

## Evaluation of Bio-Fungicide to Manage White Mold on Dry Beans

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With an objective to evaluate the performance of fungicides to manage white mold in dry beans, a research trial was conducted at the Langdon Research Extension Center. The trial was planted on May 16, 2019 with dry bean variety “Palomino” in a randomized complete block design with 4 replications. The trial location followed state recommended practices for land preparation, fertilization, seeding rate and weed control. The plot size was 5 ft. x 16 ft. with a dry bean border on both sides of each plot. The trial was irrigated with an overhead sprinkler system set at one hour each day beginning one week before the start of bloom to four weeks after bloom to help increase disease infection levels. A bio-fungicide was tested at different rates, applied at 100% bloom using a CO<sub>2</sub>-pressurized backpack style sprayer with a three-nozzle boom (XR-8002) at 15 GPA, and repeated 15 days after first spray. The amount of white mold infection obtained in the research plots was natural. Fifty plants were rated within each plot and the levels of incidence and severity were recorded for each plant prior to swathing (August 12) on a 0-5 scale, where 1 = superficial lesions or small branch infected; 2 = large branch(es) dead; 3 = main stem at least 50% girdled; 4 = stem girdled but plant produced good seed; 5 = main stem girdled, much reduced yield. A white mold disease severity index (DSI) was calculated with weighted mean of incidence and number of plants in each severity rating.

**Table 1:** Efficacy of commercially available fungicides in managing white mold and their influence on yield and test weight.

Treatments	Rate (oz/A)	White Mold		Yield (bu/A)	Test Weight (lbs/bu)
		% Incidence	DSI (1-5)		
T-77 LOW RATE	3.5	10.6	2.3	46.18	58.89
T-77 STANDARD RATE	7	19.38	3.44	49.27	59.28
T-77 HIGH RATE	10.5	10	2.55	56.91	59.16
PROLINE + T-77 STANDARD RATE	4.3 + 7	5	2.96	69.18	59.2
PROLINE	4.3	6.25	2.06	61.52	59.09
NON-TREATED CONTROL	CHECK	26.25	4.1	55.08	59.79
	Mean	12.92	2.9	56.36	59.23
	CV%	100	60.3	11.97	1.17
	LSD	NS	NS	8.36	NS
	p-Value (0.05)	NS	NS	0.0028*	NS

\* indicates treatments are statistically significant

**Results:** The results indicate that there were no significant differences in white mold incidence or in disease severity index (DSI) obtained among the fungicides tested and the non-treated check (p-Value non-significant). However, there were significant differences observed among the treatments when yields were compared ( $p < 0.05$ ).

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