



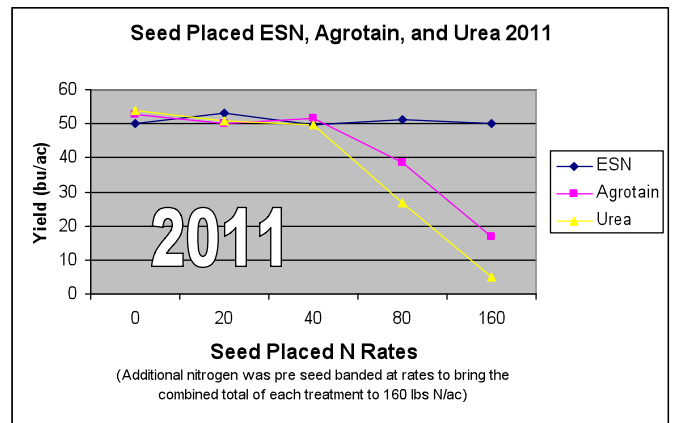
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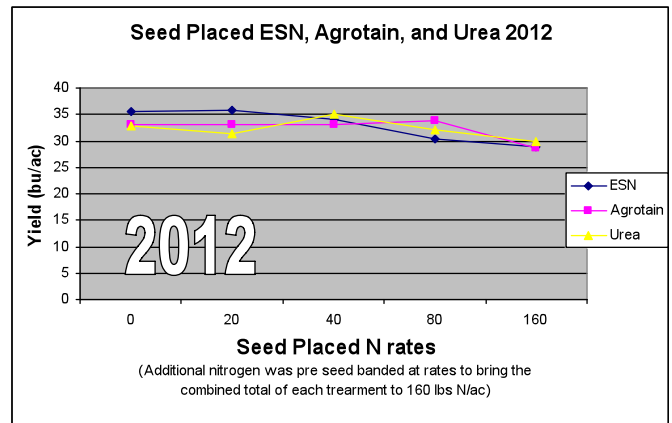
Rates of Seed Placed ESN and Agrotain Treated Urea for Wheat

There are limits on how much fertilizer, particularly urea N that can be seed placed without damaging the seed. Low solubility polymer coated urea (ESN) or Agrotain treated urea, which slows conversion of urea to ammonium, can substantially increase the amount of nitrogen that can be safely placed with the seed, without causing seed damage. Treatments included untreated urea, ESN, and Agrotain treated urea applied with the seed at 5 rates (0, 20, 40, 80, and 160 lbs N/ac). In addition to the seed placed N, fertilizer N was pre seed banded at rates to bring the combined total of each treatment to 160 lbs N/ac making the total N the same across all treatments. A sidebanded treatment of 160 lbs/ac of N as urea was also added.

In 2011, little damage was done to the crop when as much as 40 lbs of N/ac was seed applied, whether seed applied as ESN, Agrotain treated urea, or straight urea. When more than 40 lbs/ac of the total N was seed applied, the differences became more evident. The untreated urea did the most damage when more than 40 lbs/ac N was seed applied, whereas the ESN provided the best protection with no crop damage, even as high as 160 lbs/ac seed applied N. The Agrotain treated urea appeared to provide some protection compared to the untreated urea, however, not as much as the ESN.



The spring of 2012 was exceptionally wet and approximately 35-40 mm of rain fell the day after seeding the trial. This affected our results in two ways. First, the high moisture situation created a huge buffer against seed burn and prevented most of the seedling damage. Secondly, it is likely that the high moisture conditions sped up the slow release process making the majority of the nitrogen in the ESN and Agrotain available at relatively the same time as the urea treatments. We saw very little difference between nitrogen forms even as the seed placed portion increased. In 2012, yields slightly declined when more than 40 lbs/ac of N was seed applied despite nitrogen form. As seed applied N increased, yield continued to gradually decline, regardless of what N product was used. The overall decline was also not as drastic this year compared to 2011. Since these products are affected by moisture it is only natural that they react differently from year to year as growing conditions vary. None the less, it appears that both products will provide some protection if weather conditions are such that the seedling is vulnerable to fertilizer burn.



Acknowledgements

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Pictures



Untreated Urea @ 80 lbs N/ac with the seed and 80 lbs N/ac pre-seed banded



Untreated Urea @ 160 lbs N/ac with the seed



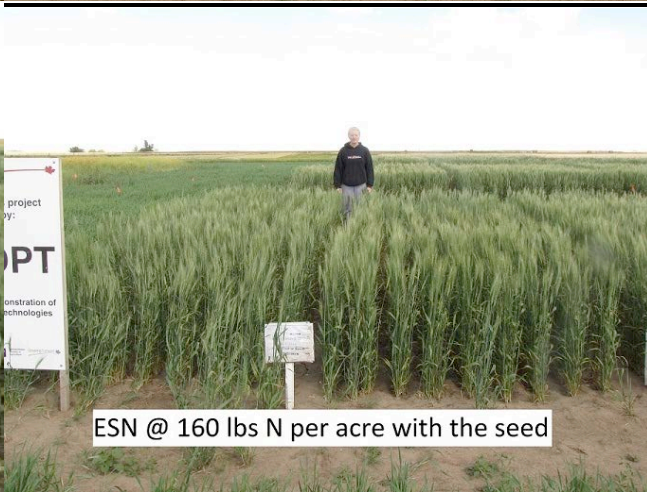
Agrotain treated Urea @ 80 lbs N/ac with the seed and 80 lbs N/ac pre-seed banded



Agrotain treated Urea @ 160 lbs N/ac with the seed



ESN @ 80 lbs N/ac with the seed and 80 lbs/ac pre-seed banded



ESN @ 160 lbs N per acre with the seed