



CANOLA ON-FARM RESEARCH

PROGRAM RESULTS

2025

Canola On-Farm Research



MCGA's On-Farm Research Program collaborates with farmers, agronomists, and researchers to provide the most relevant and valuable information for the productivity, profitability, and sustainability of the canola sector in Manitoba.

Overview:

From 2022 to 2025, MCGA's On-Farm Research (OFR) Program has conducted a total of 90 trials through the dedicated participation of Manitoba canola farmers, agronomic partners, and researchers.

The OFR program began in 2022 with 3 trial types: nitrogen rate, seeding rate and bioinoculant trials.

New trial types have been developed based on the suggestions, priorities, and guidance of canola farmers. This includes: Phosphorus Source and Rate, Seed-Placed Fertilizer Toxicity, and in 2025, two new trial protocols focused specifically on Verticillium Stripe: the Early-Season Fungicide and Harvest Management.

2025 Agronomic Partners:



program funding provided in part by:



Please contact Kendall Baker at (204) 724-8265 or kendallecanolagrowers.com if you are:

A canola grower who is interested in participating or has a trial idea for our on-farm program.

An agronomist who is interested in working with MCGA as an Agronomic Partner. MCGA contracts agronomists from across the province to work with farms to establish, manage and harvest research trials.

A researcher who is interested in collaborating with the Canola On-Farm Research Program to complement your research program.

Canola On-Farm Research



The 2025 On-Farm Research season saw a total of 41 trial locations across Manitoba, 13 of which were new *Verticillium*-focused trials, indicating farmers' interest in contributing to fundamental research on important yield robbers affecting themselves and their neighbours.

Trial Type	2025 Trial Locations	Testing Years
Nitrogen Rate	4	2022-2025
Seeding Rate	4	2022-2025
Phosphorus Source	4	2024-2025
Seed Placed Fertilizer Toxicity	16	2023-2025
Early Season Fungicide	8	2025
Harvest Management	5	2025



Trial Summary

Canola Nitrogen Rate Trial

Research Question:

Are N rates being used on canola across Manitoba sufficient for optimizing yield and nitrogen efficiency?

Treatments:

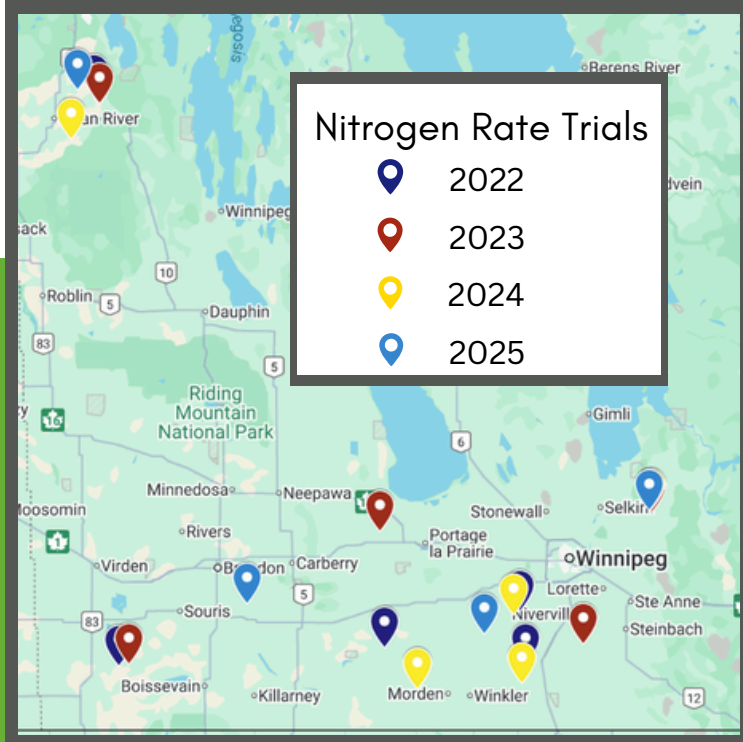
1. Reduced N Rate (75%)
2. Standard N Rate (100%) - Farm Normal for Field
3. High N Rate (125%)

Trial Setup:

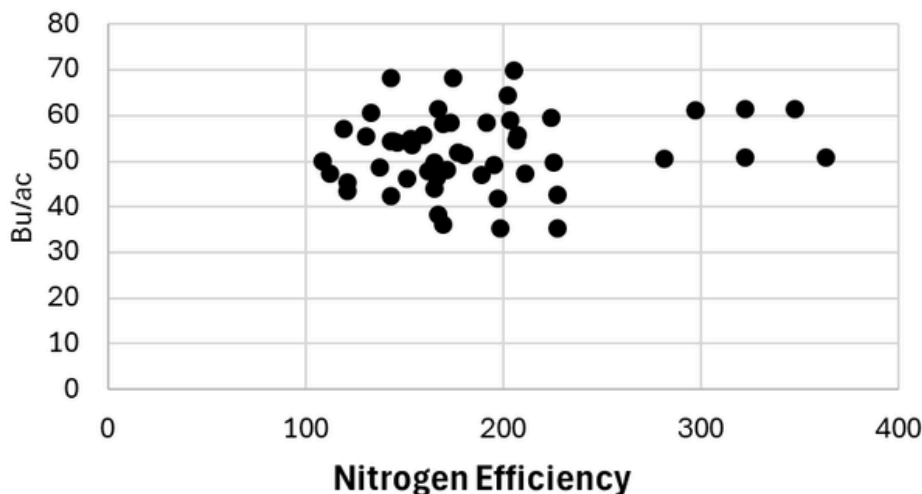
Randomized complete block, each treatment was one equipment width x field length, with 4 replicates per locations (12 strips per location)

Data Collection:

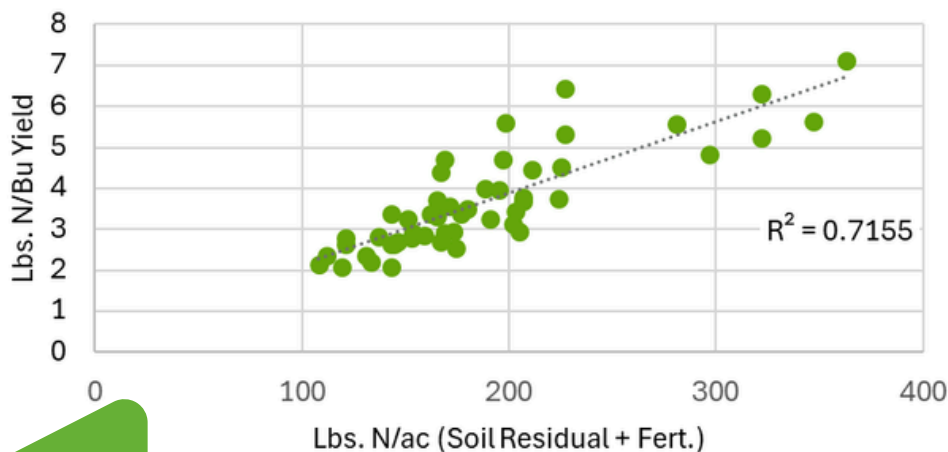
Plant Counts, Tissue N (bolting), Yield, Protein, Oil Content



Grain Yield



Background: Current research indicates that canola uptakes an average of 2.6 lbs. of N per bushel of grain yield, with a wide range of 1.3 to 3.6 (Walley et al. 2023). The amount of N available to the crop during the growing season from fertilizer applications and soil supplies can vary widely depending on management and growing season conditions. This makes understanding crop N use on a farm level a major priority for farmers to ensure they are supplying canola with sufficient N while maximizing return on investment.



2022 - 2025 Summary: The vast majority (95%) of fields tested in this trial since 2022 were supplying sufficient N with their current practices, seeing no significant increase in grain yield with a 25% increase in N rate (95% confidence).

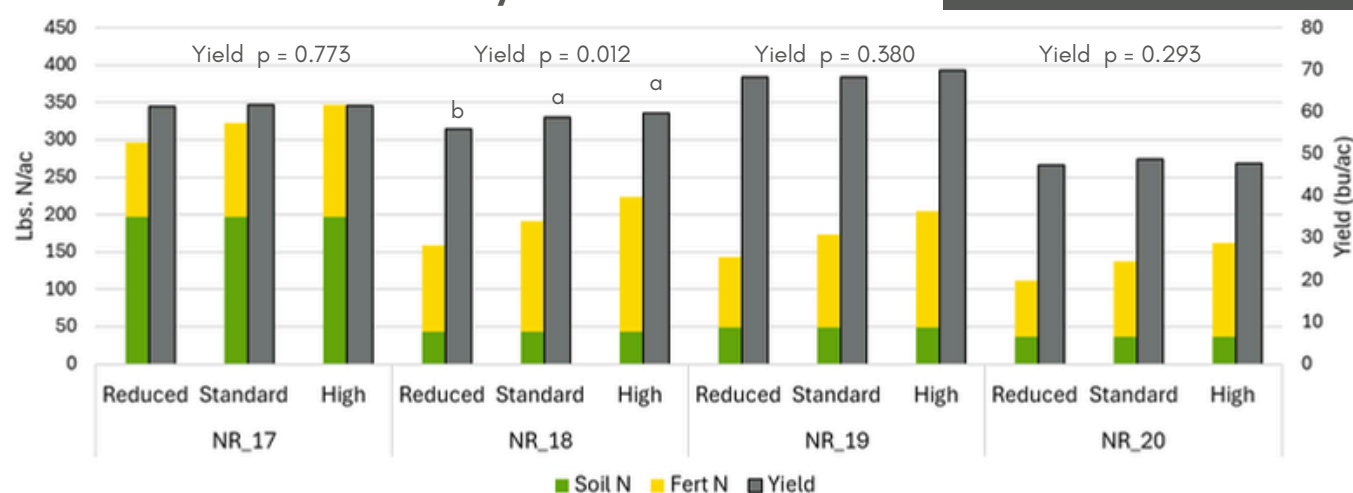
2025 Results Summary

Canola Nitrogen Rate Trials

2025 Nitrogen Rate Trial Sites

Trial ID	RM	Soil Residual N (0-6 in)	N Rates (lbs. N/ac)			N Source
			Reduced	Standard	High	
NR_17	Oakland-Wawanesa	197 lbs/ac	100	125	150	Urea
NR_18	Brokenhead	43 lbs/ac	116	148	181	Urea
NR_19	Dufferin	49 lbs/ac	94	125	156	UAN
NR_20	Minitonas	37 lbs/ac	75	100	125	Anhydrous Ammonia

N Rate – 2025 Results Summary



Within each trial location, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Locations with no lowercase letters listed indicate an insignificant treatment effect.

Grain Yield

Yield ranged from 47 to 70 bu/ac across all N rate trials in 2025. There was no significant effect of N rate at three of four trial locations, indicating that N was not a yield limiting factor in these trials. At NR_18, yield was similar between standard and high N rate treatments, but significantly decreased (2.80 bu/ac) when using the reduced N rate treatment.

Nitrogen Efficiency

The average amount of N supplied per bushel of grain yield was 3.5 lbs N/bu, ranging from 2.1 to 5.6 lbs N/bu across trials in 2025. Yields did not significantly increase with the use of high N rates - fertilizer efficiency of high N rate treatments was significantly poorer than the standard rate across all trials, resulting in reduced economic returns as more N was utilized to produce similar yields.

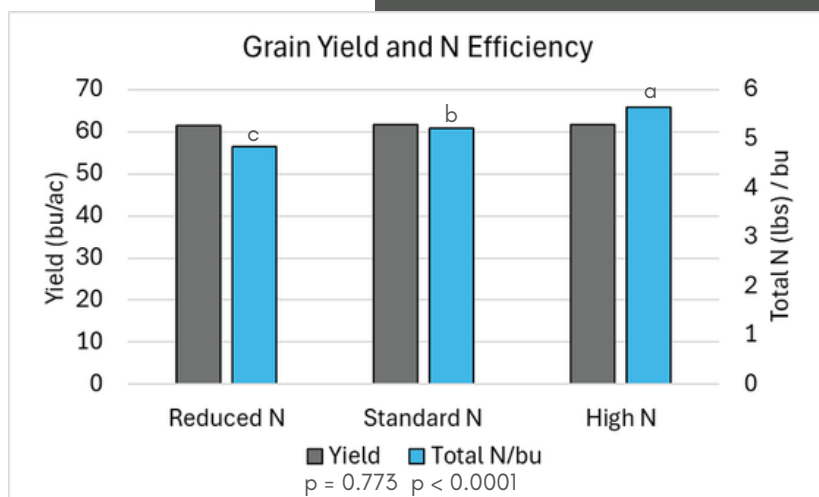
Nitrogen Rate Trial NR_17

Site Info

Trial ID: NR_17
Rural Municipality: Oakland-Wawanesa
Residual N (0-24"): 197 lbs./ac
Seeding Date: May 27, 2025
Seeding Equipment: Bourgault 5710
 Hoe Drill
Variety: L340 PC
Harvest Date: Sept 24, 2025

Nitrogen Application

Source: Urea
Placement: 80lbs banded in fall and balance in spring
Timing: Fall + Spring



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Results Summary

Plant Establishment: N Rate had no effect on plant establishment in this trial

Tissue N: N Rate had no effect on N Tissue content at bolting in this trial

Grain Yield: Yield was not significantly influenced by N rate treatments in this trial. However, the reduced N rate improved N use efficiency, utilizing 4.85 lbs N to produce one bushel of grain yield compared to 5.22 lbs N/bu and 5.64 lbs N/bu utilized by standard and high rates, respectively.

Profitability: The reduced N rate treatment lowered costs while maintaining a similar yield to the farm standard N rate, returning \$17/ac more profit than the standard. The high N rate treatment did not significantly increase yield, cutting profit by \$17/ac compared to the standard.

Treatment	Fertilizer N Applied	Total N (Soil + Fert)	Plant Counts at 4-leaf	Tissue N at Bolting	Grain Moisture
	Lbs. N/ac	Lbs. N/ac	plants/ft ²	%	%
Reduced N	100	297	6.3	4.83	5.53
Standard N	125	322	6.35	4.47	5.48
High N	150	347	5.89	5.11	5.50
	<i>p-value</i>		0.660	0.440	0.870

Nitrogen Rate Trial NR_17 Continued



NR_17 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	20.8	74.3	16.5	53.3	31.1	43.3	239.3
Avg Daily Temp (°C)	4.52	12.94	16.6	18.3	18.52	15.31	

NR_17 Economic Analysis

N Rate	Mean yield (bu/ac)	N Fert Cost ¹	Change in Profit from Farm Standard ²
100 lb/ac	61.35	\$68/ac	\$17/ac
125 lb/ac	61.70	\$85/ac	-
150 lb/ac	61.58	\$102/ac	-\$17/ac
P-value	0.773		
CV	1.95		

¹ Based on 2025 MB Cost of Production: estimated cost of urea ~ \$690/mt N, \$0.68/lb N

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.



Agronomic Support for this Trial
Provided by:

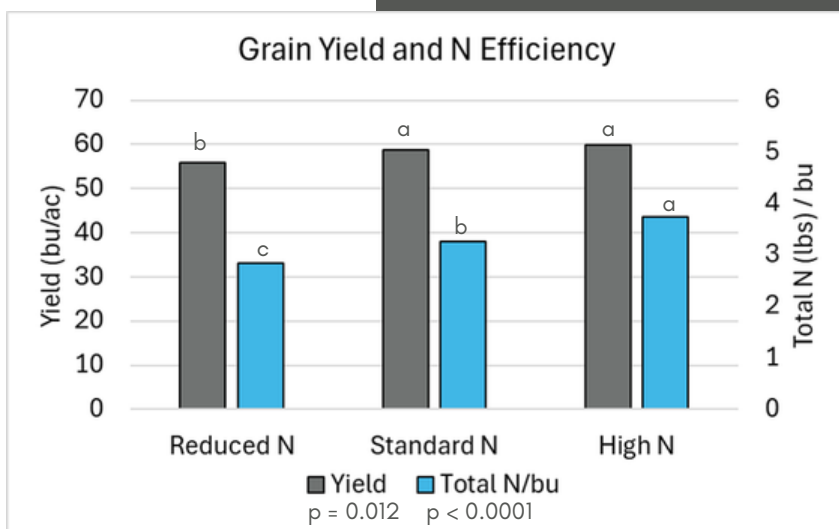
Nitrogen Rate Trial NR_18

Site Info

Trial ID: NR_18
Rural Municipality: Brokenhead
Residual N (0-24''): 43 lbs./ac
Seeding Date: May 9, 2025
Seeding Equipment: Bourgault 3820
 Air Planter
Variety: L356PC
Harvest Date: Aug 30, 2025

Nitrogen Application

Source: Urea, Ammonium Sulfate, MAP
Placement: Mid-Row Band
Timing: Seeding



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Results Summary

Plant Establishment: N Rate had no effect on plant establishment in this trial

Tissue N: There was a significant decrease in tissue N with the reduced N rate treatment relative to the standard treatment, but no significant difference in tissue N between the standard and high N rate treatments.

Grain Yield: Yield was significantly decreased by the low N rate treatment, compared to the standard and high N rate treatments. However, the reduced N rate improved N use efficiency, utilizing 2.85 lbs N to produce one bushel of grain yield compared to 3.26 lbs N/bu and 3.75 lbs N/bu utilized by standard and high rates, respectively.

Profitability: The reduced N rate treatment lowered costs, however also significantly lowered yields worth approximately \$15/ac relative to the farm standard treatment. The high N rate treatment did not significantly increase yield, cutting profit by \$22/ac compared to the standard.

Treatment	Fertilizer N Applied	Total N (Soil + Fert)	Plant Counts at 4-leaf	Tissue N at Bolting	Grain Moisture
	<i>Lbs. N/ac</i>	<i>Lbs. N/ac</i>	<i>plants/ft²</i>	<i>%</i>	<i>%</i>
Reduced N	116	159	9.85	5.28 ^b	7.80
Standard N	148	191	10.55	5.68 ^a	8.40
High N	181	224	10.15	5.49 ^{ab}	8.28
<i>p-value</i>			<i>0.220</i>	<i>0.050</i>	<i>0.680</i>

Nitrogen Rate Trial NR_18 Continued



NR_18 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	13	23.5	29.8	29.1	116.8	37	249.2
Avg Daily Temp (°C)	3.85	14.3	17.21	19.37	19.49	16	

NR_18 Economic Analysis

N Rate	Mean yield (bu/ac)	N Fert Cost ¹	Change in Profit from Farm Standard ²
116 lb/ac	55.90 ^b	\$79/ac	-\$15/ac
148 lb/ac	58.69 ^a	\$101/ac	-
181 lb/ac	59.79 ^a	\$123/ac	-\$22/ac
P-value	0.012		
CV	3.62		

¹ Based on 2025 MB Cost of Production: estimated cost of urea ~ \$690/mt N, \$0.68/lb N

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different between standard and high rates, therefore there is no difference in grain sales income.



