

Fungicide efficacy: MANAGEMENT OF WHITE MOLD IN SOYBEANS

Delaro Complete 8 fl oz - single application

prothioconazole (FRAC 3), 1.47 lbs ai/gal; trifloxystrobin (FRAC 11), 1.29 lbs ai/gal; fluopyram (FRAC 7), 1.07 lbs ai/gal

	year	2020	2021	2021	2022	2023	
location	Carrington	Carrington	Carrington	Carrington	Carrington	Carrington	
funding	Bayer	BASF	Gowan	Bayer	Bayer		
variety	DSR-0418	DSR-0807	DSR-0807	AG09Xf0	P06T04E		
brand, maturity	Dairyland, 0.4	Dairyland, 0.8	Dairyland, 0.8	Asgrow, 0.9	Pioneer, 0.6		
row spacing	21 inches	21 inches	21 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		
previous crop	spring wheat	spring wheat	spring wheat	dry bean	chickpeas		
planting date	May 18	May 12	May 12	May 27	May 24		
disease assessment date	Oct. 16	Oct. 4	Oct. 4	Oct. 19	Oct. 12		
rows assessed for disease	1	1	1	1	1		
harvest date	Oct. 19	Oct. 6	Oct. 7	Oct. 21	Oct. 17		
date fungicide was applied	July 17	July 26	July 26	July 23	July 22		
growth stage, 1st application	100% R2	R3	R3	100% R2	100% R2		The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.
canopy closure, 1st application	75-90%	1	1	99-100%	95-100%		
nozzles, pressure, 1st application	AIXR110015, 60 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi		
droplet size, 1st application	medium	coarse	coarse	coarse	coarse		
adjuvant	Induce 0.125% v/v	Masterlock 6.4 fl oz	Induce 0.25%	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	15 gal/ac		
application method	hand-held boom	hand-held boom	hand-held boom	hand-held boom	hand-held boom		

Sclerotinia incidence (% of plants)

UNTREATED	38 a	34 a	35 a	74 b	63 b
DELARO COMPLETE 8 fl oz/ac	42 a	17 a	20 a	49 a	50 ab
PROPULSE 6 fl oz/ac	45 a			53 a	57 ab
PROPULSE 8 fl oz/ac	31 a			48 a	51 ab
ENDURA 5.5 or 6.0 oz/ac			20 a	60 ab	42 a
CV:	19.7	35.6	20.3	18.2	22.2

Sclerotinia disease severity index (% of canopy)

UNTREATED	15 a	24 a	23 a	63 b	43 b
DELARO COMPLETE 8 fl oz/ac	17 a	12 a	12 a	34 a	30 ab
PROPULSE 6 fl oz/ac	23 a			36 a	37 ab
PROPULSE 8 fl oz/ac	8 a			33 a	32 ab
ENDURA 5.5 or 6.0 oz/ac			12 a	41 a	24 a
CV:	23.2	19.8	26.9	24.6	31.2

Yield (bu/ac)

UNTREATED	49 ab	53 a	56 a	30 b	47 b
DELARO COMPLETE 8 fl oz/ac	48 b	62 a	61 a	43 a	54 a
PROPULSE 6 fl oz/ac	49 ab			39 a	51 ab
PROPULSE 8 fl oz/ac	53 a			42 a	52 ab
ENDURA 5.5 or 6.0 oz/ac			62 a	38 a	56 a
CV:	5.1	8.6	9	8.2	6.5

Delaro Complete (8 fl oz/ac) versus ProPulse (6 or 8 fl oz/ac) COMBINED ANALYSIS, 3 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	
UNTREATED	58 a	40 a	42 a	Single fungicide application at R2 or R3
DELARO COMPLETE 8 fl oz/ac	47 a	27 a	48 a	
PROPULSE 6 fl oz/ac	52 a	32 a	47 a	
PROPULSE 8 fl oz/ac	43 a	24 a	49 a	The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.
CV:	13.8	26.1	6.8	

Delaro Complete (8 fl oz/ac) versus Endura (5.5 or 6.0 oz/ac) COMBINED ANALYSIS, 3 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	
UNTREATED	57 b	43 b	44 b	Single fungicide application at R2 or R3
DELARO COMPLETE 8 fl oz/ac	40 a	25 a	52 a	
ENDURA 5.5 or 6.0 oz/ac	41 a	26 a	52 a	
CV:	11.1	16.1	5.1	The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.

Delaro Complete (8 fl oz/ac) versus non-treated COMBINED ANALYSIS, 5 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	
UNTREATED	49 a	33 a	47 a	Single fungicide application at R2 or R3
DELARO COMPLETE 8 fl oz/ac	36 a	21 a	53 a	
CV:	11.1	16.1	5.1	
	27% reduction	38% reduction	14% increase	

Fungicide efficacy: MANAGEMENT OF WHITE MOLD IN SOYBEANS

Delaro Complete 8 fl oz - two sequential applications

prothioconazole (FRAC 3), 1.47 lbs ai/gal; trifloxystrobin (FRAC 11), 1.29 lbs ai/gal; fluopyram (FRAC 7), 1.07 lbs ai/gal

year	2021	2021	2022	2023	2023	
location	Carrington	Carrington	Carrington	Carrington	Carrington	
funding	BASF	Gowan	BASF	Corteva	BASF	
variety	DSR-0807	DSR-0807	AG09Xf0	P06T04E	21Xf07	
brand, maturity	Dairyland, 0.8	Dairyland, 0.8	Asgrow, 0.9	Pioneer, 0.6	Peterson Farms, 0.7	
row spacing	21 inches	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	165,000 pls/ac	
previous crop	spring wheat	spring wheat	dry bean	chickpeas	chickpeas	
planting date	May 12	May 12	May 27	May 24	May 24	
disease assessment date	Oct. 4	Oct. 4	Oct. 19	Oct. 12	Oct. 12	
rows assessed for disease	1	1	1	1	1	
harvest date	Oct. 6	Oct. 7	Oct. 21	Oct. 17	Oct. 17	
dates, applications 1 and 2	July 26, Aug. 6	July 26, Aug. 6	July 23, Aug. 1	July 22, Aug. 2	July 22, Aug. 2	The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.
interval between applications	11 days	11 days	9 days	11 days	11 days	
growth stage, 1st application	R3	R3	100% R2	100% R2	100% R2	
canopy closure, 1st application	100%	100%	99-100%	95-100%	98-100%	
nozzles, pressure, 1st application	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	
droplet size, 1st application	coarse	coarse	coarse	coarse	coarse	
canopy closure, 2nd application	100%	100%	100%	100%	100%	
nozzles, pressure, 2nd application	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 40 psi	AIXR110015, 40 psi	
droplet size, 2nd application	coarse	coarse	coarse	coarse	coarse	
adjuvant	Masterlock 6.4 fl oz/ac	Induce 0.25%, some tr	Masterlock, 6.4 fl oz/ac	Induce, 0.125% v/v	Masterlock, 6.4 fl oz/ac	
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	

Sclerotinia incidence (% of plants)

