

Comparative fungicide efficacy: Management of white mold in soybeans

North Dakota State University Carrington Research Extension Center; Michael Wunsch, Jesse Hafner, Suanne Kallis, Aaron Fauss, Thomas Miorino

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

year	2021	2021	2022	2023	2024	2024	COMBINED ANALYSIS
location	Carrington	Carrington	Carrington	Carrington	Carrington	Carrington	
funding	BASF	Gowan	BASF	BASF	Corteva	BASF	
variety	DSR-0807	DSR-0807	AG09Xf0	21Xf07	P08A44E	PFS 23XF09	
brand, maturity	Dairyland, 0.8	Dairyland, 0.8	Asgrow, 0.9	Peterson Farms, 0.7	Pioneer, 0.8	Peterson Farms, 0.9	
row spacing	21 inches	21 inches	14 inches	14 inches	15 inches	14 inches	
seeding rate	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	140,000 pls/ac	140,000 pls/ac	
previous crop	spring wheat	spring wheat	dry bean	chickpeas	sunflowers	fab beans	
planting date	May 12	May 12	May 27	May 24	May 16	May 10	
disease assessment date	Oct. 4	Oct. 4	Oct. 19	Oct. 12	Oct. 9	Oct. 17	
rows assessed for disease	1	1	1	1	2	1	
harvest date	Oct. 6	Oct. 7	Oct. 21	Oct. 17	Oct. 14	Oct. 17	
dates, applications 1 and 2	July 26, Aug. 6	July 26, Aug. 6	July 23, Aug. 1	July 22, Aug. 2	July 24, July 31	July 24, Aug. 2	
interval between applications	11 days	11 days	9 days	11 days	7 days	9 days	
growth stage, 1st applic.	R3	R3	100% R2	100% R2	100% R2	100% R2	
canopy closure, 1st applic	100%	100%	99-100%	98-100%	75-90%	85-95%	
nozzles, pressure, 1st applic.	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 60 psi	AIXR110015, 60 psi	
droplet size, 1st applic.	medium-coarse	medium-coarse	medium-coarse	medium-coarse	medium	medium	
canopy closure, 2nd applic.	100%	100%	100%	100%	90-98%	99-100%	
nozzles, pressure, 2nd applic.	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 40 psi	AIXR110015, 40 psi	AIXR110015, 40 psi	
droplet size, 2nd applic.	medium-coarse	medium-coarse	medium-coarse	coarse	coarse	coarse	
adjuvant	Masterlock 6.4 fl oz/ac	Induce 0.25%, some trees	Masterlock, 6.4 fl oz/ac	Masterlock, 6.4 fl oz/ac	Induce, 0.25% v/v	none	
fungicide spray volume	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	
application method	hand-held boom	hand-held boom	hand-held boom	hand-held boom	hand-held boom	hand-held boom	
Endura applied at 6.12 oz/ac							

White mold incidence (% of plants) White mold (% plants)

Non-treated control	42 a	35 a	82 b	54 a	46 b	39 b	50 b
Endura 6 oz/ac	36 a	20 a	53 a	33 a	16 a	8 a	28 a
Delaro Complete 8 fl oz/ac	21 a	20 a	41 a	38 a	24 ab	6 a	25 a
CV:	38.8	20.3	14.4	35.6	14.9	29.6	20.6

White mold severity index (% of canopy) White mold (% canopy)

Non-treated control	27 a	23 a	70 b	31 a	20 b	20 b	32 b
Endura 6 oz/ac	19 a	12 a	40 a	18 a	5 a	4 a	16 a
Delaro Complete 8 fl oz/ac	9 a	12 a	31 a	20 a	8 ab	4 a	14 a
CV:	25	26.9	17.5	47.4	22.6	34.9	29.2

Soybean yield (bu/ac; 13% moisture) Yield (bu/ac)

Non-treated control	51 a	56 a	25 b	50 a	53 a	63 a	50 b
Endura 6 oz/ac	55 a	62 a	42 a	50 a	58 a	65 a	55 ab
Delaro Complete 8 fl oz/ac	60 a	61 a	47 a	53 a	61 a	67 a	58 a
CV:	13	9	10.7	15	7.9	5	6.8