Agronomic Support for this Trial
Provided by:

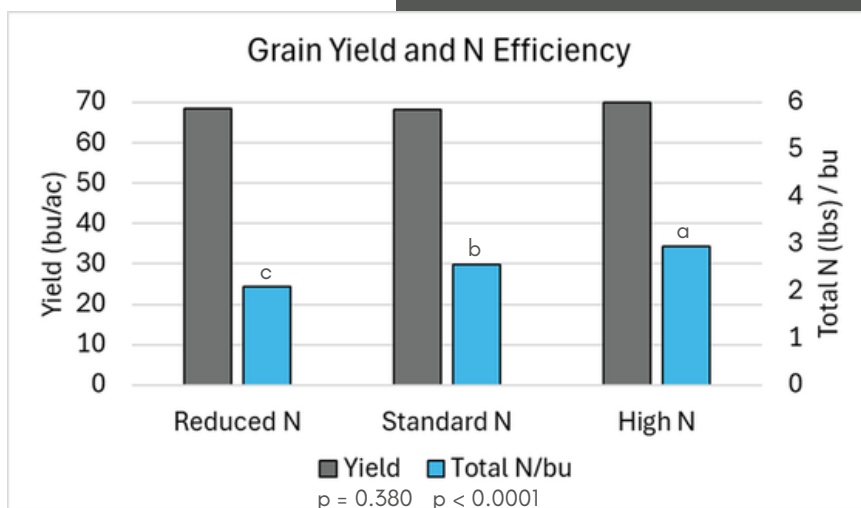
Nitrogen Rate Trial NR_19

Site Info

Trial ID: NR_19
Rural Municipality: Dufferin
Residual N (0-24''): 49 lbs./ac
Seeding Date: May 4, 2025
Seeding Equipment: Disc Drill
Variety: Invigor L340PC
Harvest Date: September 7, 2025

Nitrogen Application

Source: 28-0-0
Placement: Mid-Row Band
Timing: Seeding



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Results Summary

Plant Establishment: N Rate had no effect on plant establishment in this trial

Tissue N: N Rate had no effect on N Tissue content at bolting in this trial

Grain Yield: Yield was not significantly influenced by N rate treatments in this trial. However, the reduced N rate improved N use efficiency, utilizing 2.10 lbs N to produce one bushel of grain yield compared to 2.55 lbs N/bu and 2.93 lbs N/bu utilized by standard and high rates, respectively.

Profitability: The reduced N rate treatment lowered costs while maintaining a similar yield to the farm standard N rate, returning \$20/ac more profit than the standard. The high N rate treatment did not significantly increase yield, cutting profit by \$22/ac compared to the standard.

Treatment	Fertilizer N Applied	Total N (Soil + Fert)	Plant Counts at 4-leaf	Tissue N at Bolting	Grain Moisture
	<i>Lbs. N/ac</i>	<i>Lbs. N/ac</i>	<i>plants/ft²</i>	<i>%</i>	<i>%</i>
Reduced N	94	143	7.27	6.18	9.35
Standard N	125	174	7.41	6.20	9.40
High N	156	205	7.39	6.42	9.18
	<i>p-value</i>		<i>0.910</i>	<i>0.110</i>	<i>0.820</i>

Nitrogen Rate Trial NR_19 Continued



NR_19 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	23.8	36.4	33.7	39	46.1	70.3	249.3
Avg Daily Temp (°C)	4.89	14.18	17.54	18.99	18.85	15.71	

NR_19 Economic Analysis

N Rate	Mean yield (bu/ac)	N Fert Cost ¹	Change in Profit from Farm Standard ²
94 lb/ac	68.34	\$64/ac	\$20/ac
124 lb/ac	68.27	\$84/ac	-
156 lb/ac	69.97	\$106/ac	-\$22/ac
P-value	0.380		
CV	3.75		

¹ Based on 2025 MB Cost of Production: estimated cost of urea ~ \$690/mt N, \$0.68/lb N

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.



Agronomic Support for this Trial
Provided by:

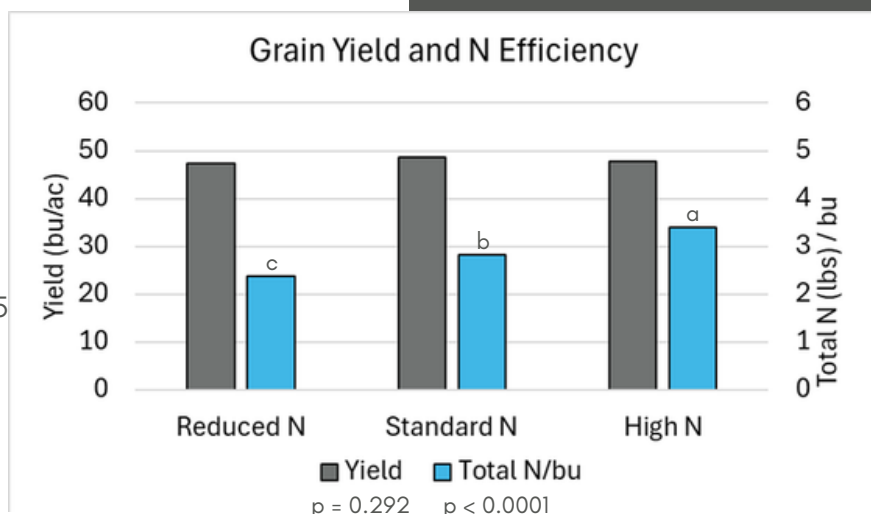
Nitrogen Rate Trial NR_20

Site Info

Trial ID: NR_20
Rural Municipality: Minitonas
Residual N (0-24"): 37 lbs./ac
Seeding Date: May 27, 2025
Seeding Equipment: Bourgault
Variety: L330
Harvest Date: September 13, 2025

Nitrogen Application

Source: Anhydrous Ammonia
Placement: Banded
Timing: Fall of 2024



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Results Summary

Plant Establishment: N Rate had no effect on plant establishment in this trial

Tissue N: N Rate had no effect on N Tissue content at bolting in this trial

Grain Yield: Yield was not significantly influenced by N rate treatments in this trial. However, the reduced N rate improved N use efficiency, utilizing 2.37 lbs N to produce one bushel of grain yield compared to 2.82 lbs N/bu and 3.39 lbs N/bu utilized by standard and high rates, respectively.

Profitability: The reduced N rate treatment lowered costs while maintaining a similar yield to the farm standard N rate, returning \$17/ac more profit than the standard. The high N rate treatment did not significantly increase yield, cutting profit by \$17/ac compared to the standard.

Treatment	Fertilizer N Applied	Total N (Soil + Fert)	Plant Counts at 4-leaf	Tissue N at Bolting	Grain Moisture
	Lbs. N/ac	Lbs. N/ac	plants/ft ²	%	%
Reduced N	75	112	5.72	5.79	9.88
Standard N	100	137	6.19	6.12	9.95
High N	125	162	6.18	5.97	10.03
	<i>p-value</i>		0.680	0.680	0.140

Nitrogen Rate Trial NR_20 Continued



NR_20 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	1.8	23.8	48.5	20.8	135	32.5	262.4
Avg Daily Temp (°C)	2.64	12.52	15.9	17.59	19.13	15	

NR_20 Economic Analysis

N Rate	Mean yield (bu/ac)	N Fert Cost ¹	Change in Profit from Farm Standard ²
75 lb/ac	47.43	\$51/ac	\$17/ac
100 lb/ac	48.72	\$68/ac	-
125 lb/ac	47.85	\$85/ac	-\$17/ac
P-value	0.293		
CV	4.43		

¹ Based on 2025 MB Cost of Production: estimated cost of urea ~ \$690/mt N, \$0.68/lb N

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.

Agronomic Support for this Trial
Provided by:



Trial Summary

Canola Seeding Rate Trial

Research Question:

Can Manitoba canola farms reduce their seeding rates without sacrificing yield to increase return on investment?

Treatments:

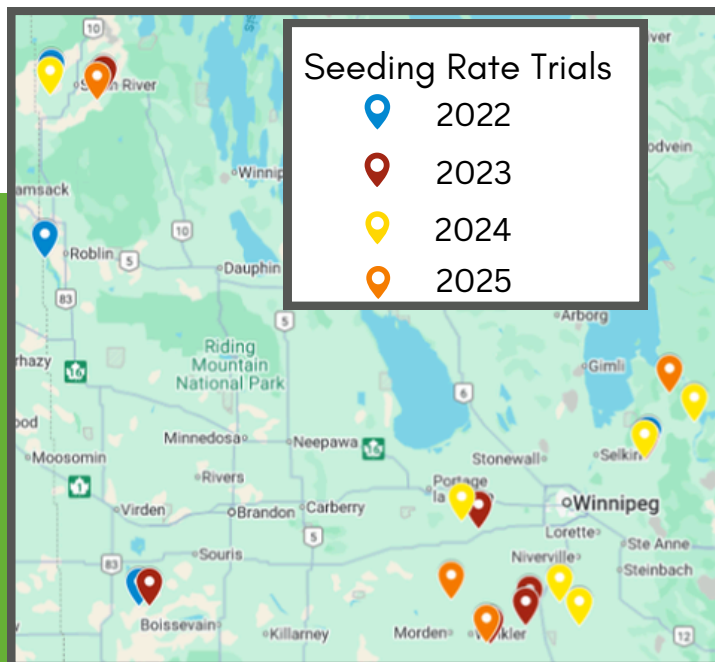
1. Reduced Seeding Rate (75%)
2. Standard Seeding Rate (100%) – Farm Normal
3. High Seeding Rate (125%)

Trial Setup:

Randomized complete block, each treatment was one equipment width x field length, with 4 replicates per location (12 strips per location)

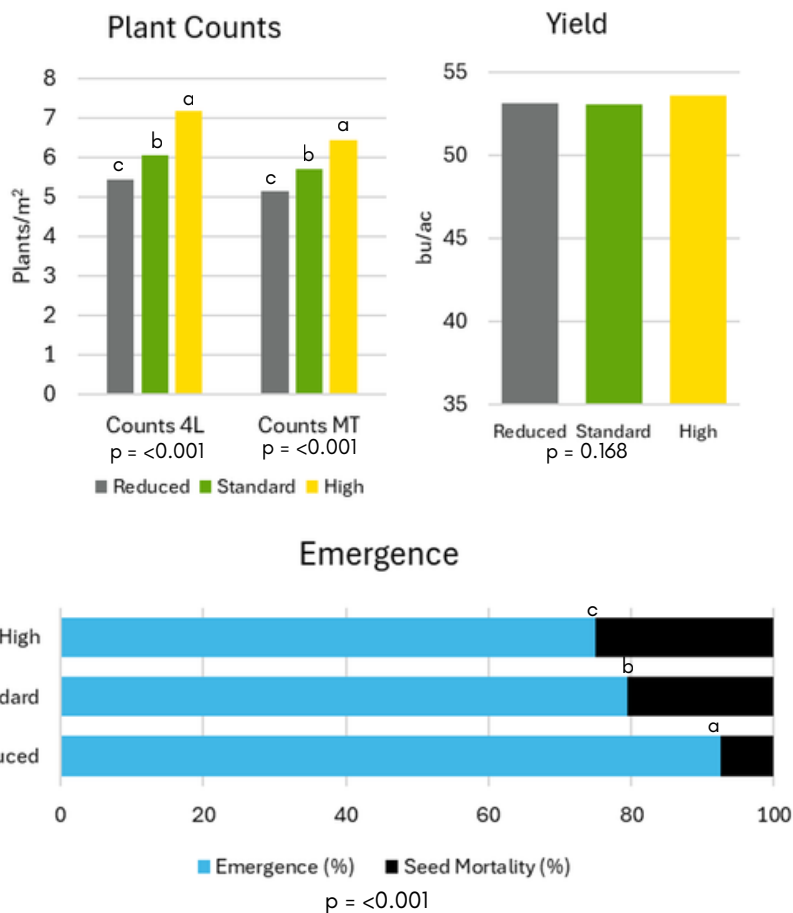
Data Collection:

Plant Counts, Emergence, Survival, Yield



Background: The recommended plant stand for canola is 5–8 plants/ft² to maximize return on seed investment while minimizing risks associated with low plant populations such as reduced competitive ability against pests. The emergence of canola seed in the field is highly variable and dependent on farm management growing season conditions. Therefore, it is important that growers understand emergence in their operations and how that may change with seeding rate decisions.

Disclaimer: Risks associated with low plant populations outside the scope of this trial include reduced competitiveness against field pests.



2022 – 2025 Summary:

Overall, there was no significant influence of seeding rate on grain yield. When seeding rates were reduced by 25% emergence increased by 13% and when seeding rates were increased by 25% emergence was 4% lower than the standard seeding rates. This indicates that, on average, seeding rates can be lowered without a large reduction in plant stand to increase economic return on investment.

Within each trial location, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Locations with no lowercase letters listed indicate an insignificant treatment effect.

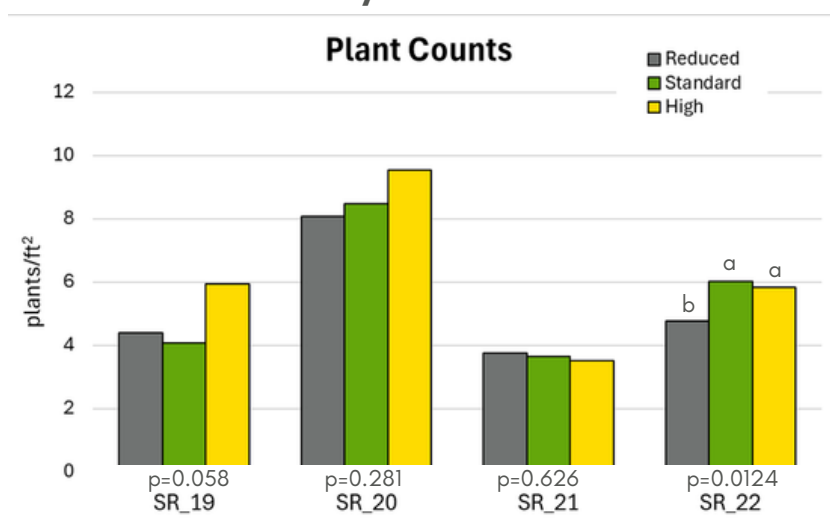
2025 Results Summary

Canola Seeding Rate Trials

2025 Seeding Rate Trial Sites

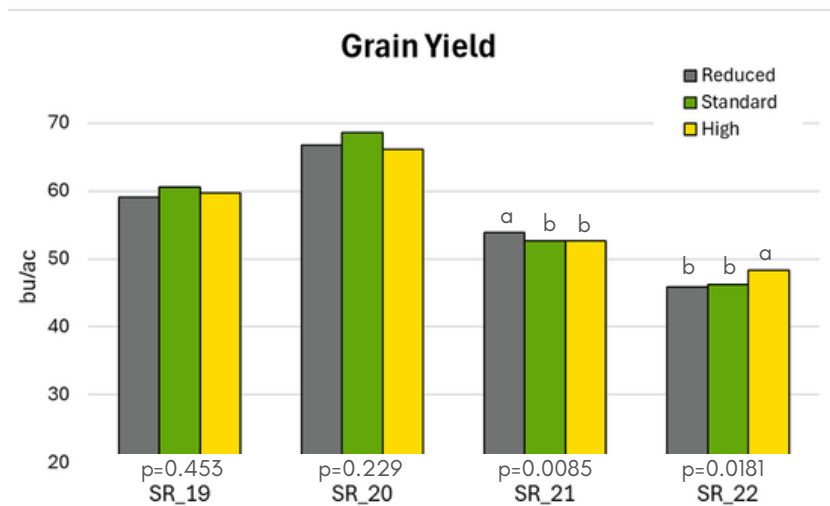
Trial ID	RM	Seeding Equipment (Row Spacing)	Seeding Rate			TKW (g)
			Reduced	Standard	High	
SR_19	Alexander	Horsch Avatar Disc Drill (10 in)	3.2 lbs/ac 322,553 seeds/ac	4.2 lbs/ac 423,351 seeds/ac	5.2 lbs/ac 524,149 seeds/ac	4.5
SR_20	Thompson	John Deere 1895 Disc Drill (7.5 in)	3.45 lbs/ac 306,843 seeds/ac	4.6 lbs/ac 409,124 seeds/ac	6.9 lbs/ac 613,686 seeds/ac	5.1
SR_21	Rhineland	John Deere Planter (10 in)	3 lbs/ac 283,495 seeds/ac	4 lbs/ac 377,993 seeds/ac	5 lbs/ac 472,492 seeds/ac	4.8
SR_22	Minitonas	Bourgault 5710 (10 in)	3.9 lbs/ac 340,500 seeds/ac	5.2 lbs/ac 454,000 seeds/ac	6.5 lbs/ac 567,500 seeds/ac	5.2

2025 Results Summary



Plant Establishment

Plant counts at the 4-leaf stage were not significantly influenced by seeding rate in three of four trials - the fourth trial showed the reduced seeding rate treatment significantly lower plant counts relative to the standard and high treatments. Two of the four trials in 2025, used a standard seeding rate which produced stand establishment lower than the recommended 5 plants/ft².



Grain Yield

Two of four trials observed no significant difference in grain yield across seeding rate treatments. The remaining two trials showed significant yield increases towards both extremes in seeding rate: SR_21 had a significant increase in grain yield with the reduced seeding rate (3 lbs/ac) compared to the farm standard, while SR_22 had a significant increase in yield with the high seeding rate treatment (6.5 lbs/ac).

Within each trial location, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Locations with no lowercase letters listed indicate an insignificant treatment effect.

Seeding Rate Trial SR_19

Site Info

Trial ID: SR_19
Rural Municipality: Alexander
Seeding Date: May 13, 2025
Seeding Equipment: Horsch Avatar
 Disc Drill
Variety: L356PC
Seed Treatment: Buteo
 Start/Lumiderm
TKW: 4.5 g/1000 seeds
Row Spacing: 10 inch
Harvest Date: Sept 2, 2025



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Results Summary

Plant Establishment: Plant counts at the 4-leaf stage and maturity were not significantly different across seeding rate treatments.

Grain Yield: Seeding rate had no significant influence on grain yield in this trial.

Profitability: The reduced seeding rate treatment lowered seed costs while maintaining statistically similar yield to the farm standard rate, returning \$16/ac more than the standard. The high seeding rate treatment raised costs without significantly increasing yield, returning \$17/ac less than the standard.

Treatment	Seeding Rate		Plant Counts (ft ²)	
	Lbs./ac	Seeds/ac	4-leaf	Maturity
Reduced Seeding Rate (75%)	3.2	322,554	4.4	2.8
Standard Seeding Rate (100%)	4.2	423,352	4.1	3.3
High Seeding Rate (125%)	5.2	524,150	5.9	4
	<i>p-value</i>		0.059	0.084

Seeding Rate Trial SR_19 Continued



SR_19 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	15.3	12.7	47.8	40.7	61.2	21	198.7
Avg Daily Temp (°C)	3.23	13.42	16.57	18.81	18.73	15.74	

SR_19 Economic Analysis

Seeding Rate	Mean yield (bu/ac)	Seed Cost ¹	Change in Profit from Farm Standard ²
3.2 lb/ac	59.06	\$53/ac	\$16/ac
4.2 lb/ac	60.59	\$69/ac	-
5.2 lb/ac	59.65	\$86/ac	-\$17/ac
P-value	0.453		
CV	3.71		

¹ Based on 2025 MB Cost of Production: estimated cost of seed ~ \$16.50 / lb

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.



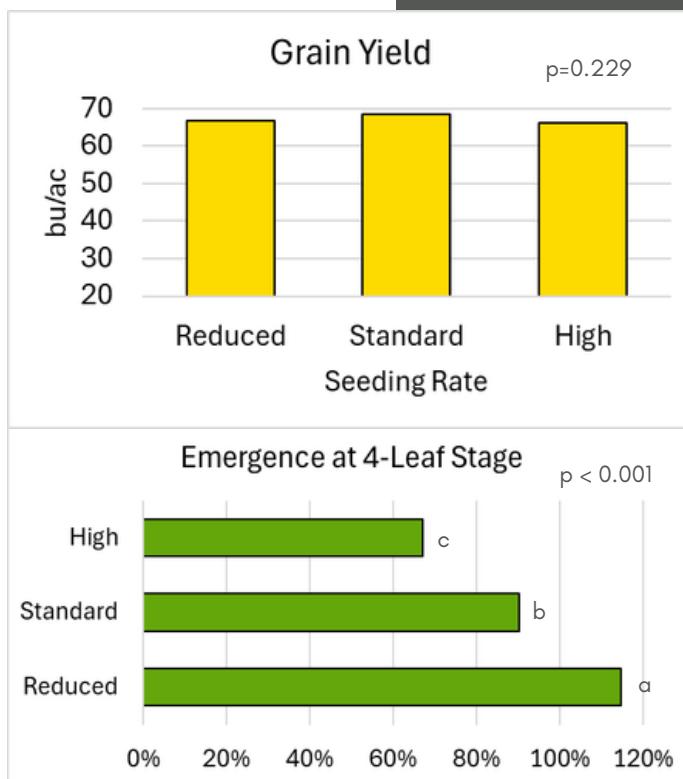
Agronomic Support for this Trial
Provided by:

Seeding Rate Trial

SR_20

Site Info

Trial ID: SR_20
Rural Municipality: Thompson
Seeding Date: May 12, 2025
Seeding Equipment: John Deere 1895 Disc Drill
Variety: L356PC
Seed Treatment: Helix Vibrance and Buteo Start
TKW: 5.1 g/1000 seeds
Row Spacing: 7.5 inch
Harvest Date: Sept 9, 2025



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Results Summary

Plant Establishment: Plant counts at the 4-leaf stage were not significantly different across seeding rate treatments, however the reduced seeding rate treatment had significantly greater plant counts at maturity relative to the standard and high seeding rate treatments. Emergence% was significantly different across all three treatments; reduced seeding rate exhibited the greatest emergence, while high seeding rate exhibited the poorest emergence.

