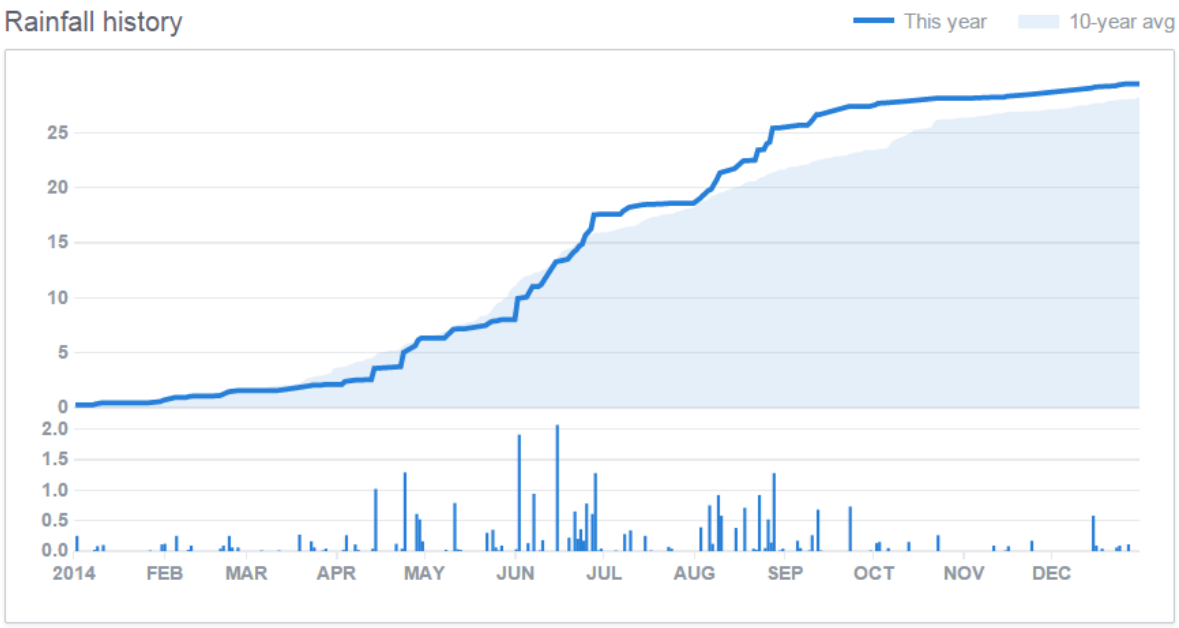
Nebraska On-Farm Research Network

Foliar Micronutrient Application on Corn

Study ID: 031099201401
County: Kearney
Soil Type: Holdrege and Detroit silt loam
Planting Date: Unknown
Harvest Date: 10/18/2014
Population: Unknown
Row Spacing: Unknown
Irrigation: Pivot – amount unknown

Hybrid: Unknown
Reps: 8
Previous Crop: Unknown
Tillage: Unknown
Herbicides: **Pre:** Unknown
Post: Unknown
Insecticides/Fungicides: Unknown



Soil Test Values:

OM	pH	NO_3–N (0-4")	NO_3-N (4-8")	P Bray 1	P Bray 2	K	S	Fe	Mn	B	Zn
-%--		------lbs/acre------		----------ppm----------							
2.2	5.6	42	36	68(VH)	136(VH)	446(VH)	17(M)	42(VH)	17(H)	0.6(L)	1.9(M)

*VH=Very High, H=High, M=Medium, L=Low, VL=Very Low

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In partnership with: Nebraska Soybean Board, Nebraska Corn Board, Nebraska Corn Growers Association

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Introduction: This study is looking at the effects of foliar fertilizers on corn yield and concentrations of nutrients in leaf tissue samples. Two foliar fertilizers were used in this study. Product 1 was applied at a rate of 1 qt/ac and product 2 was applied at a rate of 1 pt/ac. Application was on June 26th with a high clearance applicator. Leaf samples were collected from treated and untreated strips approximately 1 month after application and analyzed for nutrient concentrations. Yields were harvested from treated and untreated strips and weighed using a weigh wagon.

Product 1:
Guaranteed Analysis
Total Nitrogen……8.00%
Sulfur……3.00%
Iron (Fe)……1.0%
Manganese (Mn)……2.0%
Zinc (Zn)……3.0%

Product 2:
Guaranteed Analysis
Boron (B) ……8%

Results:

	Yield†	Plant Tissue Sampling								Net Return ‡
		N	P	K	S	Fe	Mn	B	Zn	
	bu/ac	*(%)*				*(ppm)*				
Check	242 A*	2.84 A	0.28 A	2.93 A	0.23 A	141.4 A	108.8 A	9.3 A	23.3 B	$847.00
Foliar Treatment	233 B	2.85 A	0.28 A	2.94 A	0.22 B	128.3 B	96.4 B	8.5 B	26.6 A	$797.39
P-Value	*0.0560*	*0.2286*	*1.000*	*0.9244*	*0.0011*	*0.0448*	*0.0498*	*0.0796*	*0.0205*	--

†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 $3.50/bu corn, $24/gal product 1, $31.93/gal product 2, and $8.12 ground applicator cost.

Summary: At this location, the foliar micronutrient treatments was significantly lower in yield when compared to the non-treated areas. We looked at the tissue sample values for the nutrients applied in the foliar treatment (N, S, Fe, Mn, Zn, and B). There was no difference between the foliar applied treatment and the check for N; however, the check had higher S, Fe, Mn, and B levels than the foliar applied treatment. The foliar applied treatment had higher Zn tissue levels than the check. Foliar tissue sample results are inconclusive. The foliar application resulted in a loss of $49.61/acre due to loss of yield and increased production costs.

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