Comparative fungicide efficacy: Management of white mold in soybeans

North Dakota State University Carrington Research Extension Center; Michael Wunsch, Jesse Hafner, Suanne Kallis, Aaron Fauss, Thomas Miorino

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

year	2023	2023	2024	2024	2024	COMBINED ANALYSIS 5 studies Endura 8 oz/ac versus Delaro Complete 8 fl oz/ac Two sequential applications of the same fungicide
location	Carrington	Carrington	Carrington	Carrington	Carrington	
funding	Corteva	BASF	Corteva	Corteva	BASF	
variety	P06T04E	21XF07	P08A44E	P08A44E	PFS 23XF09	
brand, maturity	Pioneer, 0.6	Peterson Farms, 0.7	Pioneer, 0.8	Pioneer, 0.8	Peterson Farms, 0.9	
row spacing	14 inches	14 inches	15 inches	15 inches	14 inches	
seeding rate	165,000 pls/ac	165,000 pls/ac	140,000 pls/ac	140,000 pls/ac	140,000 pls/ac	
previous crop	chickpeas	chickpeas	sunflowers	sunflowers	fab beans	
planting date	May 24	May 24	May 16	May 16	May 10	
disease assessment date	Oct. 12	Oct. 12	Oct. 8-9	Oct. 9	Oct. 17	
rows assessed for disease	1	1	2	2	1	
harvest date	Oct. 17	Oct. 17	Oct. 14	Oct. 14	Oct. 17	
dates, applications 1 and 2	July 22, Aug. 2	July 22, Aug. 2	July 24, July 31	July 24, July 31	July 24, Aug. 2	
interval between applications	11 days	11 days	7 days	7 days	9 days	
growth stage, 1st applic.	100% R2	100% R2	100% R2	100% R2	100% R2	
canopy closure, 1st applic	95-100%	98-100%	75-90%	75-90%	85-95%	
nozzles, pressure, 1st applic.	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 60 psi	AIXR110015, 60 psi	AIXR110015, 60 psi	
droplet size, 1st applic.	medium-coarse	medium-coarse	medium	medium	medium	
canopy closure, 2nd applic.	100%	100%	90-98%	90-98%	99-100%	
nozzles, pressure, 2nd applic.	AIXR110015, 40 psi	AIXR110015, 40 psi	AIXR110015, 40 psi	AIXR110015, 40 psi	AIXR110015, 40 psi	
droplet size, 2nd applic.	coarse	coarse	coarse	coarse	coarse	
adjuvant	Induce, 0.125% v/v	Masterlock, 6.4 fl oz/ac	Induce, 0.25% v/v	Induce, 0.25% v/v	none	
fungicide spray volume	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	
application method	hand-held boom	hand-held boom	hand-held boom	hand-held boom	hand-held boom	

White mold incidence (% of plants) White mold (% plants)

Non-treated control	50 b	54 b	85 b	46 b	39 b	55 c
Delaro Complete 8 fl oz/ac	25 a	38 ab	52 a	24 ab	6 a	29 b
Endura 8 oz/ac	17 a	28 a	43 a	9 a	7 a	21 a
CV:	33.7	35.6	14.4	14.9	29.6	13.1

White mold severity index (% of canopy) White mold (% canopy)

Non-treated control	31 b	31 b	47 b	20 b	20 b	30 b
Delaro Complete 8 fl oz/ac	14 a	20 ab	26 a	8 ab	4 a	14 a
Endura 8 oz/ac	7 a	11 a	17 a	3 a	4 a	9 a
CV:	49.2	47.4	27.3	22.6	34.9	

Soybean yield (bu/ac; 13% moisture) Yield (bu/ac)

Non-treated control	56 b	50 a	39 b	53 a	63 a	52 b
Delaro Complete 8 fl oz/ac	59 ab	53 a	55 a	61 a	67 a	59 a
Endura 8 oz/ac	63 a	62 a	56 a	62 a	66 a	62 a
CV:	6.8	15	10.6	7.9	5	6.1

