

Project A:



Manitoba Crop Alliance BARLEY SEEDING RATE Replicated Strip Trial Protocol



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OBJECTIVE:

The purpose of this project is to quantify the agronomic and economic impacts of reducing and increasing targeted plant stands from normal seeding rate in Barley – 5 sites.

BRIEF SUMMARY:

- The grower will seed their normal seeding rate in 4 strips, alternating with 4 strips each of a lower and a higher seeding rate.
- An example is shown on the right using a target plant population of 25 plants/ft², with a higher and lower suggested plant population rate.
- The width of a strip must be at least as wide as a complete combine pass, preferably wider. The harvested length should not be less than 1,000 feet.
- The alternating strips of the barley seeding rates can be planted by using GPS to plant every other strip with one seeding rate and then filling in the skipped passes with the second seeding rate.
- Take a seed sample from the seeder (about ½ an ice cream bucket).
- Harvesting must ensure at least one “pure” combine pass from each treatment (no mixing of yields from two different treatments).

33 plants/ft ²
17 plants/ft ²
25 plants/ft ²
17 plants/ft ²
33 plants/ft ²
25 plants/ft ²
33 plants/ft ²
17 plants/ft ²
25 plants/ft ²
25 plants/ft ²
33 plants/ft ²
17 plants/ft ²

GROWER REQUIREMENTS:

- Supply information (if unknown before planting) on location, seeding dates, variety, and treatments etc. by June 30.
- Area containing waterways and headlands should be avoided. All other factors in the trial must be managed the same (planting date, variety, etc.).
- If possible, accurately record where all the treatments were applied using GPS mapping equipment.
- All strips must be harvested on the same day.
- Allow the Manitoba Crop Alliance to use the collected data for research, education, and informative purposes.
- ***Must be a member in good standing with MCA.***

MCA AND PARTNERS AGREE TO:

- Attempt to collect aerial images from each field and provide them to the grower at no cost.
- Set up the trial with the grower in the field. Soil sample and weigh individual harvested strips with a weigh wagon. Do plant counts both at seedling establishment and just prior to harvest.
- Provide a report analyzing the statistical and economical treatment differences.
- Keep data in a confidential manner that cannot be linked back to the individual grower by other parties.
- Make this minimum work for grower.

BENEFITS TO THE GROWER:

- Access to the latest research which can be adapted to their farm.
- Creating a crop production database for your local area.
- Higher quality of data – multiple evaluations across numerous farms under different soil types, cropping history and management styles.

If you are interested in participating in a trial or have questions, please contact:

Jordan Karpinck, CCA
Research on the Farm Trial Coordinator
Email: jordankarpinck@toneag.com
Cell: 204-433-7189

Daryl Rex
Research Trial Specialist
Email: daryl@mbcropalliance.ca
Phone: 204-745-6661



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Calculating Seeding Rates:

$$\text{Seed Rate(lb/ac)} = \frac{\text{Target Plant Stand/ft}^2 \times 1000 \text{ Kernel Weight(grams)}}{\text{Expected Seedling Survival}^* \times 10}$$

*Includes percent germination and seedling mortality

Example:

Target Plant Stand = 25 plants/ft²

1000 Kernel Weight = 39 grams

Germination = 99%

Assumed Mortality = 15%

Expected Seedling Survival = (0.99 x (1-0.15)) = 0.8415

$$\text{Seed Rate (lb/ac)} = \frac{25/\text{ft}^2 \times 39 \text{ g}}{0.8415 \times 10} = 115 \text{ lb/acre}$$

General Note: Seedling mortality can vary in the range of 5 - 20% for cereals. 5% at the lowest seeding rate up to 20% for a high seeding rate.

Data to be Collected by Contractor or MCA (2024 Trials):

- ✓ Plant Stand – plants/ft² – after emergence but prior to harvesting
- ✓ General Observations – e.g., General weed control
- ✓ Plant Height – recorded in inches – after flowering but prior to harvesting
- ✓ Lodging – 1=no lodging; 5=flat – just prior to harvest or before swathing
- ✓ Yield – bushels/acre – adjusted to 14.5% seed moisture
- ✓ Seed Moisture - % taken at time of harvest
- ✓ Bushel Weight – lb/bu – taken at time of harvest
- ✓ Harvest Sample – 1 composite sample per strip for quality analysis
- ✓ General Observations – e.g., Differences in height, lodging, maturity