



Improving management of white mold in soybeans: Comparative fungicide efficacy – Delaro Complete

Michael Wunsch

North Dakota State University Carrington Research Extension Center

Improving white mold management in soybeans: Comparative fungicide efficacy – fundamental concepts

This is an abbreviated summary of comparative fungicide efficacy in field trials conducted from 2019-2024.

Included are all studies conducted 2019 to 2024. Starting in 2019, fungicide spray droplet size was calibrated relative to soybean canopy closure in all soybean white mold fungicide efficacy testing in Carrington and Oakes, ND.

Full results are available in the accompanying PDF fungicide efficacy testing results posted online at <https://www.ndsu.edu/agriculture/ag-hub/research-extension-centers-recs/carrington-rec/research/plant-pathology> (or search for 'NDSU Carrington plant pathology').

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Calibrating fungicide droplet size relative to soybean canopy closure is critical.

Calibrating fungicide droplet size relative to canopy closure sharply improves the performance of all fungicides for white mold management in soybeans and is particularly important for fungicides with intermediate efficacy.

The magnitude of the difference between the most effective fungicides and fungicides with intermediate efficacy is reduced when spray droplet size is optimized relative to soybean canopy closure.

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Improving white mold management in soybeans:

Comparative fungicide efficacy – methods

Soybean row spacing = 14”.

Seeding rate = 140,000 or 165,000 viable seeds/ac.

Spray volume = 15 gal/ac.

Fungicides applied with a hand-held boom pressurized by CO₂.

Spray droplet size: Fungicides applied with TeeJet nozzles emitting fine droplets when average canopy closure < 80%, medium droplets when average canopy closure was between 80 and 90%, medium-coarse or coarse droplets when average canopy closure was between 90 and 97%, and coarse droplets when canopy closure average 97-100%.

Number of experimental replicates = 6

White mold assessment: Assessed at soybean maturity by evaluating every plant individually in 1 or 2 rows/plot (entire length of row) for the percent of the plant impacted by white mold.

Application timing: when conditions favor white mold as soybeans enter bloom, 100% R2 or canopy closure, whichever occurred first; when conditions did not favor white mold as soybeans entered bloom, early/full R3; second application (when made) 7 to 14 days later.

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

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TWO FUNGICIDE APPLICATIONS

Delaro Complete 8 fl oz/ac > Endura 6 oz/ac

COMBINED ANALYSIS ACROSS 6 STUDIES Carrington, ND (2021, 2022, 2023, 2024) Endura: boscalid (FRAC 7) Delaro Complete: fluopyram (FRAC 7), prothioconazole (FRAC 3), trifloxystrobin (FRAC 11)		Two sequential fungicide applications 7 or 9 or 11 days apart	
	White mold Incidence % plants	White mold Severity Index % canopy	Soybean Yield bu/ac
Non-treated control	50 b	32 b	50 b
Endura 6 oz/ac	28 a	16 a	55 ab
Delaro Complete 8 fl oz/ac	25 a	14 a	58 a
CV:	20.6	29.2	6.8

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TWO FUNGICIDE APPLICATIONS

Endura 8 oz/ac > Delaro Complete 8 fl oz/ac

COMBINED ANALYSIS ACROSS 5 STUDIES
Carrington, ND (2023, 2024)
Endura: boscalid (FRAC 7)
Delaro Complete: fluopyram (FRAC 7), prothioconazole (FRAC 3), trifloxystrobin (FRAC 11)

Two sequential fungicide applications
7 or 9 or 11 days apart

	White mold Incidence % plants	White mold Severity Index % canopy	Soybean Yield bu/ac
Non-treated control	55 c	30 b	52 b
Endura 8 oz/ac	21 a	9 a	62 a
Delaro Complete 8 fl oz/ac	29 b	14 a	59 a
CV:	13.1	20.2	6.1

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TWO FUNGICIDE APPLICATIONS

Delaro Complete 8 fl oz/ac > ProPulse 6 fl oz/ac

COMBINED ANALYSIS ACROSS 3 STUDIES

Carrington, ND (2022, 2023, 2024)

ProPulse: fluopyram (FRAC 7) + prothioconazole (FRAC 3)

Delaro Complete: fluopyram (FRAC 7), prothioconazole (FRAC 3), trifloxystrobin (FRAC 11)

**Two fungicide applications
7 or 9 or 11 days apart**

	White mold Incidence % plants	White mold Severity Index % canopy	Soybean Yield bu/ac
Non-treated control	61 b	40 b	43 a
ProPulse 6 fl oz/ac	37 a	22 a	51 a
Delaro Complete 8 fl oz/ac	34 a	20 a	53 a
CV:	15.3	4.4	10.9

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TWO FUNGICIDE APPLICATIONS

Delaro Complete 8 fl oz/ac > Miravis Neo 13.7 fl oz/ac

COMBINED ANALYSIS, 3 STUDIES

Carrington, ND (2021, 2022, 2024)

Endura: boscalid (FRAC 7)

Miravis Neo: pydiflumetofen (FRAC 7), azoxystrobin (FRAC 11), propiconazole (FRAC 3)

Delaro Complete: fluopyram (FRAC 7), trifloxystrobin (FRAC 11), prothioconazole (FRAC 3)