Comparative fungicide efficacy: Management of white mold in soybeans

North Dakota State Univ. Carrington Research Extension Center; Michael Wunsch, Jesse Hafner, Suanne Kallis, Aaron Fauss, Thomas Miorino

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

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

year	2022	2023	2024	COMBINED ANALYSIS 3 studies ProPulse 6 fl oz versus Delaro Complete 8 fl oz/ac Two sequential applications of the same fungicide
location	Carrington	Carrington	Carrington	
funding	BASF	BASF	Corteva	
variety	AG09Xf0	21Xf07	P08A44E	
brand, maturity	Asgrow, 0.9	Peterson Farms, 0.7	Pioneer, 0.8	
row spacing	14 inches	14 inches	15 inches	
seeding rate	165,000 pls/ac	165,000 pls/ac	140,000 pls/ac	
previous crop	dry bean	chickpeas	sunflowers	
planting date	May 27	May 24	May 16	
disease assessment date	Oct. 19	Oct. 12	Oct. 9	
rows assessed for disease	1	1	2	
harvest date	Oct. 21	Oct. 17	Oct. 14	
dates, applications 1 and 2	July 23, Aug. 1	July 22, Aug. 2	July 24, July 31	
interval between applications	9 days	11 days	7 days	
growth stage, 1st applic.	100% R2	100% R2	100% R2	
canopy closure, 1st applic	99-100%	98-100%	75-90%	
nozzles, pressure, 1st applic.	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 60 psi	
droplet size, 1st applic.	medium-coarse	medium-coarse	medium	
canopy closure, 2nd applic.	100%	100%	90-98%	
nozzles, pressure, 2nd applic.	AIXR110015, 50 psi	AIXR110015, 40 psi	AIXR110015, 40 psi	
droplet size, 2nd applic.	medium-coarse	coarse	coarse	
adjuvant	Masterlock, 6.4 fl oz/ac	Masterlock, 6.4 fl oz/ac	Induce, 0.25% v/v	
fungicide spray volume	15 gal/ac	15 gal/ac	15 gal/ac	
application method	hand-held boom	hand-held boom	hand-held boom	

White mold incidence (% of plants) White mold (% plants)

Non-treated control	82 b	54 a	46 a	61 b
ProPulse 6 fl oz/ac	49 a	35 a	27 a	37 a
Delaro Complete 8 fl oz/ac	41 a	38 a	24 a	34 a
CV:	14.4	35.6	14.9	15.3

White mold severity index (% of canopy) White mold (% canopy)

Non-treated control	70 b	31 a	20 a	40 b
ProPulse 6 fl oz/ac	35 a	18 a	12 a	22 a
Delaro Complete 8 fl oz/ac	31 a	20 a	8 a	20 a
CV:	17.5	47.4	22.6	4.4

Soybean yield (bu/ac; 13% moisture) Yield (bu/ac)

Non-treated control	25 b	50 a	53 a	43 a
ProPulse 6 fl oz/ac	43 a	56 a	55 a	51 a
Delaro Complete 8 fl oz/ac	47 a	53 a	61 a	53 a
CV:	10.7	15	7.9	10.9

Comparative fungicide efficacy: Management of white mold in soybeans

North Dakota State University Carrington Research Extension Center; Michael Wunsch, Jesse Hafner, Suanne Kallis, Aaron Fauss, Thomas Miorino

Miravis Neo: pydiflumetofen (FRAC 7), azoxystrobin (FRAC 11), propiconazole (FRAC 3) **Headline:** pyraclostrobin (FRAC 11) **Endura:** boscalid (FRAC 7)

