column are not significantly different.

Discussion and Summary

The yield for the lowest seeding rate was statistically less than the other two treatments. However, the harvest population for the lowest seeding rate was 73% of the target population, whereas the other treatments were approximately 85%. The lack of stand establishment would affect the lowest seeding rate more than other treatments.

The results of this study would suggest that a grower might be able to reduce production costs by reducing seeding rate. Approximately $7/ A may be saved by reducing seeding rate 50,000 seeds/ A, assuming a 50 lb bag of Roundup Ready Soybeans cost $20, and 3,000 seeds/ lb. Estimating cash market price of $5.50 per bushel, the 165,000 seeds/ A rate would have resulted in 9 to 10 dollars per acre more profit than the other two seeding rates. Further studies are needed to determine if lower seeding rates might be used for years with larger yields.

For more information, contact:

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