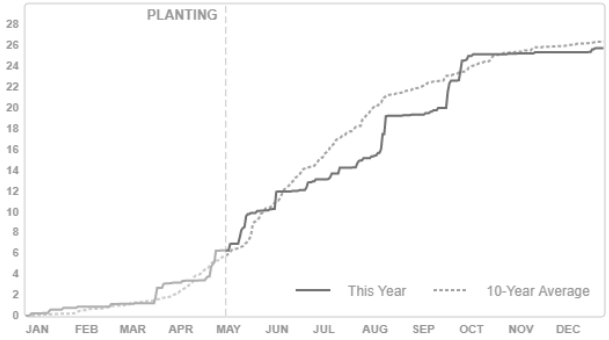
Organic Corn Yield Response to Organic Fertilizer

Study ID: 641047201702
County: Dawson
Soil Type: Cozad fine sandy loam; Cozad silt loam saline-alkali; Gosper loam saline-alkali
Planting Date: 5/7/17
Population: 32,500
Row Spacing (in): 36
Hybrid: Great Harvest 58E4
Reps: 5
Previous Crop: Corn
Tillage: Disk
Herbicides: ***Pre:*** None ***Post:*** None
Seed Treatment: SoilBiotics humic acid
Foliar Insecticides: None
Foliar Fungicides: None
Fertilizer: 12.37 ton/ac beef manure on 11/9/15
Irrigation: Gravity, Total: 21"
Rainfall (in):



Introduction: Several fertilizer products were tested for organic corn production. Fertilizers were applied in 6" bands using a modified Krause drill. The crop was then planted into the band after application.

Treatments tested include:

Nature Safe 13-0-0 (150 lb/ac)

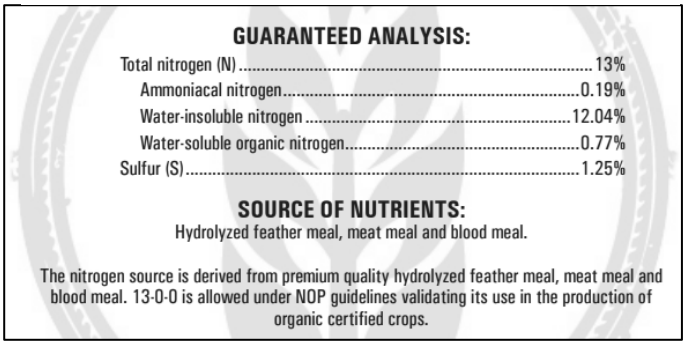
Nature Safe 13-0-0 (300 lb/ac)

Beju pelleted manure containing micronutrients (100 lb/ac)

Humic DG (10 lb/ac)

Nature Safe was a 1/8" pellet, Beju was a 1/4" pellet, and Humic DG was a prill. 12.37 ton/ac of beef manure was applied in Nov. 2015. No herbicides were used. Weeds were controlled through flame cultivation on 6/16/17. The site received hail on July 3, 2017.

Nature Safe 13-0-0



GUARANTEED ANALYSIS:

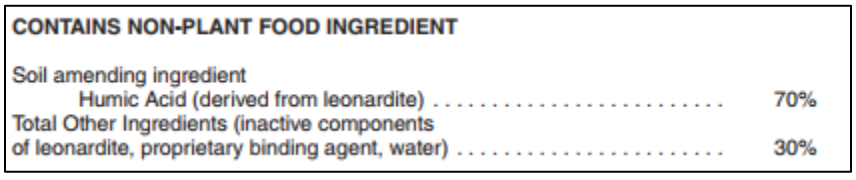
Total nitrogen (N)	13%
Ammoniacal nitrogen	0.19%
Water-insoluble nitrogen	12.04%
Water-soluble organic nitrogen	0.77%
Sulfur (S)	1.25%

SOURCE OF NUTRIENTS:
Hydrolyzed feather meal, meat meal and blood meal.

The nitrogen source is derived from premium quality hydrolyzed feather meal, meat meal and blood meal. 13-0-0 is allowed under NOP guidelines validating its use in the production of organic certified crops.

