

Efficacy of Fungicides to Fusarium Head Blight in Barley, Langdon 2015

Venkat Chapara¹, Andrew Friskop², and Amanda Arens¹

¹NDSU Langdon Research Extension Center, Langdon, ND and ²NDSU Plant Pathology Department, Fargo, ND

A field study was planted on April 29 at the NDSU Langdon Research Extension Center located in Langdon, ND. The trial experimental design was a randomized complete block with four replications. Plots were seven rows spaced at six inch row spacing and a row length of 20 feet trimmed to 15 feet for harvest. The variety 'Tradition' was seeded at a rate of 1.2 million pure live seeds/a. An untreated border plot was planted between treated plots to minimize interference from spray drift. The previous crop was hrsw. Huskie Complete (1 pt/a) + Prowl H₂O (2.7 pts/a) were used to control weeds. The plots were inoculated by spreading corn spawn inoculum at boot stage (Feekes 9-10) at a rate of 286g/plot. Supplemental moisture was provided by running overhead irrigation from Feekes 10.5 to 11.25 at the rate of one hour per day to provide a conducive environment for Fusarium Head Blight (FHB) development. Fungicides were applied with a CO₂ backpack sprayer equipped with a three nozzle boom (XR8001) operated at 40 psi delivering a water volume of 20 GPA. Fungicide application was made at Feekes 10.51 (10% flowering) on July 9 (wind speed 12 MPH, 75°F at 2:30pm).

Percent FHB incidence (INC) was calculated by counting the number of heads showing FHB symptoms from 50 randomly selected heads, excluding the two outer rows. FHB head severity (SEV) was rated using a 0-100% scale from those same heads. FHB index (FHBI) was calculated using the formula $FHBI=(SEV*INC)/100$. Plots were harvested on August 21 with a plot combine. Yield, test weight, percent plump and DON were determined. Statistical analysis was done using SAS. Fisher's least significant difference (LSD) was used to compare means at $P \leq 0.05$.

Results

The lowest FHB incidence, severity and index was observed in the treatments Teagro+Prosaro and Prosaro (Table 1). DON content was lowest with Prosaro. The treatment Teagro + Prosaro had the highest yield while the lowest yield was the untreated check.

Table 1. Fungicide effects on Fusarium head blight, yield, and various agronomic traits of barley, Langdon 2015.

Treatment	Rate of Application (fl oz/a)	Application Timing (Feekes)	Fusarium Head Blight			Yield (bu/a)	Test		
			% Incidence	% Severity	Index		Weight (lbs/bu)	DON (ppm)	Plump (%)
Muscle 3.6F	4+0.125% v/v	10.51	53	10.8	7.4	118.8	48.0	1.6	95
Caramba	13.5+0.125% v/v	10.51	61	15.8	10.7	105.9	47.3	1.3	91
Teagro + Prosaro	5.2 + 6.5	10.51	31	6.5	2.1	120.8	47.8	1.0	94
Prosaro	6.5+0.125% v/v	10.51	46	7.0	4.3	116.7	48.3	0.8	95
Untreated Check	-		63	17.1	12.9	103.6	47.2	2.4	91
Trial Mean			51	10.3	7.4	113.2	47.7	1.4	93
C.V. %			44.4	67.8	103.9	12.4	1.2	32.3	3.0
LSD 5%			10.6	10.8	11.5	21.2	0.9	0.7	4.2

All treatments were applied with NIS @ 0.125% v/v.