



# Fertilizer Program Comparisons in Corn: Multi-year Results (714/715)

## Experiment Info:

Planted:

Harvest:

Yield Goal:

Target Fert.:

Variety:

Population:

Row Width:

Prev. Crop:

Plot Size:

Replications:

## Soil Test Values (ppm):

pH:

CEC:

%OM:

Bray P1:

Bicarb P:

K:

S:

%K:

%Mg:

%Ca:

%H:

Zn:

Mn:

B:

## Objective:

Compare different fertilizer programs for corn that have the goal of producing high yields year after year.

Fertilizer programs for corn are generally effective when applied timely and at rates according to soil test recommendations. An experiment was established in 2011 comparing different programs: AgroLiquid, Conventional liquid and Conventional dry. These were complete nutrient programs and were compared to a program of nitrogen only. AgroLiquid fertilizers are promoted as being more efficient and resistant to normal nutrient losses due to formulation differences. To test this, a program of conventional fertilizers was applied that applied the same rates of nutrients per acre as did the AgroLiquid program. The AgroLiquid program applied a total of 156 lb of nutrients per acre compared to the conventional program that applied 332 lb/A. Actual programs are listed in the table below. This experiment consisted of a corn-soybean rotation with treatments being in the same plots year to year in the corn and soybean portions of the test. Each treatment was replicated four times, and average yield by year is in the table below.

### Fertilizer Program Comparisons in Corn.

North Central Research Station 2011 - 2015

	Program	2011	2012	2013	2014	2015	Avg.
1	Nitrogen Only	195.5	189.9	195.1	185.3	182.9	189.7
2	AgroLiquid	213.8	217.9	213.6	189.4	224.7	211.9
3	Low-Rate Conventional	202.9	204.7	196.4	184.2	196.2	196.9
4	Conventional liquid	207.7	197.1	207.1	195.6	221.4	205.8
5	Conventional dry	202.4	196.4	208.4	193.8	224.6	205.1
		<b>204.5</b>	<b>201.2</b>	<b>204.1</b>	<b>189.7</b>	<b>210.0</b>	<b>201.9</b>

### Program Details

### Rate/A

1	28%/eNhance (sidedress)	47 gal
2	Pro-Germinator + Sure-K + Micro 500 (IF) 28%/eNhance (sidedress)	3 gal + 5 gal + 2 qt 47 gal
3	0-0-62 (fall after soybeans) 10-34-0 + 9% Zinc + 9% Mn (IF) 28% UAN	20 lb 2 gal + 1 qt + 1 qt 47 gal
4	0-0-62 (fall after soybeans) 10-34-0 + 9% Zinc + 9% Mn (2x2) 28% UAN	200 lb 7.5 gal + 1 qt + 1 qt 57 gal
5	0-0-62 (fall after soybeans) Urea + DAP + 24% zinc (preplant b'cast incorp)	200 lb 365 + 65 + 8 lb

(IF) = In Furrow (Totally Tubular)

## Conclusions:

- Highest average yield over the five years of the experiment was obtained with the AgroLiquid fertility program.
- The AgroLiquid program had the highest average yield in four of the five years of testing. It is not clear why the yield was lower in 2014, which was exceptionally cool and wet. But the average favors AgroLiquid by over 6 Bu/A vs the full rate conventional programs.
- The low-rate conventional program yielded well the first two years, but then trailed off and was substantially lower in yield vs the other programs in 2015. This would indicate that yield differences between this and the AgroLiquid program are indeed due to formulation differences since the same rates of nutrients were applied.