

# MN Wheat On-Farm Research Protocol

## Elevated P and K Fertility in Wheat and Soybean

### Objective

Evaluate elevated P and K fertility to determine if current P and K recommendations provide adequate fertility in a high yield wheat-soybean crop rotation.

### Field Selection

- This trial will take place over four years, through two complete cycles of a wheat-soybean rotation
- On a higher-yielding field, where 70-80 bu wheat and 40-50 bu soybeans could be a reasonable target

### Treatment Application

- Two fertilizer treatments will be replicated 4 times, for a total of 8 harvested strips.
- Strips should be twice the width of the equipment used to fertilize (ex. 2 passes of a 70 ft floater = 140 ft. per strip) and run the full length of the field.
- Treatment 1- Normal rate + 50 units P + 50 units K
- Treatment 2- Normal P and K rates
- Fertilizer applications will be made each year.
- In Year 1, an extra 50 units of P and K will need to be applied to strips with Treatment 1 to establish the trial, and then in the fall of the same year the whole trial will receive both fertility treatments and resume normal application timings for the remaining years.

Example Trial Layout							
Rep 1		Rep 2		Rep 3		Rep 4	
Treatment 1	Treatment 2	Treatment 1	Treatment 2	Treatment 1	Treatment 2	Treatment 1	Treatment 2

### Harvest

- Yield can be measured using one of MN Wheat's weigh wagons to record yield and obtain protein samples
  - MN Wheat Staff will be available with the weigh wagon to assist with harvest
- OR
- Yield can be measured in the producer's grain cart with a calibrated scale
  - Protein samples will need to be collected as the combine empties each plot into the grain cart

Call anytime if you have questions – Melissa Carlson, 952-738-2000  
or [mcarlson@mnwheat.com](mailto:mcarlson@mnwheat.com)

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- Combine passes MUST avoid sprayer tracks and drown-outs if possible
- MN Wheat will collect the as-applied map and yield map following harvest, if available
  - Participants will be compensated for sharing data

### Data MN Wheat Will Collect

- Precipitation and other weather data
- Tissue samples at tillering
- Grain yield, moisture, test weight, protein
- Fall soil residual P + K

### Producer Report

- Participants will receive a preliminary statistical analysis of all harvested trials as soon as all trials are harvested and the data can be analyzed by MN Wheat.
- Participants will receive a pdf copy of the annual On-Farm Research Report following the annual On-Farm Research Summit (paper copies can be mailed upon request).
- Participants are eligible for one free night at the CanadInn during the Prairie Grains conference in December in Grand Forks, ND, if they plan to attend MN Wheat's annual On-Farm Research Summit.

### Data Use

- According to MN Wheat's data use and privacy policy, trial data will be included anonymously in the annual On-Farm Research Report booklet, shared at MN Wheat's annual On-Farm Research Summit in December, and posted on-line on MN Wheat's On-Farm Research Network homepage at the link below.

### Compensation

Participants will be compensated according to the payment structure outlined in the Producer Agreement upon the successful implementation and harvest of each trial and submission of all necessary supporting field data. This trial is eligible to receive \$1,500 in compensation. The Producer Agreement can be found at [www.mnwheat.org/farm-research-network/](http://www.mnwheat.org/farm-research-network/)