



Fertilizer Program Comparisons in Spring Wheat

Fehringer Agricultural Consulting. Billings, MT 2017

Experiment Info:

Planted:	04/20/2017
Harvest:	8/12/2017
Yield Goal:	70 bu
Target Fert.:	80-35-0
Variety:	Vida
Population:	
Row Width:	7"
Prev. Crop:	wheat
Plot Size:	4 ft x 70 ft
Replications:	3

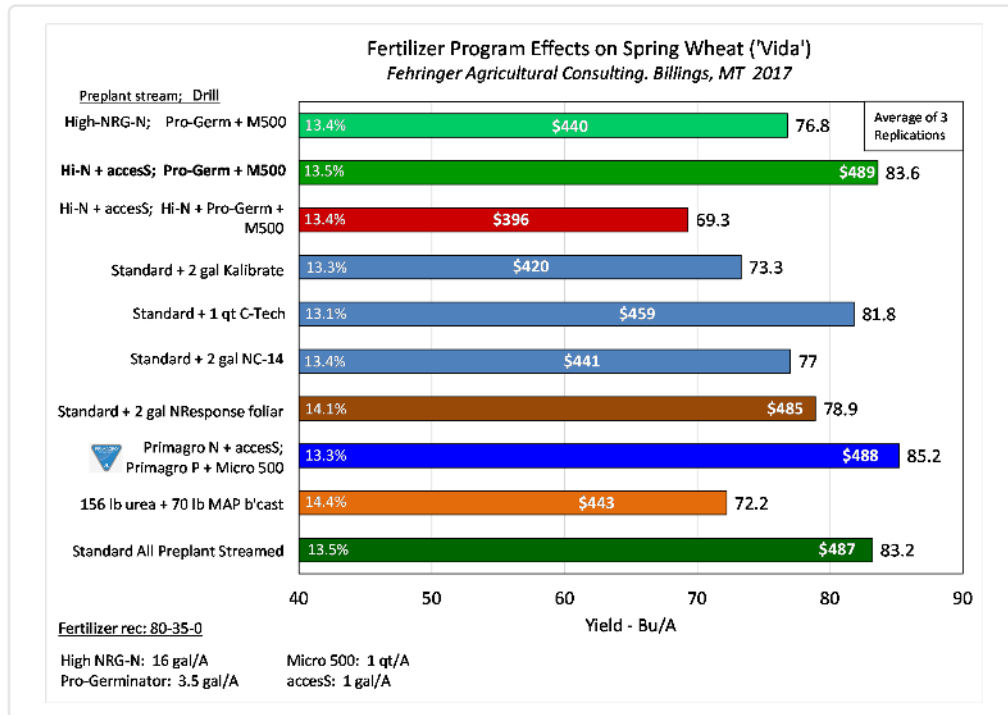
Soil Test Values (ppm):

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:

Determine the effects of different nutrient inputs on yield, grain protein and dollar return of spring wheat.

Spring wheat has additional components of return to grower than just yield. An important component is per cent protein of the harvested grain. There is a formula that is used to calculate payment to grower based on yield, test weight and protein. Nitrogen fertilizer management is a key part of ultimate protein. There is also a challenge involving environmental factors as well. It seems that when conditions are favorable and yield is high, then protein can be low, likely due to dilution of nitrogen. Conversely, when yield is low, as from dry conditions, the protein is typically high. The target protein level in grain is 14%. The penalty for being short on protein gets larger as the level decreases, but the reward for being over 14% is not as great as the penalty for being short. This experiment involved application of different products, timing and additives for effects on spring wheat yield, protein and gross return to grower. (The treatment list is long, but gives good results.)



Conclusions:

- The AgroLiquid standard treatment is **Bold**, and showed a good response from addition of accesS. It also was best when the High NRG-N was applied all preplant, as splitting it 11 gal preplant and 5 gal with the drill had lower yield (red bar). This was not expected and is puzzling. But suggest applying all High NRG-N preplant. Applying all of the liquid fertilizer preplant (last bar) was equally effective as the Standard treatment which is encouraging.
- There was no yield benefit from several drill fertilizer additives (blue bars): Kalibrate, C-Tech or exp. chloride NC-14.
- Foliar application of NResponse at anthesis did result in an increase in protein to over 14%. The yield was lower, but previous testing has not shown a negative yield effect. So this is puzzling.
- The preplant incorporated application of dry fertilizer had a low yield, although protein was highest. But the gross return was \$46 less than that of the AgroLiquid standard treatment, which is considerably more than the price difference.