

Field Evaluation of Fungicides for Control of White Mold on Dry Beans

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Several new fungicides are registered or will be registered soon for Sclerotinia control on dry beans, and the efficacy of these products relative to older chemistries is poorly understood.

'Lariat' pinto beans were seeded on May 28 with 91,950 pure live seeds/ac on a site with a recent history of Sclerotinia epidemics. Plots were 5 ft x 20 ft at harvest, and treatment plots were separated by non-treated buffer plots. The experimental design was a completely randomized split-plot with five replicates and row spacing as the main factor. To facilitate disease development, the trial was irrigated with microsprinklers during bloom. Fungicides were applied with a 56-inch hand boom equipped with four equally spaced Spraying Systems TeeJet XR 8001VS flat-fan nozzles at a spray volume of 15 gal water/ac and operated at 35 psi. The beans were manually pulled on October 4 and harvested October 24; cool, wet weather delayed harvest.

Under the high Sclerotinia disease pressure observed in this trial, yields were maximized with an application of Topsin (40 fl oz/ac) at canopy closure followed by Endura (8 oz/ac) 14 days later. This rotational strategy, which was also one of the best treatments in a similar trial in 2012, performed better than two sequential applications of Endura and exhibited a trend towards increased yield relative to two applications of Topsin. Two sequential applications of Topsin (40 fl oz/ac followed by 30 fl oz/ac), Omega (0.85 pt/ac), Endura (8 oz/ac), and ProPulse (10.3 fl oz/ac) resulted in higher yields than two sequential applications of Rovral (2 pt/ac), Switch (14 oz/ac), Proline (5.7 fl oz/ac), Quash (2.5 oz/ac), and Aproach (12 fl oz/ac). All fungicides except Quash (2.5 oz/ac) and Aproach (12 fl oz/ac) increased yields relative to the non-treated control.

Description (application timing) ^z	Combined analysis		Narrow (14-inch) rows		Wide (28-inch) rows	
	Sclerotinia severity: ^y	Yield:	Sclerotinia severity: ^y	Yield:	Sclerotinia severity: ^y	Yield:
	Sept. 3-6	13.5% moisture	Sept. 3-6	13.5% moisture	Sept. 3-6	13.5% moisture
	% of canopy	lbs/ac	% of canopy	lbs/ac	% of canopy	lbs/ac
Topsin 4.5FL 40 fl oz/ac (A) / Endura 70WG 8 oz/ac (B)	31 a *	3067 a *	31 abc *	3106 a *	31 abc *	3028 a *
Endura 70WG 8 oz/ac (A) / Topsin 4.5FL 40 fl oz/ac (B)	29 a	2944 ab	30 abc	3074 ab	27 ab	2814 ab
Topsin 4.5FL 40 fl oz/ac (A) / Topsin 4.5FL 30 fl oz/ac (B)	32 a	2873 abc	36 abc	2915 abc	28 ab	2832 ab
Omega 500F 0.85 pt/ac (A,B)	30 a	2742 bcd	36 abc	2783 bcd	23 a	2701 bc
Endura 70WG 8 oz/ac (A,B)	33 a	2722 cd	28 ab	2789 bcd	37 bcd	2656 bc
ProPulse 400SC 10.3 fl oz/ac + NIS ^x (A,B)	30 a	2676 cde	30 abc	2802 abc	30 abc	2549 bcd
Cannonball 50WP 7 oz/ac (A,B)	34 ab	2532 def	37 abc	2483 def	31 abc	2581 bcd
Priaxor 500SC 8 fl oz/ac (A,B)	29 a	2479 ef	25 a	2668 cde	34 a-d	2290 de
Rovral 4F 2.0 pt/ac (A,B)	36 abc	2455 f	36 abc	2437 efg	37 bcd	2472 cd
Switch 62.5WG 14.0 oz/ac (A,B)	34 ab	2411 f	41 bcd	2362 efg	26 ab	2459 cd
Proline 480SC 5.7 fl oz/ac + NIS ^x (A,B)	45 cd	2344 f	43 bcd	2379 efg	46 d	2309 d
Quash 50WDG 2.5 oz/ac + NIS ^x (A,B)	44 bcd	2089 g	45 cd	2183 fgh	43 cd	1995 ef
Aproach 2.08SC 12 fl oz/ac + NIS ^x (A,B)	38 abc	2048 g	37 abc	2168 gh	38 bcd	1927 f
Non-treated (water; A,B)	50 d	1967 g	54 d	1984 h	45 d	1949 f
	P > F:	0.0004	< 0.0001	0.0371	< 0.0001	0.0196
	CV:	32.9	9.5	32.7	9.4	31.1

^zFungicide applications: (A) August 5, at or shortly before canopy closure, R2 to early R3 growth stage, no Sclerotinia present
(B) August 19, R5 growth stage, moderate levels of Sclerotinia in non-treated plots.

^ySclerotinia severity: Percent of the canopy diseased at the R7 growth stage; assessed by evaluating 40 plants per plot.

^xNIS: A non-ionic surfactant was applied at 0.125% v/v for Proline and ProPulse and at 0.25% v/v for Aproach and Quash.

* Within-column means followed by different letters are significantly different ($P < 0.05$; Fisher's protected least significant difference).