Non-treated control	42 a	35 a	82 b	50 b	54 b
ENDURA 6 oz/ac	36 a	20 a	53 a		33 ab
PROPULSE 6 fl oz/ac			49 a		35 ab
DELARO COMPLETE 8 fl oz/ac	21 a	20 a	41 a	25 a	38 ab
ENDURA 8 oz/ac				17 a	28 a
CV:	38.8	20.3	14.4	33.7	35.6

Sclerotinia disease severity index (% of canopy)

Non-treated control	27 a	23 a	70 b	31 b	31 b
ENDURA 6 oz/ac	19 a	12 a	40 a		18 ab
PROPULSE 6 fl oz/ac			35 a		18 ab
DELARO COMPLETE 8 fl oz/ac	9 a	12 a	31 a	14 a	20 ab
ENDURA 8 oz/ac				7 a	11 a
CV:	25	26.9	17.5	49.2	47.4

Yield (bu/ac)

Non-treated control	51 a	56 a	25 b	56 b	50 a
ENDURA 6 oz/ac	55 a	62 a	42 a		50 a
PROPULSE 6 fl oz/ac			43 a		56 a
DELARO COMPLETE 8 fl oz/ac	60 a	61 a	47 a	59 ab	53 a
ENDURA 8 oz/ac				63 a	62 a
CV:	13	9	10.7	6.8	15

Delaro Complete (8 fl oz/ac) versus Endura (6.0 oz/ac)

COMBINED ANALYSIS, 3 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	Two sequential applications: R2 or R3 + 9-11 days later
UNTREATED	53 b	38 b	46 a	
ENDURA 6 oz/ac	36 a	22 ab	52 a	The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.
DELARO COMPLETE 8 fl oz/ac	30 a	18 a	55 a	
CV:	19.1	28.3	9	

Delaro Complete (8 fl oz/ac) versus non-treated

COMBINED ANALYSIS, 5 studies

	Sclerotinia incidence (%)		Sclerotinia DSI (%)		Yield		Two sequential applications: R2 or R3 + 9-11 days later
UNTREATED	53 b		37 b		48 a		
DELARO COMPLETE 8 fl oz/ac	29 a	45% reduction	17 a	53% reduction	56 a	17% increase	
CV:	18.3		30.7		10.5		

Fungicide efficacy: MANAGEMENT OF WHITE MOLD IN SOYBEANS
Miravis Neo 13.7 or 20.8 fl oz - single fungicide application

pydiflumetofen (FRAC 7), 0.63 lbs ai/gal; azoxystrobin (FRAC 11), 0.83 lbs ai/gal; propiconazole (FRAC 3), 1.04 lbs ai/gal

year	2019	2020	2020	2021	2021	
location	Carrington	Carrington	Carrington	Carrington	Carrington	
funding	Syngenta	Syngenta	BASF	Syngenta	Gowan	
variety	17X04N	DSR-0418	DSR-0418	DSR-0807	DSR-0807	
brand, maturity	Peterson Farms, 0.7	Dairyland, 0.4	Dairyland, 0.4	Dairyland, 0.8	Dairyland, 0.8	
row spacing	21 inches	21 inches	21 inches	21 inches	21 inches	
seeding rate	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	
previous crop	lentils	spring wheat	spring wheat	spring wheat	spring wheat	
planting date	May 9	May 18	May 18	May 12	May 12	
disease assessment date	Oct. 30	Oct. 16	Oct. 15	Oct. 4	Oct. 4	
rows assessed for disease	1	1	1	1	1	
harvest date	Oct. 31, Nov. 2	Oct. 19	Oct. 16	Oct. 6	Oct. 7	
date fungicide was applied	July 28	July 17	July 14	July 22	July 26	The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.
growth stage, 1st applic.	100% R3	100% R2	100% R2	100% R2	R3	
canopy closure, 1st applic	90-100% (ave. 97%)	75-90%	65-95%	95-100%	1	
nozzles, pressure, 1st applic.	AIXR110015, 50 psi	AIXR110015, 60 psi	AIXR110015, 60 psi	XR11010, 30 psi	AIXR110015, 50 psi	
droplet size, 1st applic.	coarse	medium	medium	coarse	coarse	
adjuvant	none	Induce 0.25% v/v	none	NIS 0.25% v/v	Induce 0.25%	
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	tractor, 6.5 mph	hand-held boom	

Sclerotinia incidence (% of plants)

UNTREATED	78 a	48 a	26 b	24 a	35 a
MIRAVIS NEO 13.7 fl oz/ac	72 a		20 b		23 a
MIRAVIS NEO 20.8 fl oz/ac	74 a	52 a		25 a	
ENDURA 5.5 or 6.0 oz/ac		38 a	3 a	21 a	20 a
CV:	10.9	26.3	30.7	30.5	20.3

Sclerotinia severity index (% of canopy)

UNTREATED	58 a	21 a	10 b	16 a	23 a
MIRAVIS NEO 13.7 fl oz/ac	52 a		8 ab		14 a
MIRAVIS NEO 20.8 fl oz/ac	48 a	21 a		14 a	
ENDURA 5.5 or 6.0 oz/ac		13 a	1 a	12 a	12 a
CV:	16.1	34.6	39.5	32.8	26.9

Yield

UNTREATED	25 a	33 a	45 a	55 a	56 a
MIRAVIS NEO 13.7 fl oz/ac	31 a		46 a		64 a
MIRAVIS NEO 20.8 fl oz/ac	31 a	34 a		58 a	
ENDURA 5.5 or 6.0 oz/ac		36 a	49 a	58 a	62 a
CV:	19.4	7.2	15.1	4.2	9

Miravis Neo (13.7 fl oz/ac) versus Endura (6.0 oz/ac)

COMBINED ANALYSIS, 2 studies	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	Single fungicide application at R2 or R3
Non-treated control	30 a	17 a	51 a	The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.
MIRAVIS NEO 13.7 fl oz/ac	21 a	11 a	55 a	
ENDURA 6 oz/ac	12 a	7 a	55 a	
CV:	24.1	23.5	5.1	

Miravis Neo (13.7 fl oz/ac) versus non-treated

COMBINED ANALYSIS, 3 studies	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	Single fungicide application at R2 or R3
UNTREATED	46 a	31 a	42 a	The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.
MIRAVIS NEO 13.7 fl oz/ac	38 a	24 a	47 a	
CV:	5.6	9.6	6.2	
	17% reduction	21% reduction	12% increase	

Miravis Neo (20.8 fl oz/ac) versus Endura (5.5 oz/ac)

COMBINED ANALYSIS, 2 studies	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	Single fungicide application at R2 or R3
Non-treated control	36 a	18 a	44 a	The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.
MIRAVIS NEO 20.8 fl oz/ac	38 a	17 a	46 a	
ENDURA 5.5 oz/ac	29 a	13 a	47 a	
CV:	9.6	13.9	2.1	

Miravis Neo (20.8 fl oz/ac) versus non-treated

COMBINED ANALYSIS, 3 studies	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	Single fungicide application at R2 or R3
UNTREATED	50 a	32 a	37 a	The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.
MIRAVIS NEO 20.8 fl oz/ac	50 a	28 a	41 a	
CV:	5.7	13.4	4.7	
	0% reduction	13% reduction	10% increase	

