



Trial Information:

- Two trials in 2023 investigated pea seeding rates on-farm near Notre Dame (PSR01) and Dauphin (PSR02).

Trial ID	R.M.	Germ.	Variety	TKW (/1000 seeds)	Row Width
PSR01	Lorne	76%	Chrome	240 g	12"
PSR02	Dauphin	-	Lewochko	230 g	10"

Supporting Data:

- Plant counts were recorded during V-stages and revisited during R-stages to capture how many plants established from the seeding rate and how many survived to harvest.
- At PSR01, 4.2-5.1 plants/ft² were established from seeding rates ranging 168-222 lbs/ac (53-57% establishment) and 4.1-4.7 plants/ft² survived to harvest (49-56%).
- At PSR02, 5.4-7.1 plants/ft² were established from seeding rates ranging 160-240 lbs/ac (66-74% establishment) and 4.8-6.5 survived to harvest (59-67%).

Yield and Economic Results:

- There were no significant yield differences among pea seeding rates tested in 2023.
- Since there were no yield increases to cover the increased seed cost, there was a loss of profit with increased seeding rates at both trials.
- Assuming a seed cost of \$29.33/bu (2023 Cost of Crop Production, Manitoba Agriculture):
 - At PSR01, a loss of \$11.73/ac and \$26.40/ac occurred for the 192 lbs/ac and 222 lbs/ac seeding rates, respectively, when compared to the lowest rate of 168 lbs/ac.
 - At PSR02, there was a loss in profit of \$19.55/ac with each seeding rate increase of 40 lbs/ac.

2023PSR01

Seeding Rates Tested		----- Early Season (V) -----		----- Late Season (R) -----		% change in plant stand	Yield (bu/ac)	
(lbs/ac)	(bu/ac)	plant stand (plants/ft ²)	% of seeding rate established	plant stand (plants/ft ²)	% of seeding rate survived			
168	2.8	4.2	57%	4.1	56%	-1%	79.3 A	
192	3.2	4.9	59%	4.7	56%	-2%	79.1 A	
222	3.7	5.1	53%	4.7	49%	-4%	77.5 A	
							<i>p-value</i>	0.550
							<i>CV</i>	3%
							<i>Yield Difference?</i>	No

% established or survived = plant count/seeding rate

2023PSR02

Seeding Rates Tested		----- Early Season (V) -----		----- Late Season (R) -----		% change in plant stand	Yield (bu/ac)	
(lbs/ac)	(bu/ac)	plant stand (plants/ft ²)	% of seeding rate established	plant stand (plants/ft ²)	% of seeding rate survived			
160	2.7	5.4	74%	4.8	67%	-7%	62.3 A	
200	3.3	6.4	67%	5.5	61%	-7%	59.4 A	
240	4.0	7.1	66%	6.5	59%	-6%	56.9 A	
							<i>p-value</i>	0.174
							<i>CV</i>	6%
							<i>Yield Difference?</i>	No

% established or survived = plant count/seeding rate





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Pea Seeding Rate Trials

Evaluating different pea seeding rates on-farm

Long-term Results (2021 – 2023)

Trial Information:

- Recommended pea plant stands are 7-8 living plants/ft².
- A wide range in living plant stands had previously been noted in other on-farm pea trials (2.7-7.3 plants/ft²) with seemingly little relationship to yield.
- 9 pea seeding rate trials from 2021 – 2023.
- Seeding rates tested are determined by each farmer with a minimum difference of 20 seeds/m² (80,000 seeds/ac).
- All other crop management activities are the same (row spacing, weed control, fertility, etc.).

Supporting Data:

- Plant counts are recorded during V-stages and R-stages.
- Early-season establishment has been 67% on average.
- On average, 4% of pea plants have died during the growing season between early-season and late-season plant counts.
- When comparing among seeding rates, lower seeding rates typically have better percent establishment (on avg 6%↑) and a greater proportion of plants surviving to R stages than medium or high seeding rates tested.

Yield and Economic Results:

- To-date, there have been no significant yield responses to different pea seeding rates tested on-farm.
- When combining results across years, only environment has had a significant effect on yield ($p < 0.0001$), accounting for 76% of the variation in pea yield. Seeding rate has only accounted for 4% of the variation in pea yield in these trials to-date.
- A difference of 20 seeds/m² is roughly 40 lbs/ac, depending on variety TKW, and this would result in a profit loss of \$19.55 with each seeding rate increase of 40 lbs/ac.

