



# Fertilizer Source and Timing in Winter Wheat

Neal Fehringer - Billings, MT

## Experiment Info:

Planted:	10/18/2015
Harvest:	8/6/2016
Yield Goal:	75
Target Fert.:	100-40-0
Variety:	Keldin
Population:	
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:

Compare different sources and timings of fertilizer inputs for effect on yield and grain protein of winter wheat.

Neal Fehringer is a crop consultant and a Certified Professional Agronomist who has become familiar with AgroLiquid fertilizers through interactions with clients and company personnel in Montana. He has started crop research on his home farm and provided an opportunity for plot evaluations of fertilizer inputs on winter wheat. A variety of timing of applications were compared such as total treatment broadcast application in the fall vs a similar treatment but with a split application of nitrogen (fall and spring topdress). A standard application for comparison was established where part of the N was broadcast pre-plant, then additional fertilizer through the drill and the remaining N topdressed. This is in bold in the yield chart. Additionally topdress of urea was compared as well as a MAP with the seed and urea topdress (trt 8) as well as a total dry treatment (trt 9). Two treatments evaluated additional inputs (trt 7 and 11). (Treatment numbers correspond to the experiment.)

**Fertilizer Comparisons on Winter Wheat**  
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trt.	fall broadcast	drill	topdress	Bu/A	% protein
1.	Hi-N + Pro-Germ + Micro 500 25 + 3.5 + 0.25 gal			82	13.2
2.	Hi-N + Pro-Germ + Micro 500 17.5 + 3.5 + 0.25 gal		High N 7.5 gal	76.8	11.1
3.	<b>Hi-N</b> <b>12.5 gal</b>	<b>Hi-N + Pro Germ + Micro 500</b> <b>5 + 3.5 + 0.25 gal</b>	<b>High N</b> <b>7.5 gal</b>	<b>76.3</b>	<b>11.4</b>
4.	Hi-N 12.5 gal	Hi-N + Pro Germ + Micro 500 5 + 3.5 + 0.25 gal	urea 81 lb	74.4	13.5
7.	Hi-N 12.5 gal	Hi-N + Pro-Germ + Kalibrate + eNhance + Micro 500 5 + 3.5 + 1 + 0.5 + 0.25 gal	High N 7.5 gal	<b>88</b>	12.1
8.	Hi-N 16 gal	11-52-0 67 lb	urea 81 lb	82	11.8
9.	urea + 11-52-0 174 + 67 lb		urea 81 lb	85.7	11.7
11	Hi-N 12.5 gal	Hi-N + Pro Germ + Micro 500 5 + 3.5 + 0.25 gal	High N + accesS 7.5 + 2 gal	87.4	11.9

LSD(0.2): 9.2. CV: 12.4

## Conclusions:

- It was a surprise that the single application treatment (trt 1) yielded higher than the split N (trt 2) and the traditional three way application (trt 3).
- The application of additional potassium as Kalibrate and Sulfur as eNhance to the drill program (trt 7), as well as the addition of Sulfur (as accesS) to the topdress (trt 11) resulted in significantly higher yield vs standard (trt 3). The additions in trt 7 were just input evaluations as each was not applied separately. But it is perhaps a response to the sulfur since the accesS resulted in a similar yield increase (trt 11), even though soil S was high.
- Topdress with High NRG-N resulted in a higher yield than did urea (trt 3 vs 4). However the total dry program (trt 9) yielded higher than the standard AgroLiquid. But it was slightly lower than the AgroLiquid with accesS.