Fungicide efficacy: MANAGEMENT OF WHITE MOLD IN SOYBEANS

Miravis Neo 13.7 or 20.8 fl oz - two sequential fungicide applications

pydiflumetofen (FRAC 7), 0.63 lbs ai/gal; **azoxystrobin** (FRAC 11), 0.83 lbs ai/gal; **propiconazole** (FRAC 3), 1.04 lbs ai/gal

year	2019	2020	2020	2021	2021	2022	
location	Carrington	Carrington	Carrington	Carrington	Carrington	Carrington	
funding	Syngenta	Syngenta	ADAMA	Syngenta	Gowan	BASF	
variety	17X04N	DSR-0418	DSR-0418	DSR-0807	DSR-0807	AG09Xf0	
brand, maturity	Peterson Farms, 0.7	Dairyland, 0.4	Dairyland, 0.4	Dairyland, 0.8	Dairyland, 0.8	Asgrow, 0.9	
row spacing	21 inches	21 inches	21 inches	21 inches	21 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	
previous crop	lentils	spring wheat	spring wheat	spring wheat	spring wheat	dry bean	
planting date	May 9	May 18	May 18	May 12	May 12	May 27	
disease assessment date	Oct. 30	Oct. 16	Oct. 15	Oct. 4	Oct. 4	Oct. 19	
rows assessed for disease	1	1	1	1	1	1	
harvest date	Oct. 31, Nov. 2	Oct. 19	Oct. 16	Oct. 6	Oct. 7	Oct. 21	
dates, applications 1 and 2	July 28, Aug. 8	July 17, 28	July 14, 28	July 22, Aug. 2	July 26, Aug. 6	July 23, Aug. 1	The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.
interval between applications	11 days	11 days	14 days	11 days	11 days	9 days	
growth stage, 1st application	100% R3	100% R2	100% R2	100% R2	R3	100% R2	
canopy closure, 1st application	90-100% (ave. 97%)	75-90%	65-95%	95-100%	100%	99-100%	
nozzles, pressure, 1st application	AIXR110015, 50 psi	AIXR110015, 60 psi	AIXR110015, 60 psi	XR11010, 30 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	
droplet size, 1st application	coarse	medium	medium	coarse	coarse	coarse	
canopy closure, 2nd application	100%	100%	100%	100%	100%	100%	
nozzles, pressure, 2nd application	AIXR110015, 50 psi	AIXR110015, 40 psi	AIXR110015, 40 psi	XR11010, 30 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	
droplet size, 2nd application	coarse	coarse	coarse	coarse	coarse	coarse	
adjuvant	none	Induce 0.25% v/v	none	Activator 90 NIS 0.25%	Induce 0.25%, some tn	Masterlock, 6.4 fl oz/ac	
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	tractor, 6.5 mph	hand-held boom	hand-held boom	

Sclerotinia incidence (% of plants)						
Non-treated control	78 b	48 a	34 a	24 a	35 a	82 b
MIRAVIS NEO 13.7 fl oz/ac	63 a				23 a	68 ab
MIRAVIS NEO 20.8 fl oz/ac	69 ab	38 a	30 a	22 a		
ENDURA 6 oz/ac					20 a	53 a
CV:	10.9	26.3	30.3	30.5	20.3	14.4
Sclerotinia severity index (% of canopy)						
Non-treated control	58 b	21 a	13 a	16 a	23 a	70 b
MIRAVIS NEO 13.7 fl oz/ac	43 a				14 a	56 ab
MIRAVIS NEO 20.8 fl oz/ac	48 ab	12 a	12 a	13 a		
ENDURA 6 oz/ac					12 a	40 a
CV:	16.1	34.6	39.9	32.8	26.9	17.5
Soybean yield						
Non-treated control	25 a	33 a	42 a	55 b	56 a	25 b
MIRAVIS NEO 13.7 fl oz/ac	35 a				64 a	34 a
MIRAVIS NEO 20.8 fl oz/ac	30 a	34 a	39 a	60 a		
ENDURA 6 oz/ac					62 a	42 a
CV:	19.4	7.2	11	4.2	9	10.7

Miravis Neo (13.7 fl oz/ac) versus Endura (6.0 oz/ac)					Two fungicide applications: R2 or R3 + 9-14 days later
COMBINED ANALYSIS, 2 studies	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield		
Non-treated control	58 a	47 a	41 a		
MIRAVIS NEO 13.7 fl oz/ac	45 a	35 a	49 a		
ENDURA 6 oz/ac	37 a	26 a	52 a		
CV:	12.3	19.8	8.7		

The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.

Miravis Neo (13.7 fl oz/ac) versus non-treated					Two fungicide applications: R2 or R3 + 9-14 days later
COMBINED ANALYSIS, 3 studies	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield		
UNTREATED	65 a	51 a	35 a		
MIRAVIS NEO 13.7 fl oz/ac	51 a	37 a	44 a	26%	
CV:	2	5	1.6	increase	

The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.

Miravis Neo (20.8 fl oz/ac) versus non-treated					Two fungicide applications: R2 or R3 + 9-14 days later
COMBINED ANALYSIS, 4 studies	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield		
UNTREATED	46 a	27 a	39 a		
MIRAVIS NEO 20.8 fl oz/ac	40 a	21 a	41 a	5%	
CV:	5.7	13.4	4.7	increase	

The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.

Fungicide efficacy: MANAGEMENT OF WHITE MOLD IN SOYBEANS

ProPulse 6 fl oz - single application

prothioconazole (FRAC 3), 1.67 lbs ai/gal; fluopyram (FRAC 7), 1.67 lbs ai/gal

year	2020	2022	2023	2023
location	Carrington	Carrington	Carrington	Carrington
funding	Bayer	Bayer	ND Soybean Council	Bayer
variety	DSR-0418	AG09Xf0	21Xf07	P06T04E
brand, maturity	Dairyland, 0.4	Asgrow, 0.9	Peterson Farms, 0.7	Pioneer, 0.6
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	chickpeas
planting date	May 18	May 27	May 24-25	May 24
disease assessment date	Oct. 16	Oct. 19	Oct. 12-13	Oct. 12
rows assessed for disease	1	1	1	1
harvest date	Oct. 19	Oct. 21	Oct. 17	Oct. 17
date fungicide was applied	July 17	July 23	July 22	July 22
growth stage, 1st application	100% R2	100% R2	100% R2	100% R2
canopy closure, 1st application	75-90%	99-100%	98-100%	95-100%
nozzles, pressure, 1st application	AIXR110015, 60 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi
droplet size, 1st application	medium	coarse	coarse	coarse
adjuvant	Induce 0.125% v/v	Induce 0.125% v/v	none	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

Sclerotinia incidence (% of plants)

UNTREATED	38 a	74 b	62 a	63 b
PROPULSE 6 fl oz/ac	45 a	53 a	61 a	57 ab
PROPULSE 8 fl oz/ac	31 a	48 a		51 ab
ENDURA 5.5 oz/ac		60 ab		42 a
CV:	19.7	18.2	26.4	22.2