Grain Yield: Seeding rate had no significant influence on grain yield in this trial.

Profitability: The reduced seeding rate treatment lowered seed costs while maintaining statistically similar yield to the farm standard rate, returning \$19/ac more than the standard. The high seeding rate treatment raised costs without significantly increasing yield, returning \$38/ac less than the standard.

Treatment	Seeding Rate		Plant Counts (ft ²)	
	Lbs./ac	Seeds/ac	4-leaf	Maturity
Reduced Seeding Rate (75%)	3.45	306,843	8.1	5.6 ^a
Standard Seeding Rate (100%)	4.6	409,124	8.5	4.9 ^b
High Seeding Rate (125%)	6.9	613,686	9.5	5.0 ^{ab}
	<i>p-value</i>		0.281	0.034

Seeding Rate Trial SR_20 Continued



SR_20 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	23.8	36.4	33.7	39	46.1	70.3	249.3
Avg Daily Temp (°C)	4.66	14.18	17.77	18.99	18.85	15.71	

SR_20 Economic Analysis

Seeding Rate	Mean yield (bu/ac)	Seed Cost ¹	Change in Profit from Farm Standard ²
3.45 lb/ac	66.71	\$57/ac	\$19/ac
4.6 lb/ac	68.54	\$76/ac	-
6.9 lb/ac	66.11	\$114/ac	-\$38/ac
P-value	0.229		
CV	3.04		

¹ Based on 2025 MB Cost of Production: estimated cost of seed ~ \$16.50 / lb

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.



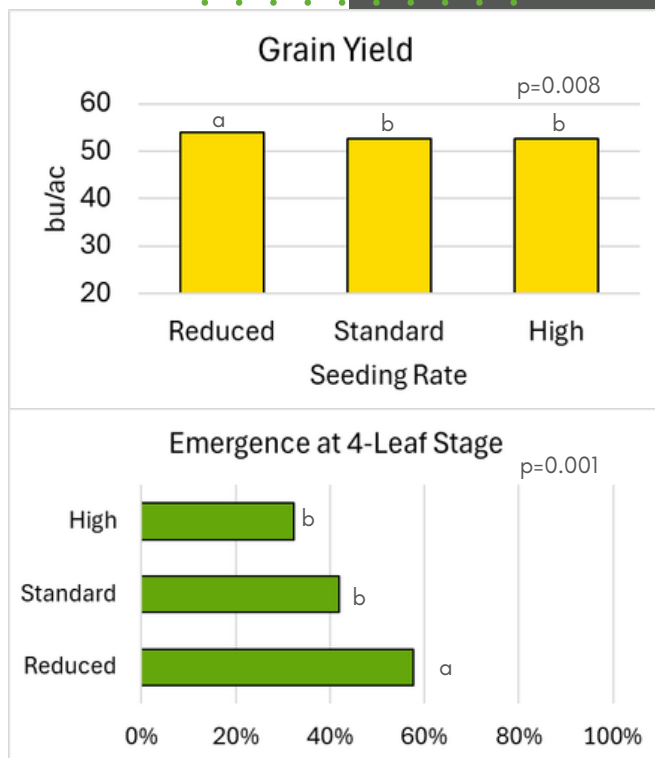
Agronomic Support for this Trial
Provided by:

Seeding Rate Trial SR_21

Site Info

Trial ID: SR_21
Rural Municipality: Rhineland
Seeding Date: May 7, 2025
Seeding Equipment: John Deere Planter

Variety: InVigor L340PC
Seed Treatment: Helix Vibrance and Buteo Start
TKW: 4.8 g/1000 seeds
Row Spacing: 10 inch
Harvest Date: August 26, 2025



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Results Summary

Plant Establishment: Plant counts at the 4-leaf stage and maturity were not significantly different across seeding rate treatments. Emergence% was significantly greater in the reduced seeding treatment relative to the standard and high seeding rate treatments.

Grain Yield: Seeding rate had significant influence on grain yield – the reduced seeding rate produced greater yield than the standard and high seeding rate treatments

Profitability: The reduced seeding rate treatment lowered seed costs while significantly increasing yield, returning \$32/ac more than when using the farm standard rate. The high seeding rate treatment raised costs without significantly increasing yield, returning \$17/ac less than the standard.

Treatment	Seeding Rate		Plant Counts (ft ²)	
	Lbs./ac	Seeds/ac	4-leaf	Maturity
Reduced Seeding Rate (75%)	3	377,993	3.7	3.4
Standard Seeding Rate (100%)	4	283,495	3.6	3.5
High Seeding Rate (125%)	5	472,492	3.5	3.5
	<i>p-value</i>		0.627	0.738

Seeding Rate Trial SR_21 Continued



SR_21 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	24.3	67.9	42.6	99.8	54.5	64.4	353.5
Avg Daily Temp (°C)	5.77	15.35	18.25	20.15	19.79	16.61	

SR_21 Economic Analysis

Seeding Rate	Mean yield (bu/ac)	Seed Cost ¹	Change in Profit from Farm Standard ²
3 lb/ac	53.88 ^a	\$50/ac	\$32/ac
4 lb/ac	52.72 ^b	\$66/ac	-
5 lb/ac	52.62 ^b	\$83/ac	-\$17/ac
P-value	0.009		
CV	3.49		

¹ Based on 2025 MB Cost of Production: estimated cost of seed ~ \$16.50 / lb

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in the high seeding rate treatment, but were significantly increased by the low seeding rate treatment in this trial, therefore an increase in grain sales income



Agronomic Support for this Trial
Provided by:

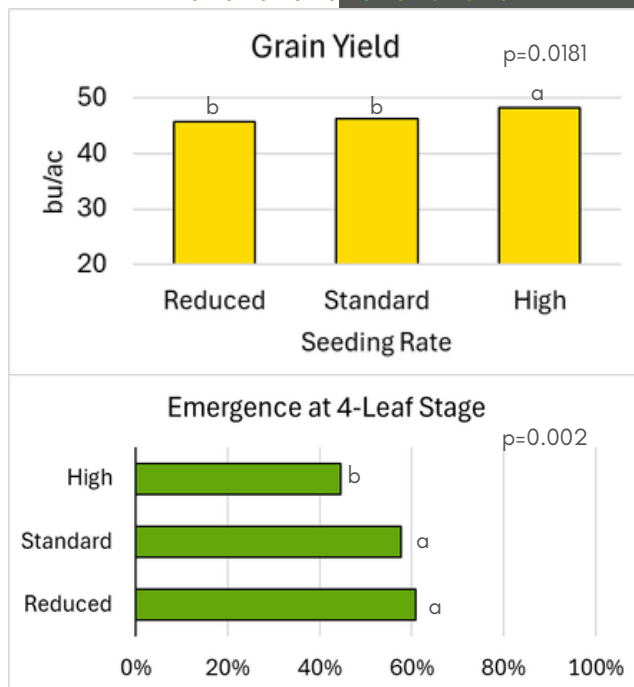
Seeding Rate Trial SR_22

Site Info

Trial ID: SR_22
Rural Municipality: Minitonas
Seeding Date: May 23, 2025
Seeding Equipment: Bourgault 5710

Variety: ICS4000
Seed Treatment: Buteo

TKW: 5.2 g/1000 seeds
Row Spacing: 10 inch
Harvest Date: September 8, 2025



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Results Summary

Plant Establishment: Plant counts at the 4-leaf stage were significantly greater in the standard and high seeding rate treatments than the reduced seeding rate treatment. At maturity, the high seeding rate treatment maintained significantly greater plant counts than the reduced seeding rate treatment, however the standard rate’s plant counts fell slightly to be statistically similar to the reduced seeding rate. Emergence% was significantly greater when using reduced and standard seeding rates compared to the high seeding rate treatment.

Grain Yield: Seeding rate had significant influence on grain yield – reduced and standard seeding rates produced less yield than the high seeding rate treatment

Profitability: The reduced seeding rate treatment lowered seed costs while maintaining statistically similar yield to the farm standard rate, returning \$22/ac more than the standard. The high seeding rate treatment significantly increased yield at the price of seed costs, returning only \$6/ac more than the standard.

Treatment	Seeding Rate		Plant Counts (ft ²)	
	Lbs./ac	Seeds/ac	4-leaf	Maturity
Reduced Seeding Rate (75%)	3.9	340,500	4.8 ^b	4.5 ^b
Standard Seeding Rate (100%)	5.2	454,000	6.0 ^a	5.9 ^{ab}
High Seeding Rate (125%)	6.5	567,500	5.8 ^a	6.3 ^a
	<i>p-value</i>		0.012	0.025

Seeding Rate Trial SR_22 Continued



SR_22 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	1.8	23.8	48.5	20.8	135	32.5	262.4
Avg Daily Temp (°C)	2.66	12.65	16.06	17.62	19.12	15	

SR_22 Economic Analysis

Seeding Rate	Mean yield (bu/ac)	Seed Cost ¹	Change in Profit from Farm Standard ²
3.9 lb/ac	45.84 ^b	\$64/ac	\$22/ac
5.2 lb/ac	46.23 ^b	\$86/ac	-
6.5 lb/ac	48.33 ^a	\$107/ac	\$6/ac
P-value	0.018		
CV	3.45		

¹ Based on 2025 MB Cost of Production: estimated cost of seed ~ \$16.50 / lb

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in the low seeding rate treatment, but were significantly increased by the high seeding rate treatment in this trial, therefore an increase in grain sales income



Agronomic Support for this Trial
Provided by:

Trial Summary

Canola Phosphorus Source Trial

Research Question:

What is the influence of P fertilizer sources on crop availability and seed safety for seed-placed applications for canola production on Manitoba soils?

Treatments:

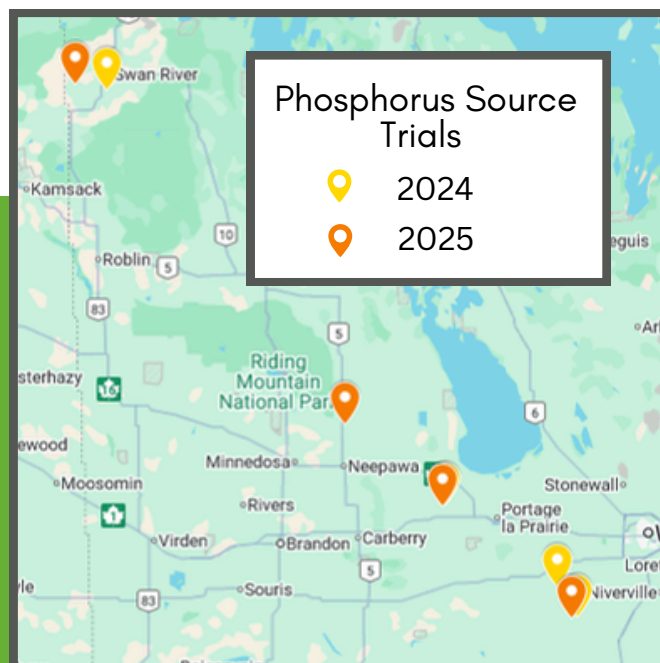
1. Farm Standard P Source - Standard Rate (100%)
2. Farm Standard P Source - High Rate (150%)
3. Alternative P - Standard Rate (100%)
4. Alternative P - High Rate (150%)

Trial Setup:

Randomized complete block, each treatment was one equipment width x field length, with 4 replicates per locations (12 strips per location)

Data Collection:

Plant Counts, P content at rosette stage, Grain Moisture, Yield



2025 Phosphorus Source Trial Sites

Trial ID	RM	Soil Residual P (0-6 in)	P Placement	Seeding Equipment	Row spacing
PS_05	Morris	25 ppm	Seed-placed	John Deere N560F Disc Drill	10 in
PS_06	North Norfolk	13 ppm	Seed-placed	Planter Whyte	15 in
PS_07	Rosedale	32 ppm	Seed-placed	Bourgault 5810 Air Drill	10 in
PS_08	Swan River	16 ppm	Seed-placed	Bourgault 3320	10 in

Background: Canola requires P in large amounts during the growing season (approximately 1.5 lbs. of phosphate per bushel), especially during the early growth stages. The early season demand of P and immobility in the soil P fertilizers are typically applied in close proximity to the canola seed row, which may result in toxicity issues when large amounts of P fertilizer are applied. There are many different P fertilizers being marketed to farmers with claims of increased seed safety and P availability compared to conventional P sources with little independent research done across Manitoba growing regions.

2024 - 2025 Summary:

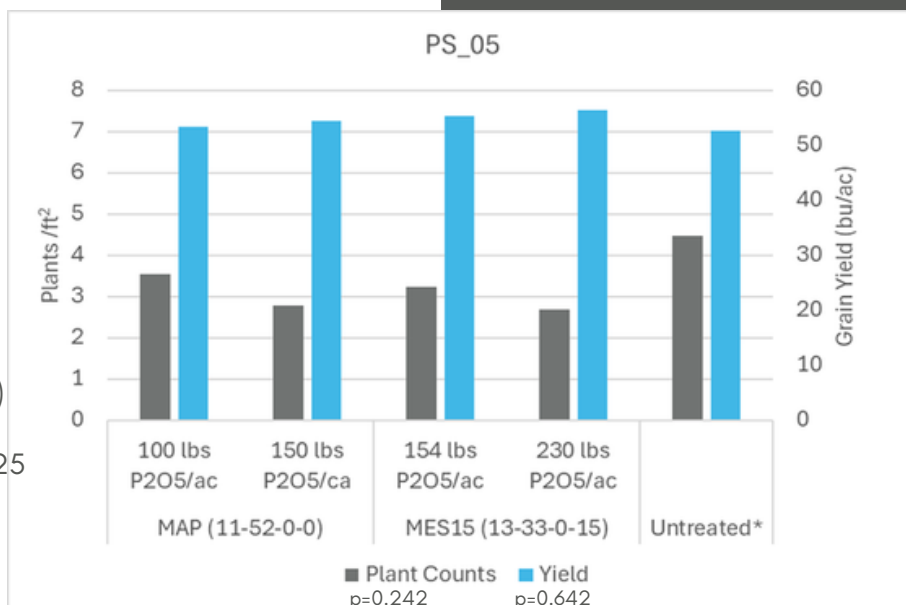
Across the 2 years of this trial, farmers have tested various rates of seven different P sources: MAP, MES15, Alpine G22, TOP PHOS, Synchro, APP, and MST. Yield ranged from 21.2 bu/ac to 66.8 bu/ac and plant counts ranged from 2.8 plants/ft² to 11 plants/ft² across all trials in 2024-2025. No significant differences in yield or plant counts were identified at any particular trial site in 2025. Two of four trials in 2024 showed significant yield differences. At PS_01, the standard rate of Alpine G22 (24 lbs P₂O₅ /ac) produced a significantly higher yield than standard and high rates of APP (40 and 60 lbs P₂O₅/ac, respectively). At PS_04, the high rate of MES15 outperformed the low rate of MES15 (80 and 40 lbs P₂O₅/ac, respectively) while both rates of TopPhos (20 and 40 lbs P₂O₅/ac) showed yield in between those of MES15. In 2024, PS_03 was the only trial that showed significant differences in plant stand with different sources of P: Crystal Green Synchro had increased plant emergence compared to MAP when the same rate of P₂O₅ was applied (40 lbs/ac).

Phosphorus Source Trial

PS_05

Site Info

Trial ID: PS_05
Rural Municipality: Morris
Seeding Date: May 14, 2025
Soil Residual P (0-6in): 25 ppm
Seeding Equipment: John Deere N560
 Disc Drill
Opener Type: Disc
Row Spacing: 10 in
Seedbed Utilization: 7.5
Seeding Rate: 3.8lb/ac (TKW 5.4)
Variety: BY 7204LL
Harvest Date: September 10, 2025



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect
 *indicates unrepeated check strip

Results Summary

Plant Establishment: Plant counts at the 4-leaf stage were not significantly different across these P sources and rates.

P Tissue and Biomass: The rates and sources of P utilized did not cause significant differences in plant biomass or P tissue content at rosette stage.

Grain Yield: P sources and rates had no significant influence on grain yield in this trial.

Profitability: Relative to the standard P source and rate, the use of alternative P sources and rates increased costs by \$43/ac to \$142/ac without producing significantly greater yields.

Treatment	Phosphorus Source	Rate (lbs. P ₂ O ₅ /ac)	Total P @ Rosette (%)	Grain Moisture (%)
1	MAP (11-52-0)	100	0.35	5.2
2	MAP (11-52-0)	150	0.36	5.2
3	MES15 (13-33-0-15)	154	0.36	5.3
4	MES15 (13-33-0-15)	230	0.46	5.0
<i>p-value</i>			0.276	0.445

Phosphorus Source Trial PS_05 Continued



PS_05 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	23.8	36.4	33.7	39	46.1	70.3	249.3
Avg Daily Temp (°C)	4.66	14.18	17.77	18.99	18.85	15.71	

PS_05 Economic Analysis

P Source and Rate	Mean yield (bu/ac)	P Fert Cost ¹	Change in Profit from Farm Standard ²
MAP: 100 lb/ac P ₂ O ₅	53.33	\$85/ac	-
MAP: 150 lb/ac P ₂ O ₅	54.42	\$128/ac	-\$43/ac
MES15: 154 lb/ac P ₂ O ₅	55.32	\$152/ac	-\$67/ac
MES15: 230 lb/ac P ₂ O ₅	56.32	\$227/ac	-\$142/ac
P-value	0.642		
CV	6.05		

¹ Based on 2025 MB Cost of Production: estimated cost of MAP ~ \$1,140 / mt P₂O₅ (\$0.851 / lb P₂O₅) and cost of MES15 ~ \$1322 / mt P₂O₅ (\$0.987 / lb P₂O₅)

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.



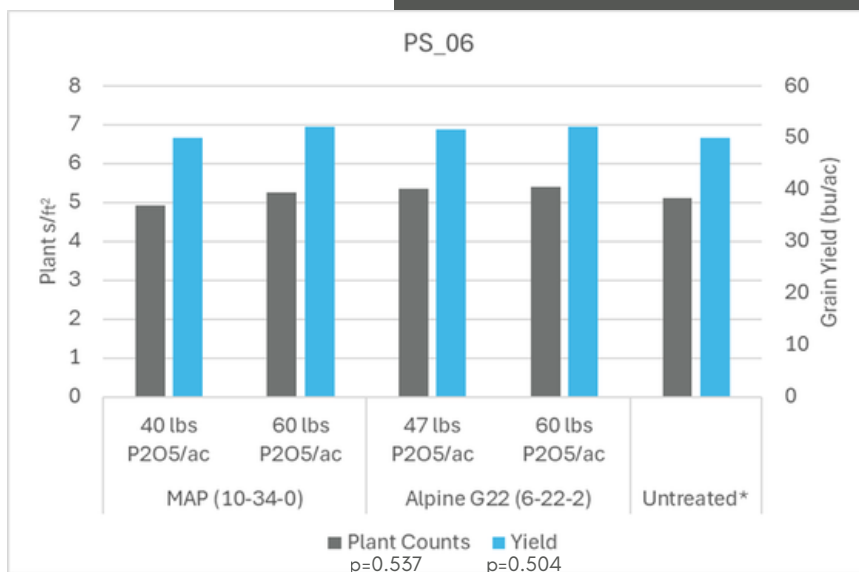
Agronomic Support for this Trial
Provided by:

Phosphorus Source Trial

PS_06

Site Info

Trial ID: PS_06
Rural Municipality: North Norfolk
Seeding Date: May 6, 2025
Soil Residual P (0-6in): 13 ppm
Seeding Equipment: Planter Whyte
Opener Type: Disc
Row Spacing: 15 in
Seedbed Utilization: 5
Seeding Rate: 2.8 lb/ac (TKW 4.6)
Variety: L340PC
Harvest Date: September 8, 2025



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect
 *indicates unreplicated check strip

Results Summary

Plant Establishment: Plant counts at the 4-leaf stage were not significantly different across these P sources and rates.