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

year	2021	2022	2024	COMBINED ANALYSIS 3 studies Miravis Neo 13.7 fl oz vs. other products Two sequential applications of the same fungicide
location	Carrington	Carrington	Carrington	
funding	Gowan	BASF	Corteva	
variety	DSR-0807	AG09Xf0	P08A44E	
brand, maturity	Dairyland, 0.8	Asgrow, 0.9	Pioneer, 0.8	
row spacing	21 inches	14 inches	15 inches	
seeding rate	165,000 pls/ac	165,000 pls/ac	140,000 pls/ac	
previous crop	spring wheat	dry bean	sunflowers	
planting date	May 12	May 27	May 16	
disease assessment date	Oct. 4	Oct. 19	Oct. 9	
rows assessed for disease	1	1	2	
harvest date	Oct. 7	Oct. 21	Oct. 14	
dates, applications 1 and 2	July 26, Aug. 6	July 23, Aug. 1	July 24, July 31	
interval between applications	11 days	9 days	7 days	
growth stage, 1st applic.	R3	100% R2	100% R2	
canopy closure, 1st applic	100%	99-100%	75-90%	
nozzles, pressure, 1st applic.	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 60 psi	
droplet size, 1st applic.	medium-coarse	medium-coarse	medium	
canopy closure, 2nd applic.	100%	100%	90-98%	
nozzles, pressure, 2nd applic.	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 40 psi	
droplet size, 2nd applic.	medium-coarse	medium-coarse	coarse	
adjuvant	Induce 0.25%, some tre:	Masterlock, 6.4 fl oz/ac	Induce, 0.25% v/v	
fungicide spray volume	15 gal/ac	15 gal/ac	15 gal/ac	
application method	hand-held boom	hand-held boom	hand-held boom	

White mold incidence (% of plants) White mold (% plants)

Non-treated control	35 a	82 c	46 b	54 c
Revytek 8 fl oz/ac	33 a	67 b	51 b	50 bc
Miravis Neo 13.7 fl oz/ac	23 a	68 bc	50 b	47 abc
Endura 6 oz/ac	20 a	53 ab	16 a	30 ab
Delaro Complete 8 fl oz/ac	20 a	41 a	24 ab	28 a
CV:	20.3	14.4	14.9	19

White mold severity index (% of canopy) White mold (% canopy)

Non-treated control	23 a	70 c	20 b	38 b
Revytek 8 fl oz/ac	21 a	51 b	26 b	33 ab
Miravis Neo 13.7 fl oz/ac	14 a	56 bc	20 b	30 ab
Endura 6 oz/ac	12 a	40 ab	5 a	19 a
Delaro Complete 8 fl oz/ac	12 a	31 a	8 ab	17 a
CV:	26.9	17.5	22.6	23.9

Soybean yield (bu/ac; 13% moisture) Yield (bu/ac)

Non-treated control	56 a	25 c	53 a	45 b
Revytek 8 fl oz/ac	57 a	33 c	55 a	48 ab
Miravis Neo 13.7 fl oz/ac	64 a	34 bc	55 a	51 ab
Endura 6 oz/ac	62 a	42 ab	58 a	54 ab
Delaro Complete 8 fl oz/ac	61 a	47 a	61 a	56 a
CV:	9	10.7	7.9	6.6

Comparative fungicide efficacy: Management of white mold in soybeans

North Dakota State University Carrington Research Extension Center; Michael Wunsch, Jesse Hafner, Suanne Kallis, Aaron Fauss, Thomas Miorino

Approach: picoxystrobin (FRAC 11) **Endura:** boscalid (FRAC 7) **Delaro Complete:** fluopyram (FRAC 7), prothioconazole (FRAC 3), trifloxystrobin (FRAC 11)

