



**Plot2
Farm**

B003 - Increasing nitrogen rates in barley (malt or feed)

Objective: Compare the yield and quality impacts of increasing nitrogen fertilizer rates on barley (malt or feed).

Research support

Various Alberta-based research projects have indicated that increased nitrogen fertilizer rates can increase yield assuming that nitrogen is the limiting factor. However, depending on the growing environment, genetics, and other management practices within the production system, increasing nitrogen fertilizer rates sees differing diminishing returns for each farm. Higher nitrogen fertilizer rates may also lead to increased crop lodging or decreased malting quality.

This on-farm research protocol will help determine the value of increasing nitrogen fertilizer rates 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. For example, 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.

This protocol includes 3 required treatments. Actual nitrogen fertilizer rates applied will depend on current nitrogen practices on the applicants' farm.

Treatment 1: Typical nitrogen rate: Nitrogen fertilizer rate applied as per typical farm operation

Treatment 2: Typical nitrogen rate (as per treatment 1) + 20 lbs of additional N/acre

Treatment 3: Typical nitrogen rate (as per treatment 1) + 40 lbs of additional N/acre

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

Additional Notes:

1. All fertilizer applied to the trial, other than nitrogen, must be consistent across all treatments.
2. All other nutrients including phosphorus, potassium, sulfur, and any micronutrients (as assessed by agronomist) must be applied based on soil test recommendations to ensure nutrients other than nitrogen are not limiting yield potential.
3. All nitrogen must be applied by the same methods for each treatment (i.e., same source, timing and placement)
4. Increased nitrogen rates may impact germination. Plant stand assessment is required 21 days after seeding to assess potential germination impacts.
5. Be sure to check your seeder capacity to ensure application of the maximum amount of nitrogen required for this protocol is possible.
6. Always read and follow label directions.