P Tissue and Biomass: The rates and sources of P utilized did not cause significant differences in plant biomass or P tissue content at rosette stage.

Grain Yield: P sources and rates had no significant influence on grain yield in this trial.

Profitability: Relative to the standard P source and rate, the use of alternative P sources and rates increased costs by \$17/ac to \$24/ac without producing significantly greater yields.

Treatment	Phosphorus Source	Rate	Total P @ Rosette	Grain Moisture
		(lbs. P ₂ O ₅ /ac)	(%)	(%)
1	MAP (10-34-0)	40	0.43	8.2
2	MAP (10-34-0)	60	0.44	7.9
3	Alpine G22 (6-22-2)	47	0.40	8.5
4	Alpine G22 (6-22-2)	60	0.44	7.9
<i>p-value</i>			0.146	0.586

Phosphorus Source Trial PS_06 Continued



PS_06 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	5.9	45.4	31.3	55.9	74.5	47.3	260.3
Avg Daily Temp (°C)	3.84	12.62	16.6	18.56	18.77	15.33	

PS_06 Economic Analysis

P Source and Rate	Mean yield (bu/ac)	P Fert Cost ¹	Change in Profit from Farm Standard ²
MAP: 40 lb/ac P ₂ O ₅	49.97	\$34/ac	-
MAP: 60 lb/ac P ₂ O ₅	52.08	\$51/ac	-\$17/ac
Alpine G22: 47 lb/ac P ₂ O ₅	51.66	\$46/ac	-\$12/ac
Alpine G22: 60 lb/ac P ₂ O ₅	52.17	\$58/ac	-\$24/ac
P-value	0.504		
CV	4.13		

¹ Based on 2025 MB Cost of Production: estimated cost of MAP ~ \$1,140 / mt P₂O₅ (\$0.851 / lb P₂O₅) and cost of MES15 ~ \$1322 / mt P₂O₅ (\$0.987 / lb P₂O₅)

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.

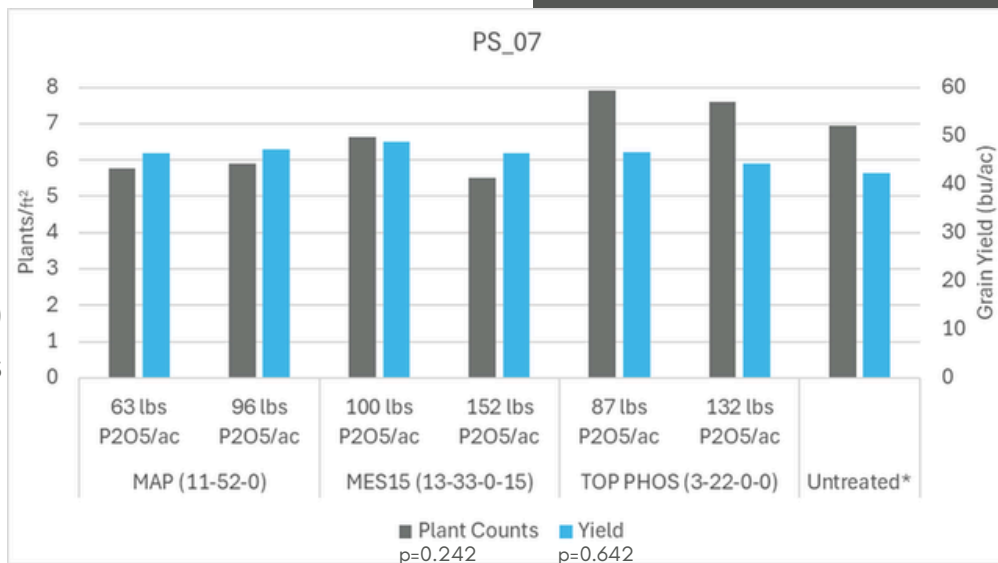


Agronomic Support for this Trial
Provided by:

Phosphorus Source Trial PS_07

Site Info

Trial ID: PS_07
Rural Municipality: Rosedale
Seeding Date: May 13, 2025
Soil Residual P (0-6in): 32 ppm
Seeding Equipment: Bourgualt 5810
 Air Drill
Opener Type: Atom jet
Row Spacing: 1 in
Seedbed Utilization: 10
Seeding Rate: 4.2 lb/ac (TKW 4.5)
Variety: L356PC
Harvest Date: September 4, 2025



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect
 *indicates unrepeated check strip

Results Summary

Plant Establishment: Plant counts at the 4-leaf stage were not significantly different across these P sources and rates.

P Tissue and Biomass: The rates and sources of P utilized did not cause significant differences in plant biomass or P tissue content at rosette stage.

Grain Yield: P sources and rates had no significant influence on grain yield in this trial.

Profitability: Relative to the standard P source and rate, the use of alternative P sources and rates increased costs by \$28/ac to \$96/ac without producing significantly greater yields.

Treatment	Phosphorus Source	Rate	Total P @ Rosette	Grain Moisture
		(lbs. P ₂ O ₅ /ac)	(%)	(%)
1	MAP (11-52-0-0)	63	0.40	5.9
2	MAP (11-52-0-0)	96	0.39	6.0
3	MES15 (13-33-0-15)	100	0.40	5.8
4	MES15 (13-33-0-15)	152	0.38	5.7
5	TOP PHOS (3-22-0-0)	87	0.43	6.1
6	TOP PHOS (3-22-0-0)	132	0.40	6.5
<i>p-value</i>			0.981	0.587

Phosphorus Source Trial PS_07 Continued



PS_07 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	9.4	38.7	56.9	59.2	65.5	52.7	282.4
Avg Daily Temp (°C)	2.38	11.99	15.74	17.42	17.51	14.61	

PS_07 Economic Analysis

P Source and Rate	Mean yield (bu/ac)	P Fert Cost ¹	Change in Profit from Farm Standard ²
MAP: 63 lb/ac P ₂ O ₅	46.45	\$54/ac	-
MAP: 96 lb/ac P ₂ O ₅	47.09	\$82/ac	-\$28/ac
MES15: 100 lb/ac P ₂ O ₅	48.81	\$99/ac	-\$45/ac
MES15: 152 lb/ac P ₂ O ₅	46.48	\$150/ac	-\$96/ac
TOP PHOS: 87 lb/ac P ₂ O ₅	46.61	\$86/ac	-\$32/ac
TOP PHOS: 132 lb/ac P ₂ O ₅	44.33	\$130/ac	-\$76/ac
P-value	0.239		
CV	5.33		

¹ Based on 2025 MB Cost of Production: estimated cost of MAP ~ \$1,140 / mt P₂O₅ (\$0.851 / lb P₂O₅) and cost of MES15 ~ \$1322 / mt P₂O₅ (\$0.987 / lb P₂O₅)

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.



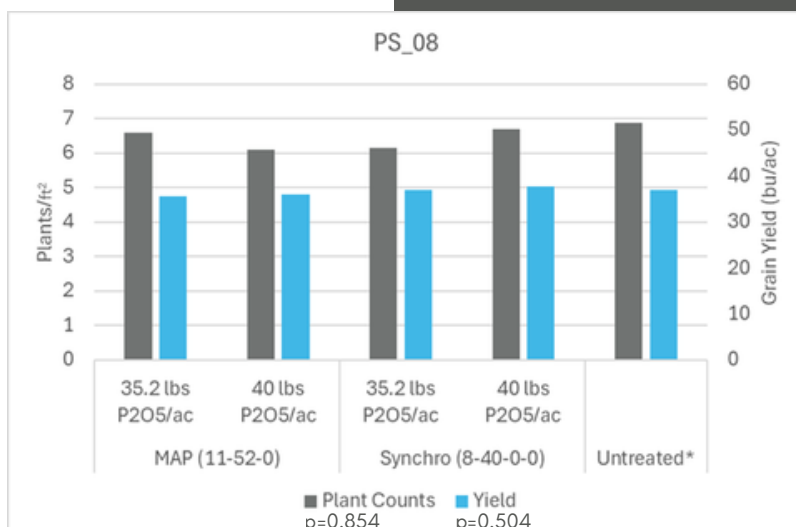
Agronomic Support for this Trial
Provided by:

Phosphorus Source Trial

PS_08

Site Info

Trial ID: PS_08
Rural Municipality: Swan River
Seeding Date: May 23, 2025
Soil Residual P (0-6in): 16 ppm
Seeding Equipment: Bourqualt 3320
Opener Type: Knife
Row Spacing: 10 in
Seedbed Utilization: 7.5
Seeding Rate: 4.5 lb/ac (TKW 4.7)
Variety: L340PC
Harvest Date: September 24, 2025



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect
 *indicates unrepeated check strip

Results Summary

Plant Establishment: Plant counts at the 4-leaf stage were not significantly different across these P sources and rates.

P Tissue and Biomass: The rates and sources of P utilized did not cause significant differences in plant biomass or P tissue content at rosette stage.

Grain Yield: P sources and rates had no significant influence on grain yield in this trial.

Profitability: Relative to the standard P source and rate, the use of alternative P sources and rates increased costs by \$4/ac to \$9/ac without producing significantly greater yields.

Treatment	Phosphorus Source	Rate	Total P @ Rosette	Grain Moisture
		(lbs. P ₂ O ₅ /ac)	(%)	(%)
1	MAP (11-52-0-0)	35.2	0.48	8.9
2	MAP (11-52-0-0)	40	0.55	8.9
3	Synchro (8-40-0-0)	35.2	0.58	8.7
4	Synchro (8-40-0-0)	40	0.44	8.6
<i>p-value</i>			0.078	0.076

Phosphorus Source Trial PS_08 Continued



PS_08 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	1.8	23.8	48.5	20.8	135	32.5	262.4
Avg Daily Temp (°C)	2.66	12.65	16.07	17.62	19.13	15	

PS_08 Economic Analysis

P Source and Rate	Mean yield (bu/ac)	P Fert Cost ¹	Change in Profit from Farm Standard ²
MAP: 35.2 lb/ac P ₂ O ₅	35.64	\$30/ac	-
MAP: 40 lb/ac P ₂ O ₅	36.04	\$34/ac	-\$4/ac
Synchro: 35.2 lb/ac P ₂ O ₅	36.93	\$35/ac	-\$5/ac
Synchro: 40 lb/ac P ₂ O ₅	37.80	\$39/ac	-\$9/ac
P-value	0.504		
CV	4.88		

¹ Based on 2025 MB Cost of Production: estimated cost of MAP ~ \$1,140 / mt P₂O₅ (\$0.851 / lb P₂O₅) and cost of MES15 ~ \$1322 / mt P₂O₅ (\$0.987 / lb P₂O₅)

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.

Agronomic Support for this Trial
Provided by:



Trial Summary **NEW TRIAL TYPE** Early Season Fungicide Trial

Research Question:

Can fungicide applications at blackleg timing help to manage incidence or severity of Verticillium stripe?

Treatments:

1. Early season fungicide (4-6 leaf)
2. Untreated check

Trial Setup:

Randomized complete block, each treatment was one sprayer width x field length, with 4 replicates per location (8 strips per location)

Data Collection:

Soil verticillium content (pre-seed soil sample), plant counts (cotyledon-1 leaf, 4-6 leaf), Verticillium incidence and severity post-harvest, blackleg incidence and severity post-harvest, maturity, yield.



Verticillium stripe disease severity scale

Time of surveying: Close to harvest timing, 80-90% seed colour change (SCC)

Disease severity rating scale for verticillium stripe with photos* and microsclerotia and stem/plant symptom descriptions.



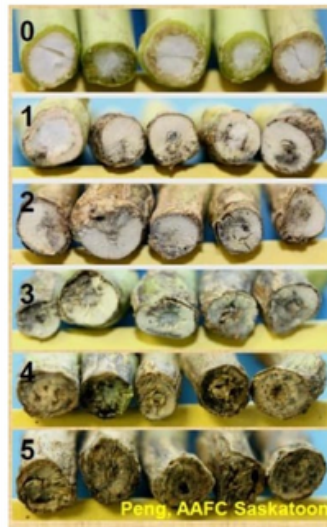
*Upper branches have been clipped on the plants, focus on stem discoloration. Photo source and scale adapted from research by: Sheau-Fang Hawang & Stephen Strelkov, University of Alberta.

Version: June 20 2025



BLACKLEG FIELD RATING SCALE

Score blackleg for each clipped tap root using the following scale



0 No diseased tissue visible in the cross section.

1 Diseased tissue occupies 25% or less of cross section.

2 Diseased tissue occupies 26-50% of cross section.

3 Diseased tissue occupies 51-75% of cross section.

4 Diseased tissue occupies 75% or more of cross section.

5 Diseased tissue occupies 100% of cross section, with significant constriction of affected tissues; tissues dry and brittle; plant dead.

Incidence = % of plants displaying visual symptoms of disease

Severity = average rating of diseased plants according to Verticillium scale

Background: Since being detected in Manitoba in 2014, Verticillium stripe (VS) spread rapidly across all Manitoban agricultural regions. To date, no chemical management methods are known to effectively control VS - the pathogen's root-infection pathway and wind dispersal between seasons make the control of infection and spread difficult. Yield losses from VS are just beginning to be understood; however, one common observation is that yield losses from blackleg and VS are amplified when they are present together compared to individually. Fungicide application at herbicide timing is a common method to control blackleg - if such fungicides are able to control BL damage, then there may be potential to protect yield from additional losses when verticillium is present.

2025 Results Summary

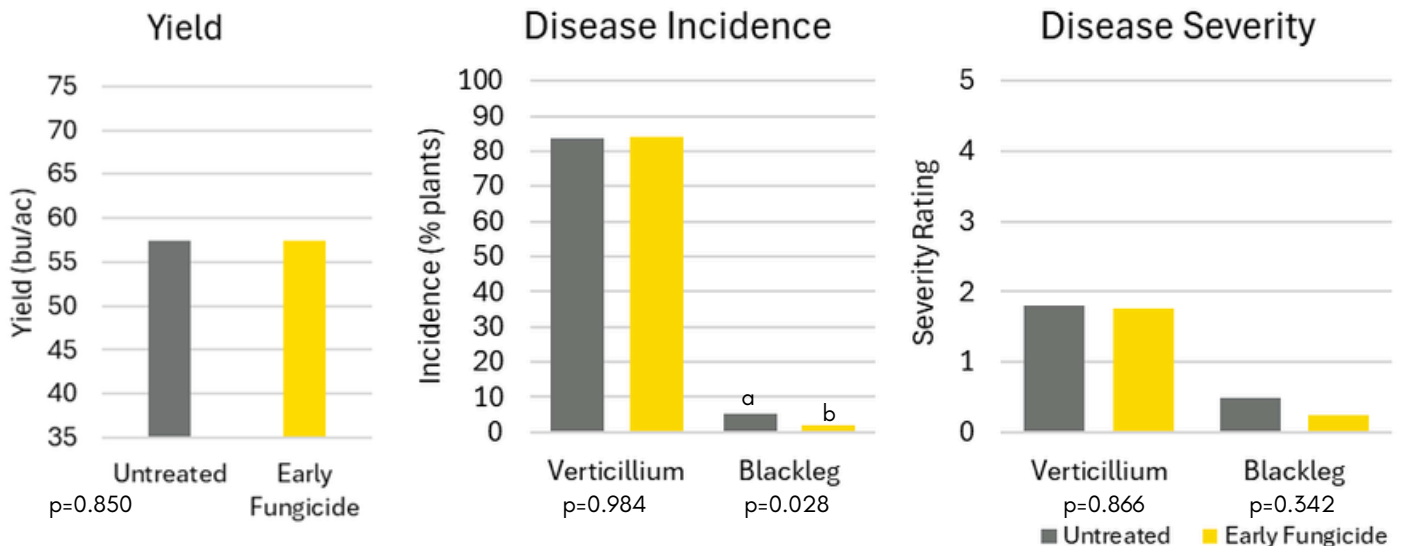
Early Season Fungicide Trial (ESF)

2025 Trial Sites

Trial ID	RM	Fungicide Product	Product Rate (L/ac)
ESF_01	Morris	Nexicor and Evito	0.2 L/ac, 0.118 L/ac
ESF_02	Hanover	Nexicor	0.2 L/ac
ESF_03	Morris	Nexicor	0.25 L/ac
ESF_04	Montcalm	Maxentis	0.25 L/ac
ESF_05	De Salaberry	Nexicor	0.25 L/ac
ESF_06	Minitonas	Nexicor	0.2 L/ac
ESF_07	Swan River	Maxentis	0.422 L/ac
ESF_08	Roblin	Nexicor	0.0202 L/ac



Verticillium and blackleg incidence and severity: Verticillium stripe was identified at all 8 trials across 7 different RMs, whereas some variation in incidence was observed for BL. At ESF_05, postharvest BL incidence reduced from 4% to 0% with the ESF treatment, identified as a statistically significant reduction. Two trials (ESF_03 and ESF_04) displaying the highest BL incidence in the untreated check (17% and 11%, respectively) observed minor reductions in BL incidence (down to 8% and 6%, respectively), however this was not identified as significant. Three of the remaining trials had 1% or less BL incidence in the untreated check - considering the goal of this trial, the use of BL fungicide in the absence of BL should have no effect on VS incidence or severity.

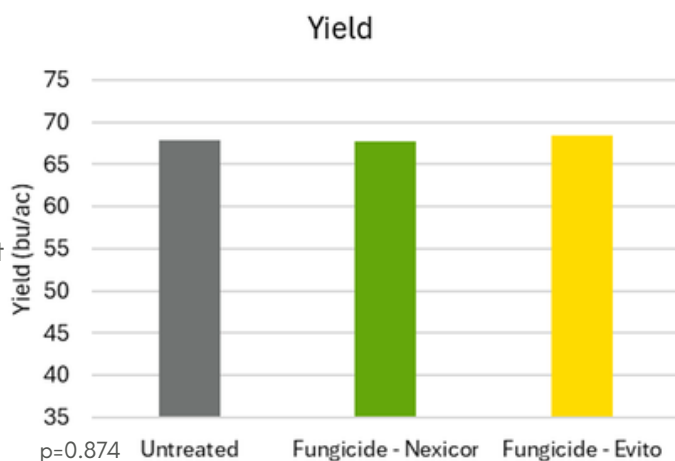


Yield: No significant increases in yield were observed with the use of ESF - this is likely attributed to the very low incidence of blackleg across all trials. One trial showed a 2.6 bu/ac decrease with the ESF treatment, which was identified as statistically significant, however this trial only observed 1% BL incidence - the small yield reduction is likely not be related to the effect of BL or VS, but may be attributed to sprayer compaction or other factors.