year	2023	2024	COMBINED ANALYSIS	2023	2024	COMBINED ANALYSIS
location	Carrington	Carrington		Carrington	Carrington	
funding	Corteva	Corteva		BASF	BASF	
variety	P06T04E	P08A44E		21Xf07	XO0602E	
brand, maturity	Pioneer, 0.6	Pioneer, 0.8		Peterson Farms, 0.7	Xitavo, 0.6	
row spacing	14 inches	15 inches		14 inches	14 inches	
seeding rate	165,000 pls/ac	140,000 pls/ac		165,000 pls/ac	165,000 pls/ac	
previous crop	chickpeas	sunflowers		chickpeas	dry edible beans	
planting date	May 24	May 16		May 24	May 15	
disease assessment date	Oct. 12	Oct. 8-9		Oct. 12	Oct. 1	
rows assessed for disease	1	2		1	1	
harvest date	Oct. 17	Oct. 14		Oct. 17	Oct. 4	
dates, applications 1 and 2	July 22, Aug. 2	July 24, July 31		July 22, Aug. 2	July 23, July 30	
interval between applications	11 days	7 days		11 days	7 days	
growth stage, 1st applic.	100% R2	100% R2		100% R2	100% R2	
canopy closure, 1st applic.	95-100%	75-90%		98-100%	90-95%	
nozzles, pressure, 1st applic.	AIXR110015, 50 psi	AIXR110015, 60 psi		AIXR110015, 50 psi	AIXR110015, 60 psi	
droplet size, 1st applic.	medium-coarse	medium		medium-coarse	medium	
canopy closure, 2nd applic.	100%	90-98%		100%	99-100%	
nozzles, pressure, 2nd applic.	AIXR110015, 40 psi	AIXR110015, 40 psi		AIXR110015, 40 psi	AIXR110015, 40 psi	
droplet size, 2nd applic.	coarse	coarse		coarse	coarse	
adjuvant	Induce, 0.125% v/v	Induce, 0.25% v/v		Masterlock, 6.4 fl oz/ac	Masterlock, 6.4 fl oz/ac	
fungicide spray volume	15 gal/ac	15 gal/ac		15 gal/ac	15 gal/ac	
application method	hand-held boom	hand-held boom		hand-held boom	hand-held boom	
White mold incidence (% of plants)			White mold (% plants)		White mold (% plants)	
Non-treated control	50 c	85 c	68 b	54 b	86 b	70 c
Delaro Complete 8 fl oz/ac	25 ab	52 ab	39 a	38 ab		
Approach 8.5 fl oz/ac	39 bc	69 bc	54 b			
Approach 12 or 13.7 fl oz/ac				Approach 12 fl oz 34 ab	Approach 13.7 fl oz 66 a	50 b
Endura 6 oz/ac	17 a	43 a	30 a	28 a	60 a	44 a
CV:	33.7	14.4	6.6	35.6	9.3	0.6
White mold severity index (% of canopy)			White mold (% canopy)		White mold (% canopy)	
Non-treated control	31 b	47 b	39 c	31 b	70 b	51 b
Delaro Complete 8 fl oz/ac	14 a	26 a	20 ab	20 ab		
Approach 8.5 fl oz/ac	21 ab	33 ab	27 b			
Approach 12 or 13.7 fl oz/ac				Approach 12 fl oz 19 ab	Approach 13.7 fl oz 49 a	34 ab
Endura 6 oz/ac	7 a	17 a	12 a	11 a	43 a	27 a
CV:	49.2	27.3	7.8	47.4	13.9	9.5
Soybean yield (bu/ac; 13% moisture)			Yield (bu/ac)		Yield (bu/ac)	
Non-treated control	56 b	39 b	47 a	50 a	28 b	39 a
Delaro Complete 8 fl oz/ac	59 ab	55 a	57 a	53 a		
Approach 8.5 fl oz/ac	56 b	49 a	53 a			
Approach 12 or 13.7 fl oz/ac				Approach 12 fl oz 53 a	Approach 13.7 fl oz 43 a	48 a
Endura 6 oz/ac	63 a	56 a	60 a	62 a	49 a	55 a
CV:	6.8	10.6	7.6	15	10.2	9.8

Comparative fungicide efficacy: Management of white mold in soybeans

NDSU Carrington Research Extension Center; Michael Wunsch, Jesse Hafner, Suanne Kallis, Aaron Fauss, Thomas Miorino

