



Atlantic Grains Council (AGC) Barley Nitrogen Experiment

Summary of Experiment

Different levels of nitrogen were applied to barley to identify the impact on yield, quality and changes in the soil. The following data summarizes the experiment. Full results, including soil samples, can be found by using the research tool at www.atlanticgrainscouncil.ca.

Barley Nitrogen Application Protocol

Treatments:

- Certified seed of 2 row barley varieties with malting or feed potential were used.
- Applications of treatments included:
 - Standard Nitrogen application of 30/40 lbs per acre of N at planting;
 - 50 lbs per acre of N at planting; and
 - 70/80 lbs per acre of N at planting.

Data Collection Protocol:

- Minimum 1 acre plots were used by producers.
- Field planting history for the past 3 years - include fertility application was obtained.
- Soil samples of each treatment were taken, with samples at a 6-inch depth in a V or W pattern across the treatment plot with a minimum of 10 cores mixed and sampled.
- Seasonal weather data was collected from the nearest weather station.
- Recorded data included: date crop was planted, seeding rate, seed treatments at planting, variety planted and plant emergence.
- Sites monitored for disease/insect and weed infestations using federal government indexing for any of the pests found.
- Recordings made of any herbicide, insecticide, fungicides and non-experimental fertility applied, as well as, date of harvest.
- Area harvested at least 1/8 of an acre or greater and weighed.
- Collected sample of the harvested crop for lab analysis to include protein, dry matter, test weight, and moisture.
- Determined moisture content at time of sampling.
- Calculated harvest yield.

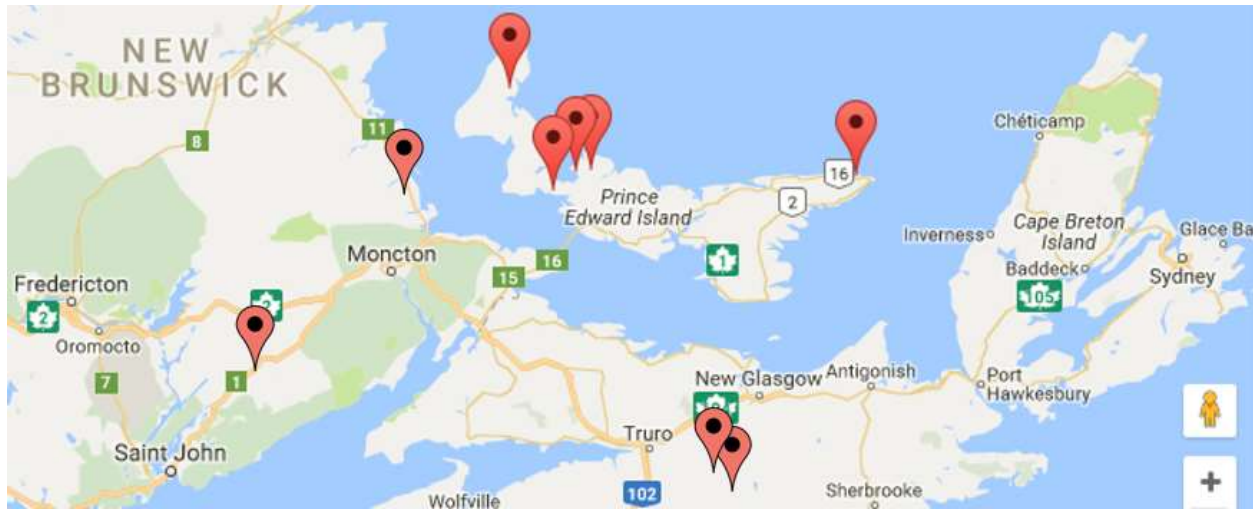




Sites

This experiment was conducted throughout the Maritimes in 2015 and 2016 for a total of 17 sites as follows:

- Nova Scotia – 2 sites in 2017
- New Brunswick – 2 sites in each of 2015 and 2016
- Prince Edward Island – 5 sites in 2015 and 6 sites in 2016

