AGRO-CULTURE LIQUID FERTILIZERS

Effect of N Solutions on Spring Wheat Yield and Protein. Northern Plains Ag Research. Gardner, ND

Experiment Info:

Planted:	5/15
Variety:	Prosper
Population:	90 lbs
Row Spacing:	7.5"
Previous Crop:	Wheat
Plot Size:	10' x 35'
Replications:	4
PPI:	5/14
Harvest:	10/11

Soil Test Values (ppm):

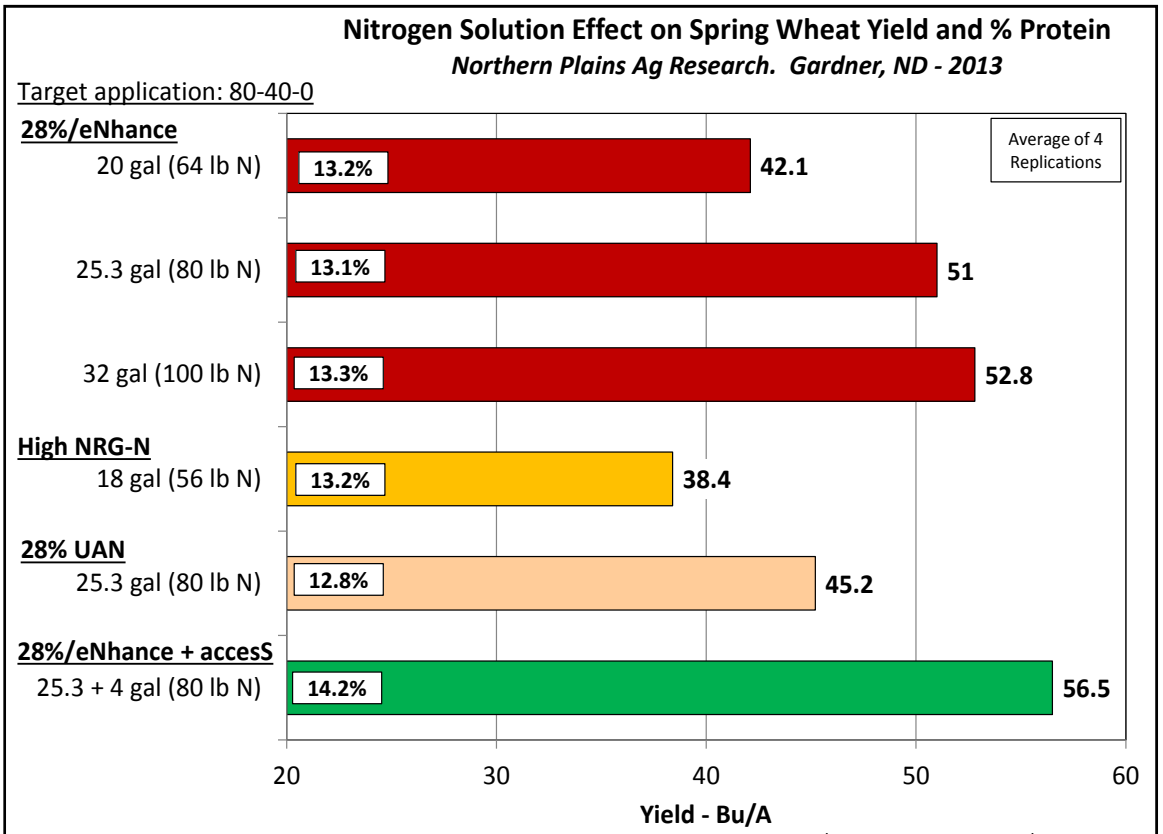
pH:	7.2
CEC:	17
% OM:	2.5
Bicarb P:	7
K:	375
S:	5.5
% K:	5.6
% Mg:	20.2
% Ca:	73
% H:	0
% Na:	1.2
Zn:	0.5
Mn:	4
B:	0.5

Yield Goal:	60 bu
Target Fertilizer Rate:	80-40-0

Objective:

Evaluate the effects of different nitrogen solutions on yield and protein levels of spring wheat.

For spring wheat, solution nitrogen is often applied prior to planting and worked into the soil. In this experiment, a target N rate of 80 lb/A was selected. This may be lower than is normally recommended, but previous research at this location has not shown a yield response to higher rates such as 100 lb-N/A. The treatments consisted of three rates/A of 28% with eNhance: the target 80 lb-N, the higher 100 lb-N, and a lower rate of 64 lb-N. High NRG-N was applied at the 70% N rate, or 18 gal/A for 56 lb-N/A. Straight 28% UAN served as the conventional standard at 80 lb-N/A. The final treatment evaluated the effects of addition of the 17% sulfur fertilizer accesS to 28% with eNhance. All treatments were combined with 4 gal/A of Pro-Germinator + 1 qt/A of Micro 500. This treatment provided 4 lb-N/A, to bring the total N rate to the rates indicated. Following harvest, samples from each plot were analyzed for % protein. The yields and protein levels appear in the following chart.



All treatments were applied pre-plant incorporated with stream nozzles in combination with 4 gal/A Pro-Germinator + 1 qt/A Micro 500

LSD (0.2): 2.6 CV: 20.6%

Conclusions:

- Apparently the selection of 80 lb-N/A was the proper choice as the yield with 100 lb-N/A with 28%/eNhance was essentially the same as that of the 80 lb-N/A rate. But there was a significant yield drop when the rate was decreased to 64 lb-N/A.
- The 80 lb-N/A rate of 28%/eNhance was higher in yield and protein than that with the same rate of 28% without eNhance. The yield produced with an application of 80% of N, or 64 lb-N/A with 28%/eNhance was close to that of the conventional 80 lb-N/rate.
- Yield with High NRG-N was lower than expected, perhaps due to soil incorporation which favored performance of the other N source. (Reduced opportunity for volatility loss.)
- Addition of accesS sulfur to the full rate of 28%/eNhance resulted in the highest yield, as well as the highest protein level. It was the only treatment to surpass the target 14% level.