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

Endura: boscalid (FRAC 7)

year	2022	2023	2024	COMBINED ANALYSIS 3 studies Delaro Complete 8 fl oz/ac versus Endura 5.5 oz/ac Single fungicide application
location	Carrington	Carrington	Carrington	
funding	Bayer	Bayer	Bayer	
variety	AG09Xf0	P06T04E	AG07XF2	
brand, maturity	Asgrow, 0.9	Pioneer, 0.6	Asgrow, 0.7	
row spacing	14 inches	14 inches	14 inches	
seeding rate	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	
previous crop	dry bean	chickpeas	dry edible beans	
planting date	May 27	May 24	May 15	
disease assessment date	Oct. 19	Oct. 12	Oct. 2	
rows assessed for disease	1	1	1	
harvest date	Oct. 21	Oct. 17	Oct. 4	
date fungicide was applied	July 23	July 22	July 23	
growth stage when fungicide was applied	100% R2	100% R2	100% R2	
canopy closure when fungicide was applied	99-100%	95-100%	90-95%	
nozzles, application pressure	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 60 psi	
spray droplet size	medium-coarse	medium-coarse	medium	
adjuvant	Induce 0.125% v/v	Induce, 0.125% v/v	Induce, 0.125% v/v	
fungicide spray volume	15 gal/ac	15 gal/ac	15 gal/ac	
application method	hand-held boom	hand-held boom	hand-held boom	

White mold incidence (% of plants) White mold (% plants)

Non-treated control	74 b	63 b	88 a	75 b
Delaro Complete 8 fl oz/ac	49 a	50 ab	70 a	56 a
Endura 5.5 oz/ac	60 ab	42 a	80 a	61 ab
CV:	18.2	22.2	15.1	9

White mold severity index (% of canopy) White mold (% canopy)

Non-treated control	63 b	43 b	78 a	61 b
Delaro Complete 8 fl oz/ac	34 a	30 ab	54 a	39 a
Endura 5.5 oz/ac	41 a	24 a	63 a	43 a
CV:	24.6	31.2	22.5	9.8

Soybean yield (bu/ac; 13% moisture) Yield (bu/ac)

Non-treated control	30 b	47 b	21 b	32 b
Delaro Complete 8 fl oz/ac	43 a	54 a	36 a	44 a
Endura 5.5 oz/ac	38 a	56 a	32 ab	42 a
CV:	8.2	6.5	23.7	6.1

Comparative fungicide efficacy: Management of white mold in soybeans

North Dakota State University Carrington Research Extension Center; Michael Wunsch, Jesse Hafner, Suanne Kallis, Aaron Fauss, Thomas Miorino

