

RESEARCH FOR RESULTS



University of Illinois Nitrogen Trials 2017-01 Grain Yield-Grain Quality

OVERVIEW: This document features results from the 2017 University of Illinois Nitrogen Management Study. The SoilBiotics treatment was either a preplant applied **4 - Ultra Boost** treated urea compared to other products and a control, or a sidedress applied UAN plus **3 - Growth Boost** vs. other products and a control.

LOCATIONS: University of Illinois Crop Sciences Research and Education Center, Champaign, IL. **(CU)**
University of Illinois Crop Physiology Laboratory Research Plots, Harrisburg, IL **(HA)**

HYBRID: Croplan 6640 VT Triple PRO. Previous crop: Soybeans.

PLANTING DATE: **(CU)** 5/30/17 **(HA)** 5/9/17

HARVEST DATE: Various

POPULATION: 34,000 plants/acre. Plots were arranged using an RCBD with six replications.

ROWS: 30"

PLOT SIZE: 37.5 ft long by 4 rows wide

SOIL TYPE: Silty clay loam

SOIL %OM, CEC and pH: **(CU)** OM 4.1% - CEC 32.0 - pH 5.2; **(HA)** OM 2.2% - CEC 12.0 – pH 7.2

SOIL P and K LEVELS: **(CU)** P = 33 ppm - K = 236 ppm; **(HA)** P = 26 ppm – K = 120ppm.
Both sites (Melich 3 extraction)

TILLAGE: Conventional: Fall Chisel Plow & Spring Field Cultivator (2 passes)

WEED TREATMENT: Preplant: Harness Extra, Postemergence: Roundup, Status (BASF), AMS **(CU)**.
Preplant: Lumax EZ, Postemergence: Armezon, Roundup, AMS **(HA)**.

FERTILIZER: Both locations, 140 lbs of N (**No Applied N = Control**),

TREATMENTS: Nutrisphere: 2qt/ton urea
Agrotain: 3qt/ton urea
4 - Ultra Boost: 1 gal per ton urea (preplant broadcast)
3 - Growth Boost 2qt/acre 50/50 Split N treatment (UAN Y-drop)
Hydra-Hume: 10 lbs per 60lbs of N from urea

This section features results for grain yield, yield components (kernel number and kernel weight), and grain quality (oil, protein, and starch concentrations).

TABLE 1

Treatment	Yield bu Ac ⁻¹	Yield Component		Grain Quality		
		Kernel Number seed m ⁻²	Kernel Weight mg seed ⁻¹	Oil	Protein	Starch
Champaign						
No Applied N	183	4020	242	4.15	6.03	73.13
Upfront N (Urea)	255	4982	271	3.91	7.22	72.82
+ Agrotain	257	4963	275	4.04	7.64	72.42
+ Nutrisphere	248	4829	272	3.94	7.18	72.75
+ Hydra-Hume	245	4747	275	4.07	7.47	72.38
+ Ultra Boost	262	5051	276	4.07	7.42	72.32

TABLE 1 Summary: **4 - Ultra Boost** treated urea applied as upfront N in Champaign had highest yield, kernel number, kernel weight, and oil content versus other treatments.

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Hydra-Hume: 10 lbs per 60lbs of N from urea

TABLE 2

Treatment	Yield bu Ac ⁻¹	Yield Component		Grain Quality		
		Kernel Number seed m ⁻²	Kernel Weight mg seed ⁻¹	Oil	Protein	Starch
Harrisburg						
50/50 Split N						
UAN Broadcasted	249	5445	243	4.15	7.33	72.67
UAN Y-dropped	250	5507	241	4.08	6.85	72.78
+ Agrotain	251	5611	237	4.05	6.78	73.03
+ Nutrisphere	253	5553	242	4.07	6.78	73.07
+ Hydra-Hume	250	5629	236	4.07	6.77	73.18
+ Growth Boost	256	5569	244	3.97	6.70	73.05
LSD ($\alpha = 0.10$)	10	258	8	0.18	0.36	NS [†]

TABLE 2 Summary: **3 - Growth Boost** treated UAN applied as 50/50 Split N with urea treatment in Harrisburg had highest yield and kernel weight versus other treatments.