

Corn Response to Sulfur Fertilizer—Mahnomen/Marshall Co.

Nearest Town: Waubun (Mahnomen Co.) & New Folden (Marshall Co.)

Soil Type: Mahnomen County: Fargo silty clay
 Marshall County: Grimstad fine sandy loam

Row Width: 30"

Experimental Design: Randomized complete block design
 Four sulfur rates: 0, 10, 20, and 30 lbs S per acre
 Sulfur source: ammonium sulfate (21-0-0-24)
 Sulfur applied at or prior to planting
 4 replications

Purpose of Study:

To determine if sulfur can increase corn yield on high organic matter soils in Northwest Minnesota.

Results:

Yield potential was generally affected by wet then dry weather conditions at each location.

Yield data exhibited large variability especially at the Norman location. Some plot data was discarded that was abnormally low yielding.

Corn grain yield was not increased at either location nor did the two site average differ indicating no benefit from sulfur fertilizer application at either site.

There was no statistical difference in grain moisture taken at harvest. The Norman site did exhibit a slight increasing trend in grain moisture with increasing sulfur rate. Typically sulfur has been shown decrease moisture of the harvested grain. The corn exhibited greater moisture stress at the Norman site. The increase in grain moisture may have been a result of sulfur and an positive benefit for corn grown under nitrogen or moisture stress.

This data supports previous research in a lack of response to sulfur on soils with high organic matter concentration.

Table 1. Summary of corn grain yield (adjusted to 15.5% moisture) response to sulfur rate at locations in NW Minnesota.

Sulfur Rate	Marshall	Norman	Average
- lb S/ac -	-----Bushels/acre-----		
0	153	132	144
10	155	127	143
20	152	128	143
30	156	133	146
Statistical Significance			
<i>P>F</i>	ns	ns	ns

Table 2. Summary of corn grain moisture response to sulfur rate at locations in NW Minnesota.

Sulfur Rate	Marshall	Norman	Average
-lb S/ac-	-----%-----		
0	20.5	16.7	18.6
10	20.1	16.7	18.4
20	22.1	18.5	20.3
30	20.1	18.0	19.0
Statistical Significance			
<i>P>F</i>	ns	ns	ns