Early Season Fungicide Trial ESF_01

Site Info

Trial ID: ESF_01
Rural Municipality: Morris
Seeding Date: May 10, 2025
Row Spacing: 10 in.
Variety: L34PC
Seed Treatment: Helix Vibrance/Buteo Start
Fungicide Application Date: June 4
Fungicide App. Crop Stage: 4-6 leaf
Fungicide Product (Rate): Nexicor & Evito
 (0.2 L/ac & 0.118 L/ac)
Fungicide Active Ingredient: Pyraclostrobin,
 Fluoxastrobin
Harvest date: September 10, 2025



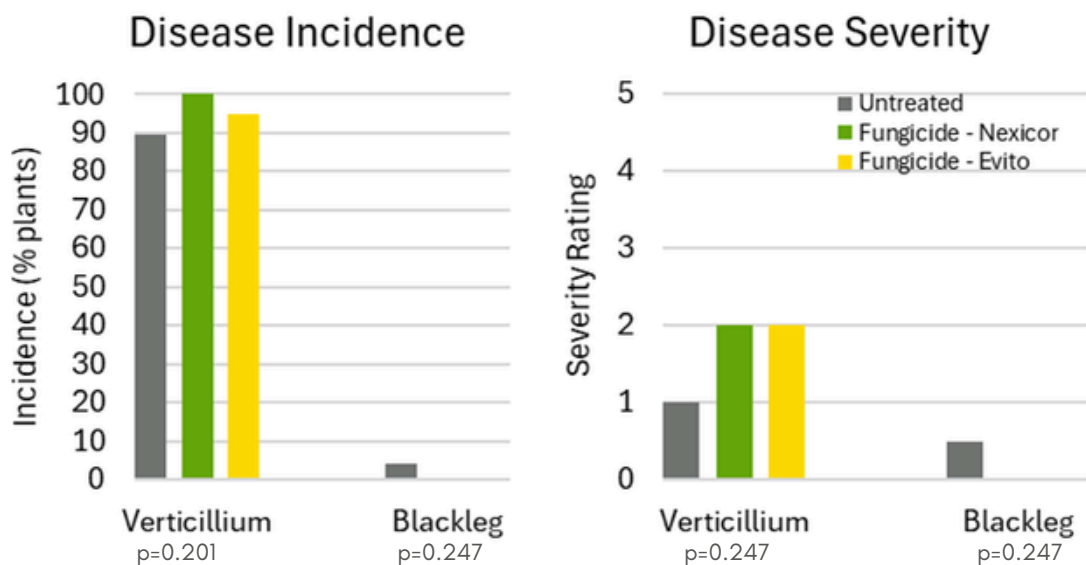
Results Summary

Blackleg: Blackleg was only observed at 4% incidence in the untreated check. Blackleg incidence and severity was not significantly reduced by early-season fungicide application.

Verticillium: Verticillium stripe was not significantly reduced by early-season fungicide application.

Grain Yield: Blackleg fungicide application at the 4-6 leaf stage had no significant influence on grain yield in this trial.

Profitability: Relative to the untreated check, blackleg fungicide application increased costs without significantly greater yield protection, losing \$22/ac. Suppression of BL inoculum for future seasons may provide indirect long-term benefits.



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Early Season Fungicide Trial ESF_01 Continued

Treatment	Blackleg Incidence (%)	Blackleg Severity (0-5)	Verticillium Incidence (%)	Verticillium Severity (0-5)	Plant Count (cotyledon - 1 leaf)	Plant Count (4-6 leaf)
Untreated	4	0.50	89	1.00	4.96	2.95
Nexicor	0	0.00	100	2.00	5.51	2.80
Evito	0	0.00	95	2.00	5.20	2.82
<i>p-value</i>	0.247	0.247	0.202	0.247	0.295	0.808

ESF_01 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	15.6	52.0	34.6	60.4	58.1	63.6	284.3
Avg Daily Temp (°C)	4.6	14.8	17.4	18.9	19.1	16.1	

ESF_01 Economic Analysis

Treatment	Mean yield (bu/ac)	Application Cost ¹	Change in Profit from Untreated Check ²
Untreated	67.85	\$0/ac	-
Nexicor	67.67	\$22/ac	-\$22/ac
Evito	68.38	\$22/ac	-\$22/ac
P-value	0.874		
CV	2.74		

¹ Based on 2025 MB Cost of Production: estimated cost of blackleg fungicide ~\$12/ac and estimated cost of canola sprayer operation ~\$10/ac

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.



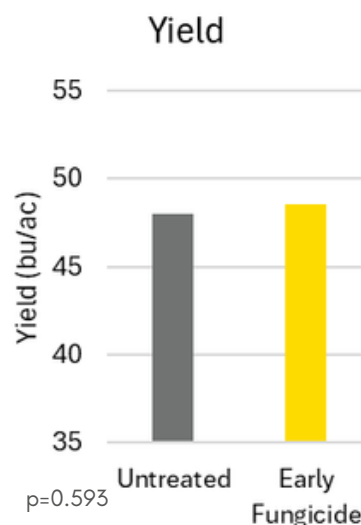
Agronomic Support for this Trial
Provided by:

Early Season Fungicide Trial

ESF_02

Site Info

Trial ID: ESF_02
Rural Municipality: Hanover
Seeding Date: May 11, 2025
Row Spacing: 10 in.
Variety: P617SL
Seed Treatment: Lumiscend/Lumiderm
Fungicide Application Date: June 12, 2025
Fungicide App. Crop Stage: 4-6 leaf
Fungicide Product (Rate): Nexicor (0.2 L/ac)
Fungicide Active Ingredient: Fluxapyroxad 30 g/L,
 Pyraclostrobin 200 g/L,
 Propiconazole 125 g/L
Harvest date: August 31, 2025



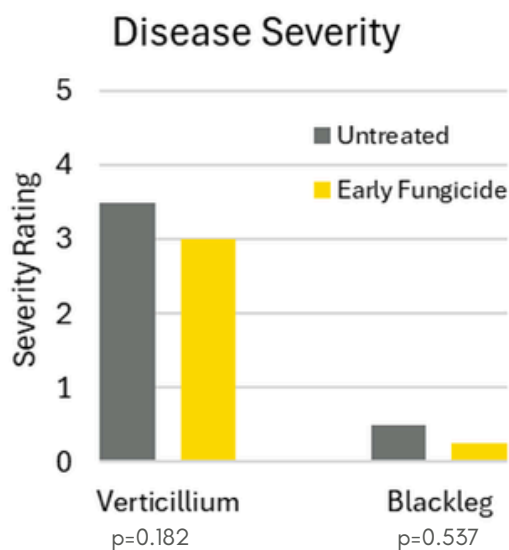
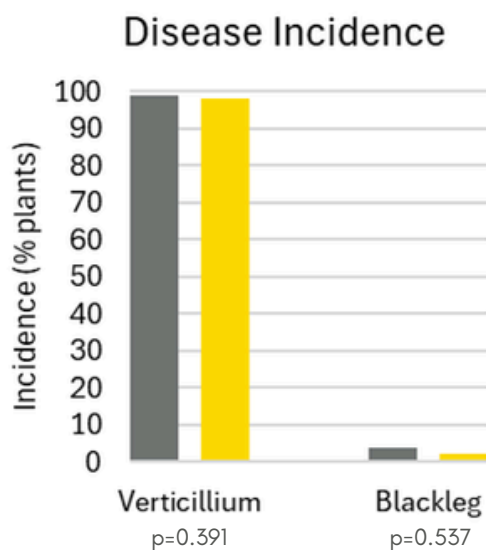
Results Summary

Blackleg: Blackleg was only observed at 4% incidence in the untreated check. Blackleg incidence and severity were not significantly reduced by early-season fungicide application.

Verticillium: Verticillium stripe was not significantly reduced by early-season fungicide application.

Grain Yield: Blackleg fungicide application at the 4-6 leaf stage had no significant influence on grain yield in this trial.

Profitability: Relative to the untreated check, blackleg fungicide application increased costs without significantly greater yield protection, losing \$22/ac. Suppression of BL inoculum for future seasons may provide indirect long-term benefits.



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Early Season Fungicide Trial ESF_02 Continued

Treatment	Blackleg Incidence (%)	Blackleg Severity (0-5)	Verticillium Incidence (%)	Verticillium Severity (0-5)	Plant Count (cotyledon - 1 leaf)	Plant Count (4-6 leaf)
Untreated	4	0.50	99	3.50	3.49	4.31
Fungicide	2	0.25	98	3.00	3.95	4.91
<i>p-value</i>	0.537	0.537	0.391	0.182	0.087	0.128

ESF_02 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	12.9	19.6	39.6	72.7	108.7	163.8	417.3
Avg Daily Temp (°C)	4.5	14.7	17.9	19.1	19.1	16.0	

ESF_02 Economic Analysis

Treatment	Mean yield (bu/ac)	Application Cost ¹	Change in Profit from Untreated Check ²
Untreated	47.97	\$0/ac	-
Fungicide	48.53	\$22/ac	-\$22/ac
P-value	0.593		
CV	3.41		

¹ Based on 2025 MB Cost of Production: estimated cost of blackleg fungicide ~\$12/ac and estimated cost of canola sprayer operation ~\$10/ac

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.



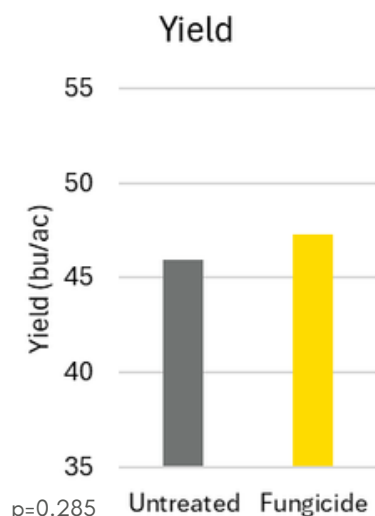
Agronomic Support for this Trial
Provided by:

Early Season Fungicide Trial

ESF_03

Site Info

Trial ID: ESF_03
Rural Municipality: Morris
Seeding Date: May 10, 2025
Row Spacing: 10 in.
Variety: L356P
Seed Treatment: Buteo
Fungicide Application Date: June 5, 2025
Fungicide App. Crop Stage: 4-6 leaf
Fungicide Product (Rate): Nexicor (0.25 L/ac)
Fungicide Active Ingredient: Fluxapyroxad 30 g/L,
 Pyraclostrobin 200 g/L,
 Propiconazole 125 g/L
Harvest date: September 10, 2025



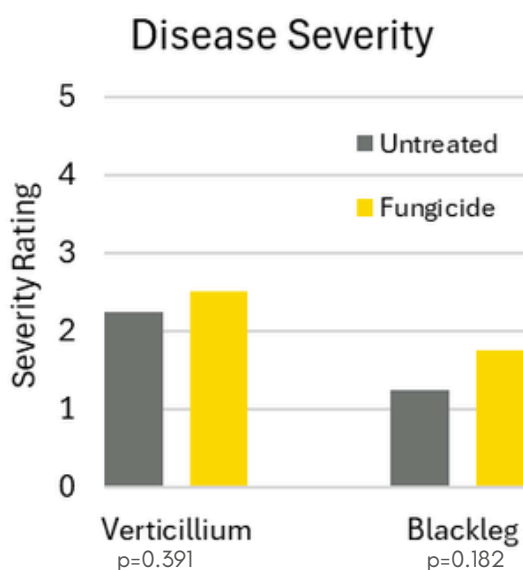
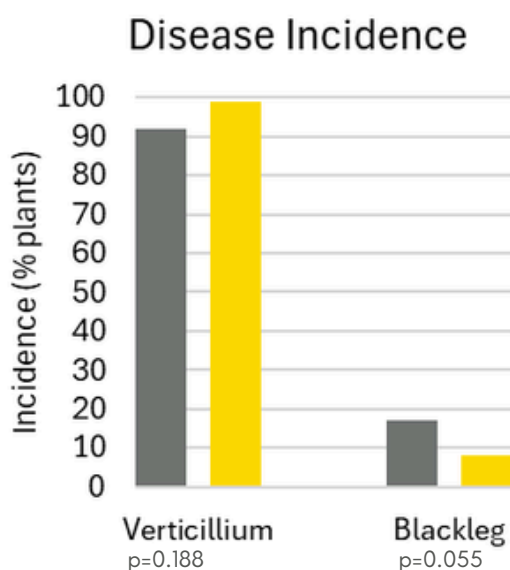
Results Summary

Blackleg: Blackleg was not significantly reduced by early-season fungicide application.

Verticillium: Verticillium stripe was not significantly reduced by early-season fungicide application.

Grain Yield: Blackleg fungicide application at the 4-6 leaf stage provided only slightly (not statistically significantly) greater yield in this trial.

Profitability: Relative to the untreated check, blackleg fungicide application increased costs without significantly greater yield protection, losing \$22/ac. Suppression of BL inoculum for future seasons may provide indirect long-term benefits.



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Early Season Fungicide Trial ESF_03 Continued

Treatment	Blackleg Incidence (%)	Blackleg Severity (0-5)	Verticillium Incidence (%)	Verticillium Severity (0-5)	Plant Count (cotyledon - 1 leaf)	Plant Count (4-6 leaf)
Untreated	17	1.25	92	2.25	4.61	5.36
Fungicide	8	1.75	99	2.50	4.81	5.70
<i>p-value</i>	0.055	0.182	0.188	0.391	0.236	0.118

ESF_03 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	15.6	52.0	34.6	60.4	58.1	63.6	284.3
Avg Daily Temp (°C)	4.6	14.8	17.4	18.9	19.1	16.1	

ESF_03 Economic Analysis

Treatment	Mean yield (bu/ac)	Application Cost ¹	Change in Profit from Untreated Check ²
Untreated	45.97	\$0/ac	-
Fungicide	47.29	\$22/ac	-\$22/ac
P-value	0.285		
CV	3.50		

¹ Based on 2025 MB Cost of Production: estimated cost of blackleg fungicide ~\$12/ac and estimated cost of canola sprayer operation ~\$10/ac

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.



Agronomic Support for this Trial
Provided by:

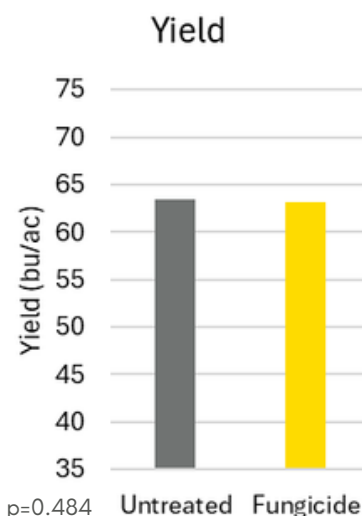
Early Season Fungicide Trial

ESF_04

Site Info

Trial ID: ESF_04
Rural Municipality: Montcalm
Seeding Date: May 6, 2025
Row Spacing: 15 in.
Variety: L340PC
Seed Treatment: Helix Vibrance, Buteo
Fungicide Application Date: June 5, 2025
Fungicide App. Crop Stage: 4-6 leaf
Fungicide Product (Rate): Maxentis (0.25 L/ac)
Fungicide Active Ingredient: Azoxystrobin + Prothioconazole

Harvest date: August 31, 2025



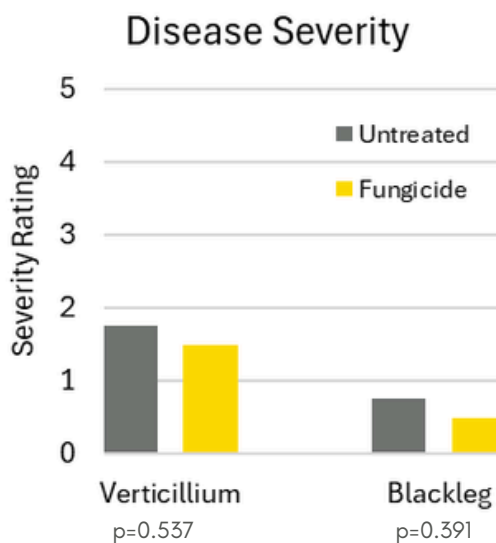
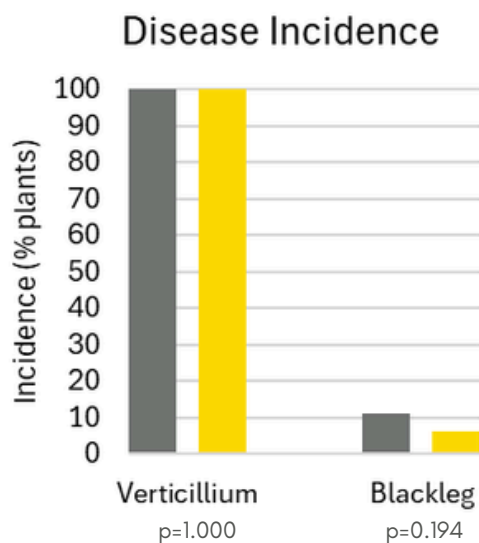
Results Summary

Blackleg: Blackleg was not significantly reduced by early-season fungicide application.

Verticillium: Verticillium stripe was not significantly reduced by early-season fungicide application.

Grain Yield: Blackleg fungicide application at the 4-6 leaf stage had no significant influence on grain yield in this trial.

Profitability: Relative to the untreated check, blackleg fungicide application increased costs without significantly greater yield protection, losing \$22/ac. Suppression of BL inoculum for future seasons may provide indirect long-term benefits.



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Early Season Fungicide Trial ESF_04 Continued

Treatment	Blackleg Incidence (%)	Blackleg Severity (0-5)	Verticillium Incidence (%)	Verticillium Severity (0-5)	Plant Count (cotyledon - 1 leaf)	Plant Count (4-6 leaf)
Untreated	11	0.75	100	1.75	3.34	3.44
Fungicide	6	0.50	100	1.50	3.63	3.45
<i>p-value</i>	0.194	0.391	1.000	0.537	0.146	0.969

ESF_04 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	15.6	52.0	34.6	60.4	58.1	63.6	284.3
Avg Daily Temp (°C)	4.6	14.8	17.4	18.9	19.1	16.1	

ESF_04 Economic Analysis

Treatment	Mean yield (bu/ac)	Application Cost ¹	Change in Profit from Untreated Check ²
Untreated	63.50	\$0/ac	-
Fungicide	63.16	\$22/ac	-\$22/ac
P-value	0.484		
CV	2.30		

¹ Based on 2025 MB Cost of Production: estimated cost of blackleg fungicide ~\$12/ac and estimated cost of canola sprayer operation ~\$10/ac

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.



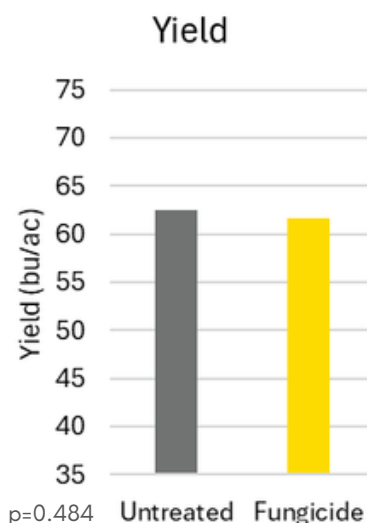
Agronomic Support for this Trial
Provided by:

Early Season Fungicide Trial

ESF_05

Site Info

Trial ID: ESF_05
Rural Municipality: De Salaberry
Seeding Date: May 7, 2025
Row Spacing: 10 in.
Variety: L356PC
Seed Treatment: Helix Vibrance, Buteo
Fungicide Application Date: June 11, 2025
Fungicide App. Crop Stage: 4-6 leaf
Fungicide Product (Rate): Nexicor (0.25 L/ac)
Fungicide Active Ingredient: Fluxapyroxad 30 g/L,
 Pyraclostrobin 200 g/L,
 Propiconazole 125 g/L
Harvest date: September 8, 2025



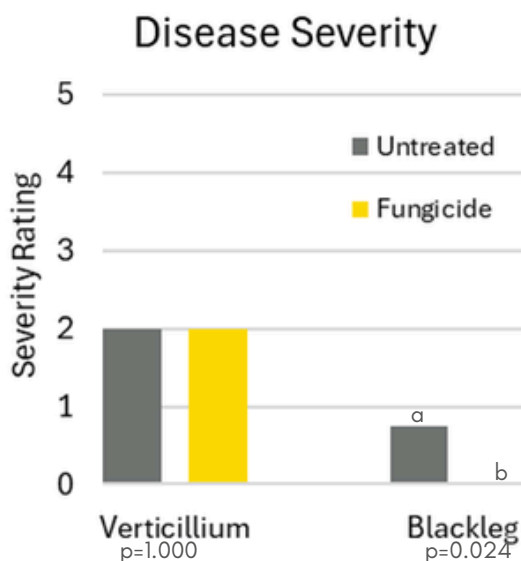
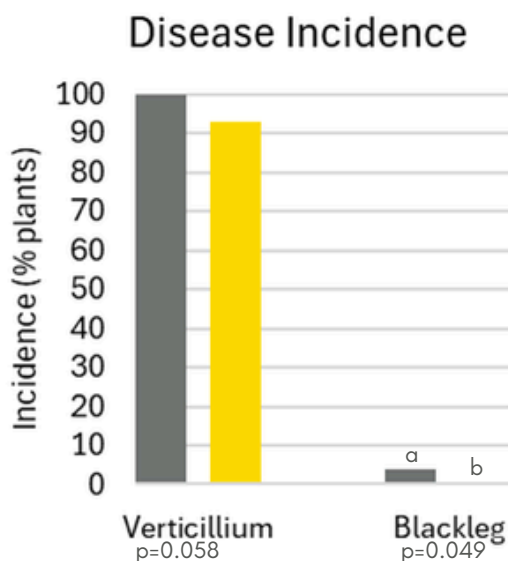
Results Summary

Blackleg: Blackleg was only observed at 4% incidence in the untreated check. Blackleg incidence and severity was significantly reduced to 0% by early-season fungicide application.

