

Management of White Mold of Dry Bean Using Fungicides

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A research trial was conducted at the Langdon Research Extension Center with an objective to evaluate the performance of fungicides to manage white mold in dry bean. The trial was planted on May 27, 2021 with the dry bean cultivar ‘Palomino’ in a randomized complete block design replicated four times with 30 inch row spacing. The trial followed state recommended practices for land preparation, fertilization, seeding rate and weed control. The plot size was 5 ft. wide x 16 ft. long with a dry bean border on either side 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. Fungicides were applied when 50 to 100 percent of the plants had one or more flowers and small pods of less than 1/4 inch long using a CO₂-pressurized backpack style sprayer with a three-nozzle boom (XR-8002) at 20 GPA. 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 on August 25 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 = main stem girdled but plant produced good seed; 5 = main stem girdled, much reduced yield. A white mold mean disease severity index (MDS) was calculated with a weighted mean of incidence and the number of plants in each severity rating.

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

Treatments	Rate (oz/a)	Incidence (%)	MDS (0-5)	Yield (lbs/a)	Test Weight (lbs/bu)
NON-TREATED CHECK	CHK	30	0.07	2989	59
PROLINE	5.7	26	0.6	2719	58
EXPERIMENTAL-1	9.6	32	0.91	3145	59
EXPERIMENTAL-2	10.9	33	0.71	2957	59
QUADRIS	15.5	33	0.85	3284	58
ENDURA	6	6	0.06	3383	59
INCOGNITO	1.6	16	0.23	3396	59
EXPERIMENTAL-3	12	13	0.26	2744	59
Mean		23	0.54	3077	59
CV%		88	96	14	1
LSD		NS	NS	NS	NS
P-Value (0.05)		NS	NS	NS	NS

Results: No significant differences in white mold incidence, mean disease severity index, test weight, or yield were observed among the fungicides tested and the non-treated check.

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