Recommendations from this Research:

- Pea seed survivability has been lower than expected on-farm, with only 67% of the seed put in the ground establishing a living plant on average.
- While no yield responses have occurred, dropping seeding rates too low can have negative impacts on standability and crop competition with weeds.
- Evaluate living plant stands in your pea fields and relate those plant counts back to your seeding rate. Are there areas where you can improve survivability on your farm?

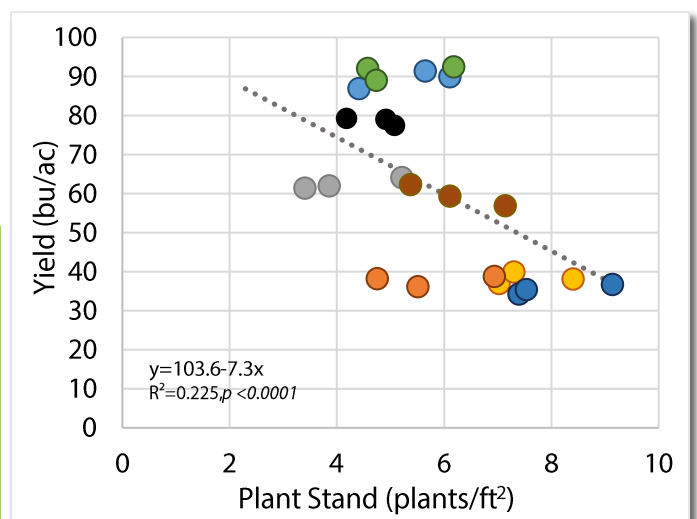
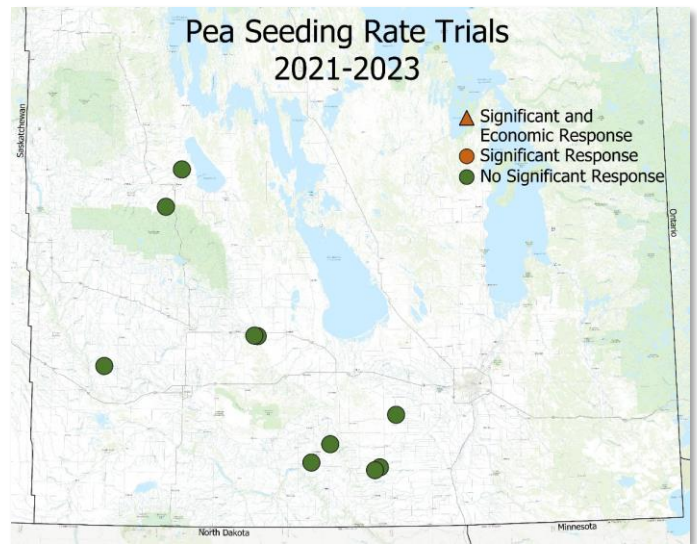


Figure 1. Average pea yields for each seeding rate treatment tested at 8 on-farm trials from 2021-2023, reported by the established living plant stand at V stages (plants/ft²). Datapoints are colour-coded by trial.



Manitoba Pulse & Soybean Growers On-Farm Network

In today's era of high input costs, low margins and the ever-increasing need to improve sustainability of the farm operation, validating agronomic management decisions made on-farm are ever-more important. Agronomic recommendations are usually generated by small-plot research, which can efficiently and effectively compare numerous treatments in the same location, at the same time. But what happens when those treatments are used at a field scale? Do they behave the same? Are they just as effective? Are they economical? On-farm trials can help answer these questions.

On-farm research is done by the farmer, for the farmer. Well-conducted on-farm trials investigate questions and outcomes on a case-by-case basis while evaluating the overall effects of management decisions through combining data across trial locations and years.

Facilitating trials to generate meaningful results is a balance between our efforts and farmer efforts. For farmers, there is time involved in conducting the trials on-farm, particularly at seeding and harvest, two of the busiest times of the growing season. But this investment of time generates valuable information on the agronomics and economics of different management practices and products. Results from on-farm trials can be used to shift management practices or validate current practices on individual farms, but they can also be pooled together across space and time to gain an overall, big-picture understanding of the impact of a treatment or decision.

This would not be possible without you, our farmer collaborators. Thank you for your dedication to these trials!

Thank-you to our On-Farm Network collaborators:

- Farmer-members
- Tone Ag Consulting
- New Era Ag Research
- Green Aero Tech
- Assiniboine Community College
- BASF
- UPL

Explore MPSG's On-Farm Network Trial Database



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Interested in Participating in 2024?

Trial Topics:

- Seeding rates
- Row spacings
- Inoculant strategies
- Seed treatments
- Fungicides
- N rates in dry beans
- Biological products
- Tillage and residue management

Have a different trial idea? Let us know!

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