

Effect of fungicides on the performance of winter wheat

Martin Nagelkirk, Michigan State University Extension, Sandusky, MI, 2011

A field trial was conducted to measure the effect of selected fungicide products on wheat performance and disease severity. A randomized complete block design was superimposed on a commercial stand of Pioneer 25R47 soft red 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 at 45 psi. Twinline and Caramba were applied with 0.125 % NIS and Approach with 0.250% NIS. Approach was applied at first node (Feekes growth stage 6) on May 9 using TJ XR 8003 nozzles and 19 gallons of solution. Twinline, Caramba, Vertisan were applied at flag (g.s. 9) on May 25. However, rain occurred immediately following this application and, therefore, reapplied on May 30 (g.s.9/10). These treatments used Turbo TeeJet 02 nozzles with 14 gallons of water per acre. Caramba and Vertisan were applied at early flowering (g.s. 10.51) on June 5 using TwinJet 11002 nozzles and 14 gallons of solution.

Location:	Stone Brothers Farm Sandusky, MI
Collaborator:	BASF & Dupont
Soil Type	Parkhill silt loam
Soil pH:	6.5
Previous crop:	soybeans
Variety:	P25R47
Nitrogen rate:	100lbs/ac
Plot area:	20 x 45 ft
Treatment area:	18 x 45 ft
Harvest area:	17 x 40 ft
Planting date:	Oct 7
Harvest date:	July 15
Seeding rate:	1.8 m/ac
Herbicide:	none
Insecticide:	none

The trial was harvested with an International 2144 combine equipped with a Juniper HarvestMaster system that provided grain yield, test weight, and moisture. Grain samples were collected and submitted to the University of Minnesota for DON level determination. Statistical analysis was performed by the Statistical Consulting Center at MSU.

The wheat stand exhibited very good uniformity and early growth. Despite excessive rainfall during April and May, foliar diseases did not develop during May and early June due to abnormally cool temperatures. A trace of powdery mildew could be found during the latter part of May, but it was not until late June that a small amount was visible on the flag leaf. Leaf spot (*Septoria tritici*) was the most pronounced and significant disease, but did not significantly develop on the upper two leaves until the third week of June. There were trace amounts of leaf rust and Fusarium head blight found just prior to senescence.

The data for yield, grain moisture and test weight between and within replications was disappointingly erratic. In part, it may be that the retreated plots were exposed to inconsistent levels of the respective fungicides.

Table 1: The effect of fungicides on winter wheat performance and disease severity, Sandusky, MI, 2011

Treatments	yield ² 13% M (bu/ac)	harv. ² moist (%)	test ² weight (lbs)	Septoria leaf spot % ¹			mildew % ¹ June 27 flag leaf	DON ppm
				June 16 (2 nd leaf)	June 27 (2 nd leaf)	June 27 (flag leaf)		
untreated control	93.5 b	15.4 b	60.6 a	2.3	24.8	1.0	0.5	.04
Twinline (9 oz/ac) @ flag (May 25/30)	98.3 ab	16.4 a	59.9 c	0	6.3	0	0	.08
Caramba (10 oz/ac) @ flag (May 25/30)	105.5 a	16.7 a	59.8 bc	0.3	4.5	0	0	.12
Twinline (9 oz/ac) @ flag (May 25/30) Caramba (13.5 oz/ac) @ flower (June 5)	98.2 ab	16.7 a	59.8 bc	0	5.0	0	0	.03
Approach (6 oz/ac) @ 1 st node (May 9) Vertisan (16 oz/ac) @ flag (May 25/30)	102.2 ab	16.4 ab	60.3 abc	0.3	6.3	0	0	.04
Approach (6 oz/ac) @ 1 st node (May 9) Vertisan (24 oz/ac) @ flower (June 5)	101.0 ab	16.0 a	60.0 b	0.5	11.3	0	0	.04

1. Percent of leaf area exhibiting disease

2. values within a column followed by the same letter are not statistically different (P =.05)

