

HORTICULTURE AND CROP SCIENCE

Wheat To Beat- Final Report

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Wheat farmers are interested in a variety of management practices. However, implementing these practices on-farm is risky, costly, and time-consuming. ‘Wheat To Beat’ gives farmers an opportunity to test management practices at three Ohio State research farms.

Prior to planting wheat, we organized nine teams, corresponding to each Ohio Small Grain District (Figure 1). Each team selected management practices and products to be applied to wheat. We also had a ‘people’s choice’ team, where wheat farmers selected treatments via survey distributed through the AgCrops Team. These 10 teams were compared to a standard wheat practice of a 1.5 million seeds/acre seeding rate and 90 lb N/acre applied in the spring.

There are three categories of contest.

1. Highest yield- Awarded to the team with the highest yielding wheat
2. Highest profitability- Awarded to the team with the highest profitability
3. Highest quality- Awarded to the team with highest grain quality, considering discounts associated with grain shrinkage, drying, test weight, and deoxynivalenol

Ohio Small Grains Checkoff Board of Directors Sep 2024-Aug 2025

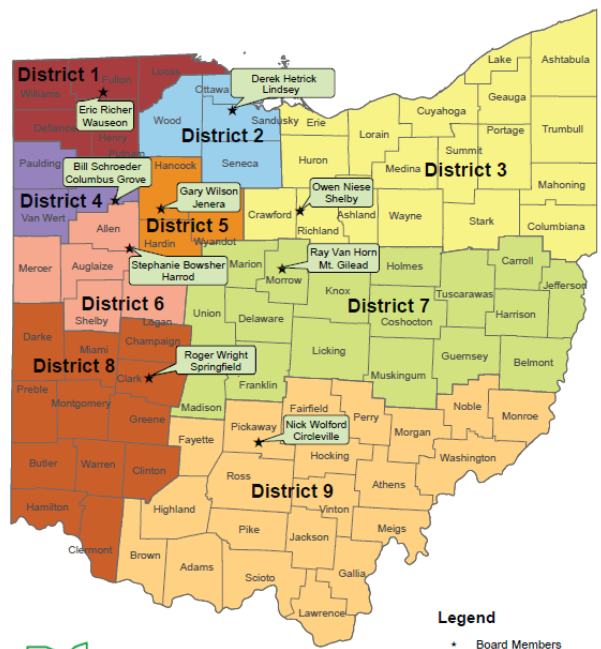


Figure 1. Ohio Small Grains Checkoff Board of Directors, showing 9 teams included in the ‘Wheat To Beat’ project.



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Table 1. Teams with highest yield at each location and across locations, 2024 and 2025. Within each column, grain yields are statistically the same. Yield of control treatment (1.5 million seeds/acre and 90 lb N applied in the spring) is shown for comparison.

Clark County	Wayne County	Wood County	Across Locations
115 bu/acre Team 10	105 bu/acre Team 7	115 bu/acre Team 7	111 bu/acre Team 7
114 bu/acre Team 7	105 bu/acre Team 10	112 bu/acre Team 10	111 bu/acre Team 10
Control- 95 bu/acre	Control- 87 bu/acre	Control- 87 bu/acre	Control- 90 bu/acre

Table 2. Teams with highest partial return at each location and across locations, 2024 and 2025. Within each column, partial returns are statistically the same. Yield of control treatment (1.5 million seeds/acre and 90 lb N applied in the spring) is shown for comparison.

Clark County	Wayne County	Wood County	Across Locations
\$492/acre Team 8	\$413/acre Team 5	\$452/acre Team 8	\$512/acre Team 9
\$478/acre Team 9	\$411/acre Team 10	\$450/acre Team 10	
\$472/acre Team 5	\$396/acre Team 8	\$443/acre Team 5	
\$471/acre Team 10	\$388/acre Team 9	\$432 Team 9	
		\$424 Team 7	
Control- \$464/acre	Control- \$414/acre*	Control- \$413/acre	Control- \$430/acre

*Control treatment yielded statistically the same as the highest yielding teams shown in the table.



