

PERFORMANCE AND LONGEVITY OF NEW PERENNIAL WHEAT LINES

Perennial wheat is a crop designed to regrow annually for multiple years from the same root system. Although perennial wheat is not yet widely grown in Alberta, interest in perennial grains is increasing due to their potential environmental and economic benefits. These benefits may include reduced soil erosion, enhanced carbon sequestration, improved water infiltration, lower input requirements, and the flexibility of dual-purpose use for both grain and forage. However, perennial grains currently face challenges in Alberta, including lower yields compared to annual crops, as well as concerns related to winter survival and weed competition during establishment. Continued research and varietal improvement may enhance their performance and reliability, increasing the potential for broader adoption in the future.

In 2025, GRO seeded two multi-year perennial wheat trials: an evaluation trial and a longevity trial. The evaluation trial includes 7 perennial wheat varieties, arranged in a separate grain and silage block. Each variety will be evaluated as both a grain and silage crop, with performance and quality compared between, and within, harvest types. The variety trial is also being replicated in northern Alberta by a partner association; North Peace Applied Research Association (NPARA) to strengthen regional relevance of the findings. The longevity trial evaluates the effects of mycorrhizal inoculation, and additions of five different fertilizer treatments, on MN Clearwater, and the influence these treatments have on its performance as both a silage and grain crop. As 2025 was the establishment year for both trials, only emergence and plant count data was able to be collected. It is anticipated that the crop successfully established in 2025, allowing further data collection to begin in 2026.

AGRONOMIC INFORMATION

Seeded: June 23, 2025

Seed Depth: $\frac{3}{4}$ inch

Soil Temp: 20°C

Rainfall recorded: June 23 to October 31, 2025: 200.6 mm

Fertilizer:

Evaluation Trial

Side Banded: 26.8-1.9-16.0-5.4 @ 325 lbs/ac

87.1 lbs/ac Actual N; 6.2 lbs/ac Actual P; 52 lbs/ac Actual K; 17.5 lbs/ac Actual S

Seed Placed: 11-52-0 @ 53.5 lbs/ac

5.9 lbs/ac Actual N; 27.8 lbs/ac Actual P

Longevity Trial

Trt #1-3: Urea (46-0-0), ESN (43-0-0) and Super U (46-0-0)

88.4-27.8-30-20 @ 328 lbs/ac

Trt #4: Compost - 10 Mt/ha (no synthetic)

Trt #5: Manure - 20 Mt/ha (no synthetic)

*Half of the trial received 9.5 g/plot of mycorrhizae (passes 1-10)

Pre-burn: Glyphosate + Aim EC @ 540 g ae/ac + 50 ml/ac on May 16, 2025

Herbicides: Curtail M @ 810 ml/ac on July 16, 2025

Lontrel + 2,4-D Ester 700 @ 150 ml/ac + 300 ml/ac on Sept. 9, 2025

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