Verticillium: Verticillium stripe was not significantly reduced by early-season fungicide application.

Grain Yield: Blackleg fungicide application at the 4-6 leaf stage had no significant influence on grain yield in this trial.

Profitability: Relative to the untreated check, blackleg fungicide application increased costs without significantly greater yield protection, losing \$22/ac. Suppression of BL inoculum for future seasons may provide indirect long-term benefits.



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Early Season Fungicide Trial ESF_05 Continued

Treatment	Blackleg Incidence (%)	Blackleg Severity (0-5)	Verticillium Incidence (%)	Verticillium Severity (0-5)	Plant Count (cotyledon - 1 leaf)	Plant Count (4-6 leaf)
Untreated	4.00 ^a	0.75 ^a	100	2.00	4.60	4.46
Fungicide	0.00 ^b	0.00 ^b	93	2.00	4.74	4.49
<i>p-value</i>	0.050	0.024	0.058	1.000	0.376	0.907

ESF_05 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	15.1	39.9	41.1	91.6	65.2	90.6	343.5
Avg Daily Temp (°C)	4.7	14.7	17.3	18.6	19.3	16.1	

ESF_05 Economic Analysis

Treatment	Mean yield (bu/ac)	Application Cost ¹	Change in Profit from Untreated Check ²
Untreated	62.45	\$0/ac	-
Fungicide	61.65	\$22/ac	-\$22/ac
P-value	0.670		
CV	3.85		

¹ Based on 2025 MB Cost of Production: estimated cost of blackleg fungicide ~\$12/ac and estimated cost of canola sprayer operation ~\$10/ac

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.



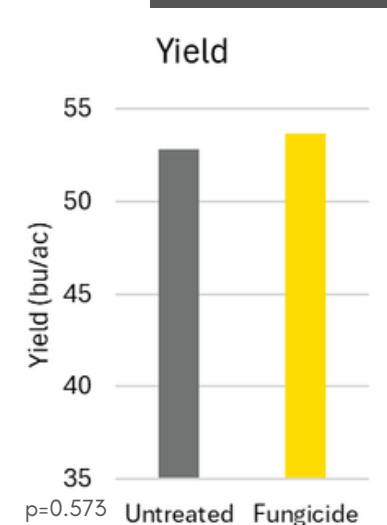
Agronomic Support for this Trial
Provided by:

Early Season Fungicide Trial

ESF_06

Site Info

Trial ID: ESF_06
Rural Municipality: Minitonas
Seeding Date: May 20, 2025
Row Spacing: 12 in.
Variety: L358PC
Seed Treatment: Buteo
Fungicide Application Date: June 16, 2025
Fungicide App. Crop Stage: 4-6 leaf
Fungicide Product (Rate): Nexicor (0.2 L/ac)
Fungicide Active Ingredient: Fluxapyroxad 30 g/L,
 Pyraclostrobin 200 g/L,
 Propiconazole 125 g/L
Harvest date: September 27, 2025



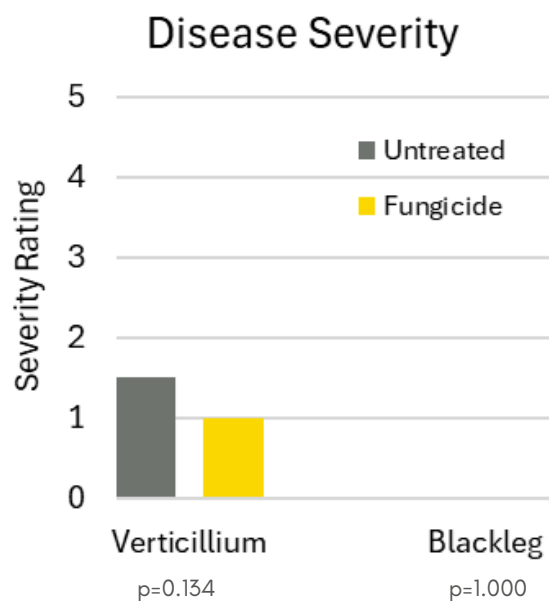
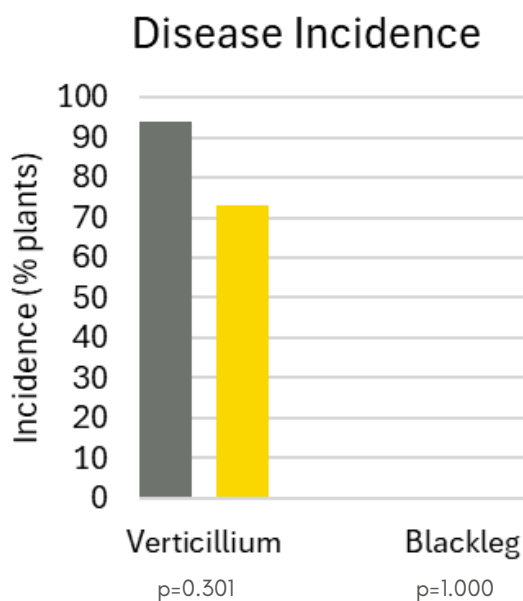
Results Summary

Blackleg: Blackleg was not detected at this site.

Verticillium: Verticillium stripe was not significantly reduced by early-season fungicide application.

Grain Yield: Blackleg fungicide application at the 4-6 leaf stage had no significant influence on grain yield in this trial.

Profitability: Relative to the untreated check, blackleg fungicide application increased costs without significantly greater yield protection, losing \$22/ac. Suppression of BL inoculum for future seasons may provide indirect long-term benefits.



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Early Season Fungicide Trial ESF_06 Continued

Treatment	Blackleg Incidence (%)	Blackleg Severity (0-5)	Verticillium Incidence (%)	Verticillium Severity (0-5)	Plant Count (cotyledon - 1 leaf)	Plant Count (4-6 leaf)
Untreated	0	0.00	94	1.50	7.10	7.10
Fungicide	0	0.00	73	1.00	7.27	7.54
<i>p-value</i>	1.000	1.000	0.301	0.134	0.457	0.162

ESF_06 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	1.8	23.8	48.5	20.8	135.0	32.5	262.4
Avg Daily Temp (°C)	2.7	12.7	16.1	17.6	19.1	15.0	

ESF_06 Economic Analysis

Treatment	Mean yield (bu/ac)	Application Cost ¹	Change in Profit from Untreated Check ²
Untreated	52.82	\$0/ac	-
Fungicide	53.63	\$22/ac	-\$22/ac
P-value	0.573		
CV	3.48		

¹ Based on 2025 MB Cost of Production: estimated cost of blackleg fungicide ~\$12/ac and estimated cost of canola sprayer operation ~\$10/ac

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.

Agronomic Support for this Trial
Provided by:



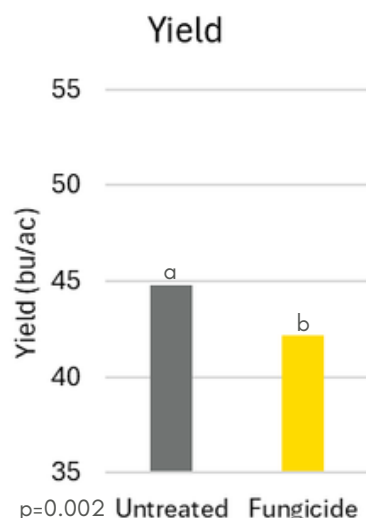
Early Season Fungicide Trial

ESF_07

Site Info

Trial ID: ESF_07
Rural Municipality: Swan River
Seeding Date: May 25, 2025
Row Spacing: 12 in.
Variety: L356PC
Seed Treatment: Buteo
Fungicide Application Date: June 12, 2025
Fungicide App. Crop Stage: 4-6 leaf
Fungicide Product (Rate): Maxentis (0.422 L/ac)
Fungicide Active Ingredient: Azoxystrobin + Prothioconazole

Harvest date: September 28, 2025



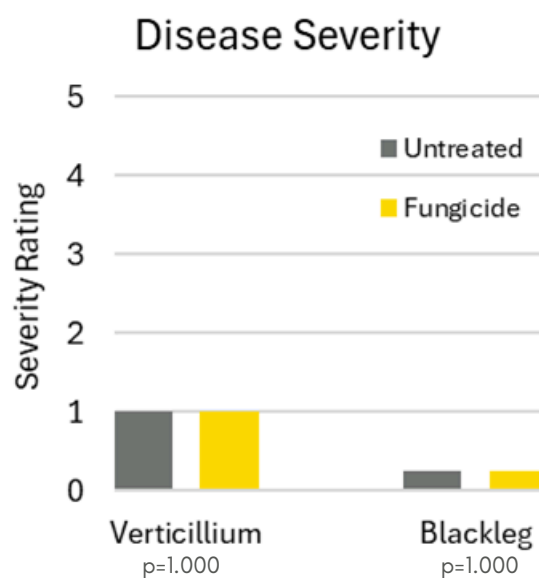
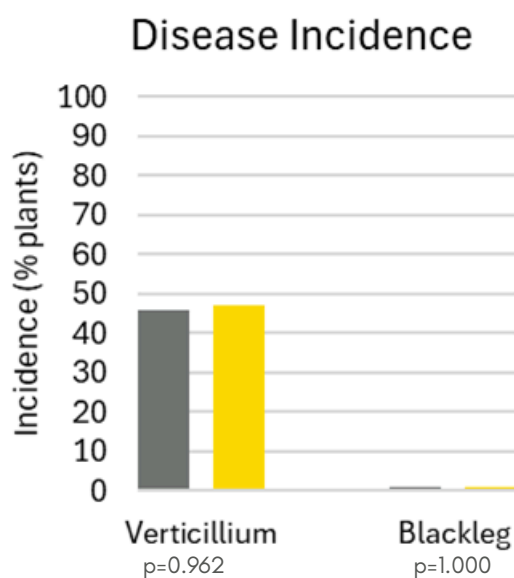
Results Summary

Blackleg: Blackleg was not significantly reduced by early-season fungicide application.

Verticillium: Blackleg was only observed at 1% incidence in the untreated check. Blackleg incidence and severity was not significantly reduced by early-season fungicide application.

Grain Yield: Yield was statistically significantly greater (2.6 bu/ac) in the untreated check.

Profitability: Relative to the untreated check, blackleg fungicide application increased costs without significantly greater yield protection, losing \$56/ac. Suppression of BL inoculum for future seasons may provide indirect long-term benefits.



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Early Season Fungicide Trial

ESF_07 Continued

Treatment	Blackleg Incidence (%)	Blackleg Severity (0-5)	Verticillium Incidence (%)	Verticillium Severity (0-5)	Plant Count (cotyledon - 1 leaf)	Plant Count (4-6 leaf)
Untreated	1	0.25	46	1.00	4.63	5.86
Fungicide	1	0.25	47	1.00	4.96	6.11
<i>p-value</i>	1.000	1.000	0.962	1.000	0.272	0.296

ESF_07 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	1.8	23.8	48.5	20.8	135.0	32.5	262.4
Avg Daily Temp (°C)	2.7	12.7	16.1	17.6	19.1	15.0	

ESF_07 Economic Analysis

Treatment	Mean yield (bu/ac)	Application Cost ¹	Change in Profit from Untreated Check ²
Untreated	44.75 ^a	\$0/ac	-
Fungicide	42.16 ^b	\$22/ac	-\$56/ac
P-value	0.002		
CV	3.54		

¹ Based on 2025 MB Cost of Production: estimated cost of blackleg fungicide ~\$12/ac and estimated cost of canola sprayer operation ~\$10/ac

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were significantly reduced by the fungicide treatment in this trial, therefore providing reduced grain sales income.

Agronomic Support for this Trial
Provided by:

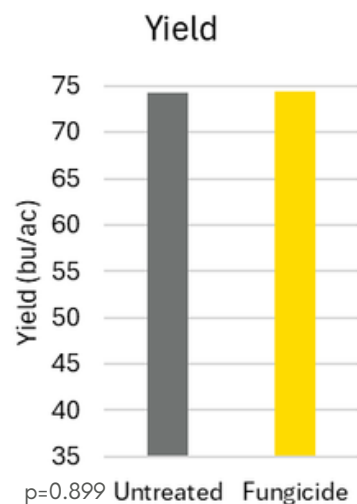


Early Season Fungicide Trial

ESF_08

Site Info

Trial ID: ESF_08
Rural Municipality: Roblin
Seeding Date: May 11, 2025
Row Spacing: 10 in.
Variety: L356
Seed Treatment: Lumiderm, Buteo
Fungicide Application Date: June 6, 2025
Fungicide App. Crop Stage: 4-6 leaf
Fungicide Product (Rate): Nexicor (0.0202 L/ac)
Fungicide Active Ingredient: Fluxapyroxad 30 g/L,
 Pyraclostrobin 200 g/L,
 Propiconazole 125 g/L
Harvest date: September 24, 2025



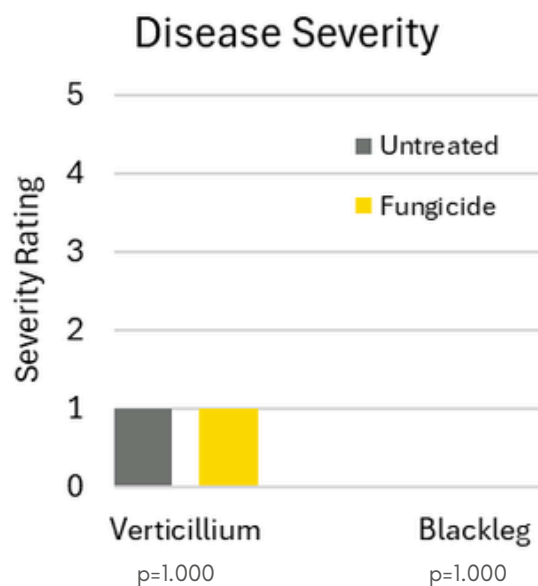
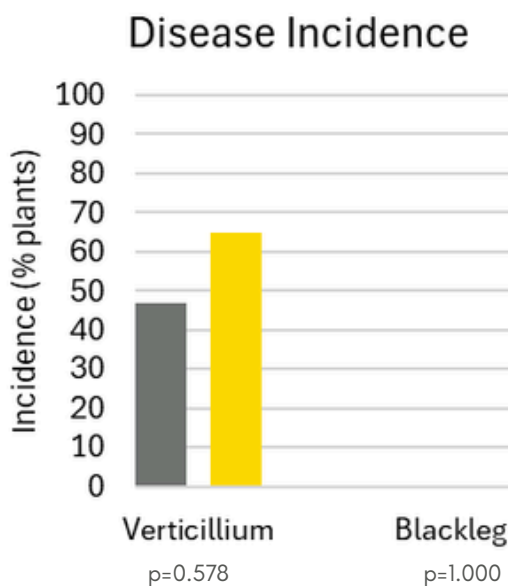
Results Summary

Blackleg: Blackleg was not detected at this site.

Verticillium: Verticillium stripe was not significantly reduced by early-season fungicide application.

Grain Yield: Blackleg fungicide application at the 4-6 leaf stage had no significant influence on grain yield in this trial.

Profitability: Relative to the untreated check, blackleg fungicide application increased costs without significantly greater yield protection, losing \$22/ac. Suppression of BL inoculum for future seasons may provide indirect long-term benefits.



Within each data type, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Data types with no lowercase letters listed indicate an insignificant treatment effect.

Early Season Fungicide Trial ESF_08 Continued

Treatment	Blackleg Incidence (%)	Blackleg Severity (0-5)	Verticillium Incidence (%)	Verticillium Severity (0-5)	Plant Count (cotyledon - 1 leaf)	Plant Count (4-6 leaf)
Untreated	0	0.00	47	1.00	7.66	7.96
Fungicide	0	0.00	65	1.00	7.76	7.99
<i>p-value</i>	1.000	1.000	0.578	1.000	0.250	0.689

ESF_08 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	13.7	38.3	51.0	28.5	97.5	66.9	295.9
Avg Daily Temp (°C)	1.1	12.2	15.5	16.8	17.5	14.5	

ESF_08 Economic Analysis

Treatment	Mean yield (bu/ac)	Application Cost ¹	Change in Profit from Untreated Check ²
Untreated	74.34	\$0/ac	-
Fungicide	74.46	\$22/ac	-\$22/ac
P-value	0.899		
CV	1.98		

¹ Based on 2025 MB Cost of Production: estimated cost of blackleg fungicide ~\$12/ac and estimated cost of canola sprayer operation ~\$10/ac

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.

Agronomic Support for this Trial
Provided by:



Trial Summary **NEW TRIAL TYPE** Harvest Management Trial

Research Question:

How does harvest management impact Verticillium stripe severity at harvest and the amount of Verticillium inoculum returned to the soil.

Treatments:

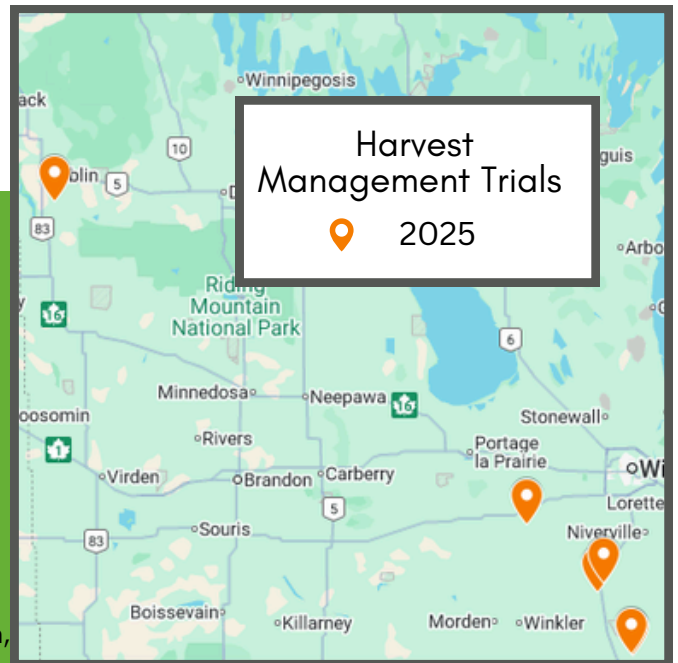
1. Straightcut
2. Swath

Trial Setup:

Randomized complete block, each treatment was one equipment width (swather or combine header) x field length, with 4 replicates per location (8 strips per location).