Delaro Complete: fluopyram (FRAC 7), trifloxystrobin (FRAC 11), prothioconazole (FRAC 3)					ProPulse: fluopyram (FRAC 7), prothioconazole (FRAC 3)
year	2020	2022	2023	2024	COMBINED ANALYSIS
location	Carrington	Carrington	Carrington	Carrington	
funding	Bayer	Bayer	Bayer	Bayer	
variety	DSR-0418	AG09Xf0	P06T04E	AG07XF2	
brand, maturity	Dairyland, 0.4	Asgrow, 0.9	Pioneer, 0.6	Asgrow, 0.7	4 studies
row spacing	21 inches	14 inches	14 inches	14 inches	
seeding rate	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	
previous crop	spring wheat	dry bean	chickpeas	dry edible beans	
planting date	May 18	May 27	May 24	May 15	Delaro Complete 8 fl oz/ac versus ProPulse 6 or 8 fl oz/ac
disease assessment date	Oct. 16	Oct. 19	Oct. 12	Oct. 2	
rows assessed for disease	1	1	1	1	
harvest date	Oct. 19	Oct. 21	Oct. 17	Oct. 4	
date fungicide was applied	July 17	July 23	July 22	July 23	Single fungicide application
growth stage when fungicide was applied	100% R2	100% R2	100% R2	100% R2	
canopy closure when fungicide was applied	75-90%	99-100%	95-100%	90-95%	
nozzles, application pressure	AIXR110015, 60 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 60 psi	
spray droplet size	medium	medium-coarse	medium-coarse	medium	
adjuvant	Induce 0.125% v/v	Induce 0.125% v/v	Induce, 0.125% v/v	Induce, 0.125% v/v	
fungicide spray volume	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	
application method	hand-held boom	hand-held boom	hand-held boom	hand-held boom	
White mold incidence (% of plants)					White mold (% plants)
Non-treated control	38 a	74 b	63 a	88 b	66 b
Delaro Complete 8 fl oz/ac	42 a	49 a	50 a	70 ab	53 ab
ProPulse 6 fl oz/ac	45 a	53 a	57 a	79 ab	59 ab
ProPulse 8 fl oz/ac	31 a	48 a	51 a	67 a	49 a
CV:	19.7	18.2	22.2	15.1	10.5
White mold severity index (% of canopy)					White mold (% canopy)
Non-treated control	15 a	63 b	43 a	78 b	50 b
Delaro Complete 8 fl oz/ac	17 a	34 a	30 a	54 ab	34 a
ProPulse 6 fl oz/ac	23 a	36 a	37 a	65 ab	40 ab
ProPulse 8 fl oz/ac	8 a	33 a	32 a	53 a	31 a
CV:	23.2	24.6	31.2	22.5	18.2
Soybean yield (bu/ac; 13% moisture)					Yield (bu/ac)
Non-treated control	49 ab	30 b	47 b	21 b	37 b
Delaro Complete 8 fl oz/ac	48 b	43 a	54 a	36 a	45 a
ProPulse 6 fl oz/ac	49 ab	39 a	51 ab	30 ab	43 ab
ProPulse 8 fl oz/ac	53 a	42 a	52 ab	36 a	46 a
CV:	5.1	8.2	6.5	23.7	7.6

Comparative fungicide efficacy: Management of white mold in soybeans

NDSU Carrington Research Extension Ctr. Michael Wunsch, Jesse Hafner, Suanne Kallis, Aaron Fauss, Thomas Miorino

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

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

year	2021	2021	2024	COMBINED ANALYSIS 3 studies Revytek 8 fl oz/ac versus Delaro Complete 8 fl oz/ac Single fungicide application
location	Carrington	Carrington	Carrington	
funding	BASF	Gowan	BASF	
variety	DSR-0807	DSR-0807	P08A44E	
brand, maturity	Dairyland, 0.8	Dairyland, 0.8	Pioneer, 0.8	
row spacing	21 inches	21 inches	14 inches	
seeding rate	165,000 pls/ac	165,000 pls/ac	140,000 pls/ac	
previous crop	spring wheat	spring wheat	field peas	
planting date	May 12	May 12	May 9	
disease assessment date	Oct. 4	Oct. 4	Oct. 3	
rows assessed for disease	1	1	1	
harvest date	Oct. 6	Oct. 7	Oct. 3	
date fungicide was applied	July 26	July 26	July 30	
growth stage when fungicide applied	R3	R3	100% R3	
canopy closure when fungicide applied	1	1	97-99%	
nozzles, application pressure	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	
spray droplet size	medium-coarse	medium-coarse	medium-coarse	
adjuvant	Masterlock 6.4 fl oz/ac	Induce 0.25%	Induce, 0.25% v/v	
fungicide spray volume	15 gal/ac	15 gal/ac	15 gal/ac	
application method	hand-held boom	hand-held boom	hand-held boom	

White mold incidence (% of plants) White mold (% plants)

Non-treated control	34 a	35 a	13 b	27 b
Delaro Complete 8 fl oz	17 a	20 a	2 a	13 a
Revytek 8 fl oz/ac	35 a	33 a	12 ab	27 b
CV:	35.6	20.3	35.2	10.2

White mold severity index (% of canopy) White mold (% canopy)

Non-treated control	24 a	23 a	3 a	17 b
Delaro Complete 8 fl oz	12 a	12 a	1 a	8 a
Revytek 8 fl oz/ac	23 a	21 a	4 a	16 b
CV:	19.8	26.9	59.2	5.1

