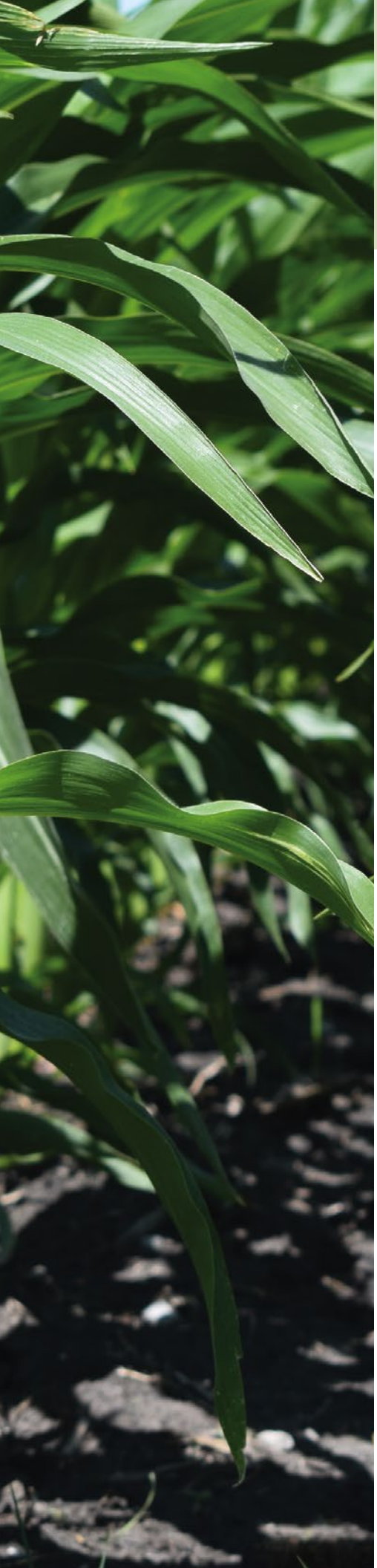

On-Farm Demonstration Trial: Fertility and Soil Studies Sulfur on Corn Trials

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Objective

Determine the effects of sulfur treatments on corn yields to define best management practices.

Introduction

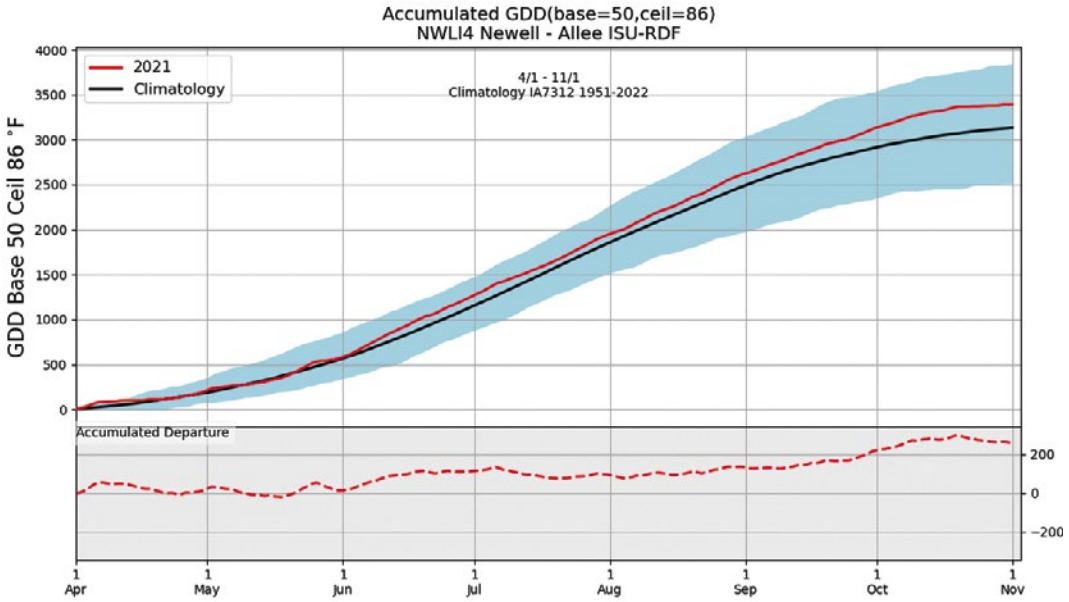
In the recent past, sulfur (S) deficiency had been showing up more frequently in Iowa fields. Large yield response especially occurred in corn and fields in northeast Iowa. The increase in S response is thought to be partially due to Iowa receiving less S in the rainfall due to more stringent air pollution regulations, less S fertilizer applications, higher crop yields, and less widespread use of manure. Sulfur fertilizer applications can offer yield increases where S deficiencies are present. The objective of these trials was to evaluate potential for S deficiency and yield response in corn and soybean to S applications.

