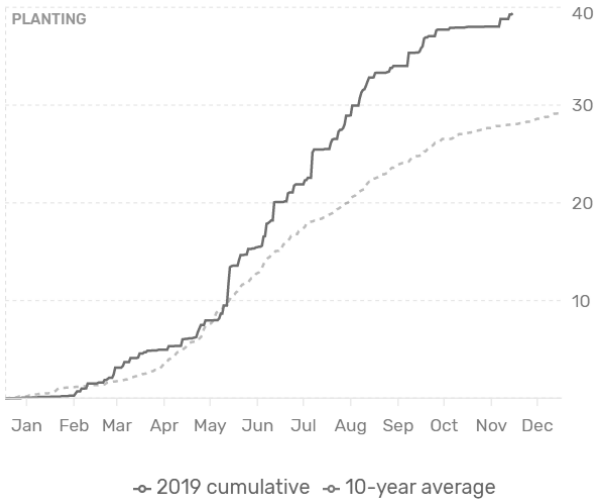
Starter Fertilizer on Irrigated Corn

Study ID: 0718185201902
County: York
Soil Type: Hastings silt loam, 0-1% slopes; Uly-Hobbs silt loams, 11-30% slopes
Planting Date: 4/24/19
Harvest Date: 10/19/2019
Seeding Rate: 34,000
Row Spacing (in): 30
Variety: Pioneer® P1563AM™
Reps: 6
Previous Crop: Soybean
Tillage: Minimum-Till
Herbicides: ***Pre:*** 2 qt/ac Medal® II ATZ and 5 oz/ac Explorer™ on 4/23/19
Seed Treatment: None
Foliar Insecticides: 6.4 oz/ac Tundra® EC on 8/4/19
Foliar Fungicides: 8 oz/ac Delaro® on 8/4/19

Fertilizer: 180 lb/ac N as spring applied anhydrous ammonia on 4/10/19
Irrigation: Pivot, Total: 0.75"
Rainfall (in):



Soil Test (Nov. 2018 – 2 samples were taken in the study area at 0-10" depth):

Soil pH 1:1	Soluble Salts 1:1 mmho/cm	Excess Lime Rating	Organic Matter LOI %	Nitrate – N ppm N	Nitrate lb N/A 0-10"	Mehlich P-III ppm P	M-3 Sulfate ppm S	Zn (ppm)	Ammonium Acetate (ppm) K	Ca	Mg	Na	CEC me/100g	% Base Saturation H	K	Ca	Mg	Na
6.3	0.19	NONE	3.3	8.3	25	26	8.9	2.26	444	2367	346	39	19.4	18	6	60	15	1
6.9	0.28	NONE	3.3	11.0	33	40	8.4	2.74	506	2765	427	52	18.9	0	7	73	19	1

Introduction: The purpose of this study was to evaluate starter fertilizer in irrigated corn production. Previous on-farm research starter fertilizer studies showed minimal yield and economic gains if soil test phosphorus levels were 10 ppm or greater in a corn and soybean rotation (https://go.unl.edu/starter). Yet a number of growers still utilize starter fertilizer for various reasons. Studies have shown that there can be an early growth and yield response from N in an N-P starter fertilizer (https://go.unl.edu/starterfert). In this study, the starter fertilizer was 5 gal/ac 10-34-0 and was compared with a no starter check.

Results:

	Stand Count (plants/ac)	Stalk Rot (%)	Moisture (%)	Yield (bu/ac)†	Marginal Net Return‡ ($/ac)
Check	32,417 A*	10.42 B	18.6 A	255 A	975.83 A
Starter (5 gal 10-34-0)	31,750 B	14.17 A	18.3 B	253 A	957.03 B
P-Value	0.062	0.045	0.023	0.335	0.016

*Values with the same letter are not significantly different at a 90% confidence level.
†Bushels per acre corrected to 15.5% moisture.
‡Marginal net return based on $3.83/bu corn and $13.16/ac starter fertilizer cost.

Summary:

- Plant stand counts were 667 plants/ac higher for the check than the starter fertilizer treatment.
- Using a starter fertilizer did not result in a yield increase.
- Grain moisture was higher for the check and there was more stalk rot in the starter fertilizer treatment.
- The use of starter fertilizer resulted in a lower net return as there was no yield increase, yet there was an additional cost of starter fertilizer.

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