Soybean yield (bu/ac; 13% moisture) Yield (bu/ac)

Non-treated control	53 a	56 a	60 a	57 a
Delaro Complete 8 fl oz	62 a	61 a	62 a	61 a
Revytek 8 fl oz/ac	55 a	57 a	61 a	58 a
CV:	8.6	9	5.3	3.5

Comparative fungicide efficacy: Management of white mold in soybeans

North Dakota State University Carrington Research Extension Center; Michael Wunsch, Jesse Hafner, Suanne Kallis, Aaron Fauss, Thomas Miorino

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

year	2020	2021	2021	2022	2023	2024	2024	COMBINED ANALYSIS 7 studies Delaro Complete 8 fl oz/ac versus Non-treated Single fungicide application
location	Carrington	Carrington	Carrington	Carrington	Carrington	Carrington	Carrington	
funding	Bayer	BASF	Gowan	Bayer	Bayer	Bayer	BASF	
variety	DSR-0418	DSR-0807	DSR-0807	AG09Xf0	P06T04E	AG07XF2	P08A44E	
brand, maturity	Dairyland, 0.4	Dairyland, 0.8	Dairyland, 0.8	Asgrow, 0.9	Pioneer, 0.6	Asgrow, 0.7	Pioneer, 0.8	
row spacing	21 inches	21 inches	21 inches	14 inches	14 inches	14 inches	14 inches	
seeding rate	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	140,000 pls/ac	
previous crop	spring wheat	spring wheat	spring wheat	dry bean	chickpeas	dry edible beans	field peas	
planting date	May 18	May 12	May 12	May 27	May 24	May 15	May 9	
disease assessment date	Oct. 16	Oct. 4	Oct. 4	Oct. 19	Oct. 12	Oct. 2	Oct. 3	
rows assessed for disease	1	1	1	1	1	1	1	
harvest date	Oct. 19	Oct. 6	Oct. 7	Oct. 21	Oct. 17	Oct. 4	Oct. 3	
date fungicide was applied	July 17	July 26	July 26	July 23	July 22	July 23	July 30	
growth stage when fungicide was applied	100% R2	R3	R3	100% R2	100% R2	100% R2	100% R3	
canopy closure when fungicide was applied	75-90%	1	1	99-100%	95-100%	90-95%	97-99%	
nozzles, application pressure	AIXR110015, 60 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 60 psi	AIXR110015, 50 psi	
spray droplet size	medium	coarse	coarse	coarse	coarse	medium	medium-coarse	
adjuvant	Induce 0.125% v/v	Masterlock 6.4 fl oz/ac	Induce 0.25%, some trees	Induce 0.125% v/v	Induce, 0.125% v/v	Induce, 0.125% v/v	Induce, 0.25% v/v	
fungicide spray volume	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	
application method	hand-held boom	hand-held boom	hand-held boom	hand-held boom	hand-held boom	hand-held boom	hand-held boom	

White mold incidence (% of plants)								White mold (% plants)
Non-treated control	38 a	34 a	35 a	74 b	63 a	88 a	13 b	49 b
Delaro Complete 8 fl oz/ac	42 a	17 a	20 a	49 a	50 a	70 a	2 a	36 a
CV:	19.7	35.6	20.3	18.2	22.2	15.1	35.2	15.2
White mold severity index (% of canopy)								White mold (% canopy)
Non-treated control	15 a	24 a	23 a	63 b	43 a	78 a	3 a	36 b
Delaro Complete 8 fl oz/ac	17 a	12 a	12 a	34 a	30 a	54 a	1 a	23 a
CV:	23.2	19.8	26.9	24.6	31.2	22.5	59.2	26.5
Soybean yield (bu/ac; 13% moisture)								Yield (bu/ac)
Non-treated control	49 a	53 a	56 a	30 b	47 b	21 b	60 a	45 b
Delaro Complete 8 fl oz/ac	48 a	62 a	61 a	43 a	54 a	36 a	62 a	52 a
CV:	5.1	8.6	9	8.2	6.5	23.7	5.3	7.8