



# Ten Year Fertilizer Program Effects on Soil Test (20-715)

## Experiment Info:

Planted:	5/25/2020
Harvest:	10/10/2020
Yield Goal:	bu/A
Target Fert.:	
Variety:	P20T64E
Population:	140,000
Row Width:	15
Prev. Crop:	Corn
Plot Size:	15 x 210
Replications:	4

## Soil Test Values (ppm):

pH:	7
CEC:	12.4
%OM:	3.4
Bray P1:	25
Bicarb P:	
K:	111
S:	5
%K:	2.3
%Mg:	21.4
%Ca:	75.9
%H:	0
Zn:	1.5
Mn:	4
B:	0.7

## Objective:

Follow soil test results from the past 10 years of treatments in the same plots. Treatments: AgroLiquid. Corn: 3 gal Pro-Germ + 5 gal Sure-K + 2 qt Micro 500; 47 gal 28%/eNhance Y-Drop. 15" Soybeans: 5 gal Sure-K + 1 qt Micro 500 In Furrow. Low rate conventional (same nutrient lb/A as AgroLiquid). Corn: 20 lb 0-0-60 after soybean harvest; 2 gal 10-34-0 + Zn + Mn in furrow; 47 gal 28% Y-Drop. Soybeans: No fertilizer Conventional Liquid/Dry. Corn: 200 lb 0-0-60 after soybean harvest; 7.5 gal 10-34-0 + 1 qt 9% Zn + 1 qt 9% Mn 2x2; 57 gal 28% Y-Drop. Soybeans: No fertilizer Conventional dry. Corn: 200 lb 0-0-60 after soybean harvest; 65 lb DAP (18-46-0) + 365 lb urea + 8 lb Zinc oxysulfate pre-plant incorporated; Soybeans: No fertilizer. Selected years (and crop yields) are shown: Starting level (2010); Year 1 (2011); Year 5 (2015) and Year 10 (2020). Full yield summaries are in separate corn and soybean reports.

Soil Sample Test Results from Field 715. "Permanent Plots" with the Same Fertilizer Programs for 10 years.										
Samples collected after harvest with soil probe. 12-6" cores per plot: 2 from the row and 10 from between the rows.										
	pH	% OM	CEC meq/100 g	P1 ppm	P2 ppm	K ppm	Ca ppm	S ppm	Zn ppm	
Spring 2010	7.0	3.4	12.4	25	78	111	1875	5	1.5	
2011 - Corn										
	pH	% OM	CEC meq/100 g	P1 ppm	P2 ppm	K ppm	Ca ppm	S ppm	Zn ppm	Yield Bu/A
AgroLiquid	6.9	3.3	15.3	13	49	99	2259	11	1.0	<b>213.8</b>
low rate conv	7.0	3.0	14.3	14	54	102	2119	11	1.2	<b>207.7</b>
conv liquid/dry	6.9	3.0	14.0	13	52	96	2089	10	1.1	<b>202.4</b>
conv dry	7.0	3.2	14.5	15	54	105	2149	11	1.1	<b>202.4</b>
N only	7.0	3.3	15.2	13	54	106	2281	11	1.0	<b>195.5</b>
2015 - Corn										
	pH	% OM	CEC meq/100 g	P1 ppm	P2 ppm	K ppm	Ca ppm	S ppm	Zn ppm	Yield Bu/A
AgroLiquid	6.4	3.4	13.6	11	47	94	1941	16	1.2	<b>224.7</b>
low rate conv	6.4	3.0	13.4	11	49	103	1858	18	1.9	<b>196.2</b>
conv liquid/dry	6.3	3.1	13.8	12	50	102	1896	15	1.6	<b>221.4</b>
conv dry	6.4	3.4	13.4	12	51	110	1907	18	1.5	<b>224.6</b>
N only	6.5	3.4	13.7	11	49	103	1959	17	1.4	<b>182.9</b>
2020 - Soybeans										
	pH	% OM	CEC meq/100 g	P1 ppm	P2 ppm	K ppm	Ca ppm	S ppm	Zn ppm	Yield Bu/A
AgroLiquid	6.4	3.1	12.6	9.0	40.3	85.0	1836.0	5.0	1.4	<b>87.6</b>
low rate conv	6.3	2.4	12.1	6.7	36.7	73.7	1687.7	5.0	1.6	<b>77.4</b>
conv liquid/dry	6.2	2.6	11.8	7.3	39.3	78.0	1626.0	4.7	1.1	<b>84.6</b>
conv dry	6.3	2.8	11.8	7.7	41.7	74.7	1636.0	5.0	1.6	<b>87.6</b>
No fertilizer	6.4	2.6	11.7	7.3	39.7	69.3	1684.0	5.0	1.1	<b>78</b>

## Conclusions:

- There was a decrease in the soil nutrient levels since the beginning of the experiment in 2011. This is likely due to the programs being set for 170 Bu/A corn and 50 Bu/A soybeans in this dryland field. The good soil has produced yields far in excess of that, and input has not matched removal. But the same treatments were maintained with excellent yields..
- It is interesting that the average soil test levels don't vary much between treatments, even though the total pounds of applied nutrients is different: lb/A yearly for corn (total N-P2O5-K2O): AgroLiquid: 158; Conventional: 265.
- This is the end of this experiment as reported. Soil nutrient build-up is needed.