

Field Evaluation of New Versus Traditional Fungicides for Management of White Mold in Dry Beans

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Identifying which fungicides to use for white mold management on dry edible beans is getting more difficult as additional products are registered. The relative performance of the fungicides with current or anticipated registration is poorly understood; side-by-side comparisons have not been made.

All fungicides with current or anticipated registration for white mold control on dry beans were tested in Carrington and Langdon in 2012 using 'Maverick' pinto beans planted to 30-inch rows. Planting date was May 17 in Langdon and May 24 in Carrington. A subset of these fungicides was also tested in a second trial planted June 15 in Carrington. In this trial, 'Othello' pintos were seeded to 14-inch rows.

In the trials planted in May, the beans entered bloom in early to mid-July when temperatures were not favorable for white mold. Much of the yield potential was already determined by the time temperatures moderated in August and white mold became severe; consequently, yield responses to fungicides were low. Yield responses to fungicides were much higher in the trial planted in mid-June; in this trial, the beans were in full flower when white mold pressure was high.

Under conditions of high disease pressure (narrow row spacing and disease onset during full bloom), Endura (8 oz/A) performed well. Under conditions of moderate disease pressure (wide row spacing and disease onset during pod-fill), ProPulse (8.6 or 10.3 fl oz/A) and Endura (8 oz/A) performed well. In both environments, Topsin (30 and 40 fl oz/ac) also performed fairly well.

High environmental variability otherwise made it difficult to assess fungicide efficacy in these trials. To address this problem, the size of future trials will be reduced by testing application rates and side-by-side comparisons separately.

CARRINGTON
15-inch rows
'Othello' pinto beans

Within-column means followed by different letters are significantly different. (P < 0.05; Tukey multiple comparison procedure)
Fungicide application timing:
A: July 25, 2012 at 100% bloom
B: August 7, 2012

Fungicide	Sclerotinia Severity Index percent	Yield lbs/ac
Endura 70WG 8.0 oz/ac (A,B)	10	3009
Topsin 4.5FL 40 fl oz/ac (A,B)	26	2917
Topsin 4.5FL 30 fl oz/ac (A,B)	35	2602
Omega 500F 0.85 pt/ac (A,B)	30	2310
ProPulse 400SC 8.6 fl oz/ac (A,B)	43	2291
Non-treated check - water (A,B)	46	2271
Topsin 4.5FL 20 fl oz/ac (A,B)	48	2350
Proline 480SC 5.7 fl oz/ac (A,B)	53	1982

F: 4.50
P > F: 0.0061
CV: 36.4

CARRINGTON 30-inch rows 'Maverick' pinto beans
LANGDON 30-inch rows 'Maverick' pinto beans

Within-column means followed by different letters are significantly different. (P < 0.05; Tukey multiple comparison procedure)
Fungicide application timing:
A = bloom initiation (100% bloom)
B = 13 days after application A

Fungicide	Carrington Sclerotinia Severity Index percent	Carrington Yield lbs/acre	Langdon Sclerotinia Severity Index percent	Langdon Yield lbs/acre
ProPulse 400SC 10.3 fl oz/A (A,B)	6	3191	13	4435
ProPulse 400SC 8.6 fl oz/A (A,B)	2	2898	16	4179
Topsin 4.5FL 40 fl oz/A (A,B)	5	3421	18	4399
Topsin 4.5FL 30 fl oz/A (A,B)	5	3174	17	3916
Endura 70WG 8.0 oz/A (A,B)	2	3154	21	4115
Omega 500F 0.85 pt/A (A,B)	10	3685	18	3632
Topsin 40 fl oz/A (A) / Endura 70WG 8.0 oz/A (B)	2	3283	25	4158
Switch 62.5WG 14.0 oz/A (A,B)	5	3029	26	4065
Rovral 4F 2.0 pt/A (A,B)	7	2966	24	4186
Topsin 20 fl oz/A + Quash 2.0 oz/A (A,B)	4	3435	28	4207
Topsin 20 fl oz/A (A,B)	8	3274	25	4040
Proline 480SC 5.7 fl oz/A (A,B)	14	3428	24	4012
Approach 2.08SC 12 fl oz/A (A,B)	9	3198	28	4005
Endura 8.0 oz/A (A) / Topsin 40 fl oz/A (B)	12	3571	29	4072
Vertisan 200EC 20 fl oz/A (A,B)	15	2886	28	3902
Quash 50WDG 2.5 oz/A (A,B)	17	3057	34	3770
Quash 50WDG 2.0 oz/A (A,B)	16	3086	37	4087
Non-treated check - water (A,B)	24	2906	30	3593

F: 2.91
P > F: 0.0035
CV: 78.4

F: 1.32
P > F: 0.2367
CV: 12.4

F: 2.24
P > F: 0.7593
CV: 13.0