Management of Fusarium Head Blight in Barley

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This field study was planted on May 14, 2025, at the Langdon Research Extension Center. The experimental trial was designed in a randomized complete block with four replications. Plots were arranged in six 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 canola. No pre-emergent herbicide 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 the boot stage (Feekes 9-10) at a rate of 300 g per 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. All fungicides were applied at the recommended stage, Feekes 10.51 (10% flowering), on July 5th, with a wind speed of 12 MPH and a temperature of 71°F at 12:30 pm. The initial treatment, consisting of Prosaro Pro, was followed by a second application of Proline four days later, on July 9th, under similar environmental conditions (wind speed: 12 MPH, 76°F at 12:30 pm).

Percent FHB incidence 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 on the heads was rated using a 0-100% scale from the same 50 heads. FHB index was calculated using the formula: Index=(SEV*INC)/100. Plots were harvested on September 2 with a plot combine. Yield, test weight, and percent plump were determined. Statistical analysis was done using Genovix Generation II software. Fisher's least significant difference (LSD) was used to compare means at p ($\alpha = 0.05$).

Results: Fusarium Head Blight was significantly lower in fungicide-treated plots compared to the non-treated check. However, no significant differences were observed among the fungicides applied alone at Feekes 10.51 and the Prosaro Pro treatment at Feekes 10.51, followed by Proline applied four days later. Additionally, yield, test weight, and plumpness percentage were significantly higher in fungicide-treated plots than in the non-treated check (Table 1).

Table 1: Efficacy of fungicides at various application timings to manage Fusarium Head Blight on barley.

		Fusarium Head Blight						
Treatments	**Rate (Oz/A)**	**% Incidence**	**% Severity**	**INDEX**	**DON**	**Plump (%)**	**Yield lbs/A**	**Test Weight lbs/bu**
Non-Treated Check	Check	92	22	20	14	97	83	45
Prosaro Pro	10.3	25	3	0.8	2	98	100	47
Prosaro Pro	13.6	20	2	0.4	3	98	96	47
Miravis Ace	13.7	22	2	0.4	5	99	94	47
Sphaerex	7.3	25	2	0.7	2	98	91	46
Prosaro Pro fb Proline	10.30 + 5	22	2	0.5	3	99	95	47
	Mean	**34**	**5**	**4**	**5**	**98**	**93**	**46**
	CV%	**28**	**34**	**45**	**53**	**1**	**5**	**2**
	LSD	**14**	**3**	**3**	**4**	**1**	**7**	**1**
	P-Value (0.05)	**0.00001***	**0.00001***	**0.00001***	**0.00001***	**0.0450***	**0.0041***	**0.0052***

Note: All treatments of fungicide were mixed with an adjuvant; Induce @ 0.125% v/v.

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