



Nitrogen Fertilizer Options for Spring Wheat

Fehringer Agricultural Consulting - Billings, MT

Experiment Info:

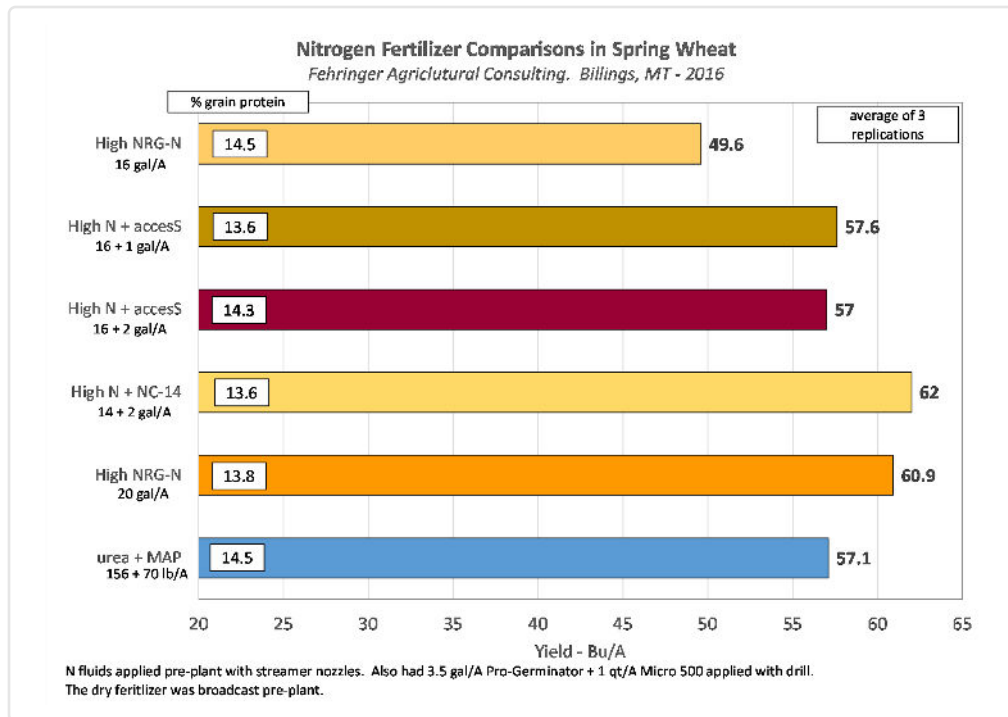
Planted:	4/10/2016
Harvest:	8/13/2016
Yield Goal:	75
Target Fert.:	80-35-0
Variety:	Vida
Population:	70 lb
Row Width:	6"
Prev. Crop:	wheat
Plot Size:	4 x 80 ft
Replications:	3

Soil Test Values (ppm):

pH:	7.6
CEC:	29.5
%OM:	2.1
Bray P1:	
Bicarb P:	9
K:	402
S:	38
%K:	3
%Mg:	26
%Ca:	70
%H:	
Zn:	0.6
Mn:	1.4
B:	

Objective:

Spring wheat is a crop where it is not only important to achieve high yield, but there is also a quality component for which growers receive a premium payment, and that is % grain protein. A protein level over 14% is desirable. Nitrogen is thought to be the main contributor for elevated protein. Experience has shown that when there is a high yield, the protein number is often lowered, probably due to N dilution. Conversely when yields are lower, achieving the 14% threshold is not a problem. Naturally achieving both yield and protein is best. An experiment was established near Billings, MT to evaluate different nitrogen application options for effect on yield and protein. Unfortunately it turned dry and the cooperators were forced to impose some flood irrigation to save the crop. This evidently led to some variability, as there was no statistical differences in the yields despite wide numerical differences. However there were some interesting trends observed, so results are presented. (Note: NC-14 is an experimental product containing chloride with an analysis of 22-0-0-9Cl. In some soils there may be a response to Cl application. This soil test did not analyze for Cl)



AOV showed no statistical difference between treatments. Trt f: 0.43. CV: 25.4.

Conclusions:

- Addition of 1 gal/A of accesS to the 16 gal/A application of High NRG-N increased yield, although protein was lower. (recall inverse relationship discussed). But addition of 2 gal/A increased protein over 14%
- Replacing 2 gal/A of High NRG-N with 2 gal/A of NC-14 increased yield vs straight High NRG-N. This product is still under investigation, but this result was noteworthy.
- Increasing the High NRG-N rate to 20 gal/A resulted in a yield increase and a grain protein near 14%. Economics would play a factor in this however.
- The all dry fertilizer application treatment resulted in a comparable yield yet with a higher grain protein. This treatment applied an actual 80 lb of nitrogen per acre vs reduced rates with High NRG-N (i.e. 46.4 lb N/A with the 16 gal/A rate.) Work on performance enhancement will continue.