Manitoba Crop Alliance

WINTER WHEAT - FERTILIZER USAGE

Replicated Strip Trial Protocol

Objective:
The purpose of this project is to quantify the agronomic impacts of the application timing of Nitrogen fertilizer in winter wheat.

Brief Summary:

- The grower will apply rates of N fertilizer at various times within winter wheat.
- An example is shown on the right where the check fertilizer treatment is applying 100% N fertilizer in late fall; treatment 2 is 50% in late fall + 50% in early spring; treatment 3 is 100% N applied in early spring.
- The width of a strip must be at least as wide as the combine pass, preferably wider. Harvest length should not be less than 1,000 feet.
- The alternating strips of the fertilizer treatments can be applied by using GPS to plant every other strip with one fertilizer treatment and then filling in the skipped passes with the next fertilizer treatment.
- Soil fertility samples will be taken 1) before planting 2) early spring 3) at 4 leaf
- Harvesting must ensure at least one "pure" combine pass from each treatment (no mixing of yields from two different seeding rates).

100% N in Late fall
50% fall+50% spring
100% N Early spring
100% N in Late fall
50% fall+50% spring
100% N Early spring
100% N in Late Fall
50% fall+50% spring
100% N Early spring
50% fall+50% spring
100% N in Late fall
100% N Early spring

Grower Requirements:

- Supply information (if unknown before seeding) on location, planting date, variety, fertility, cropping history, etc. by September 1.
- Areas containing waterways and headlands should be avoided. All other factors in the trial area 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, educational, and informational purposes.
- ***Must be a member in good standing with the 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 trial with growers in field, soil sample, do plant counts before fall freeze up and in early spring; weigh individual strips with weigh wagon, obtain a harvest grain sample.
- Provide a report analyzing the statistical and economical treatment differences.
- Keep data in a confidential manner that cannot be linked back to the individual producer by other parties.

Benefits to Growers:

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

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

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Important Notes:

Data to be Collected by Contractor or MCA (2023/2024 Trials):

- ✓ Soil samples to be taken (prior to planting, early spring, at 4 leaf)
- ✓ Plant Stand – plants/ft^2 – after emergence but prior to freeze up; in early spring once spring growth has started
- ✓ Winter survival – taken in spring
- ✓ 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 – lbs/bus – taken at time of harvest
- ✓ Harvest Sample – 1 representative sample per strip for quality analysis
- ✓ General Observations – eg. Differences in height, lodging, maturity