

Effect of fungicides on the performance of winter wheat

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A field trial was conducted to measure the effect of selected fungicide products on wheat performance and disease severity. A randomized complete block design with four replications was superimposed on a commercial stand of Syngenta W1062 soft white winter wheat.

The fungicide products along with rates and timing are provided in the table below. The fungicides were applied using a tractor mounted boom sprayer. All products were applied with a nonionic surfactant (0.125). The first application timing (T1) was made on April 13 (Feekes growth stage 6) with 13 gallons of water per acre through TT11002 nozzles at 45 psi. The same settings were used on the second application (T2) made on May 11 (Feekes growth stage 9). The final treatment (T3) was applied on May 26 (Feekes growth stage 10.51) using TJ AI3070 nozzles, 15 gallons of water per acre at 45 psi.

Location:	JGDM McConnachie Farms , Deckerville, MI
Collaborators:	BASF, Dupont, & Bayer
Soil Type	Parkhill silt loam
Soil pH:	6.5
Previous crop:	soybeans
Variety:	Syn W1062
Nitrogen rate:	135 lbs/ac
Replications:	four
Plot area:	20 x 75 ft
Treatment area:	18 x 75 ft
Harvest area:	16.5 x 70 ft
Planting date:	Oct 7
Harvest date:	July 9
Seeding rate:	1.8 m/ac
Herbicide:	none
Insecticide:	none

Septoria tritici did develop to a limited extent and was rated at the milk stage on June 12. There were no symptoms of Fusarium head blight, so a D.O.N. analysis was not performed. The trial was harvested on July 9 using an International 2144 combine equipped with a Juniper HarvestMaster system that provided grain yield, test weight, and moisture. Statistical analysis was performed by the Statistical Consulting Center at MSU. All results are provided in the table (page 2).

Disease pressure was exceptionally light throughout the season primarily due to low rainfall and high evapotranspiration rates. *Septoria* leaf spot was the only disease of note and it was only able to spread to the second leaf. A relatively high rate of fertilizer nitrogen was used to encourage disease development. Unfortunately, some plant lodging occurred unrelated to fungicide treatments and may have added variability to the trial.

The use of fungicides improved yields by 0 to 8 bushels per acre. The exception was the Folicur treatment, where yields were reduced by 2 bushels. This may have been due to the use of product that was held over from a previous season. The use of multiple treatments of fungicides compared to a single treatment at T2 or T3 resulted in approximately 2 bushels additional yield.



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	Treatments	Timing ¹			Yield ² 13% M (bu:ac)	Harv ² moist (%)	Test ² weight (lbs)	lodging ² %	Septoria ^{2,3} leaf spot %
		T1	T2	T3					
1	untreated control	-	-	-	98.4 bc	13.4	61.5 a	11	13
2	Headline 3 oz Caramba 13.5 oz	x		x	104.4 ab	13.5	61.4 ab	17	5
3	Priaxor 3 oz Caramba 13.5 oz	x		x	105.0 a	13.9	61.2 b	3	3
4	Tilt 2 os Prosaro 6.5 oz	x		x	102.9 ab	13.9	61.3 ab	1	5
5	Approach 4 oz Vertisan 16oz Prosaro 6.5 oz	x	x	x	105.9 a	13.8	61.3 ab	7	3
6	Approach 4 oz Vertisan 16 oz	x	x		105.5 a	13.6	61.4 ab	2	6
7	Stratego 2 oz Prosaro 6.5 oz	x		x	106.4 a	13.8	61.3 ab	9	3
8	Vertisan 16 oz Prosaro 6oz		x	x	100.0 abc	13.6	61.4 ab	17	2
9	Approach 6 oz		x		98.4 bc	13.6	61.4 ab	5.3	7
10	Approach 6 oz Vertisan 20 oz		x	x	101.7ab	13.8	61.2 ab	17	5
11	Stratego 4 oz		x		102.1 ab	13.7	61.4 ab	15	5
12	Prosaro 6.5 oz		x		101.5 ab	13.7	61.4 ab	5	4
13	Caramba 13.5 oz			x	103.0 ab	13.4	61.5 a	20	6
14	Prosaro 6.5 oz			x	101.5 ab	13.7	61.3 ab	1	6
15	Prosaro 8.2 oz			x	101.0 abc	13.6	61.4 ab	6	7
16	Folicur 4 oz			x	96.3 c	13.5	61.4 ab	15	6

¹ T1 application: April 13, Feekes growth stage 6; T2 application: May 11, Feekes growth stage 9; T3 application: May 26, Feekes growth stage 10.51.

² Means with the same letter are not significantly different; P≥0.05.

³ Severity of Septoria on the 2nd leaf expressed as percent of leaf area exhibiting disease.