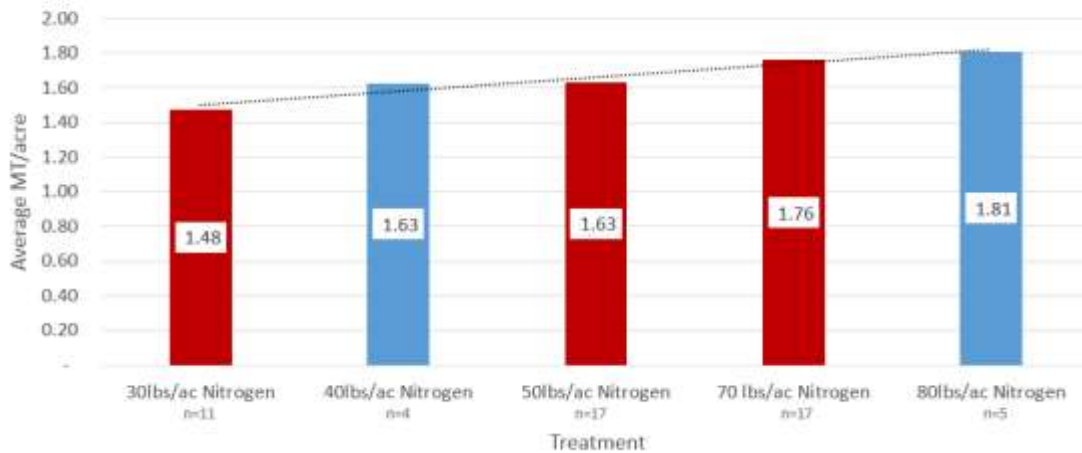


Results

Yield

- Statistical linear difference between nitrogen applications existed.
- Year was a significant random factor (province and field were not significant).
- Large variances between treatments:
 - 30lbs/acre – 1.02 MT (min), 2.30 MT (max)
 - 50lbs/acre – 1.20 MT (min), 2.16 MT (max)
 - 70lbs/acre – 1.17 MT (min), 2.23 MT (max)

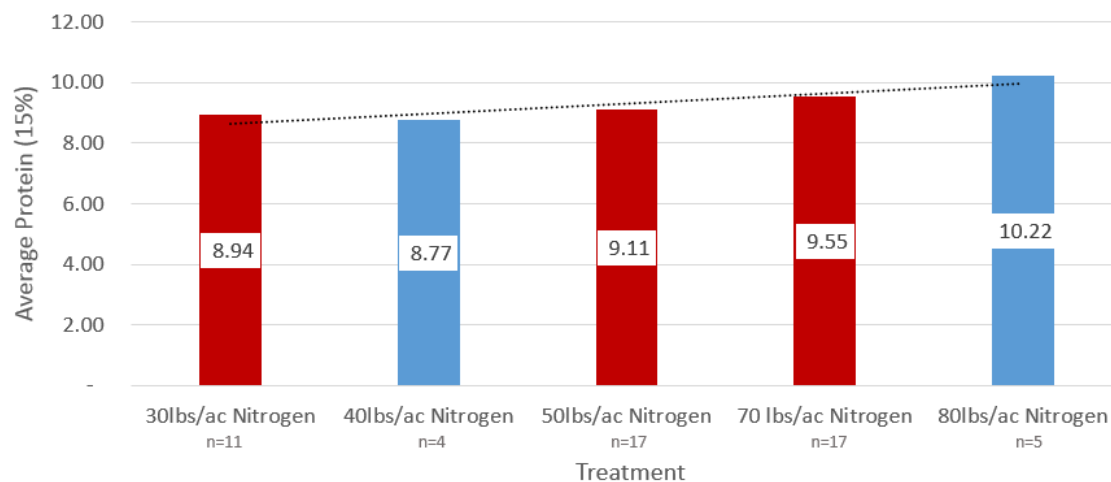
Average MT/acre by Treatment
(15% moisture)



Protein

- Statistical linear difference in protein results between nitrogen applications existed.
- Significant random factor was province (year and field did not display significant differences).
- Large variances between treatments:
 - 30lbs/acre – 7.68% (min), 10.41% (max)
 - 50lbs/acre – 7.68% (min), 10.46% (max)
 - 70lbs/acre – 7.98% (min), 11.34% (max)

Average Protein by Treatment
(15% moisture)





Financial Impact

With the assumptions that 30lbs/acre application of nitrogen is the control, the following chart displays the financial impact based on the assumption that barley could be sold for \$ 135/MT and that the only difference in cost is the purchase of nitrogen at a cost of \$ 0.49/lb. Note that the 40lbs/acre and 80lbs/acre applications may not be representative due to the smaller number of field trials for these levels.

Nitrogen application (lbs/acre)	30	40	50	70	80
Average MT/acre	1.48	1.63	1.63	1.76	1.81
Barley \$/MT	\$ 135	\$ 135	\$ 135	\$ 135	\$ 135
Gross revenue	\$ 200	\$ 220	\$ 220	\$ 238	\$ 244
Nitrogen cost @ \$0.49/lb	\$ 15	\$ 20	\$ 25	\$ 34	\$ 39
Net (incremental) impact	\$ 185	\$ 200	\$ 196	\$ 203	\$ 205
Difference from Control	\$ -	\$ 15	\$ 10	\$ 18	\$ 20

