Soybean Fertility Study

Objective: To evaluate yield and economic net return of four multi-year long-term fertilizer programs in soybeans. Programs, products, and costs consist of the following:

1. 100% Dry Fertilizer:

18-46-0 Cost = $39.78/A.
0-0-60 Cost = $21.53/A.

$61.30/A

Build-up and Maintenance Program

.75#P/Bu at Yield Goal 70	= 115# /A	
Soil Test P=36#/A, Build to 50	= 70#/A	
Total	***185#/A***	***18-46-0***
1.17#K/Bu at Yield Goal 70	= 135#/A	
Soil Test K=260#/A, Build to 300	= 70#/A	
Total	***205#/A***	***0-0-60***

2. 0% Fertilizer: No Fertilizer Applied

3. 100% Liquid Fertilizer: Agro-Liquid Build-up and Maintainence Program

Cost/A.	Product		Application
$ 11.60	2 Gal Pro-Germinator®	9-24-3	FurrowJet
$ 22.80	4 Gal Sure-K®	2-1-6	FurrowJet
$ 4.13	1 Qt Micro 500™	.02B-.25Cu-.37Fe-1.2Mn-1.8Zn	FurrowJet
$ 6.00	1 Qt C-Tech®	Hydrophobic Fulvic Acid	FurrowJet
$ 8.80	2 Gal AccesS®	7-0-0-17S-.25Fe-.05Mn-.05Zn	Conceal
$ 6.30	1 Gal Ferti-Rain®	12-3-3-1.5S-.1Fe-.05Mn-.1Zn	R1 Foliar
$ 8.80	2 Gal Sure-K®	2-1-6	R1 Foliar
$ 2.16	1pt Boron	5% Boron	R1 Foliar
$ 4.50	1 Qt Manganese	4% Manganese	R1 Foliar
$75.08/A.			

4. Dry Fertilizer Soil Test Build-up + Liquid Fertilizer Yield Maintainence

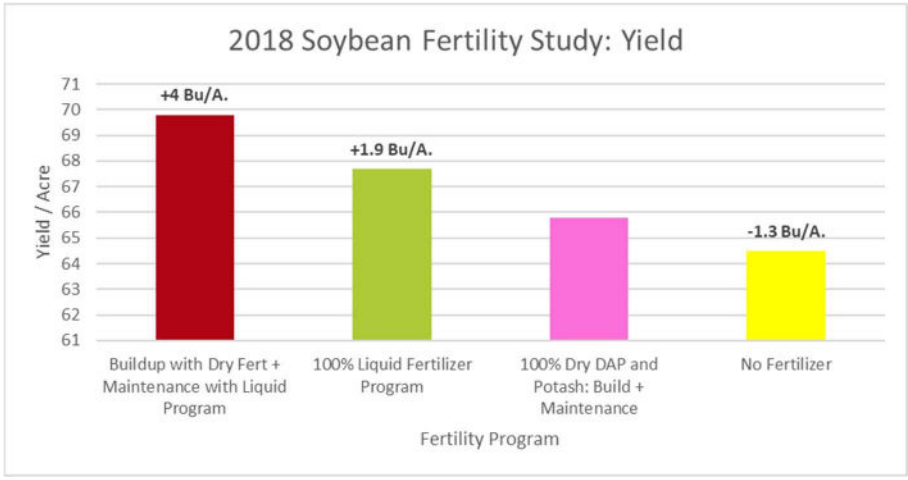
Soil Test P=36#/A, Build to 50= 70#/A 18-46-0
Soil Test K=260#/A, Build to 300= 70#/A 0-0-60
Agro-Liquid Maintainence Program

Cost/A.	Product		Application
$ 8.70	1.5 Gal Pro-Germinator	9-24-3	FurrowJet
$ 8.80	2 Gal Sure-K	2-1-6	FurrowJet
$ 4.13	1 Qt Micro 500	.02B-.25Cu-.37Fe-1.2Mn-1.8Zn	FurrowJet
$ 6.00	1 Qt C-Tech	Hydrophobic Fulvic Acid	FurrowJet
$ 8.80	2 Gal accesS	7-0-0-17S-.25Fe-.05Mn-.05Zn	Conceal
$ 6.30	1 Gal Ferti-Rain	12-3-3-1.5S-.1Fe-.05Mn-.1Zn	R1 Foliar
$ 8.80	2 Gal Sure-K	2-1-6	R1 Foliar
$ 2.16	1pt Boron	5% Boron	R1 Foliar
$ 4.50	1 Qt Manganese	4% Manganese	R1 Foliar
$58.19/A			

Soybean Fertility Study Continued:

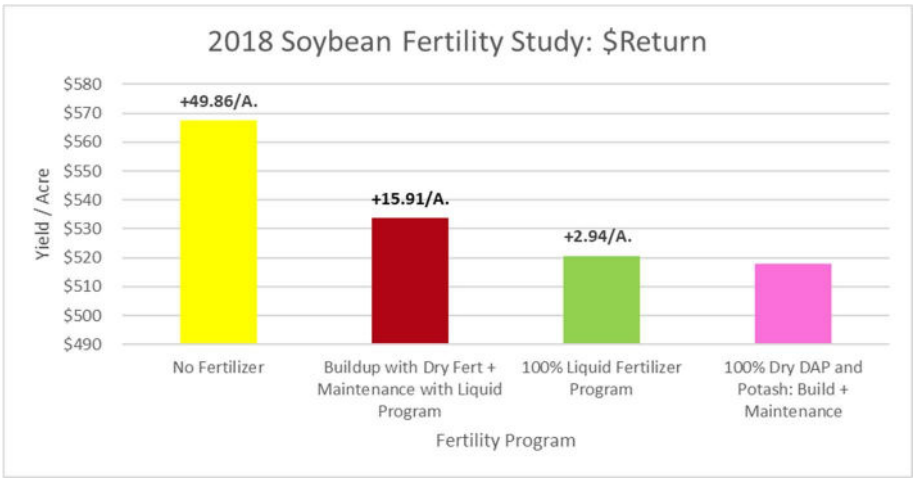
Results: Year one results were quite surprising as highest soybean yields occurred at 69.8 Bu/A. with the Buildup with Dry+Maintenance with Liquid program (Table 1). However, there was only a 1.3 to 4.0 Bu/A. yield variance between all the four fertility programs.

Table 1.



Applying no fertilizer at all only incurred yield losses of **-1.3 Bu/A.** compared to the 100% Dry Fertilizer program with DAP and Potash. Therefore, having no real fertility cost, it incurred the highest net return at +$49.86/A. (Table 2). It is doubtful that over time, this fertility program could be sustainable, but it will be interesting to monitor this continuous zero fertilizer treatment over the next few years, watching soil fertility levels decrease, while still analyzing overall yield performance and economic trends from year to year.

Table 2.



Challenging the status quo allows us to benchmark our current programs and compare it to potential other programs to evaluate yield performance, efficiencies, and economics. The 100% Dry Fertilizer program for soil test build-up and yield maintenance with DAP and 0-0-60 is traditionally one of the most common programs in the Corn Belt by ag retailers and producers. Using this as our control, allows us to compare other programs to address fertility and compare to typical standards.

All fertilizer applications are intended to be applied each year as part of a multi-year long-term study, with each program spatially being constant in a corn and soybean rotation.

Planting Date: 5/6 *Variety: Asgrow 36X6* *Population: 140K* *Row Width: 20"* *Rotation: BAC* *SB Price: $8.80*

DAP: $430/T 0-0-60: $210/T