Sclerotinia severity index (% of canopy)

UNTREATED	15 a	63 b	42 a	43 b
PROPULSE 6 fl oz/ac	23 a	36 a	41 a	37 a
PROPULSE 8 fl oz/ac	8 a	33 a		32 a
ENDURA 5.5 oz/ac		41 a		24 a
CV:	23.2	24.6	35.9	31.2

Yield

UNTREATED	49 a	30 b	44 a	47 b
PROPULSE 6 fl oz/ac	49 a	39 a	48 a	51 ab
PROPULSE 8 fl oz/ac	53 a	42 a		52 ab
ENDURA 5.5 oz/ac		38 a		56 a
CV:	5.1	8.2	12.5	6.5

ProPulse (6 fl oz/ac) versus Endura (5.5 oz/ac)

COMBINED ANALYSIS, 2 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	Single fungicide application at 100% R2
UNTREATED	69 a	53 a	38 a	
PROPULSE 6 fl oz/ac	55 a	36 a	45 a	
ENDURA 5.5 oz/ac	51 a	33 a	47 a	
CV:	13.4	19.8	5.1	

ProPulse (6 fl oz/ac) versus ProPulse (8 fl oz/ac)

COMBINED ANALYSIS, 3 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	Single fungicide application at 100% R2
UNTREATED	58 a	40 a	42 a	
PROPULSE 6 fl oz/ac	52 a	32 a	47 a	
PROPULSE 8 fl oz/ac	43 a	24 a	49 a	
CV:	14.3	28.3	6.3	

ProPulse (6 fl oz/ac) versus non-treated

COMBINED ANALYSIS, 4 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	Single applic. at 100% R2
UNTREATED	59 a	41 a	42 a	
PROPULSE 6 fl oz/ac	54 a	34 a	47 a	
CV:	14.8	27.9	6.4	
	9% reduction	16% reduction	11% increase	

Fungicide efficacy: MANAGEMENT OF WHITE MOLD IN SOYBEANS

ProPulse 6 fl oz - two sequential applications

prothioconazole (FRAC 3), 1.67 lbs ai/gal; fluopyram (FRAC 7), 1.67 lbs ai/gal

year	2022	2023	2023
location	Carrington	Carrington	Carrington
funding	BASF	ND Soybean Council	BASF
variety	AG09Xf0	21Xf07	21Xf07
brand, maturity	Asgrow, 0.9	Peterson Farms, 0.7	Peterson Farms, 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	chickpeas
planting date	May 27	May 24-25	May 24
disease assessment date	Oct. 19	Oct. 12-13	Oct. 12
rows assessed for disease	1	1	1
harvest date	Oct. 21	Oct. 17	Oct. 17
dates, applications 1 and 2	July 23, Aug. 1	July 22, Aug. 2	July 22, Aug. 2
interval between applications	9 days	11 days	11 days
growth stage, 1st application	100% R2	100% R2	100% R2
canopy closure, 1st application	99-100%	98-100%	98-100%
nozzles, pressure, 1st application	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi
droplet size, 1st application	coarse	coarse	coarse
canopy closure, 2nd application	100%	100%	100%
nozzles, pressure, 2nd application	AIXR110015, 50 psi	AIXR110015, 40 psi	AIXR110015, 40 psi
droplet size, 2nd application	coarse	coarse	coarse
adjuvant	Masterlock, 6.4 fl oz/ac	none	Masterlock, 6.4 fl oz/ac
fungicide spray volume	15 gal/ac	15 gal/ac	15 gal/ac
application method	hand-held boom	hand-held boom	hand-held boom

Sclerotinia incidence (% of plants)

Non-treated control	82 b	62 a	54 b
PROPULSE 6 fl oz/ac	49 a	51 a	35 ab
ENDURA 6 oz/ac	53 a		33 ab
ENDURA 8 oz/c			28 a
CV:	14.4	26.4	35.6

Sclerotinia severity index (% of canopy)

Non-treated control	70 b	42 a	31 b
PROPULSE 6 fl oz/ac	35 a	32 a	18 ab
ENDURA 6 oz/ac	40 a		18 ab
ENDURA 8 oz/c			11 a
CV:	17.5	35.9	47.4

Soybean yield

Non-treated control	25 b	44 b	50 a
PROPULSE 6 fl oz/ac	43 a	53 a	56 a
ENDURA 6 oz/ac	42 a		50 a
ENDURA 8 oz/c			62 a
CV:	10.7	12.5	15

ProPulse (6 fl oz/ac) versus Endura (6.0 oz/ac)

COMBINED ANALYSIS, 2 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield
UNTREATED	68 a	51 a	38 a
PROPULSE 6 fl oz/ac	42 a	27 a	50 a
ENDURA 6 oz/ac	43 a	29 a	46 a
CV:	9.8	23.2	13.6

Two sequential applications: full R2 + 9-11 days later

ProPulse (6 fl oz/ac) versus non-treated

COMBINED ANALYSIS, 3 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield
UNTREATED	66 a	48 a	40 a
PROPULSE 6 fl oz/ac	45 a	28 a	51 a
CV:	14.2	25	9.5

33%
reduction

41%
reduction

27%
increase

Fungicide efficacy: MANAGEMENT OF WHITE MOLD IN SOYBEANS

ProPulse 8 fl oz - single application

prothioconazole (FRAC 3), 1.67 lbs ai/gal; fluopyram (FRAC 7), 1.67 lbs ai/gal

year	2020	2022	2023
location	Carrington	Carrington	Carrington
funding	Bayer	Bayer	Bayer
variety	DSR-0418	AG09Xf0	P06T04E
brand, maturity	Dairyland, 0.4	Asgrow, 0.9	Pioneer, 0.6
row spacing	21 inches	14 inches	14 inches
seeding rate	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac
previous crop	spring wheat	dry bean	chickpeas
planting date	May 18	May 27	May 24
disease assessment date	Oct. 16	Oct. 19	Oct. 12
rows assessed for disease	1	1	1
harvest date	Oct. 19	Oct. 21	Oct. 17
date fungicide was applied	July 17	July 23	July 22
growth stage, 1st applic.	100% R2	100% R2	100% R2
canopy closure, 1st applic	75-90%	99-100%	95-100%
nozzles, pressure, 1st applic.	AIXR110015, 60 psi	AIXR110015, 50 psi	AIXR110015, 50 psi
droplet size, 1st applic.	medium	coarse	coarse
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

Sclerotinia incidence (% of plants)

UNTREATED	38 a	74 b	63 b
PROPULSE 6 fl oz/ac	45 a	53 a	57 ab
PROPULSE 8 fl oz/ac	31 a	48 a	51 ab
ENDURA 5.5 oz/ac		60 ab	42 a
CV:	20	18	22

Sclerotinia severity index (% of canopy)

UNTREATED	15 a	63 b	43 b
PROPULSE 6 fl oz/ac	23 a	36 a	37 ab
PROPULSE 8 fl oz/ac	8 a	33 a	32 ab
ENDURA 5.5 oz/ac		41 a	24 a
CV:	23	25	31

