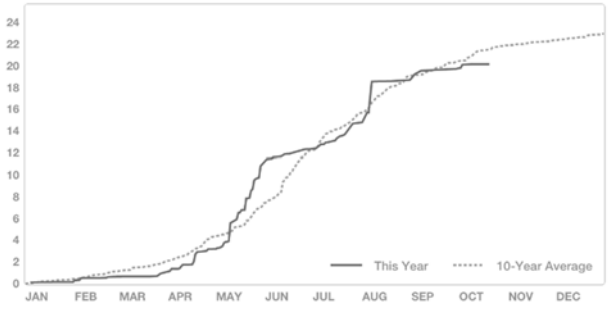
Nebraska On-Farm Research Network

Fe Soil and Seed Treatments on Corn Grown on High pH Soil

Study ID: 177029201501
County: Chase
Soil Type: Rosebud loam; Rosebud-Canyon loam; Kuma silt loam;
Planting Date: 5/18/15
Harvest Date: 11/9/15
Population: 31,500
Row Spacing (in.) 30
Hybrid: Prairie Brand 5825
Reps: 6
Previous Crop: Corn
Tillage: Conventional Till (Spring) + Strip-till (prior to planting)
Herbicides: ***Pre:*** unknown ***Post:*** 32 oz/ac RoundUp and Shurestart (recommended rate) on 6/8/15
Seed Treatment: none
Foliar Insecticides: 6.4 oz/ac Tundra (insecticide), through the pivot on 7/23
Foliar Fungicides: none
Fertilizer: 20 Gal/ac 8-20-5-5-0.5 on 04/25 with strip-till, 5 gal/ac 10-34-0 with seed at planting on 5/18; 20 gal/ac 29-0-0-5 on 6/23; 10 gal/ac 28-0-0-5 through pivot on 7/10 and 7/16.
Note: Hail on 7/23, estimated 5.1% by insurance
Irrigation: Pivot, Total: 13
Rainfall (in.):



Soil Sample:

Depth	O.M.	pH	C.E.C.	Total NO3	P Bray 1	P Bray 2	K	Mg	Ca	S	Zn	Mn	Fe	Cu	B
	--%--			---lb/ac---	----------ppm----------										
0-8"	1.7	8.2	22.5	70.0	4.0	99.0	612	236	3799	26.0	3.3	3.0	4.0	0.4	0.9

Introduction: This study is looking at the effect of foliarly-applied Fe (Pro Iron 5), a Fe seed treatment (Rebar 2), and the combination on corn yield and nutrient concentrations in leaf tissue samples under high soil pH conditions (pH 7+). The foliar treatment used in this study was applied at a rate of 1.0 qt/ac and the seed treatment was applied at a rate of 1.0 qt/ac. The foliar treatment was applied with a high clearance applicator on June 25th at the V5 growth stage. Leaf samples were collected from treated and untreated strips approximately 1 month after application and analyzed for nutrient concentrations. Yields from treated and untreated strips were recorded with a yield monitor.

Rebar® 2

CHELATED MICRONUTRIENT

Guaranteed Analysis
Iron (Fe).....3.00%
3.0% Chelated Iron (Fe)

Derived From: Iron EDDHA
(Ethylenediamino-N, N'-bis(2-hydroxy-phenyl) acetic acid

Product information from: *https://s3-us-west-1.amazonaws.com/www.agrian.com/pdfs/Rebar_2_Label2.pdf*

Pro-Iron 5

Active Ingredient
6 – Total Nitrogen (N)
5 – Chelated Iron (Fe)
3 – Sulfur (S)

Product information from: *https://s3-us-west-1.amazonaws.com/www.agrian.com/pdfs/PRO-IRON_5_6-0-0_Label.pdf*

Results:

	Yield (bu/ac)†	Marginal Net Return ($/ac)‡
Check	180 A*	$657.00
Rebar 2 (1 qt/ac)	177 A	$624.18
Pro Iron 5 (1 qt/ac)	174 A	$623.23
Pro Iron 5 (1 qt/ac) + Rebar 2 (1 qt/ac)	175 A	$613.13
P-Value	0.6964	N/A

†Bushels per acre corrected to 15.5% moisture.
*Values with the same letter are not significantly different at a 90% confidence level.
‡Net return based on $3.65/bu corn, $15/gal Pro Iron 5, $55/gal Rebar 2, and $8.12 high-clearance ground application cost.

Plant Tissue Samples												
	N	P	K	Mg	Ca	S	Na	Fe	Mn	B	Cu	Zn
	----------(%)----------							----------ppm----------				
Check	3.27 A	0.36 A	2.94 A	0.22 A	0.53 A	0.30 A	0.005 A	72 A	97 A	12 A	12.80 A	57 A
Rebar 2	3.40 A	0.37 A	2.89 A	0.23 A	0.57 A	0.31 A	0.005 A	69 A	108 A	11 A	12.80 A	61 A
Pro Iron 5	3.27 A	0.39 A	3.12 A	0.22 A	0.53 A	0.29 A	0.007 A	68 A	98 A	11 A	12.20 A	54 A
Pro Iron 5 + Rebar 2	3.22 A	0.35 A	3.04 A	0.21 A	0.52 A	0.27 A	0.005 A	81 A	100 A	12 A	12.20 A	51 A
P-Value	0.2874	0.4066	0.8074	0.6406	0.3446	0.3562	0.0988	0.2662	0.4072	0.7201	0.5262	0.19

Summary: The products tested did not result in yield or foliar leaf tissue nutrient content differences.

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