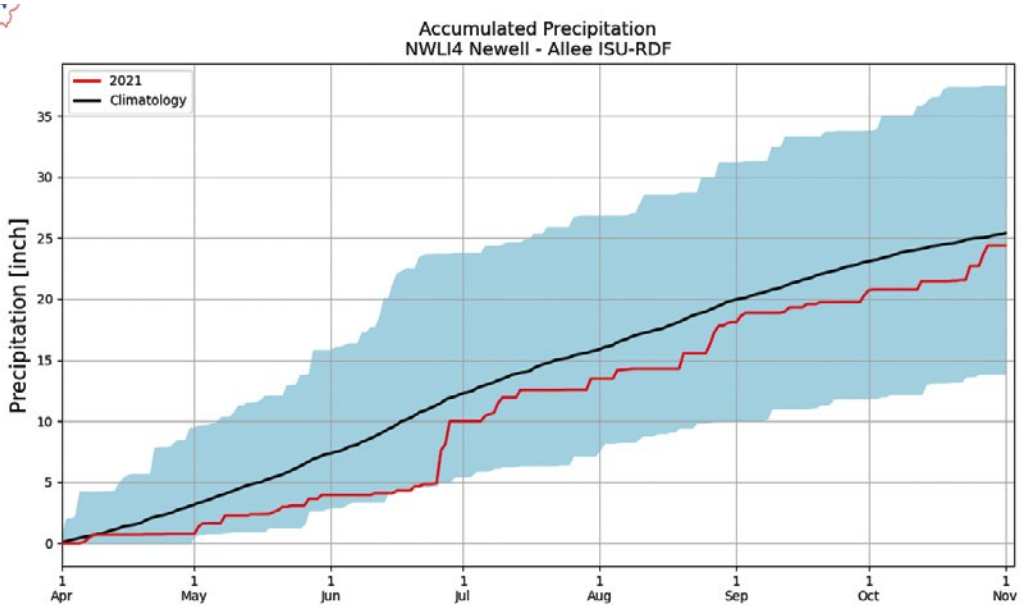
Materials and Methods

Crop Year–2021

Trial	210204	210205	210416
Trial County	Crawford	Crawford	Hancock
Soil Type			
Previous Crop	Corn	Corn	Corn
Tillage	No-Till	No-Till	Conventional
Current Crop	Corn	Corn	Soybean
Hybrid–Variety Number	6408	8073-2	AG21ZF0
Hybrid–Variety Company	Wyffels	Hogemeyer	Asgrow
Row Spacing	30 in.	30 in.	30 in.
Seeding Rate	33,000/ac.	33,000/ac.	128,000/ac.
Planting Date	April 27	April 24	April 29
Harvest Date	November 9	November 9	September 29
Experimental Type	On-Farm Demo	On-Farm Demo	On-Farm Demo
Replications	4	4	4
Fertilizer	Super Cal SO4,(CA 21%, S 17%, CaSo4 92%)	Super Cal SO4,(CA 21%, S 17%, CaSo4 92%)	Gypsum
Application Rate	40lb./ac. rate 7lbs. actual S	40lb./ac. rate 7lbs. actual S	100lbs./ac. rate 18 lbs./ac. actual S

Location Climate Analysis





Results

Trial Number	Treatment	Yield (bu./ac.)[a]	P-value[b]
210204	Super Cal SO_4	227.5 a	0.89
	Untreated Control	227.9 a	
210205	Super Cal SO_4	221.9 a	0.68
	Untreated Control	221.2 a	
210416	Gypsum	71.6 a	0.63
	Untreated Control	70.8 a	

[a]Values denoted with the same letter within a trial are not statistically different at the significance level of 0.10.
[b]P-value = the calculated probability that the difference in yields can be attributed to the treatments and no other factors. For example, if a trial has a P-value of 0.10, there is 90% confidence the yield differences are in response to treatments. This is consistent for demonstration trials.

Key Takeaways

- There was no statistical difference between treatments for yields in all experiments.
- Sulfur will only generate a yield response when a deficiency is in the soil.
- If there is a history of manure applications on a field, sulfur additions rarely are needed to that field.
- NOTE: The results presented are from replicated demonstration trials. Statistics are used to detect differences at a location and should not be interpreted beyond the single location.