Product information from: *http://www.midwesternbioag.com/wp-content/uploads/2012/12/13-0-0bulk.pdf*

Humic DG



CONTAINS NON-PLANT FOOD INGREDIENT

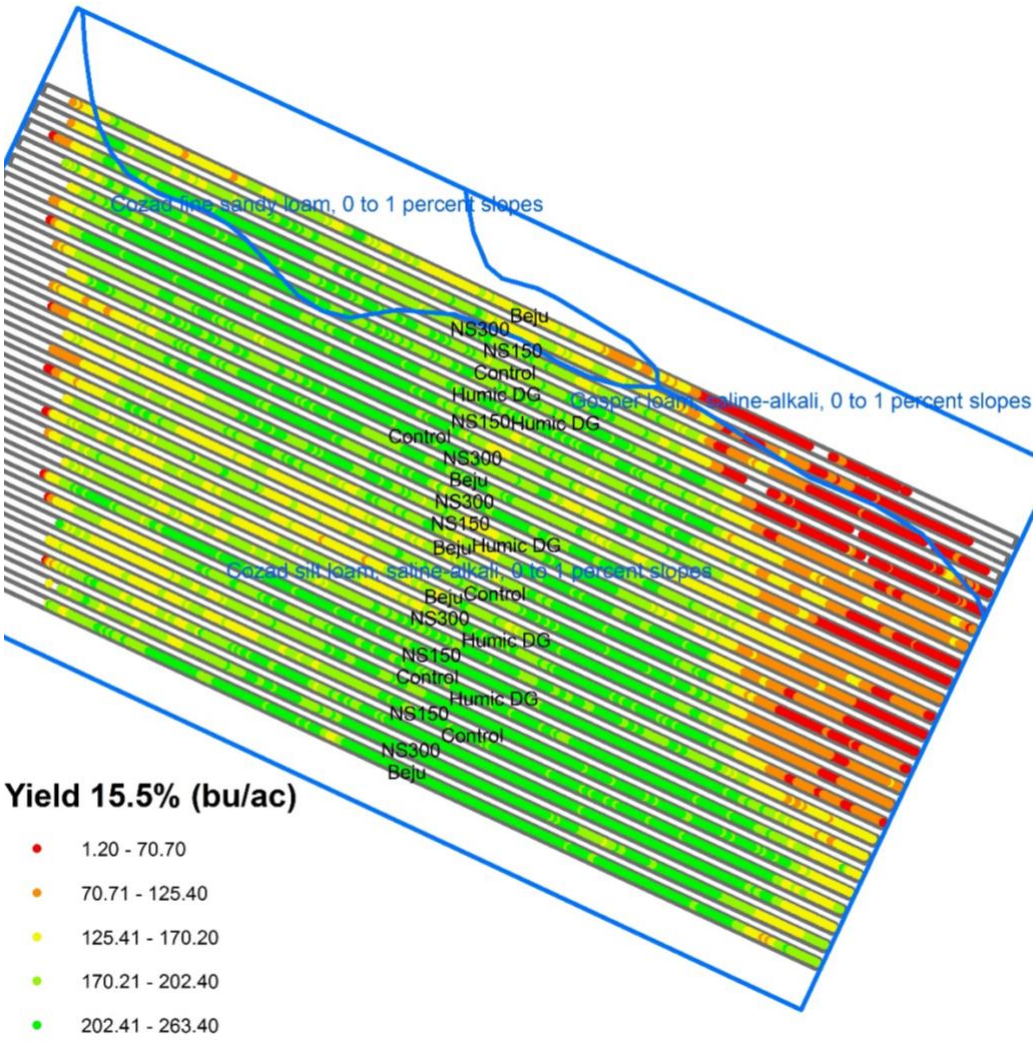
Soil amending ingredient	
Humic Acid (derived from leonardite)	70%
Total Other Ingredients (inactive components of leonardite, proprietary binding agent, water)	30%

Product information from: *https://andersonshumates.com/wp-content/uploads/2015/05/HumicDG_ASPHUDG40C15.pdf*

Results:

	Moisture (%)	Yield (bu/acre)†	Marginal Net Return‡ ($/ac)
Check	15.6 A*	176 A	1,584.32 A
Nature Safe - 150 lb/ac	15.4 A	178 A	1,523.85 AB
Nature Safe - 300 lb/ac	15.6 A	171 A	1,391.63 B
Beju	15.5 A	163 A	1,388.51 B
Humic DG	15.5 A	172 A	1,534.72 AB
P-Value	0.733	0.277	0.017

*Values with the same letter are not significantly different at a 90% confidence level.
†Yield values are from cleaned yield monitor data. Bushels per acre corrected to 15.5% moisture.
‡Marginal net return based on $9/bu organic corn, $75.50/ac Nature Safe at 150 lb/ac rate, $143/ac Nature Safe at 300 lb/ac rate, $78/ac Beju, and $16.75/ac Humic DG. Costs of all products include $8/ac for an extra trip across the field.



Summary:

- None of the products tested increased yield compared with the untreated check.
- Nature Safe at 300 lb/ac and Beju significantly decreased marginal net return due to the increased production cost.

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