Yield

UNTREATED	49 a	30 b	47 b
PROPULSE 6 fl oz/ac	49 a	39 a	51 ab
PROPULSE 8 fl oz/ac	53 a	42 a	52 ab
ENDURA 5.5 oz/ac		38 a	56 a
CV:	5.1	8.2	6.5

ProPulse (6 and 8 fl oz/ac) versus Endura (5.5 oz/ac)

COMBINED ANALYSIS, 2 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	Single fungicide application at 100% R2
UNTREATED	69 a	53 a	38 a	
PROPULSE 6 fl oz/ac	55 a	36 a	45 a	
PROPULSE 8 fl oz/ac	49 a	33 a	47 a	
ENDURA 5.5 oz/ac	51 a	33 a	47 a	
CV:	13.3	19.5	6.4	

ProPulse (8 fl oz/ac) versus non-treated

COMBINED ANALYSIS, 4 studies

	Sclerotinia incidence (%)		Sclerotinia DSI (%)		Yield		Single fungicide application at 100% R2
UNTREATED	58 a		40 a		42 a		
PROPULSE 8 fl oz/ac	43 a	26%	24 a	39%	49 a	17%	
CV:	13.7	reduction	26.5	reduction	7.6	increase	

Fungicide efficacy: MANAGEMENT OF WHITE MOLD IN SOYBEANS

Revytek 8 fl oz - single fungicide application

mefentrifluconazole (FRAC 3), 1.11 lbs ai/gal; pyraclostrobin (FRAC 11), 1.48 lbs ai/gal; fluxapyroxad (FRAC 7), 0.74 lbs ai/gal

year	2020	2021	2021
location	Carrington	Carrington	Carrington
funding	BASF	BASF	Gowan
variety	DSR-0418	DSR-0807	DSR-0807
brand, maturity	Dairyland, 0.4	Dairyland, 0.8	Dairyland, 0.8
row spacing	21 inches	21 inches	21 inches
seeding rate	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac
previous crop	spring wheat	spring wheat	spring wheat
planting date	May 18	May 12	May 12
disease assessment date	Oct. 15	Oct. 4	Oct. 4
rows assessed for disease	1	1	1
harvest date	Oct. 16	Oct. 6	Oct. 7
date fungicide was applied	July 14	July 26	July 26
growth stage, 1st applic.	100% R2	R3	R3
canopy closure, 1st applic	65-95%	1	1
nozzles, pressure, 1st applic.	AIXR110015, 60 psi	AIXR110015, 50 psi	AIXR110015, 50 psi
droplet size, 1st applic.	medium	coarse	coarse
adjuvant	none	Masterlock 6.4 fl oz	Induce 0.25%
fungicide spray volume	15 gal/ac	15 gal/ac	15 gal/ac
application method	hand-held boom	hand-held boom	hand-held boom

The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.

Sclerotinia incidence (% of plants)

UNTREATED	26 b	34 a	35 a
REVYTEK 8.0 fl oz/ac	30 b	35 a	33 a
ENDURA 6.0 oz/ac	3 a		20 a
CV:	30.7	35.6	20.3

Sclerotinia severity index (% of canopy)

UNTREATED	10 b	24 a	23 a
REVYTEK 8.0 fl oz/ac	13 b	23 a	21 a
ENDURA 6.0 oz/ac	1 a		12 a
CV:	39.5	19.8	26.9

Yield

UNTREATED	45 a	53 a	56 a
REVYTEK 8.0 fl oz/ac	47 a	55 a	57 a
ENDURA 6.0 oz/ac	49 a		62 a
CV:	15.1	8.6	9

Revytek (8 fl oz/ac) versus Endura (6.0 oz/ac)

COMBINED ANALYSIS, 2 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	Single fungicide application at R2 or R3
UNTREATED	30 a	17 b	51 a	The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.
DOMARK 5.0 fl oz/ac	31 a	17 b	52 a	
ENDURA 5.5 or 6.0 oz/ac	12 a	7 a	55 a	
CV:	21.1	11.3	2.3	

Revytek (8 fl oz/ac) versus non-treated

COMBINED ANALYSIS, 3 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	Single fungicide application at R2 or R3
UNTREATED	32 a	19.3 a	51 b	Single fungicide application at R2 or R3
DOMARK 5.0 fl oz/ac	33 a	18.9 a	53 a	
CV:	6.3	8.8	0.7	
	0% reduction	2% reduction	3% increase	

Fungicide efficacy: MANAGEMENT OF WHITE MOLD IN SOYBEANS

Revytek 8 fl oz - two fungicide applications

mefentrifluconazole (FRAC 3), 1.11 lbs ai/gal; pyraclostrobin (FRAC 11), 1.48 lbs ai/gal; fluxapyroxad (FRAC 7), 0.74 lbs ai/gal

year	2021	2021	2022
location	Carrington	Carrington	Carrington
funding	BASF	Gowan	BASF
variety	DSR-0807	DSR-0807	AG09Xf0
brand, maturity	Dairyland, 0.8	Dairyland, 0.8	Asgrow, 0.9
row spacing	21 inches	21 inches	14 inches
seeding rate	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac
previous crop	spring wheat	spring wheat	dry bean
planting date	May 12	May 12	May 27
disease assessment date	Oct. 4	Oct. 4	Oct. 19
rows assessed for disease	1	1	1
harvest date	Oct. 6	Oct. 7	Oct. 21
dates, applications 1 and 2	July 26, Aug. 6	July 26, Aug. 6	July 23, Aug. 1
interval between applications	11 days	11 days	9 days
growth stage, 1st application	R3	R3	100% R2
canopy closure, 1st application	100%	100%	99-100%
nozzles, pressure, 1st application	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi
droplet size, 1st application	coarse	coarse	coarse
canopy closure, 2nd application	100%	100%	100%
nozzles, pressure, 2nd application	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi
droplet size, 2nd application	coarse	coarse	coarse
adjuvant	Masterlock 6.4 fl oz	Induce 0.25%	Masterlock 6.4 fl oz
fungicide spray volume	15 gal/ac	15 gal/ac	15 gal/ac
application method	hand-held boom	hand-held boom	hand-held boom

The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.

Sclerotinia incidence (% of plants)

Non-treated control	42 a	35 a	82 b
REVYTEK 8 fl oz/ac	43 a	33 a	67 a
ENDURA 6 oz/ac	36 a	20 a	53 a

CV: 38.8 20.3 14.4

Sclerotinia severity index (% of canopy)

Non-treated control	27 a	23 a	70 b
REVYTEK 8 fl oz/ac	26 a	21 a	51 a
ENDURA 6 oz/ac	19 a	12 a	40 a

CV: 25 26.9 17.5

Soybean yield (bushels/acre)

Non-treated control	51 a	56 a	25 b
REVYTEK 8 fl oz/ac	51 a	57 a	33 b
ENDURA 6 oz/ac	55 a	62 a	42 a

CV: 13 9 10.7

Revytek (8 fl oz/ac) versus Endura (6.0 oz/ac)

COMBINED ANALYSIS, 2 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield
Non-treated control	53 a*	40 a*	44 a*
REVYTEK 8 fl oz/ac	47 a	33 a	47 a
ENDURA 6 oz/ac	37 a	24 a	53 a
CV:	13.8	20.6	7.2

Two sequential applications: R2 or R3 + 9-11 days later

The first fungicide application was delayed until R3 when weather did not favor white mold earlier in bloom.

