Improving management of white mold in dry beans: Comparative **fungicide efficacy:** Proline

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Improving white mold management in dry beans:
Comparative fungicide efficacy – methods

Market class = pinto in most studies; kidney in some studies

Row spacing = 14 inches in most studies

Seeding rate = 90,000 viable seeds/ac in most studies; sometimes 80,000 viable seeds/ac

Fungicide spray volume = 15 gal/ac.

Fungicides applied with a hand-held boom pressurized by CO_2.

Fungicide spray droplet size: fine or medium in studies conducted from 2010-2021; fine, medium or coarse, calibrated relative to canopy characteristics, from 2022-2024.

Number of fungicide applications: two

Application timing, first fungicide application: early bloom and initial pin pod-pod

Interval between fungicide applications: 7 to 14 days later, depending on study

Number of experimental replicates = 5 or 6 replicates (most studies)

White mold assessment: Assessed at/ near dry bean maturity by evaluating every plant individually in for percent of the plant impacted by white mold in a minimum half of the plot.

Harvest: To ensure that variability in dry bean standability did not bias yields, plants were clipped at base concurrent with disease assessments, wind-rowed to dry, and manually lifted into the combine.

Supplemental irrigation: Supplemental overhead irrigation was applied as needed to establish the white mold disease pressure needed to evaluate fungicide performance.

Fungicide efficacy summaries:

Testing was conducted with two sequential applications of the same fungicide with the goal of rigorously assessing comparative efficacy.

These comparative efficacy results are provided to help facilitate informed decisions for selecting products for application once or twice in-season, either alone or in rotation with another fungicide.

Comparative fungicide efficacy: white mold in dry edible beans

Two sequential applications of the same fungicide,
initial pin-pod + 6-14 days later

Endura 8 oz vs. **Proline** 5.7 fl oz

Combined analysis across nine studies
Carrington and Langdon, ND (2012, 2013, 2019)

	WHITE MOLD Severity index % of canopy	**DRY BEAN YIELD** lbs/ac
Non-treated control	**45** b	**2530** b
Endura 8 oz/ac	**20** a	**3158** a
Proline 5.7 fl oz/ac	**39** b	**2797** b
CV:	23.0	8.4

Within-column means followed by different letters are significantly different. ($P < 0.05$; Tukey procedure).

Comparative fungicide efficacy: white mold in dry edible beans

Two sequential applications of the same fungicide,
initial pin-pod + 13 or 14 days later

Topsin 30 fl oz vs. **Proline** 5.7 fl oz/ac

Combined analysis across six studies

Carrington and Langdon, ND (2012, 2013, 2014)

	WHITE MOLD Severity index % of canopy	**DRY BEAN YIELD** lbs/ac
Non-treated control	**49** b	**2463** b
Topsin 30 fl oz/ac	**29** a	**2904** a
Proline 5.7 fl oz/ac	**43** b	**2612** ab
CV:	16.9	8.3

Within-column means followed by different letters are significantly different. ($P < 0.05$).

Comparative fungicide efficacy: white mold in dry edible beans

Two sequential applications of the same fungicide,
initial pin-pod + 6-14 days later

Proline 5.7 fl oz vs. **ProPulse** 10.3 fl oz

Combined analysis across eight studies

Carrington and Langdon, ND (2009, 2010, 2012, 2013, 2014)

	WHITE MOLD Severity index % of canopy	**DRY BEAN YIELD** lbs/ac
Non-treated control	**58** c	**2305** b
ProPulse 10.3 fl oz/ac	**39** a	**2930** a
Proline 5.7 fl oz/ac	**48** b	**2723** a
CV:	8.6	8.0

Within-column means followed by different letters are significantly different. ($P < 0.05$; Tukey procedure).

Comparative fungicide efficacy: white mold in dry edible beans

Two sequential applications of the same fungicide,
initial pin-pod + 6-14 days later

Proline 5.7 fl oz vs. **ProPulse** 8.6 fl oz

Combined analysis across six studies

Carrington and Langdon, ND (2010, 2012, 2013, 2014)

	WHITE MOLD Severity index % of canopy	**DRY BEAN YIELD** lbs/ac
Non-treated control	**52** b	**2628** a
ProPulse 8.6 fl oz/ac	**39** a	**2939** a
Proline 5.7 fl oz/ac	**47** b	**2895** a
CV:	8.6	8.0

Within-column means followed by different letters are significantly different. ($P < 0.05$; Tukey procedure).

Comparative fungicide efficacy: white mold in dry edible beans

Two sequential applications of the same fungicide,
initial pin-pod + 13 or 14 days later

Omega 13.6 fl oz vs. **Proline** 5.7 fl oz/ac

Combined analysis across six studies

Carrington and Langdon, ND (2012, 2013)

	WHITE MOLD Severity index % of canopy	**DRY BEAN YIELD** lbs/ac
Non-treated control	**41** b	**2541** b
Proline 5.7 fl oz/ac	**37** b	**2822** ab
Omega 13.6 fl oz/ac	**24** a	**3022** a
CV:	15.0	9.0

Within-column means followed by different letters are significantly different. ($P < 0.05$).

Improving white mold management in dry beans:

Comparative fungicide efficacy – Proline

Conclusions from comparative efficacy testing

Applied as two sequential applications to dry beans at full bloom / early pod and 6-14 days later,

Proline (5.7 fl oz) **was less effective than**

Topsin (30 fl oz),

Endura (8 oz),

ProPulse (8.6 or 10.3 fl oz)

and **Omega** (13.6 fl oz).




People

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