



Atlantic Grains Council (AGC)

Field Strip Trial Research in Nova Scotia

2016 Nitrogen Fertilizer Timing on Winter Wheat

Funding provided by:



Summary: This trial was designed to help Maritime winter wheat growers answer the following questions; 1) Do you split spring nitrogen on feed wheat? 2) How early should you apply N to winter wheat? 3) What's the total amount of nitrogen fertilizer that pays? The three treatments assessed were 90 kg N/ha all applied in one application on April 19th; a split treatment with 30 kg N/ha on March 24th plus another 60 kg N/ha applied on April 19th, and a higher N treatment that had 30 kg N/ha on March 24th plus 90 kg N/ha applied on April 19th. These field trials assessed grain yield response on a harvested area of between 0.5-0.8 acres, with three replicates per field. All three trial fields had ammonium nitrate applied by the same custom operator, using a Kuhn broadcast spreader with the Quantron E2 technology (on-board scales).

When looking at the data from all 3 sites combined there was no significant difference in yield between any of the treatments. The same can be said for the Beck field site where although the yields were extremely good (6.0-6.3 t/ha) there was no yield differences. At the two Kinsman trial sites there were some yield differences to the fertilizer timing or overall N rate. At the Somerset area field the 90 kg N/ha split treatment yielded significantly less than either the 90 kg N/ha rate applied all at once on April 19th or the 120 kg/ha N split. This implies that the 30 kg N/ha applied on March 24th wasn't effective at this site. At the Weston area trial field of Kinsman's the 120 kg N/ha site significantly out yielded the other two- 90 kg N/ha treatments. This trial will be repeated in 2017 to hopefully achieve more conclusive results.

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2016 Combined Data for all Ammonium Nitrate Fertilizer Timing Trials on Winter Wheat

Treatment	% Moisture	Grain Test Weight (kg/HL)	Grain Crude Protein (%)	Yield @ 14.5% Moisture (kg/ha)
0 kg/ha N on March 24 + 90 kg/ha N on April 19	13.3 a	79.5 a	9.9 a	5699 a*
30 kg/ha N March 24 + 60 kg/ha N on April 19	13.5 a	78.5 a	9.3 b	5503 a
30 kg/ha N March 24 + 90 kg/ha N on April 19	13.5 a	79.3 a	10.0 a	5904 a

*Means followed by the same letter are not significantly different at $\alpha = 0.05$.

Field Trial 1: Justin Beck's, Auburn, Kings Co., NS site results (0.55 acre plots with 3 reps)

Treatment	% Moisture	Grain Test Weight (kg/HL)	Grain Crude Protein (%)	Yield @ 14.5% Moisture (kg/ha)
0 kg/ha N on March 24 + 90 kg/ha N on April 19	14.5 a	78.6 a	8.99 a	6209 a*
30 kg/ha N March 24 + 60 kg/ha N on April 19	14.8 a	77.0 a	8.16 b	6084 a
30 kg/ha N March 24 + 90 kg/ha N on April 19	14.8 a	78.2 a	9.09 a	6340 a

Field Trial 2: J.Kinsman's, Somerset, Kings Co., NS site results (0.45 acre plots & 3 reps)

Treatment	% Moisture	Grain Test Weight (kg/HL)	Grain Crude Protein (%)	Yield @ 14.5% Moisture (kg/ha)
0 kg/ha N on March 24 + 90 kg/ha N on April 19	12.7 a	78.9 a	10.3 a	5648 ab*
30 kg/ha N March 24 + 60 kg/ha N on April 19	12.7 a	79.1 a	9.8 a	5167 b
30 kg/ha N March 24 + 90 kg/ha N on April 19	12.5 a	78.2 a	10.0 a	5796 a

*Means followed by the same letter are not significantly different at $\alpha = 0.05$.

Field Trial 3: J.Kinsman's, Weston, Kings Co., NS site results (0.98 acre plots & 3 reps)

Treatment	% Moisture	Grain Test Weight (kg/HL)	Grain Crude Protein (%)	Yield @ 14.5% Moisture (kg/ha)
0 kg/ha N on March 24 + 90 kg/ha N on April 19	12.7 a	81.0 a	10.3 a	5240 b*
30 kg/ha N March 24 + 60 kg/ha N on April 19	13.2 a	79.3 b	9.9 a	5258 b
30 kg/ha N March 24 + 90 kg/ha N on April 19	13.1 a	81.4 a	10.8 a	5575 a

*Means followed by the same letter are not significantly different at $\alpha = 0.05$.

Data was analysed using Minitab 17 Statistical Software. ANOVA was performed using General Linear Model. Means Comparison done with Fisher LSD or Tukey Method @ 90% Confidence.

The ammonium nitrate fertilizer treatments were applied as the first timing on March 24 & the second time on April 19, 2016. All three trial fields had the same Kuhn broadcast spreader with the Quantron E2 technology (on-board scales & flow rate adjustment features). All individual fertilizer treatments and harvest strips were 60 feet wide and ran the length of field.

Additional Crop Management Information

Grower	2015 Crop	Wheat Variety	Planting Date
Beck (Saunders field, Auburn)	Potatoes	Pioneer 25R40*	September 25, 2015*
Kinsman (Best field, Somerset))	Silage Corn	Hyland Branson	September 25, 2015
Kinsman (Chute Rd field, Weston)	Soybeans	Pioneer 25R40	October 9, 2015

*The Beck trial field had 2 kg/ha of tillage radish planted with the winter wheat

March 24 application



April 19 application



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in spring on wheat?**

**How early should
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**What's the total N
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