

## Effect of Wheat Growth Habit, Seeding Rate and Row Spacing on Yield

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In the fall of 2008, we established a study at two locations, the Northwest branch of the OARDC and at Wooster, to evaluate the effect and interactions of variety growth habit, seeding rate and row spacing on wheat yield. The two locations were chosen because wheat plant height at the NW Branch is typically about 80 percent of the height at Wooster. We chose the Sunburst variety for its very erect growth habit, Porter Hybrids PH-47 for its intermediate growth habit and AgriPro W-1377 because of its defuse growth habit. All three varieties are of mid-season maturity, but Sunburst is about six inches shorter than the other varieties which are relatively tall.

Four seeding rates, 15, 20, 25, and 30 seeds per foot of row were planted in rows spaced either 7.5 or 15 inches apart. Both test sites were planted within eight days after the fly-safe date and winter survival was excellent at both test sites. The following table shows the effects of variety growth habit, seeding rate and row spacing on grain yield when the data from both locations are combined for analysis.

Variety	Row Spacing	Seeding Rate (seeds/ft of row)				
		15	20	25	30	Avg.
Sunburst	7.5	89.6	90.0	95.8	94.6	<b>92.5</b>
	15	79.7	86.6	89.6	89.6	<b>86.4</b>
	Avg.	<b>84.6</b>	<b>88.3</b>	<b>92.7</b>	<b>92.1</b>	<b>89.4</b>
W-1377	7.5	83.0	88.7	88.5	90.2	<b>87.6</b>
	15	75.5	80.8	81.9	82.8	<b>80.3</b>
	Avg.	<b>79.3</b>	<b>84.8</b>	<b>85.2</b>	<b>86.5</b>	<b>83.9</b>
PH-47	7.5	88.8	93.1	96.0	95.5	<b>93.3</b>
	15	81.6	87.2	90.0	88.6	<b>86.8</b>
	Avg.	<b>85.2</b>	<b>90.1</b>	<b>93.0</b>	<b>92.0</b>	<b>90.1</b>
	7.5	<b>87.1</b>	<b>90.6</b>	<b>93.4</b>	<b>93.4</b>	<b>91.1</b>
	15	<b>87.9</b>	<b>84.9</b>	<b>87.2</b>	<b>87.0</b>	<b>84.5</b>
Avg.	<b>83.0</b>	<b>87.7</b>	<b>90.3</b>	<b>90.2</b>	<b>87.8</b>	

**Results:** The LSD 0.10 for variety was 2.86 bu/ac, indicating that W-1377 produced less yield than the other varieties. The 7.5 inch row spacing produced a significantly higher yield than 15 inch row spacing, and the two highest seeding rates produced significantly higher yields than the two lowest seeding rates. Based on this data, the most profitable seeding rate, regardless of variety and row spacing, was between 20 and 25 seeds per foot of row or 1,500,000 and 750,000 seeds per acre in 7.5 inch and 15 inch rows, respectively. Variety, row spacing, and seeding rate would each likely have a larger effect on yield in years when yields were lower.