

DEMONSTRATION

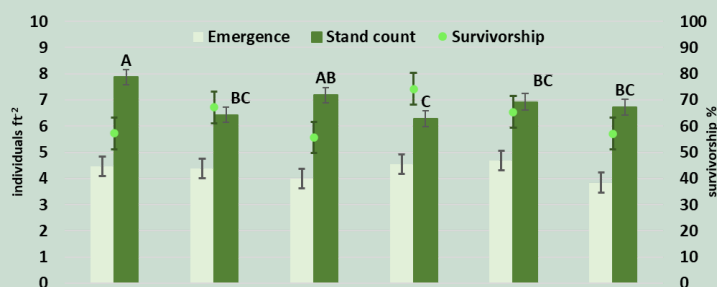
BLUE N (UTRISHA)

Utrisha N is a nutrient efficiency biostimulant composed of a bacteria that uses N from the air through biological fixation. N products of this process are used by the plant for its metabolic needs. In theory, the bacteria colonize the plant and settles in various parts of it such as the roots, stem, and leaves. Since it becomes a second N manager besides the plant itself, it helps it minimize N uptake through other means such as fertilizers. In this way, less fertilizer input is thus required. This product can be applied as a foliar spray or in furrow and its tankmix compatibility allows it to be a great addition to herbicides, fungicides if applied foliar or as coating for urea and other fertilizers if applied in furrow. For this experiment, the product was used to treat the urea. Afterwards, treated urea was applied in furrow to wheat.

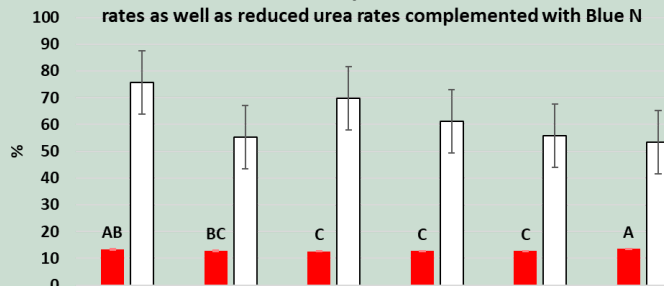
EXPERIMENTAL TREATMENTS

- 1 100% urea
(Standard fertilizer rate)
- 2 75% urea + standard rate (1X) of Blue N
- 3 75% urea + twice (2X) the standard rate of Blue N
- 4 75% urea + half (0.5X) the standard rate of Blue N
- 5 75% urea
- 6 125% urea

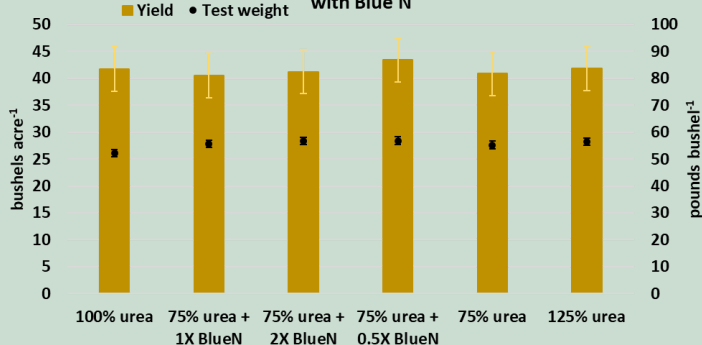
Emergence, stand count and survivorship of wheat individuals subjected to urea at full and reduced rates as well as reduced urea rates complemented with Blue N



Protein content in wheat subjected to urea at full and reduced rates as well as reduced urea rates complemented with Blue N



Yield and test weight found in wheat subjected to urea at full and reduced rates as well as reduced urea rates complemented with Blue N



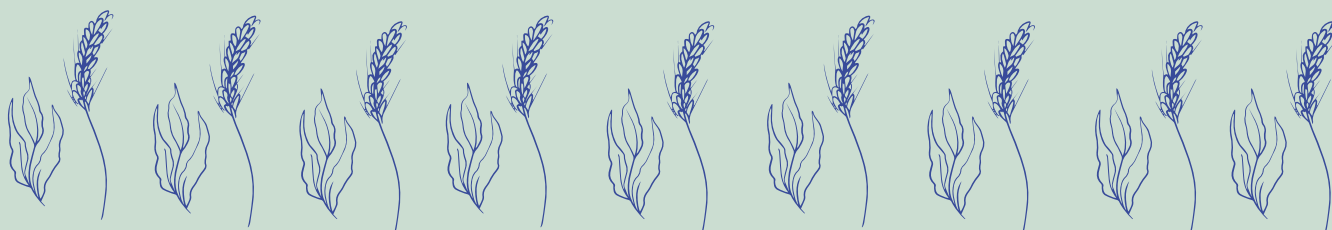
Emergence was the same across all treatments ($P=0.5750$). Stand count differed between wheat stands fertilized with either 100% of urea or 75% of urea coated with 2X rates of Blue N from those stands that were fertilized with 75 and 125% urea and those with 75% urea coated with 1X and 0.5X rate of Blue N ($P=0.0024$). Greater number of stands were found in plots where urea was used at the standard rate and in plots where urea was applied at 75% and coated with twice the regular rate of Blue N. This means that stand count could be increased with Blue N applications though it requires double the recommended rate.

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N content above ground biomass was not significant across treatments ($P=0.6960$). Protein content ($P=0.0081$) on the other hand was lower in stands fertilized with urea applied at 75% of the standard rate and coated with either twice of half the recommended rate of Blue N compared to wheat stands fertilized with either standard or 125% of urea standard rate. However, wheat fertilized with a standard rate of urea and wheat fertilized with urea at 75% coated with standard Blue N rate had the same protein content. N and protein content could be explained in a two-fold (a) either a greater application of Blue N is required to see more N content in shoots and leaves and supply enough N for plants to produce greater protein content or (b) there is still too much fertilizer applied to see changes in N content. It is possible that lower fertilizer rates may induce Blue N to fixate more N from the atmosphere and hence show actual benefits in N content and allocation in above ground biomass stand. This effect could possibly be accentuated at higher rates of Blue N.

Yield ($P=0.9942$) and test weight ($P=0.2167$) were not affected by different rates of urea or Blue N. There are two inferences from this. First, there is no substantial effect in increasing urea to 25% because the yield and test weight will be the same. Thus, expending more money in extra fertilizer is obsolete. Second, either Blue N rate used to coat urea with a 25% shortage is sufficient to produce the same yield. Hence, it is possible lack of differences in these parameters as well as N content is likely a result of urea excess rather than an actual effect of Blue N. A modification to this experiment should involve a much smaller rate of urea and greater rates of Blue N, in order to see actual changes in all the parameters tested.



KEY POINTS:

- Blue N had no effects on emergence or survivorship but increased stand count if applied at twice its recommended rate as a coating to urea
 - Urea should be then applied at 75% of standard rate rather than 100%
- N content in wheat stands above ground biomass was not affected by Blue N but grain protein content seemed to be lower at any rate of Blue N
 - However, grain protein content was the same between wheat fertilizer with a standard rate of urea and wheat fertilized with urea at 75% and coated with Blue N at its standard rate.
 - There was not effect of Blue N in yield or test weight