# SIX YEARS OF ON-FARM RESEARCH

## *Manitoba Crop Alliance's Experience*

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## RESEARCH ON THE FARM

- Manitoba Crop Alliance (MCA) is a non-profit commodity group representing over 7,700 farmers in Manitoba who grow spring wheat, winter wheat, barley, flax, sunflower and corn.
- MCA's Research on the Farm program conducts scientific research with farmer members — on their own fields, with their own equipment.
- Farmers are involved in trial planning, establishment, treatment implementation and harvest, with the support and guidance of agronomists and staff.
- Objectives of MCA's Research on the Farm program:
  - Involve farmers in the scientific method, in collaboration with research specialists.
  - Test new practices or products over a wide range of farming environments, to help guide farmer's management decisions.
  - Ensure that protocols are simple and practical to implement.
  - Determine the effectiveness of a practice through assessment of agronomic, economic and/or environmental parameters.

## BENEFITS OF ON-FARM RESEARCH

- **Benefits to farmer participants:**
  - Demonstration of how products and practices behave on their own farm.
  - Compare current practices to new practices.
  - Access to results that are relevant to their soil type, environment and equipment.
- **Benefits to industry:**
  - Results drawn from a wide range of environments.
  - Data accumulates quickly and can be used to make inferences that are relevant over a wide geographical area.

## PROTOCOLS

- Protocols must be simple to implement and are developed using questions from farmer members, often building on plot-scale research supported by MCA.
- In many cases, on-farm research compares a farm's normal practice to a new practice. For example, comparing a farm's normal seeding rate with both a higher and lower seeding rate.
- Since 2015, MCA has completed 17 protocols (238 individual trial sites) across five crop types.

**WHEAT**
- Nitrogen source, rate & timing
- FHB fungicide timing
- Plant growth regulator
- Post anthesis nitrogen
- Seeding rate
- Seed treatment
- Biostimulant
- Enhanced efficiency fertilizer

**BARLEY**
- FHB fungicide timing
- Plant growth regulator
- Malt barley variety
- Seeding rate

**CORN**
- Nitrogen rate & timing (fertilizer)
- Nitrogen rate & timing (manure)
- Planting rate

**SUNFLOWER**
- Planting rate

**FLAX**
- Seeding rate

**Figure 1:** Trial protocols to date within MCA's Research on the Farm program.

## SITE SELECTION & TRIAL LAYOUT

- Representative trial sites are selected based on factors including field history and crop rotation.
- Strips are randomized, with a minimum of four replicates.
- Areas of variability within the field, such as waterways and topographical variability, are avoided when possible. If impossible to avoid, strips are oriented perpendicular to areas of variability, so the impact is similar across treatments.

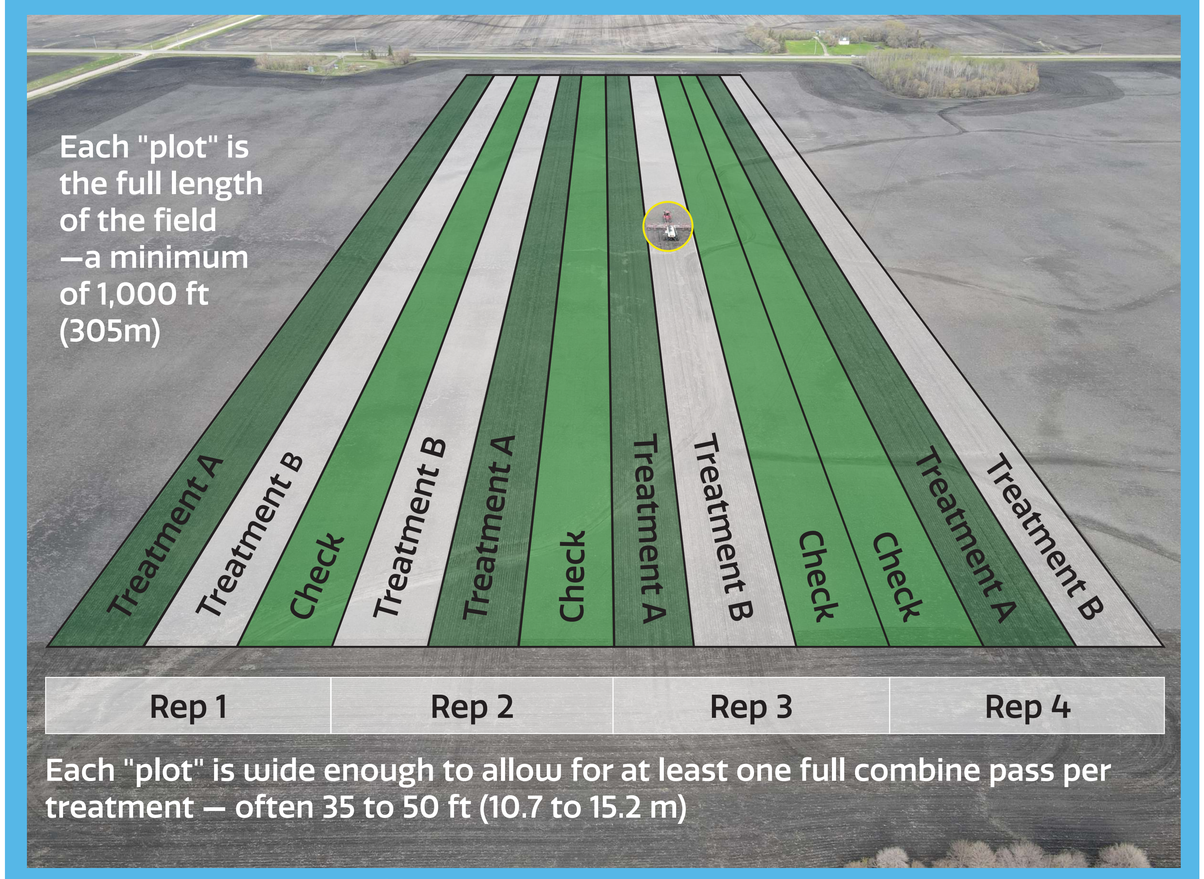


**Figure 2:** Randomized trial layout, with two treatments and a check. Each treatment is replicated four times.

## TRIAL MAINTENANCE & DATA COLLECTION

- With in-season support from agronomists, farmers manage the crop as per their normal best management practices.
- Aerial images of each field are collected.
- In-season data is collected by agronomists and staff and may vary depending on trial objective. Examples include plants per square foot, plant height, lodging and disease scouting.
- All strips in each location are harvested on the same day, with assistance from agronomists and staff. Individual strips are weighed with a weigh wagon. Seed moisture is measured at the time of harvest and yield is calculated. Representative seed samples are collected for quality analysis.

## DATA ANALYSIS & KNOWLEDGE TRANSFER

- Data is statistically analyzed, and a report is shared with farmers interpreting both the statistical and economical treatment differences.
- In partnership with other Manitoba commodity groups, an event is held at the end of the season. This event is an important opportunity to share results and engage farmer participants, researchers and agronomists.

**To find our trial protocols and complete results from all our Research on the Farm trials, scan the QR code!**

**Have questions?**
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