

PLANT NUTRIENTS

AdvanSix Sulf-N® Ammonium Sulfate

Evaluation of Corn Response to Sulfur Fertilization in Northeast Iowa

Project conducted by John Sawyer, Department of Agronomy, Iowa State

Introduction

Sulfur (S) deficiency and yield increase from sulfur fertilization were documented on alfalfa in northeast Iowa in 2005 and 2006, especially in fields with areas of low soil organic matter, eroded and side-slope landscape position. In 2006, 10 pounds of sulfur fertilizer increased corn yield by 15 bushels per acre in a study at two sites: one a Seaton silt loam and the other a Renova loam. Also in 2006, at six sites that were selected because corn exhibited strong early plant sulfur deficiency symptoms or had soil conditions conducive to sulfur deficiency, application of sulfur fertilizer increased corn yield by 38 bushels per acre.



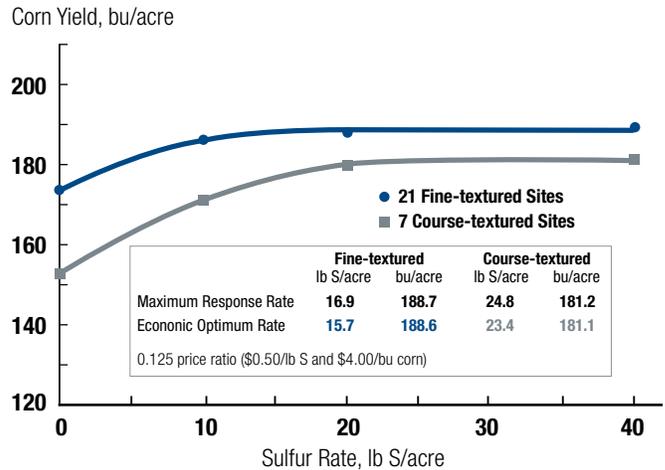
On-farm research trial of corn on Sparta fine loamy sand in northeast Iowa compares no sulfur fertilizer (right) with sulfur fertilizer treatment (left), demonstrating a healthy response to sulfur.

Photo courtesy: B.Lang, Iowa State University Extension

Results

An expanded set of studies were conducted at 45 sites across north-central Iowa in 2007 and 2008, testing four fertilizer rates (0, 10, 20 and 40 pounds of sulfur per acre) applied in the plant-available, sulfate-sulfur form. Corn grain yields significantly responded to sulfate-sulfur fertilization in 21 of the fine-textured soil sites (62%) and seven of the coarse-textured soil sites (64%). Economic optimum rates of 16 and 23 pounds of sulfur per acre were achieved respectively, as shown in graph below.

Corn Grain Yield Response to Sulfur Rate



Source: Better Crops, Vol. 95, 2011

Summary

This research indicates a dramatic change in need for sulfur fertilization in northeast Iowa, and that sulfur application is an economically viable fertilization practice on many soils.

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