

Effect of fungicide products on the performance of winter wheat
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A field trial was conducted to measure the effect of various fungicide products on wheat performance and disease severity. During early April, a randomized complete block design was superimposed onto a commercial stand of Hopewell soft red winter wheat. Several fungicide products were applied at various stages of wheat development. The treatments, including products, rates and timings, are listed in the table below. The fungicides were applied using a tractor mounted boom sprayer, 19 gallons of water per acre, a nonionic surfactant (0.125%) and 45 psi. The nozzles were TeeJet XR8003 for the foliar treatments and TwinJet 60 11003 for the flower (gs 10.51) treatments.

The trial was harvested with an International 2144 combine equipped with a Juniper HarvestMaster system that provided grain yield, test weight, and grain moisture. The DON levels are being determined by the University of Minnesota.

The wheat exhibited excellent early growth, uniformity, and vigor. Foliar diseases were apparent throughout the season and their ratings are reported in the table below. Powdery mildew developed early-on providing an opportunity on May 17 to rate the effects of early fungicide treatments. Leaf blotch (*Stagonospora nodorum*) was the most pronounced and significant disease, and was rated on June 14 on a relative scale of 1 to 5. During early senescence, a relative color score and the number of heads having visual evidence of Fusarium Head Blight were recorded.

Location: Stoutenburg Fms, Sandusky, MI
 Soil Type: Parkhill silt loam
 Soil pH: 6.5
 Previous crop: dry beans
 Plot area: 22 x 84 ft
 Treatment area: 20 x 84 ft
 Harvest area: 16.5 x 78.5 ft
 Planting date: Sept 25
 Harvest date: July 11
 Seeding rate: 1.8 m/ac
 Fert N rate: 90 lbs/ac N
 Herbicide: none
 Insecticide: none

Statistical analysis was performed by the Statistical Consulting Center at MSU. One-way ANOVA was performed to analyze differences in grain yield, moisture and test weight. There were no significant differences in test weight ($p < 0.05$). For yield and moisture, treatment means were compared using all-pairwise comparisons. The differences are illustrated in Figures 1, 2 and 3

Table: The effect of fungicides on winter wheat performance and disease severity, Sandusky, MI, 2010

Treatment	yield 13% M bu:ac	harv. moist %	test weight lbs	pow mildew ¹ % (DAT)	leaf blotch ² 1 to 5 (DAT)	color score ³ 1 to 5 (DAT)	FHB ⁴ #	DON ppm
untreated control	96.4 a	14.9 a	60.6	4.3	3.3	3.6	2.5	0.04
Headline, 4 oz, gs 5	102.5 bc	15.4 bc	60.3	0.5 (18)	3.3 (45)	3.2 (55)	0.8	0.07
Twinline, 9 oz, gs 9	100.1 ab	15.7 ab	60.1	—	1.5 (25)	2.4 (35)	2.0	0.07
Caramba, 13.5 oz, gs 10.5	102.9 bc	14.9 bc	60.5	—	1.9 (16)	2.3 (26)	1.0	0.03
Headline, 4 oz, gs 5 Caramba, 13.5 oz, gs 10.5	104.2 cd	15.2 cd	60.5	0.4 (18)	2.0 (45/16)	2.1 (55/26)	0.8	0.04
Stratego Pro, 2 oz, gs 6	100.9 abc	14.9 abc	60.6	0.8 (13)	2.5 (40)	3.3 (50)	2.3	0.09
Stratego Pro, 2 oz, gs 9	99.0 ab	15.0 ab	60.5	—	2.3 (25)	2.9 (35)	1.5	0.08
Prosaro, 6.5 oz, gs 9	105.9 d	15.3 d	60.3	—	1.0 (25)	2.7 (35)	2.5	0.05
Prosaro, 6.5 oz, gs 10.5	102.4 bc	15.4 bc	60.3	—	1.5 (16)	1.9 (26)	1.3	0.06
Stratego Pro, 2 oz, gs 6, Prosaro, 6.5 oz, gs 10.5	106.6 d	15.8 d	60.1	1.5 (13)	1.5 (40/16)	1.80 (50/26)	1.5	0.07
Kocide 3000, 0.75 lb, gs 5	97.3 a	14.4 a	60.8	4.5 (18)	4.0 (45)	3.6 (55)	2.3	0.06
Kocide 3000, 0.5 lb, gs 5 Headline, 3 oz, gs 5	99.8 ab	14.6 ab	60.7	1.3 (18)	3.8 (45)	3.6 (55)	3.0	0.07

¹ Powdery mildew rating as percent of third leaf having visual evidence of disease (1st leaf equates to flag leaf).

² *Stagonospora nodorum* relative rating from 1 to 5 with 1 denoting lowest disease level.