Data Collection:

Pre-seed soil verticillium content, verticillium incidence and severity at swathing and post-harvest, grain yield, spring 2026 soil verticillium content.



Harvest Management Trial Layout



Verticillium stripe severity scale



NOTE 1 HM trial was excluded from data analysis due to sampling errors - data is presented from 5 locations for the 2025 season.

Background: This trial utilizes field-scale plots to investigate the behaviour of VS inoculum from year to year. Although VS infection occurs through the roots, yield-damaging symptoms and the production of black microsclerotia (inoculum) only appear as plants progress through maturity. Considering the timing of two common canola harvest management practices, swathing and straightcutting, this trial was prompted to investigate whether either practice causes differences in 1) VS severity and yield; 2) VS inoculum returned to soil for following seasons.

Incidence = % of plants displaying visual symptoms of disease

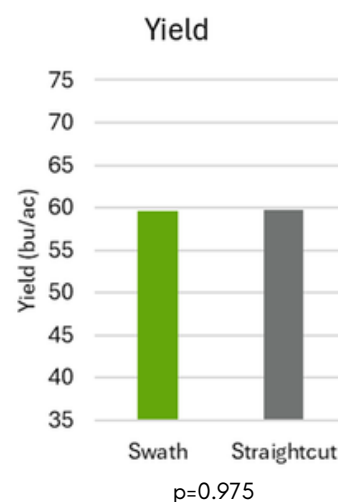
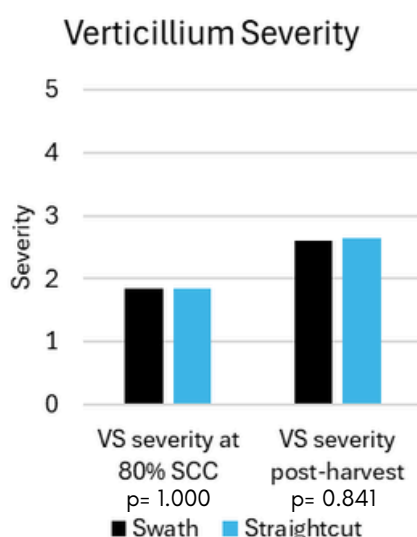
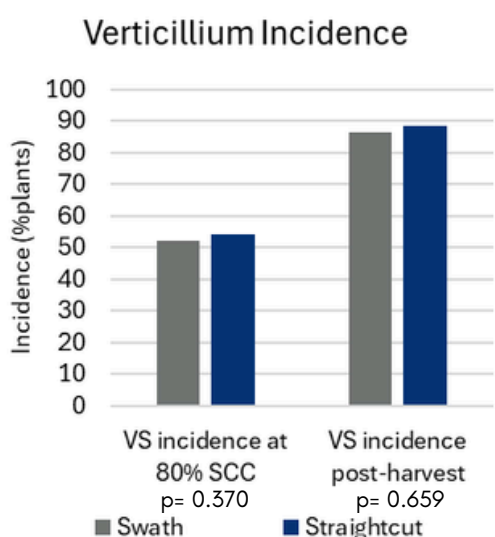
Severity = average rating of diseased plants according to Verticillium scale

2025 Results Summary

Harvest Management Trial

2025 Trial Sites

Trial ID	RM	Seeding Date	Swath Date	Straightcut Date
HM_01	Morris	May 6, 2025	August 13, 2025	September 8, 2025
HM_02	Grey	May 9, 2025	August 25, 2025	September 23, 2025
HM_03	Emerson-Franklin	May 13, 2025	August 24, 2025	September 10, 2025
HM_04	Emerson-Franklin	May 12, 2025	August 23, 2025	September 8, 2025
HM_05	Morris	May 6, 2025	August 12, 2025	August 27, 2025



Within each sampling timing, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Sampling timings with no lowercase letters listed indicate an insignificant treatment effect.

Verticillium incidence and severity: Verticillium stripe was identified at all 5 trials across 3 different RMs. No significant differences in VS incidence or severity were identified between swath and straightcut treatments at 80% SCC or post-harvest timing.

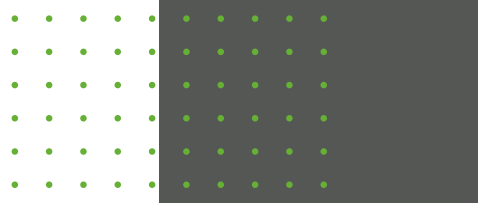
Yield: Significant differences in yield varied across trials: 2 trials observed increased yield (+2.7 bu/ac and +4.6 bu/ac) when swathing, 1 trial observed increased yield (+2.7 bu/ac) when straightcutting, and 2 trials observed no statistically significant differences. When the data was combined, yield was unaffected by the choice of swathing or straightcutting across 2025 trials.

NOTE Soil samples will be collected from all HM plots before seeding in spring 2026 - the verticillium inoculum load will then be compared between harvest management practices.

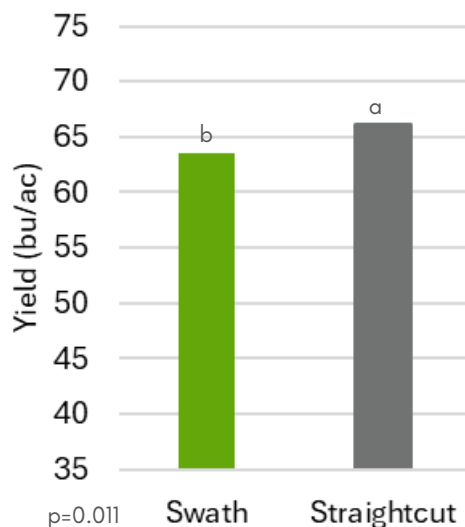
Harvest Management Trial HM_01

Site Info

Trial ID:	HM_01
Rural Municipality:	Morris
Seeding Date:	May 6, 2025
Row Spacing:	10 in.
Variety:	PV280 Clearfield
Seed Treatment:	N/A
In-Season Fungicide:	N/A
Swath Date:	August 13, 2025
Harvest Date:	September 8, 2025
Harvest Implement:	Honey Bee Airflex 236



Yield



Results Summary

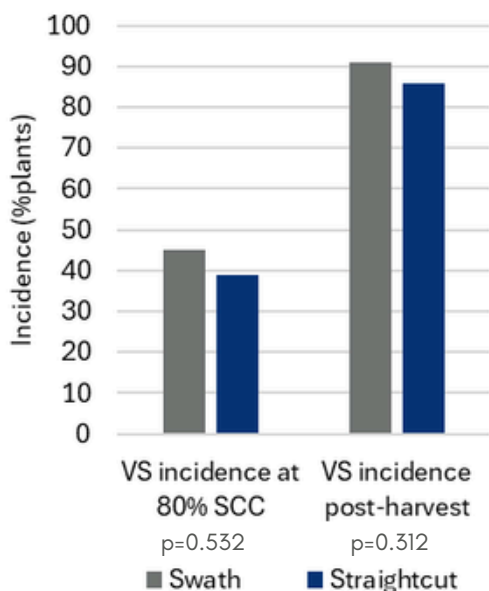
Verticillium: Verticillium stripe was not significantly influenced by harvest management practices within the 2025 season.

Blackleg: Blackleg was not significantly influenced by harvest management practices within the 2025 season.

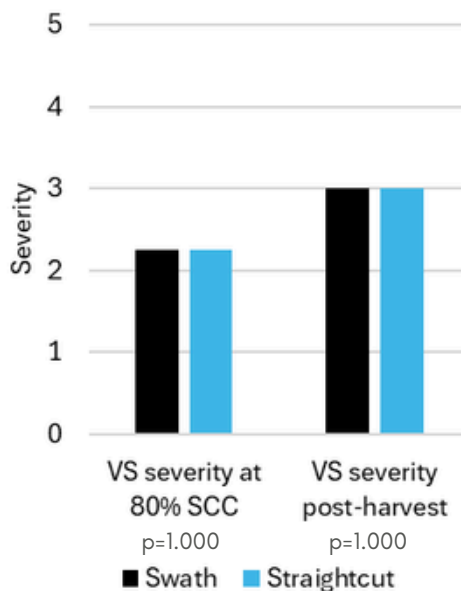
Grain Yield: The swathing treatment significantly lowered yield relative to straightcutting in this trial.

Profitability: Swathing increased costs while producing significantly lower yield, losing approximately \$47/ac compared to the straightcut treatment.

Verticillium Incidence



Verticillium Severity



Within each sampling timing, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Sampling timings with no lowercase letters listed indicate an insignificant treatment effect.

Harvest Management Trial HM_01 Continued



HM_01 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	15.6	52.0	34.6	60.4	58.1	63.6	284.3
Avg Daily Temp (°C)	4.6	14.8	17.4	18.9	19.1	16.1	

HM_01 Economic Analysis

Treatment	Mean yield (bu/ac)	Change in Cost from Farm Standard ¹	Change in Profit from Farm Standard ²
Straightcut	66.17 ^a	\$0/ac	-
Swath	63.51 ^b	\$12/ac	-\$47/ac
P-value	0.011		
CV	2.65		

¹ Based on 2025 MB Cost of Production: estimated cost of canola swather operation ~\$12/ac

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were significantly increased by the straightcut treatment at this trial, therefore providing increased grain sales income.

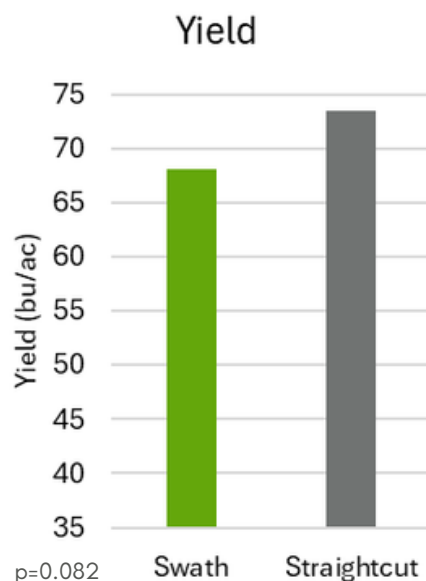


Agronomic Support for this Trial
Provided by:

Harvest Management Trial HM_02

Site Info

Trial ID:	HM_02
Rural Municipality:	Grey
Seeding Date:	May 9, 2025
Row Spacing:	10 in.
Variety:	Dekalb 800LL
Seed Treatment:	Prosper/Buteo
In-Season Fungicide:	N/A
Swath Date:	August 25, 2025
Harvest Date:	September 23, 2025
Harvest Implement:	Pick up Header



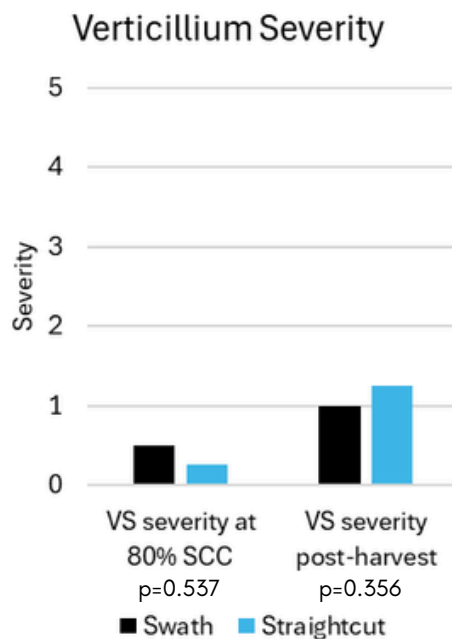
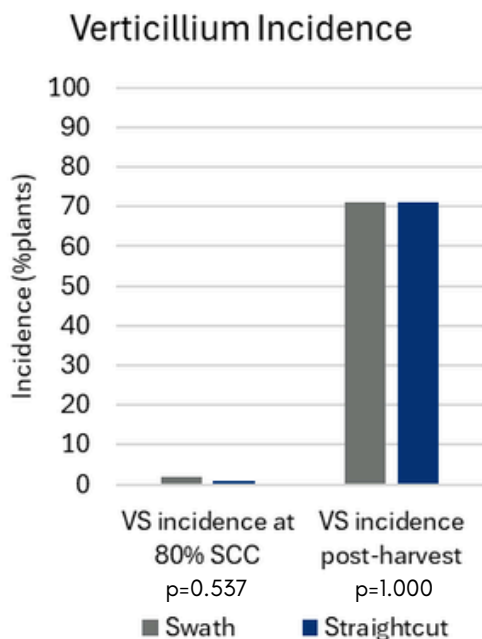
Results Summary

Verticillium: Verticillium stripe was not significantly influenced by harvest management practices within the 2025 season.

Blackleg: Blackleg was observed at very low amounts in the swath treatment, and not observed in the straightcut treatment - the difference between 3% and 0% incidence is statistically significantly different.

Grain Yield: The swathing treatment lowered yield relative to straightcutting in this trial, however did not cross the threshold for statistical significance.

Profitability: Swathing increased costs without producing significantly greater yield, losing approximately \$12/ac compared to the straightcut treatment.



Within each sampling timing, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Sampling timings with no lowercase letters listed indicate an insignificant treatment effect.

Harvest Management Trial HM_02 Continued



HM_02 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	26.3	68.6	28.0	92.4	80.2	83.8	379.3
Avg Daily Temp (°C)	4.7	14.3	17.7	19.3	19.2	15.9	

HM_02 Economic Analysis

Treatment	Mean yield (bu/ac)	Change in Cost from Farm Standard ¹	Change in Profit from Farm Standard ²
Straightcut	73.47	\$0/ac	-
Swath	68.02	\$12/ac	-\$12/ac
P-value	0.082		
CV	6.36		

¹ Based on 2025 MB Cost of Production: estimated cost of canola swather operation ~\$12/ac

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.



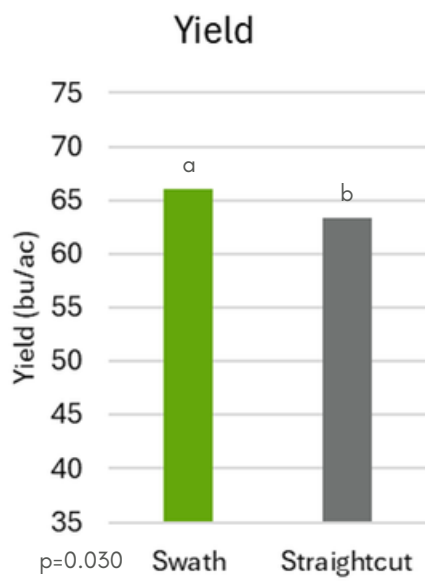
Agronomic Support for this Trial
Provided by:

Harvest Management Trial

HM_03

Site Info

Trial ID: HM_03
Rural Municipality: Emerson-Franklin
Seeding Date: May 13, 2025
Row Spacing: 7.5 in.
Variety: L340PC
Seed Treatment: Helix Vibrance, Buteo
In-Season Fungicide: Viatude
Swath Date: August 24, 2025
Harvest Date: September 10, 2025
Harvest Implement: John Deere S680



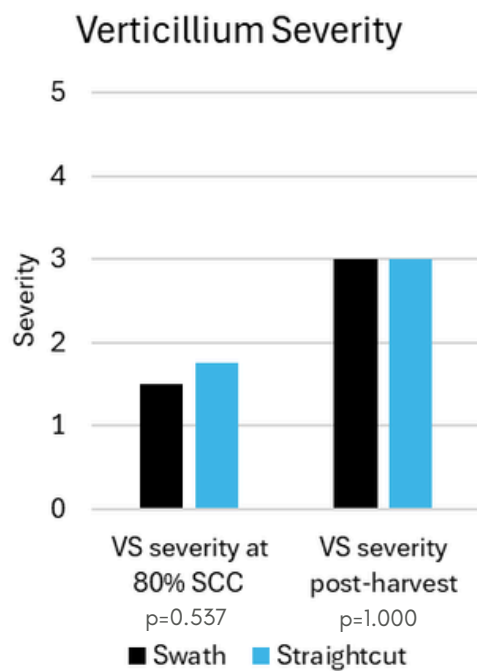
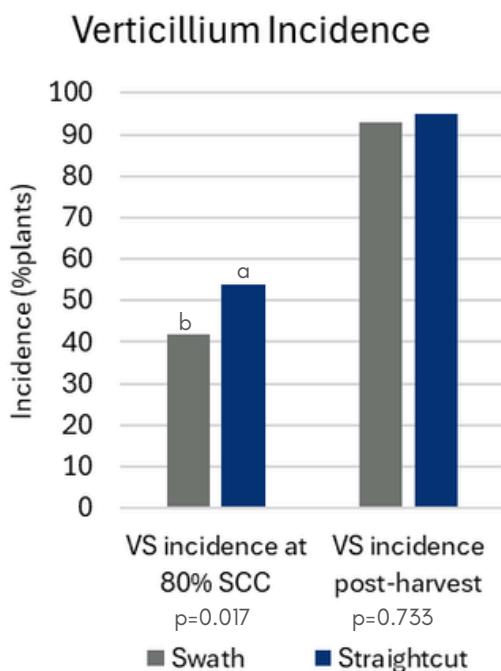
Results Summary

Verticillium: Verticillium stripe incidence was significantly greater in the straightcut treatment than the swath treatment at 80% SCC, but similar at post-harvest. Disease severity was similar between the two treatments at either harvest management timing.

Blackleg: Blackleg was not significantly influenced by harvest management practices within the 2025 season.

Grain Yield: The swathing treatment significantly increased yield relative to straightcutting in this trial.

Profitability: The increased costs of swathing could be offset by increased yield, profiting approximately \$24/ac more compared to the straightcut treatment.



Within each sampling timing, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Sampling timings with no lowercase letters listed indicate an insignificant treatment effect.

Harvest Management Trial HM_03 Continued



HM_03 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	19.3	52.8	31.3	113.3	42.1	66.9	325.7
Avg Daily Temp (°C)	5.1	14.8	17.8	19.2	19.5	16.3	

HM_03 Economic Analysis

Treatment	Mean yield (bu/ac)	Change in Cost from Farm Standard ¹	Change in Profit from Farm Standard ²
Straightcut	63.34 ^b	\$0/ac	-
Swath	66.03 ^a	\$12/ac	\$24/ac
P-value	0.030		
CV	2.94		

¹ Based on 2025 MB Cost of Production: estimated cost of canola swather operation ~\$12/ac

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were significantly increased by the swath treatment at this trial, therefore providing increased grain sales income.



