

Wheat Seeding Rate Evaluation

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Objective

The objective of this study was to evaluate the yield response of one wheat variety to four different planting populations ranging from 1.2 to 2.1 million seeds per acre.

Background

Crop Year:	2009	Fertilizer(cont.):	195 lb/A 45-0-0 broadcast topdress (April 18)
Cooperator:	Farm Focus/Marsh Foundation	Herbicide:	none applied
County/Town:	Van Wert/Van Wert	Variety:	AgriPro Coker W1377
Soil Type:	Hoytville clay	Insecticide:	none applied
Drainage:	Nonsystematic tile	Row Width:	7.5 inches
Previous Crop:	Soybeans	Planting Rate:	see Methods
Tillage:	No-till	Planting Date:	October 2, 2008
Soil Test(2005):	pH 6.7, P 30 ppm, K 169 ppm	Harvest Date:	July 7, 2009
Fertilizer:	230 lb/A 14-14-14 surface broadcast (October 2)		

Methods

This study was set up with four different seeding rates replicated six times in a randomized complete block design. The seeding rates used in this trial were:

- 1) 1.2 million seeds/acre
- 2) 1.5 million seeds/acre
- 3) 1.8 million seeds/acre
- 4) 2.1 million seeds/acre

The study was planted on October 2, 2008 using a John Deere 750 no-till drill. The drill was calibrated for the proper seed drop for each target seeding rate based on the 13,200 seeds per pound seed count reported on the AgriPro Coker W1377 variety seed tag. Plot size was 28.5 feet wide by 300 feet long.

Head counts at harvest time were estimated on July 2 by counting the number of heads in one foot of row at six separate locations within each plot. These counts were converted to heads per acre. Harvest was accomplished with a John Deere 6620 combine equipped with a calibrated AgLeader PF3000 yield monitor. For each plot, grain weight was determined with a calibrated weigh wagon. Moistures were taken from the yield monitor average reading for each plot. All yields were adjusted to 13.5% moisture.

Results

Table 1. Harvest moisture, yield, and head count means.

Treatment	Moisture (%)	Yield (bu/A)	Head Count (heads/A)
1.2 million seeds/acre	13.3	97.2	2,919,500
1.5 million seeds/acre	13.3	98.6	2,859,500
1.8 million seeds/acre	13.2	99.0	2,964,000
2.1 million seeds/acre	13.2	101.3	3,101,500
LSD (P=0.05)	NS	NS	NS
CV(%)	1.1	3.2	7.4

NS= not significant

Summary

For this single-year wheat seeding rate study, there were no statistical differences among the treatments for moisture, yield, or head count. The head counts taken in this study would indicate that lower seeding rates were able to produce comparable number of heads per acre, and comparable yields to the higher seeding rates.

From an economic standpoint, each 300,000 seeds/acre increase in the seeding rate increased seed cost by \$6.75 per acre. This is based on the 2009 seed cost of \$31.50 for 1,400,000 seeds. This would require an additional 1.7 bushel/acre yield increase to pay for each additional 300,000 seeds planted based on a harvest time market price of \$4.00 per bushel for wheat.

According to Ohio State University agronomists, the optimum seeding rate is 1.2 to 1.6 million seeds per acre (18 to 24 seeds per foot of 7.5-inch row) when planting during the two weeks following the fly-safe date. During the third and fourth week after the fly-safe date, the optimum seeded rate is 1.6 to 2.0 million seeds per acre (24 to 30 seeds per foot of row). Fly-safe date for Van Wert County is September 26. Planting date for this trial was six days after the fly-free date. A similar study conducted at Farm Focus in 2008 (http://farmfocus.osu.edu/wheat_seeding_rate-08.pdf) indicated there were no significant differences in yield among the same seeding rate treatments.

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