³ Color score as relative rating of 1 to 5 with 1 denoting brightest coloration.

⁴ Number of heads exhibiting Fusarium head scab in an area measuring 3 ft by 4 rows.

Figure 1: Effect of fungicide products on the grain yield of wheat, Sandusky, MI 2010

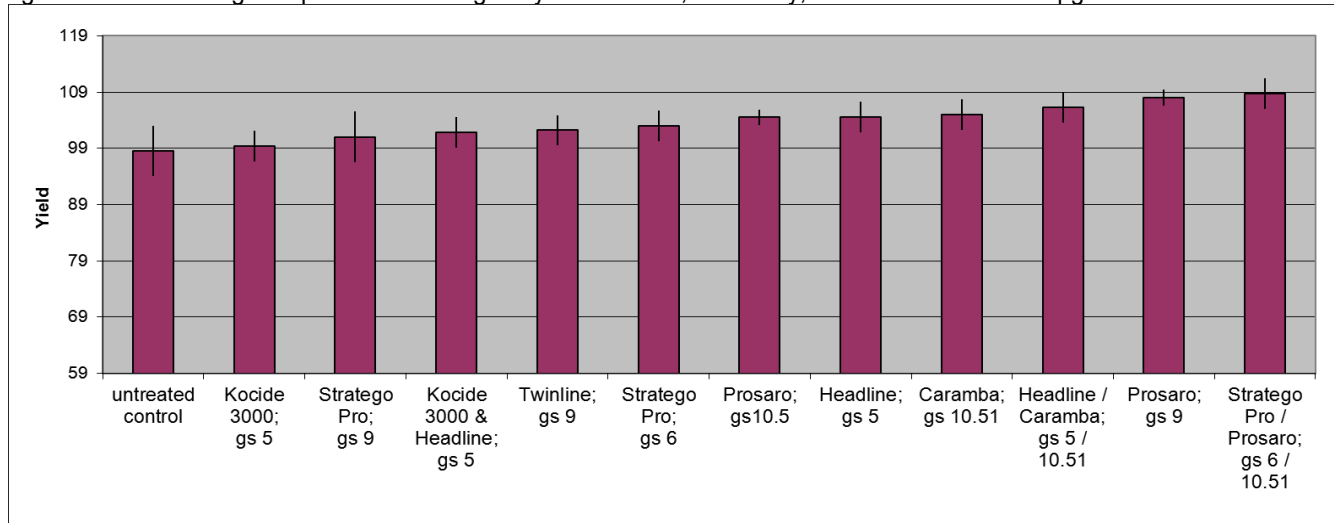


Figure 2: Effect of fungicide products on the grain test weight of wheat, Sandusky MI, 2010

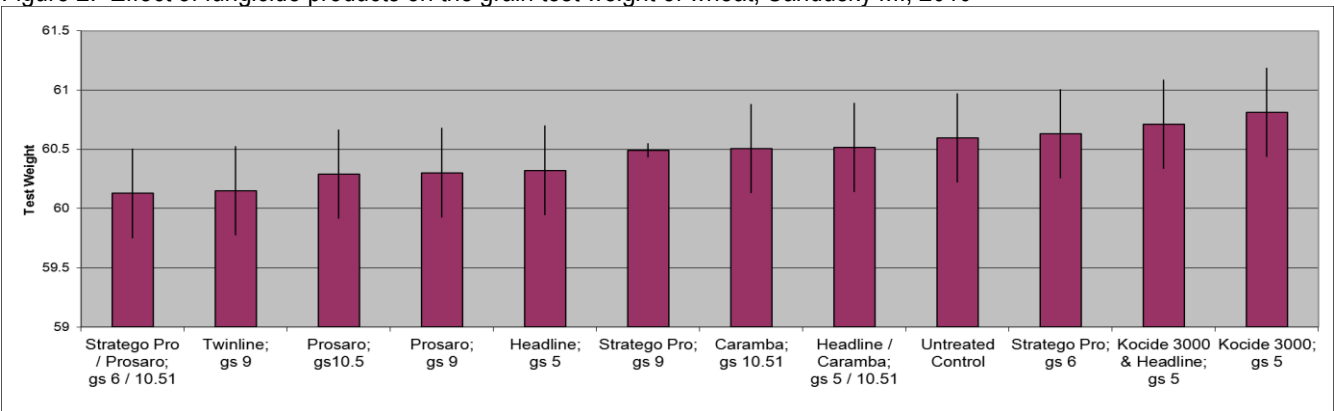


Figure 3: The effect of fungicide products on the grain yield of wheat, Sandusky, 2010

Figure 3: The effect of fungicides on the yield of winter wheat, Sandusky, MI, 2010