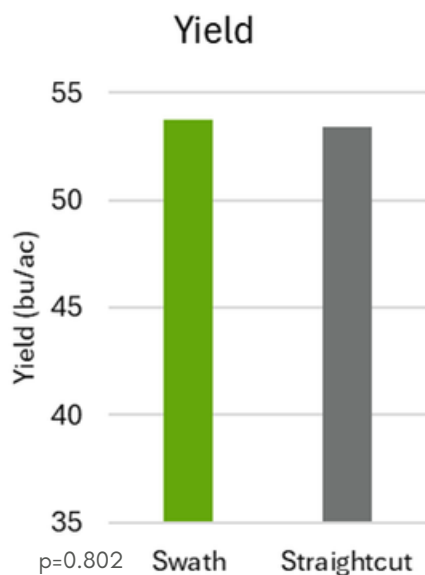
Agronomic Support for this Trial
Provided by:

Harvest Management Trial

HM_04

Site Info

Trial ID: HM_04
Rural Municipality: Emerson-Franklin
Seeding Date: May 12, 2025
Row Spacing: 7.5 in.
Variety: B3018N
Seed Treatment: Lumiscend + Lumiderm
In-Season Fungicide: Viatude
Swath Date: August 23, 2025
Harvest Date: September 8, 2025
Harvest Implement: John Deere S680



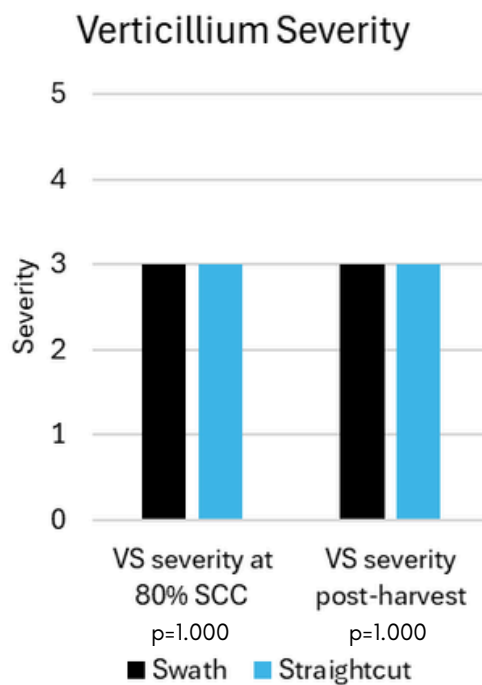
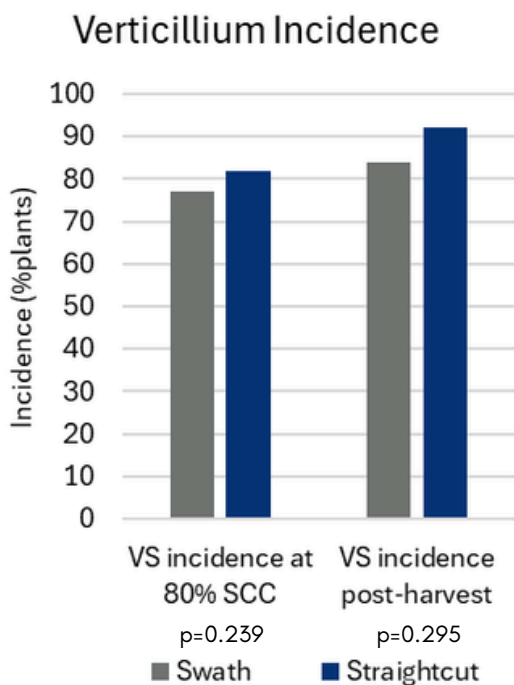
Results Summary

Verticillium: Verticillium stripe was not significantly influenced by harvest management practices within the 2025 season.

Blackleg: Blackleg was not significantly influenced by harvest management practices within the 2025 season.

Grain Yield: The choice of swathing or straightcutting had no significant influence on grain yield in this trial.

Profitability: Swathing increased costs without producing significantly greater yield, losing approximately \$12/ac compared to the straightcut treatment.



Within each sampling timing, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Sampling timings with no lowercase letters listed indicate an insignificant treatment effect.

Harvest Management Trial HM_04 Continued



HM_04 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	19.3	52.8	31.3	113.3	42.1	66.9	325.7
Avg Daily Temp (°C)	5.1	14.8	17.8	19.2	19.5	16.3	

HM_04 Economic Analysis

Treatment	Mean yield (bu/ac)	Change in Cost from Farm Standard ¹	Change in Profit from Farm Standard ²
Straightcut	53.41	\$0/ac	-
Swath	53.75	\$12/ac	-\$12/ac
P-value	0.802		
CV	3.12		

¹ Based on 2025 MB Cost of Production: estimated cost of canola swather operation ~\$12/ac

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were not significantly different in this trial, therefore there are no differences in grain sales income.



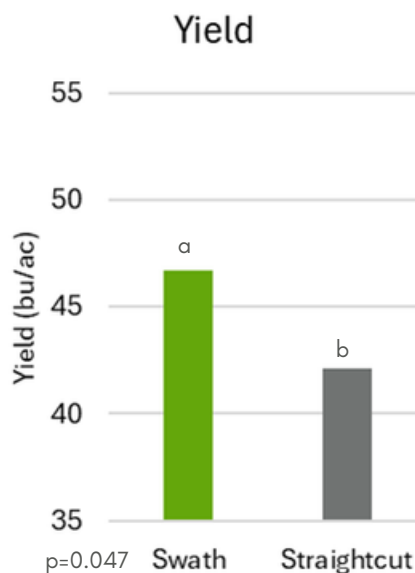
Agronomic Support for this Trial
Provided by:

Harvest Management Trial

HM_05

Site Info

Trial ID: HM_05
Rural Municipality: Morris
Seeding Date: May 6, 2025
Row Spacing: 10 in.
Variety: P508MCL
Seed Treatment: Helix Vibrance + Lumiderm/Lumiscend
In-Season Fungicide: N/A
Swath Date: August 12, 2025
Harvest Date: August 27, 2025
Harvest Implement: Lexion Combine



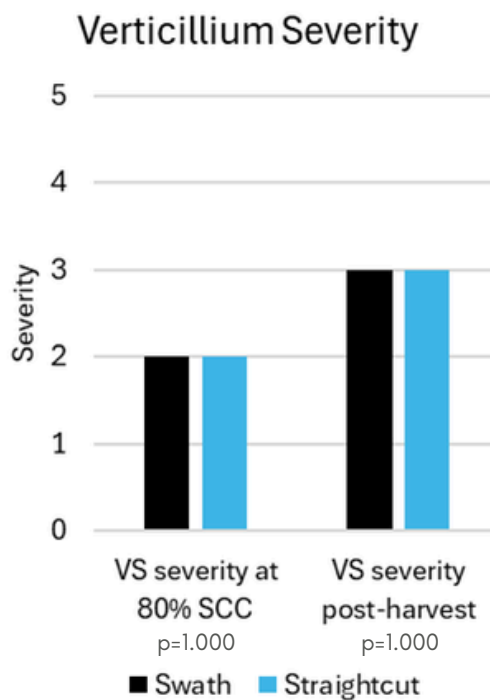
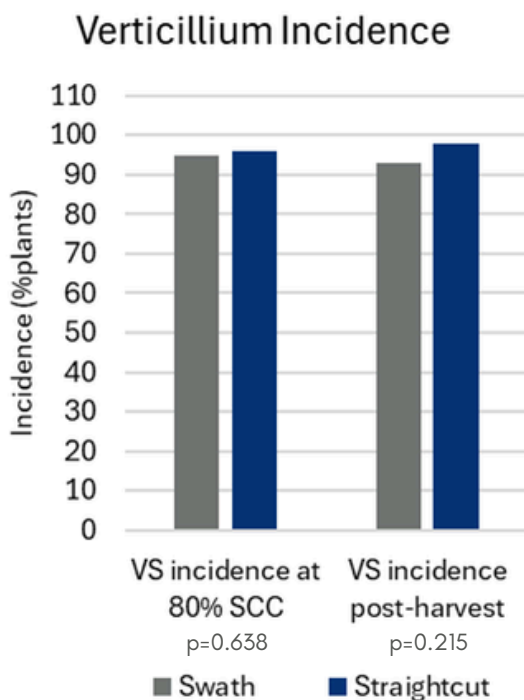
Results Summary

Verticillium: Verticillium stripe was not significantly influenced by harvest management practices within the 2025 season.

Blackleg: Blackleg was not significantly influenced by harvest management practices within the 2025 season.

Grain Yield: The swathing treatment significantly increased yield relative to straightcutting in this trial.

Profitability: The increased costs of swathing could be offset by increased yield, profiting approximately \$49/ac more compared to the straightcut treatment.



Within each sampling timing, treatments with different lowercase letters are significantly different at 95% confidence level ($p < 0.05$). Sampling timings with no lowercase letters listed indicate an insignificant treatment effect.

Harvest Management Trial HM_05 Continued



HM_05 Weather

	Apr	May	June	July	Aug	Sept	Total
Rainfall (mm)	15.6	52.0	34.6	60.4	58.1	63.6	284.3
Avg Daily Temp (°C)	4.6	14.8	17.4	18.9	19.1	16.1	

HM_05 Economic Analysis

Treatment	Mean yield (bu/ac)	Change in Cost from Farm Standard ¹	Change in Profit from Farm Standard ²
Straightcut	42.10 ^b	\$0/ac	-
Swath	46.68 ^a	\$12/ac	\$49/ac
P-value	0.047		
CV	7.73		

¹ Based on 2025 MB Cost of Production: estimated cost of canola swather operation ~\$12/ac

² Change in profit is calculated as the difference in grain sales income (based on estimated canola sale price of \$13.25/bu) and treatment costs, relative to the standard farm practice. Yields were significantly increased by the swath treatment at this trial, therefore providing increased grain sales income.



Agronomic Support for this Trial
Provided by:

Trial Summary

Seed Placed Fertilizer Toxicity Trial

Research Question:

Are Seed-Placed fertilizer (SPF) applications being used across Manitoba safe for canola plant stand establishment and what are the major factors influencing seed safety?

Treatments:

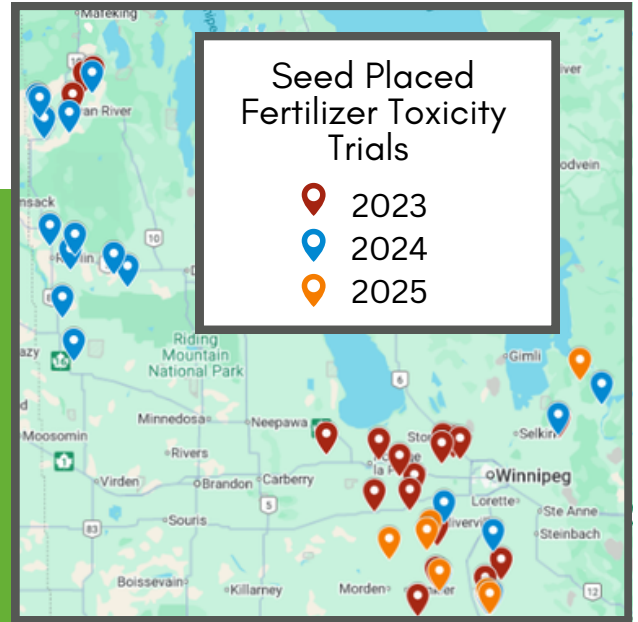
1. No Seed-Placed Fertilizer
2. Standard Seed-Placed Fertilizer (100%)
3. High Seed-Placed Fertilizer (150%)

Trial Setup:

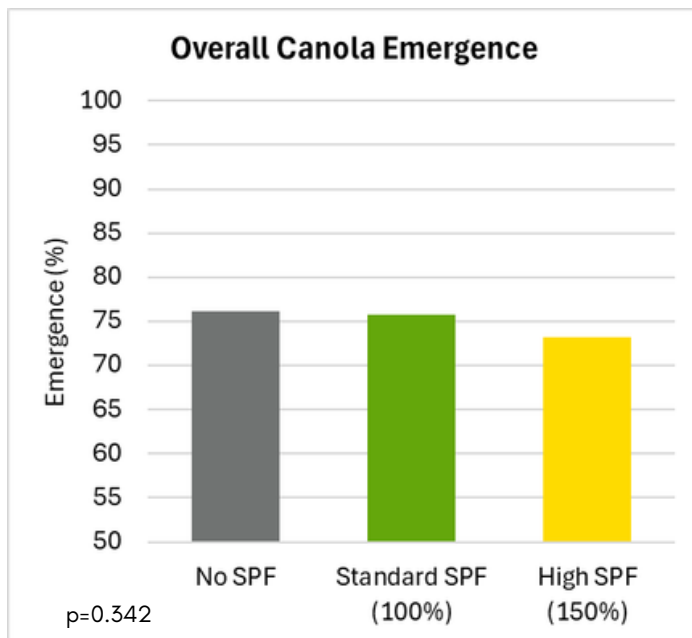
One replicate of each treatment (replicated by locations). This is to allow for a wider range in testing environments (soil/rainfall), equipment (row spacing, openers, SBU), and agronomic practices (fertilizer sources and rates). This allows for the examination of the relationships between these testing factors and seed safety.

Data Collection:

Plant Counts (4-leaf), Emergence (%)



Background: Current recommendations for seed-safe levels of P and S fertilizers are much lower than crop uptake requirements. This paired with an increase in single pass seeding systems and low disturbance openers had resulted in farms pushing to increase seed applied fertilizer levels. Fertilizer toxicity is highly dependent on a number of environmental and management factors and their interactions that can vary with the growing season.



2023 - 2025 Summary:

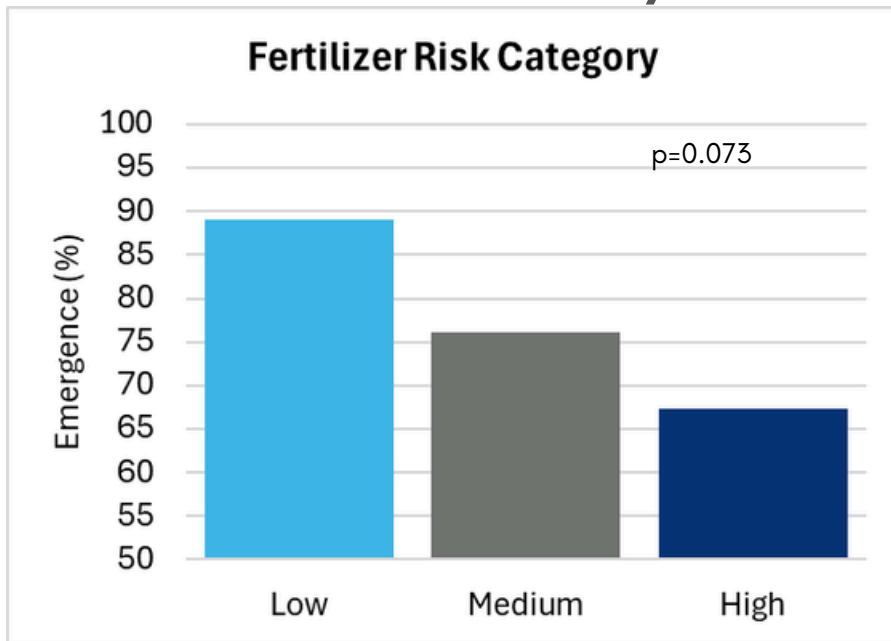
After three years we have tested 70 locations across MB, which is not yet enough data points to conduct multivariate analysis to examine interactions between factors. Please note that the following is preliminary and does not account for multiple factors influencing toxicity and results should be interpreted with caution.

$$\text{Emergence (\%)} = (\text{Plants per acre at 4-leaf} / \text{seeds planted per acre}) * 100$$

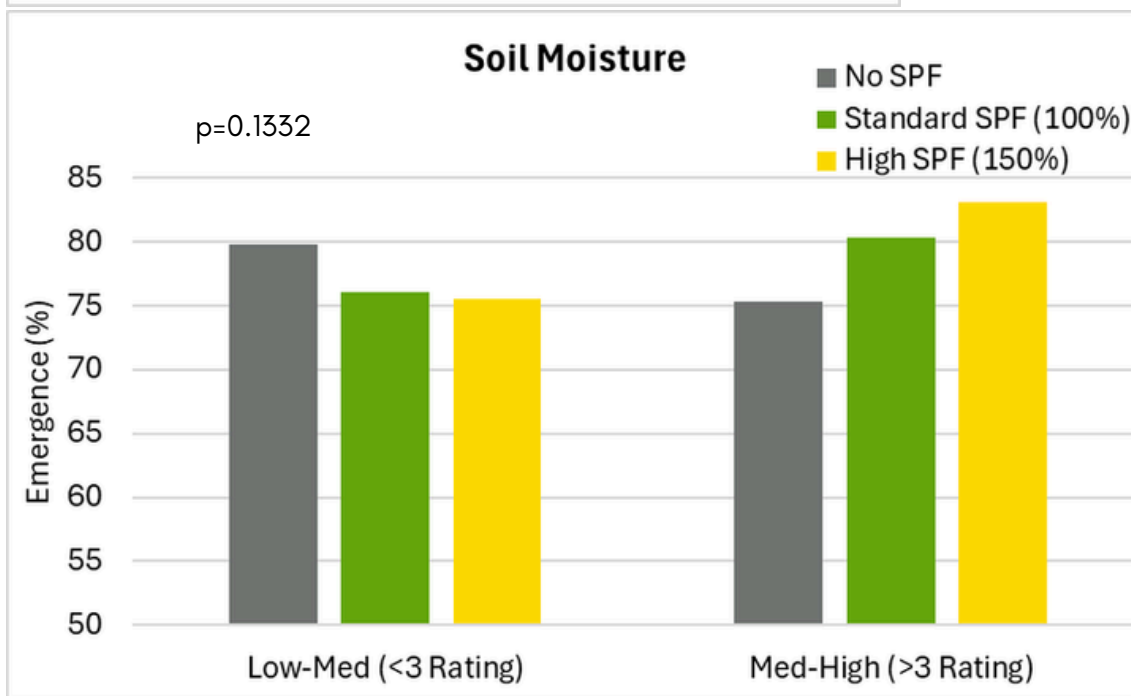
Each farm was categorized based on the farm's standard SPF Rates into the following fertilizer risk category:

- High Risk = All three of N, P, **and** S rates above recommended safe levels,
- Med Fertilizer Risk = N, P, **or** S rates above recommended safe levels
- Low Risk = All SPF fall below recommended safe levels.

Seed Placed Fertilizer Toxicity Trial



Summarizing data from all farms, there was a slight, non-significant decrease in emergence with high rates of SPF (150%), relative to the farm standard practice (100%), and untreated check.



There was a general trend for reduced emergence with high rate of SPF when soil moisture levels were rated low-medium. When soil moisture at seeding was rated med-high there was a trend for increased emergence as SPF rates increase.

Although not conclusively significantly different, sites whose standard rates exceeded the recommended safe levels of N, P, and S showed approximately 21% lower emergence than sites in the low risk category (N, P, and S within recommended level). Fertilizer risk category of a farm had a larger influence on emergence than the rate of SPF at any particular farm.

2025 Trial Sites

Trial ID	Location	Seeding Equipment	SBU	SPF Analysis	SPF Sources	Standard SPF Rate (Lbs. product/ac)	Emergence		
							No SPF	Standard SPF	150% SPF
			(%)	(N-P-K-S)					(%)
SPF_55	Alexander	Horsch Avatar Disc Drill	7.5	13-33-0-15	MES15	100	40.4	70.8	52.9
SPF_56	Thompson	Disc Drill	10	9-43-0-16	BLEND	81	70.6	63	64.3
SPF_57	Morris	John Deere N560F Disc Drill	7.5	11-52-0 13-33-0-15	MAP/MES15	100	53.9	74.8	33.9
SPF_58	Morris	John Deere Disc Drill	6.67	9-43-0-16	MST	50	92.6	89.4	91.5
SPF_59	Rhineland	John Deere 1830 Hoe Drill	10	9-25-0-5	MAP/AMS	69	78.6	85.2	81.4
SPF_60	Emerson-Franklin	Disc Drill	6.67	13-33-0-15	MES15	100	81.4	71.1	81.4
SPF_61	Emerson-Franklin	Disc Drill	6.67	13-33-0-15	MES15	100	75	76.6	66
SPF_62	Rhineland	Disc Drill	5	13-33-0-15	MES15	120	120	77.2	69.8
SPF_63	Swan River	Vaderstaad 70-10 Knife	7.5	0-40-0	MAP	115	64.9	62.7	63.4
SPF_64	Swan River	Seedhawk Knife	6.25	10-50-25	MAP, POTASH	96	66.2	64.4	68
SPF_65	Swan River	Bourgault 3320 XTC Single Shoot	20	13-33-0-15	MES15	111	69.3	78.9	71.5
SPF_66	Swan River	Bourgault 5710 Single Shoot	30	25-33-0-15	MAP/ESN/AMS	137	62.3	57.9	60.1
SPF_67	Minitonas	Dual Shank	6.25	0-40-30	POTASH/MAP	120	69.3	73.5	87
SPF_68	Swan River	Vaderstaad Drill	2.5	11-52-0	MAP	67	60.3	67.2	59.6
SPF_69	Russell-Binscarth	Drill	10.8	11-52-0	MAP	67	54.4	37.2	51
SPF_70	Roblin	Bourgault	10.8	11-52-0	MAP	67	60.6	47.5	52.3



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