Revytek (8 fl oz/ac) versus non-treated

COMBINED ANALYSIS, 3 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield
UNTREATED	53 a	40 a	44 b
REVYTEK 8 fl oz/ac	47 a	33 a	47 a
CV:	6.3	8.8	0.7

11%
reduction

18%
reduction

6%
increase

Two sequential applications: R2 or R3 + 9-11 days later

Fungicide efficacy: MANAGEMENT OF WHITE MOLD IN SOYBEANS

Topsin/generic 20 fl oz - single fungicide application

thiophanate-methyl (FRAC 1), 4.5 lbs ai/gal

year	2020	2020	2020	2020	2020	2023
location	Oakes	Oakes	Carrington	Carrington	Carrington	Carrington
funding	ND Soybean Council	ND Soybean Council	ND Soybean Council	Gowan	BASF	ND Soybean Council
variety	GH0543X	14R09N	14R09N	DSR-0418	DSR-0418	21Xf07
brand, maturity	Golden Harvest, 0.5	Peterson Farms, 0.9	Peterson Farms, 0.9	Dairyland, 0.4	Dairyland, 0.4	Peterson Farms, 0.7
row spacing	22.5 inches	22.5 inches	21 inches	21 inches	21 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
previous crop	sunflowers	sunflowers	dry bean	spring wheat	spring wheat	chickpeas
planting date	May 12	May 12	May 18	May 18	May 18	May 24-25
disease assessment date	Aug. 26. 28	Sept. 25	Oct. 12-15	Oct. 16	Oct. 15	Oct. 12-13
rows assessed for disease	1	1	1	1	1	1
harvest date	Oct. 8-9	Oct. 8-9	Oct. 15-16	Oct. 19	Oct. 16	Oct. 17
date fungicide was applied	July 8	July 8	July 10	July 16	July 14	July 22
growth stage, 1st applic.	65% R2, 35% R3	79% R2, 21% R3	89% R2, 100% bloom	100% R2	100% R2	100% R2
canopy closure, 1st applic	91% average	87% average	87% average	75-85%	65-95%	98-100%
nozzles, pressure, 1st applic.	AIXR110015, 60 psi	AIXR110015, 60 psi	AIXR110015, 60 psi	AIXR110015, 60 psi	AIXR110015, 60 psi	AIXR110015, 50 psi
droplet size, 1st applic.	medium	medium	medium	medium	medium	coarse
adjuvant	none	none	none	none	none	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

Sclerotinia incidence (% of plants)

UNTREATED	4 a	2 a	18 ab	25 a	26 b	79 a
TOPSIN or generic 20 fl oz/ac	4 a	4 a	25 b	26 a	16 ab	69 a
ENDURA 5.5 or 6.0 oz/ac	2 a	2 a	12 a	31 a	3 a	
CV:	55	46	43	53	31	13

Sclerotinia severity index (% of canopy)

UNTREATED	2 a	1 a	11 ab	8 a	10 b	60 b
TOPSIN or generic 20 fl oz/ac	2 a	2 a	17 b	8 a	5 ab	48 a
ENDURA 5.5 or 6.0 oz/ac	1 a	0 a	7 a	10 a	1 a	
CV:	46	49	53	68	40	15

Yield

UNTREATED	77 a	76 a	53 a	46 a	45 a	32 a
TOPSIN or generic 20 fl oz/ac	79 a	76 a	50 a	45 a	46 a	38 a
ENDURA 5.5 or 6.0 oz/ac	77 a	79 a	54 a	42 a	49 a	
CV:	3.5	3.8	6.8	8.2	15.1	17

Topsin/generic (20 fl oz/ac) versus Endura (5.5 or 6.0 oz/ac) COMBINED ANALYSIS, 5 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	
UNTREATED	15 a	6 a	59 a	Single fungicide application at early to full R2
TOPSIN or generic 20 fl oz/ac	15 a	7 a	59 a	
ENDURA 5.5 or 6.0 oz/ac	10 a	4 a	60 a	
CV:	44.3	52.6	2.9	

Topsin/generic (20 fl oz/ac) versus non-treated COMBINED ANALYSIS, 6 studies

	Sclerotinia incidence (%)		Sclerotinia DSI (%)		Yield	
UNTREATED	26 a		15 a		55 a	Single fungicide application at early to full R2
TOPSIN or generic 20 fl oz/ac	24 a	7%	13 a	13%	56 a	
CV:	20.2	reduction	31.2	reduction	3.1	increase

Fungicide efficacy: MANAGEMENT OF WHITE MOLD IN SOYBEANS

Topsin/generic 20 fl oz - two sequential applications

thiophanate-methyl (FRAC 1), 4.5 lbs ai/gal

year	2020	2020	2020	2023	
location	Oakes	Oakes	Carrington	Carrington	
funding	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	
variety	GH0543X	14R09N	14R09N	21Xf07	
brand, maturity	Golden Harvest, 0.5	Peterson Farms, 0.9	Peterson Farms, 0.9	Peterson Farms, 0.7	
row spacing	22.5 inches	22.5 inches	21 inches	14 inches	
seeding rate	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	
previous crop	sunflowers	sunflowers	dry bean	chickpeas	
planting date	May 12	May 12	May 18	May 24-25	
disease assessment date	Aug. 26. 28	Sept. 25	Oct. 12-15	Oct. 12-13	
rows assessed for disease	1	1	1	1	
harvest date	Oct. 8-9	Oct. 8-9	Oct. 15-16	Oct. 17	
dates, applications 1 and 2	July 8, 15	July 8, 15	July 10, 20	July 22, Aug. 2	The first fungicide application was delayed until late R2 when weather did not favor white mold earlier in bloom.
interval between applications	7 days	7 days	10 days	11 days	
growth stage, 1st application	65% R2, 35% R3	79% R2, 21% R3	89% R2, 100% bloom	100% R2	
canopy closure, 1st application	91% average	87% average	87% average	98-100%	
nozzles, pressure, 1st application	AIXR110015, 60 psi	AIXR110015, 60 psi	AIXR110015, 60 psi	AIXR110015, 50 psi	
droplet size, 1st application	medium	medium	medium	coarse	
canopy closure, 2nd application	95% average	94% average	98% average	100%	
nozzles, pressure, 2nd application	AIXR110015, 40 psi	AIXR110015, 40 psi	AIXR110015, 40 psi	AIXR110015, 40 psi	
droplet size, 2nd application	coarse	coarse	coarse	coarse	
adjuvant	none	none	none	none	
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	

Sclerotinia incidence (% of plants)

Non-treated control	4 b	2 b	18 b	79 b
TOPSIN or generic 20 fl oz/ac	3 ab	3 b	11 ab	68 a
ENDURA 5.5 oz/ac	1 a	0 a	6 a	
CV:	55.1	45.6	43.5	12.6

