Management of Fusarium Head Blight in Barley

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This field study was planted on May 22 at the NDSU Langdon Research Extension Center. The experimental trial was designed in a randomized complete block with four replications. Plots were arranged in seven rows with six-inch row spacing and a row length of 20 feet trimmed to 15 feet for harvest. The cultivar 'ND - Genesis' barley 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 field peas. Pre-emergent herbicide Treflan @ 1.5 pt/a was applied before the research area was tilled. Huskie FX (18 oz/a) + Axial Bold (15 oz/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 300 g/plot. Supplemental moisture was provided by running overhead irrigation from Feekes 10.5 to 11.25 for one hour per day to provide a conducive environment for Fusarium Head Blight (FHB) development. Fungicides were applied with a CO_2 backpack sprayer equipped with a three-nozzle boom (XR8001) operated at 40 psi delivering a water volume of 15 GPA. Fungicide application was made at Feekes 10.51 (10% flowering) on July 9 (wind speed 10 MPH, 77^{O} F at 11:30 am).

Percent FHB incidence (INC) was calculated by counting the number of heads showing FHB symptoms from 50 randomly selected panicles/heads, excluding the two outer rows from each plot. FHB severity (SEV) on the heads rated using a 0-100% scale from the same 50 heads. FHB index (FHBI) was calculated using the formula FHBI=(SEV*INC)/100. Plots were harvested on August 29 with a plot combine. Yield, test weight, percent plump, and DON were determined. Statistical analysis was done using Agrobase Generation II software. Fisher's least significant difference (LSD) was used to compare means at p ($\alpha = 0.05$).

Results: There were significant differences in FHB (% Incidence, % Severity, Index and DON) between the non-treated control and the various fungicide treatments. There were no significant differences observed among the fungicide groups in the above-mentioned FHB categories. No significant differences were found in the yields and test weights (Table 1).

Table 1: Mean values of the variables tested on application of various fungicide treatments in barley.

				FHB			Yield	Test Weight
Treatment	**Rate (Oz/A)**	**% Incidence**	**% Severity**	**Index**	**DON (ppm)**	**Plump**	**(bu/A)**	**(lbs/bu)**
Non-Treated	0	36	10	3.8	3.1	99	78	46.0
Prosaro	8.2	7	4	0.3	0.6	99	85	46.7
Prosaro Pro (Low)	10.3	5	2	0.1	0.2	99	90	47.7
Prosaro Pro (High)	13.6	5	3	0.2	0.2	99	79	47.4
Miravis Ace	13.7	5	3	0.1	1.2	99	82	47.3
Sphaerex	7.3	5	3	0.2	0.3	99	81	46.8
	Mean	**10**	**4**	**0.8**	**0.93**	**99**	**83**	**47.0**
	CV (%)	**68**	**54**	**129**	**75**	**0.38**	**5.4**	**0.8**
	LSD	**10.5**	**3.4**	**1.6**	**1.0**	**NS**	**6.7**	**0.6**
	P-Value (0.05)	**0.0001***	**0.0021***	**0.0007***	**0.0002***	**NS**	**0.0271***	**0.0002***

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