Table 3. Teams with lowest grain quality discounts at each location and across locations, 2024 and 2025. Within each column, estimated discounts for grain quality are statistically the same. Yield of control treatment (1.5 million seeds/acre and 90 lb N applied in the spring) is

Clark County	Wayne County	Wood County	Across Locations
\$5.68/acre Team 7	\$1.49/acre Team 7	\$13.34/acre Team 3	\$7.56/acre Team 7
\$7.60/acre Team 5	\$2.82/acre Team 10	\$14.37/acre Team 5	\$8.47/acre Team 5
\$7.77/acre Team 8	\$3.44/acre Team 5	\$14.91/acre Team 4	
\$9.42/acre Team 3	\$5.76/acre Team 8	\$15.52/acre Team 7	
	\$6.14 Team 1	\$15.65/acre Team 2	
		\$16.05/acre Team 9	
		\$17.06/acre Team 6	
Control- \$9.69/acre*	Control- \$10.28/acre	Control- \$16.59/acre*	Control- \$12.19/acre

Note: Data does not include deoxynivaolenol (DON) discounts. DON was low in 2024, resulting in no discounts. 2025 DON results are not available yet, but will be added to the report once they are complete.

*Control treatment yielded statistically the same as the highest yielding teams shown in the table.

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Treatment list for each team

Team 1

- Seeding rate = 1.0 million seeds/acre
- Fall application of 10 lb S/acre
- Spring N (60 lb N + 60 lb N) as split application
- Foliar fungicide at anthesis

Team 2

- Seeding rate = 1.0 million seeds/acre
- Fall application of 10 lb S/acre and 10 lb N/acre
- Spring N (30 lb N + 90 lb N) as split application
- Foliar fungicide to flag leaf

Team 3

- Seeding rate = 1.0 million seeds/acre
- Fall application of 10 lb S/acre and 10 lb N/acre
- Spring N (30 lb N + 90 lb N) as split application
- Foliar fungicide to flag leaf

Team 4

- Seeding rate = 1.6 million seeds/acre
- Fall application of 15 lb S/acre
- Spring N application of 105 lb N/acre
- Foliar application of BushelMaxx foliar fertilizer
- Foliar fungicide application of Topguard + fungicide to flag leaf
- Utrisha N application

Team 5

- Seeding rate = 1.4 million seeds/acre
- Spring N application of 100 lb N/acre
- Foliar fungicide at anthesis

Team 6

- Seeding rate = 1.0 million seeds/acre
- Fall application of 20 lb N/acre and 5 lb S/acre
- Spring N application of 90 lb N/acre
- Foliar fungicide to flag leaf
- Plant growth regulator

Team 7

- Seeding rate = 2.0 million seeds/acre
- Fall application of 30 lb S/acre
- Spring N (60 lb N/acre + 45 lb N/acre + 25 lb N/acre) as split application
- Plant growth regulator
- Fungicide to flag leaf and at anthesis
- Insecticide

Team 8

- Seeding rate = 1.5 million seeds/acre
- Spring N application of 90 lb N/acre + 40 lb S/acre
- Foliar fungicide at anthesis

Team 9

- Seeding rate = 1.3 million seeds/acre
- Fall application of 20 lb N/acre + 15 lb S/acre + 10 lb Zn/acre
- Spring N application of 100 lb N/acre + 9 lb S/acre
- Fungicide to flag leaf

Team 10 (People's Choice)

- Seeding rate = 1.5 million seeds/acre
- Fall application of 30 lb N/acre + 15 lb S/acre
- Spring N application of 122 lb N/acre
- Fungicide to flag leaf and at anthesis

Team 11 (Control Treatment)

- Seeding rate = 1.5 million seeds/acre
- Spring N application of 90 lb N/acre