Sclerotinia severity index (% of canopy)

Non-treated control	2 b	1 b	11 b	60 b
TOPSIN or generic 20 fl oz/ac	1 ab	1 b	7 ab	47 a
ENDURA 5.5 oz/ac	0 a	0 a	3 a	
CV:	45.9	48.8	53.0	15.4

Soybean yield

Non-treated control	77 a	76 a	53 a	32 a
TOPSIN or generic 20 fl oz/ac	79 a	76 a	55 a	40 a
ENDURA 5.5 oz/ac	77 a	79 a	57 a	
CV:	3.5	3.8	6.8	17

Topsin/generic (20 fl oz/ac) versus Endura (5.5 oz/ac)

COMBINED ANALYSIS, 5 studies

	Sclerotinia incidence (%)	Sclerotinia DSI (%)	Yield	Two sequential applications: early to late R2 + 7-11 days later
UNTREATED	8 b	5 b	69 a	
TOPSIN or generic 20 fl oz/ac	6 b	3 ab	70 a	
ENDURA 5.5 oz/ac	2 a	1 a	71 a	
CV:	13.2	20.7	2.2	

Topsin/generic (20 fl oz/ac) versus non-treated

Two sequential applications: early to late R2 + 7-11 days later

	Sclerotinia incidence (%)		Sclerotinia DSI (%)		Yield	
UNTREATED	26 a		18 a		60 a	
TOPSIN or generic 20 fl oz/ac	21 a	18%	14 a	24%	63 a	5%
CV:	8.5	reduction	11.6	reduction	4	increase

Fungicide efficacy: MANAGEMENT OF WHITE MOLD (Sclerotinia stem rot) OF SOYBEANS													
Topsin/generic 40 fl oz - single application													
thiophanate-methyl (FRAC 1), 4.5 lbs ai/gal													
year	2021	2021	2021	2021	2021	2021	2022	2022	2022	2022	2022	2022	2022
location	Oakes	Oakes	Oakes	Carrington	Carrington	Carrington	Carrington	Carrington	Carrington	Carrington	Oakes	Oakes	Oakes
funding	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council
variety	AG06X8	AG09XF0	AG11X8	AG009X8	AG06X8	AG09XF0	AG06X8	XO0602E	XO0731E	AG09XF0	DSR1120	AG11X8	AG09XF0
brand, maturity	Asgrow, 0.6	Asgrow, 0.9	Asgrow, 1.1	Asgrow, 0.09	Asgrow, 0.6	Asgrow, 0.9	Asgrow, 0.6	Xitavo, 0.6	Xitavo, 0.7	Asgrow, 0.9	Dairyland, 1.1	Asgrow, 1.1	Asgrow, 0.9
row spacing	21 inches	21 inches	21 inches	14 inches	14 inches	14 inches	14 inches	14 inches	14 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	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac
previous crop	various crops	various crops	various crops	sunflowers	sunflowers	sunflowers	dry bean	dry bean	dry bean	dry bean	various	various	various
planting date	May 4	May 4	May 4	May 17	May 17	May 17	May 27	May 27	May 27	May 27	June 2	June 2	June 2
disease assessment date	Sept. 30	Sept. 30	Sept. 30	Oct. 4-5	Oct. 4-5	Oct. 4-5	Oct. 14-19	Oct. 14-19	Oct. 14-19	Oct. 14-19	Oct. 21	Oct. 21	Oct. 21
rows assessed for disease	1	1	1	1	1	1	1	1	1	1	1	1	1
harvest date	Oct. 7-8	Oct. 7-8	Oct. 7-8	Oct. 15-16	Oct. 15-16	Oct. 15-16	Oct. 20	Oct. 20	Oct. 20	Oct. 20	Oct. 21-22	Oct. 21-22	Oct. 21-22
date fungicide was applied	July 5	July 5	July 5	July 23	July 23	July 23	July 21	July 21	July 21	July 21	July 24	July 24	July 24
growth stage, 1st applic.	81% R2 100% bloom	66% R2 100% bloom	70% R2 100% bloom	100% R2	100% R2	100% R2	100%R2	100% R2	98% R2 100% bloom	100%R2	100%R2	100%R2	100%R2
canopy closure, 1st applic	90-100%	95-100%	95-100%	90-95%	95-100%	95-100%	99-100%	0.95	98-100%	97-100%	95-100%	95-100%	95-100%
nozzles, pressure, 1st applic.	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi
droplet size, 1st applic.	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse
adjuvant	none	none	none	none	none	none	none	none	none	none	none	none	none
fungicide spray volume	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	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	hand-held boom	hand-held boom	hand-held boom	hand-held boom	hand-held boom	hand-held boom
Sclerotinia incidence (% of plants)													
UNTREATED	55 a	43 b	51 a	8 b	77 b	62 a	92 a	80 b	91 b	79 b	3 a	12 a	8 a
TOPSIN or generic 40 fl oz/ac	61 a	37 ab	52 a	2 a	62 ab	55 a	83 a	65 a	74 a	65 a	2 a	4 a	5 a
ENDURA 5.5 oz/ac	54 a	27 a	44 a	3 a	51 a	42 a	81 a	63 a	79 ab	65 a	2 a	4 a	3 a
CV:	29.9	38.4	37.4	91.7	27.9	32.0	13.0	13.2	11.3	12.9	105.9	78.5	73.2
Sclerotinia severity index (% of canopy)													
UNTREATED	38 a	29 a	34 a	4 b	49 b	37 b	86 a	72 b	84 b	70 b	1 a	5 a	3 a
TOPSIN or generic 40 fl oz/ac	42 a	26 a	36 a	1 a	37 ab	31 ab	73 a	55 a	64 a	53 a	1 a	2 a	1 a
ENDURA 5.5 oz/ac	40 a	18 a	30 a	2 ab	30 a	19 a	71 a	53 a	68 a	55 a	1 a	1 a	1 a
CV:	36.2	52.1	17.1	117.1	39.4	49.0	15.3	16.5	13.0	15.5	133.6	98.2	84.8
Yield													
UNTREATED	60 a	67 a	68 a	58 a	42 b	41 a	25 b	29 b	21 b	25 b	67 a	73 a	71 a
TOPSIN or generic 40 fl oz/ac	58 a	66 a	68 a	60 a	48 ab	43 a	34 a	40 a	32 a	34 a	67 a	75 a	71 a
ENDURA 5.5 oz/ac	64 a	72 a	68 a	59 a	55 a	53 a	37 a	37 a	31 a	40 a	70 a	75 a	72 a
CV:	14.7	8	11.5	6.1	9.1	9	12.1	10.6	13.3	10.6	4.8	5.8	4.8
Topsin/generic (40 fl oz/ac) versus Endura (5.5 oz/ac)				Sclerotinia incidence		Sclerotinia severity index		Yield					
COMBINED ANALYSIS, 13 studies				% of plants		% of canopy		bu/ac					
Single fungicide application at early to full R2				UNTREATED	51 b		39 b		50 b				
				TOPSIN or generic 40 fl oz/ac	44 a		32 a		53 a				
				ENDURA 5.5 oz/ac	40 a		30 a		56 a				
				CV:	10.4		14.5		6.3				
Topsin/generic (40 fl oz/ac) versus non-treated				Sclerotinia incidence		Sclerotinia severity index		Yield					
COMBINED ANALYSIS, 13 studies				% of plants		% of canopy		bu/ac					
Single fungicide application at early to full R2				UNTREATED	51 a		39 a		50 a				
				TOPSIN or generic 40 fl oz/ac	44 a	14% reduction	32 a	18% reduction	53 a	7% increase			
				CV:	8.5		11.6		4				

