



**Plot2
Farm**

W003 - Spring wheat in-crop nitrogen application

Objective: Compare the effects of in-crop nitrogen on spring wheat yield and quality.

Research support

Previous research conducted in Alberta has indicated that in-crop nitrogen may provide additional yield benefits. However, the research has found that results can be variable and not always economic. This trial looks determine if in-crop nitrogen applications will increase the yield of spring wheat and therefore, contains application timings aligned with those expected to contribute to yield.

This on-farm research protocol will help determine the value of in-crop nitrogen on yield of spring wheat production on your farm under typical management.

Field Layout and Selection

Field layout will depend on the number of treatments selected. Review the Research Guide for the best practices on treatment design, choosing your trial and how it should be laid out.

Treatments

To follow good experimental protocol, treatments should be both replicated and randomized. For example, if you are testing 2 treatments, the order of those treatments change in each replication (see trial design below). In replication 1, treatment 1 precedes treatment 2, but in the second replication, treatment 2 precedes treatment 1. This reduces the effects of field variability on results. Take detailed notes to remember the order of treatment applications.

Treatment 1: All nitrogen (N) applied as a band at the time of seeding. Desired nitrogen rate is based on the expected yield goals and available soil nitrogen.

Treatment 2: 3-way split of nitrogen equal to the total rate used in Treatment 1. Nitrogen is split and applied at 3 different stages:

- i) First application – banded at time of seeding (30% of total N)
- ii) Second in-crop N application at GS 30 – beginning of stem elongation (35% of total N)
- iii) Final in-crop N application at GS 45 – Late boot stage (35% of total N)

In the application form section ‘App Section B’ please indicate type of N fertilizer that will be used.

The same N source must be used for both in-crop N applications, but a different form can be used for the N fertilizer applied at the time of seeding.

Replication 1	Treatment 1
	Treatment 2
Replication 2	Treatment 2
	Treatment 1
Replication 3	Treatment 1
	Treatment 2
Replication 4	Treatment 2
	Treatment 1

Additional Notes:

1. All treatments will receive the same seed treatments, variety, herbicide, fungicide, pre-seed and harvest treatment.
2. There is an inherent risk of leaf burn when applying any form of liquid nitrogen in-crop. Some liquid in-crop nitrogen products are higher risk than others. Take note of risks associated with the specific nitrogen product you plan to use for this protocol and manage your applications appropriately to mitigate unwanted damage. The Alberta Wheat and Barley Commissions are not responsible for any costs incurred due to leaf burn or crop damage from in-crop nitrogen applications. It is the applicant and agronomist’s responsibility to ensure the nitrogen solution and timing of application are designed and applied in a way to avoid crop injury.
3. Avoid foliar nitrogen applications:
 - i) during the middle of the day
 - ii) during high heat and winds
4. Nitrogen applications just prior to rainfall are preferable.
5. Always read and follow label directions.