AGRO-CULTURE LIQUID® FERTILIZERS

Spring Wheat Fertilizer Comparisons in South Dakota
South Dakota Ag Research. Beresford, SD

Experiment Info:

Planted:	4/10
Variety:	Barlow
Plot Size:	10′ x 40′
Replications:	4
Harvested:	7/25

Soil Test Values (ppm):

pH:	5.4
CEC:	24.8
% OM:	3.7
Bray P1:	10
K:	225
S:	8
% K:	2.
% Mg:	16.5
% Ca:	46.9
% H:	34
% Na:	0.3

Objective:

Evaluate effects of different fertilizer programs on yield and % protein of spring wheat.

An experiment was established in Southeast South Dakota to compare different fertilizer programs for effect on spring wheat. A fertilizer program of 126-40-0 was utilized for a yield goal of 80 to 100 bu/a. There was adequate rainfall in April and May, a total of 5.06 inches. But just 1.79 inches fell during the critical months of June (0.96″) and July (0.83″). A common method of fertilizer application is pre-broadcast followed by soil incorporation. This is for either liquid or dry formulations. Alternatively, wheat drills outfitted with liquid application is preferred, but not as common. Application of a foliar fertilizer along with a fungicide application at flag leaf or heading stage, depending on the fungicide, has shown promise under some conditions. But the anticipated yield and/or protein increase is not always obtained, and usually not under drought stress. A table of all of the fertilizer treatments and harvest evaluations is in the following table.

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Pre-plant incorporated		rate/A	lb-N/A	Bu/A	% protein
1.	urea + 11-52-0	318 + 100 lb*	157	**43.5**	15.5
2.	High NRG-N	25 gal	72.5	**44.4**	15.5
3.	High NRG-N	30 gal	87	**47.7**	15.8
5.	28/eNhance	33 gal	99	**43.5**	15.1
6.	28/eNhance	42 gal	126	**45.9**	15.8
7.	28/eNhance NResponse (flag)	42 gal 2 gal	126	**40****	15.5
8.	28/eNhance + accesS	42 gal + 5 gal	126	**43.2**	15.4
9.	28% + 10-34-0 + Zn	38 gal + 10 gal	126	**46.5**	15.5
Pre-plant incorporated/drill					
11.	High NRG-N High NRG-N + PG + Micro 500	19 gal 6 gal	55.1 17.5	**48.9**	15.8
12.	28/eNhance 28/eNhance + PG + Micro 500	27 gal 6 gal	81 18	**48**	15.4
Pre-emergence					
4.	High NRG-N	30 gal	87	**43.9**	15.6

4 gal/A Pro-Germinator + 1 qt/A Micro 500 applied with all Liquid treatments.

* - Application error. Was supposed to be 254 + 80 lb/A for 126-40

** - Suspected plant damage during application.

LSD(0.2): 4.6. CV: 11.2%

Conclusions:

- The yield was much reduced due to the dry conditions. As such, the nitrogen applications were all too high for the yield outcome, and no major treatment or rate differences were obtained. It is not clear why treatment 5 is lower than others.
- It was observed that application of part of the nitrogen through the drill did result in a yield increase vs all of the nitrogen being broadcast. (Trt 11 and 12 vs trt 2 and 5).
- There also appeared to be higher yield with soil incorporation of the broadcast application vs application to the soil surface after planting. (Trt 3 vs 4). There was adequate rainfall for nitrogen movement, but perhaps not for the Pro-Germinator and Micro 500.