Fungicide efficacy: MANAGEMENT OF WHITE MOLD (Sclerotinia stem rot) OF SOYBEANS

Topsin 40 fl oz/ac followed by Endura 5.5 oz/ac versus Endura 5.5 oz/ac applied twice sequentially

TOPSIN: thiophanate-methyl (FRAC 1), 4.5 lbs ai/gal						ENDURA: boscalid (FRAC 7), 70% by weight						
year	2021	2021	2021	2021	2021	2022	2022	2022	2022	2022	2022	2022
location	Oakes	Oakes	Oakes	Carrington	Carrington	Carrington	Carrington	Carrington	Carrington	Carrington	Oakes	Oakes
funding	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council	ND Soybean Council
variety	AG06X8	AG09XF0	AG11X8	AG009X8	AG06X8	AG09XF0	AG06X8	XO0602E	XO0731E	AG09XF0	DSR1120	AG11X8
brand, maturity	Asgrow, 0.6	Asgrow, 0.9	Asgrow, 1.1	Asgrow, 0.09	Asgrow, 0.6	Asgrow, 0.9	Asgrow, 0.6	Xitavo, 0.6	Xitavo, 0.7	Asgrow, 0.9	Dairyland, 1.1	Asgrow, 1.1
row spacing	21 inches	21 inches	21 inches	14 inches	14 inches	14 inches	14 inches	14 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	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac	165,000 pls/ac
previous crop	various crops	various crops	various crops	sunflowers	sunflowers	sunflowers	dry bean	dry bean	dry bean	dry bean	various	various
planting date	May 4	May 4	May 4	May 17	May 17	May 17	May 27	May 27	May 27	May 27	June 2	June 2
disease assessment date	Sept. 30	Sept. 30	Sept. 30	Oct. 4-5	Oct. 4-5	Oct. 4-5	Oct. 14-19	Oct. 14-19	Oct. 14-19	Oct. 14-19	Oct. 21	Oct. 21
rows assessed for disease	1	1	1	1	1	1	1	1	1	1	1	1
harvest date	Oct. 7-8	Oct. 7-8	Oct. 7-8	Oct. 15-16	Oct. 15-16	Oct. 15-16	Oct. 21	Oct. 20	Oct. 20	Oct. 20	Oct. 21-22	Oct. 21-22
dates, applications	1 and 2 July 5, 12	July 5, 12	July 5, 19	July 23, 30	July 23, 30	July 23, 30	July 21, 28	July 21, 28	July 21, 28	July 21, 28	July 24, Aug. 5	July 24, Aug. 5
interval between applications	7 days	7 days	14 days	7 days	7 days	7 days	7 days	7 days	7 days	7 days	12 days	12 days
growth stage, 1st application	81% R2, 100% bloom	66% R2, 100% bloom	70% R2, 100% bloom	100% R2	100% R2	100% R2	100% R2	100% R2	100% R2	98% R2, 100% in bloom	100%R2	100%R2
canopy closure, 1st application	90-100%	95-100%	95-100%	90-95%	95-100%	95-100%	99-100%	95%	98-100%	97-100%	95-100%	95-100%
nozzles, pressure, 1st application	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi
droplet size, 1st application	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse
canopy closure, 2nd application	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
nozzles, pressure, 2nd application	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi	AIXR110015, 50 psi
droplet size, 2nd application	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse	coarse
adjuvant	none	none	none	none	none	none	none	none	none	none	none	none
fungicide spray volume	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	15 gal/ac	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	hand-held boom	hand-held boom	hand-held boom	hand-held boom	hand-held boom
Sclerotinia incidence (% of plants)												
Non-treated control	55 a	43 b	51 b	8 b	77 bc	62 b	92 b	80 b	91 b	79 b	3 a	12 a
Endura 5.5 oz applied twice	38 a	12 a	17 a	2 a	34 a	19 a	67 a	55 a	71 a	71 a	2 a	4 a
Topsin 40 fl oz / Endura 5.5 oz	38 a	24 a	29 a	3 a	62 ab	36 a	65 a	54 a	66 a	59 a	1 a	3 a
CV:	30	38	37	92	28	32	13	13	11	13	106	79
Sclerotinia severity index (% of canopy)												
Non-treated control	38 a	29 b	34 b	4 b	49 b	37 b	86 b	72 b	84 b	70 b	1 a	5 a
Endura 5.5 oz applied twice	27 a	8 a	10 a	1 a	17 a	6 a	55 a	44 a	58 a	58 a	1 a	1 a
Topsin 40 fl oz / Endura 5.5 oz	29 a	16 a	16 a	1 a	37 b	15 a	54 a	44 a	54 a	43 a	0 a	1 a
CV:	36	52	17	117	39	49	15	17	13	16	134	98
Soybean yield												
Non-treated control	60 a	67 a	68 b	58 a	42 a	41 a	25 b	29 b	21 b	25 b	67 a	73 a
Endura 5.5 oz applied twice	67 a	76 a	85 a	58 a	59 b	58 a	47 a	47 a	38 a	38 a	68 a	76 a
Topsin 40 fl oz / Endura 5.5 oz	65 a	73 a	82 a	58 a	48 a	53 a	43 a	44 a	40 a	42 a	68 a	79 a
CV:	14.7	8	11.5	6.1	9.1	9	12.1	10.6	13.3	10.6	4.8	5.8
Topsin/generic (40 fl oz/ac) followed by Endura (5.5 oz/ac) vs Endura (5.5 oz/ac) applied twice sequentially						Sclerotinia incidence % of plants	Sclerotinia severity index % of canopy	Yield bu/ac				
COMBINED ANALYSIS, 13 studies						UNTREATED	51 b	39 b				
Two fungicide applications: early to full R2 + 7-14 days later						ENDURA 5.5 oz/ac applied twice	30 a	22 a				
						TOPSIN 40 fl oz f.b. ENDURA 5.5 oz	34 a	24 a				
						CV:	9.9	9.9				
Topsin/generic (40 fl oz/ac) followed by Endura (5.5 oz/ac) vs non-treated						Sclerotinia incidence % of plants	Sclerotinia severity index % of canopy	Yield bu/ac				
COMBINED ANALYSIS, 13 studies						UNTREATED	51 a	39 a				
Two fungicide applications: early to full R2 + 7-14 days later						TOPSIN 40 fl oz f.b. ENDURA 5.5 oz	34 a	33% reduction	24 a	39% reduction	59 a	18% increase
						CV:	9		6.1		9.6	