**Two sequential fungicide applications
7 or 9 or 11 days apart**

Revytek: mefentrifluconazole (FRAC 3)

	White mold Incidence % plants	White mold Severity Index % canopy	Soybean Yield bu/ac
Non-treated control	54 c	38 b	45 b
Revytek 8 fl oz/ac	50 bc	33 ab	48 ab
Miravis Neo 13.7 fl oz/ac	47 abc	30 ab	51 ab
Endura 6 oz/ac	30 ab	19 a	54 ab
Delaro Complete 8 fl oz/ac	28 a	17 a	56 a

CV:

19

23.9

6.6

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TWO FUNGICIDE APPLICATIONS

Delaro Complete 8 fl oz/ac > Aproach 8.5 fl oz/ac

COMBINED ANALYSIS ACROSS 2 STUDIES

Carrington, ND (2023, 2024)

Aproach: picoxystrobin (FRAC 11)

Endura: boscalid (FRAC 7)

Delaro Complete: fluopyram (FRAC 7), prothioconazole (FRAC 3), trifloxystrobin (FRAC 11)

Two sequential fungicide applications
7 or 11 days apart

	White mold Incidence % plants	White mold Severity Index % canopy	Soybean Yield bu/ac
Non-treated control	68 b	39 c	47 a
Delaro Complete 8 fl oz/ac	39 a	20 ab	57 a
Aproach 8.5 fl oz/ac	54 b	27 b	53 a
Endura 6 oz/ac	30 a	12 a	60 a
CV:	6.6	7.8	7.6

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SINGLE FUNGICIDE APPLICATION

Delaro Complete 8 fl oz/ac > Endura 5.5 oz/ac

COMBINED ANALYSIS ACROSS 3 STUDIES

Carrington, ND (2022, 2023 2024)

Single fungicide application

Delaro Complete: fluopyram (FRAC 7), trifloxystrobin (FRAC 11), prothioconazole (FRAC 3)

Endura: boscalid (FRAC 7)

	White mold Incidence % plants	White mold Severity Index % canopy	Soybean Yield bu/ac
Non-treated control	75 b	61 b	32 b
Delaro Complete 8 fl oz/ac	56 a	39 a	44 a
Endura 5.5 oz/ac	61 ab	43 a	42 a
CV:	9	9.8	6.1

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SINGLE FUNGICIDE APPLICATION

ProPulse 8 fl oz > Delaro Complete 8 fl oz > ProPulse 6 fl oz

COMBINED ANALYSIS ACROSS 4 STUDIES

Carrington, ND (2020, 2022, 2023 2024)

Single fungicide application

Delaro Complete: fluopyram (FRAC 7), trifloxystrobin (FRAC 11), prothioconazole (FRAC 3)

ProPulse: fluopyram (FRAC 7), prothioconazole (FRAC 3)

	White mold Incidence % plants	White mold Severity Index % canopy	Soybean Yield bu/ac
Non-treated control	66 b	50 b	37 b
Delaro Complete 8 fl oz/ac	53 ab	34 a	45 a
ProPulse 6 fl oz/ac	59 ab	40 ab	43 ab
ProPulse 8 fl oz/ac	49 a	31 a	46 a
CV:	10.5	18.2	7.6

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SINGLE FUNGICIDE APPLICATION

Delaro Complete 8 fl oz > Revytek 8 fl oz

COMBINED ANALYSIS ACROSS 3 STUDIES

Carrington, ND (2021, 2024)

Single fungicide application

Revytek: mefentrifluconazole (FRAC 3), pyraclostrobin (FRAC 11), fluxapyroxad (FRAC 7)

Delaro Complete: fluopyram (FRAC 7), prothioconazole (FRAC 3), trifloxystrobin (FRAC 11)

	White mold Incidence % plants	White mold Severity Index % canopy	Soybean Yield bu/ac
Non-treated control	27 b	17 b	57 a
Delaro Complete 8 fl oz	13 a	8 a	61 a
Revytek 8 fl oz/ac	27 b	16 b	58 a
CV:	10.2	5.1	3.5

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SINGLE FUNGICIDE APPLICATION

A single application of Delaro Complete (8 fl oz/ac) reduced white mold severity by approximately a third.

COMBINED ANALYSIS ACROSS 7 STUDIES			
Carrington, ND (2022, 2023 2024)		Single fungicide application	
Delaro Complete: fluopyram (FRAC 7), trifloxystrobin (FRAC 11), prothioconazole (FRAC 3)			
	White mold Incidence % plants	White mold Severity Index % canopy	Soybean Yield bu/ac
Non-treated control	49 b	36 b	45 b
Delaro Complete 8 fl oz/ac	36 a	23 a	52 a
CV:	15.2	26.5	7.8

Improving white mold management in soybeans:

Comparative fungicide efficacy – Delaro Complete

Approximate comparative efficacy ranking among those fungicides assessed relative to Delaro Complete:

1. Endura, 8 oz/ac
2. ProPulse, 8 fl oz/ac
3. Delaro Complete, 8 fl oz/ac
4. Endura, 6 oz/ac
5. ProPulse, 6 fl oz/ac
6. Miravis Neo, 13.7 fl oz/ac; Aproach 8.5 fl oz/ac
7. Revytek, 8 fl oz/ac



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