

Soybean Nitrogen Trial

RFR-A1850

Dominic Snyder, ag specialist
Muscatine Island Research Farm

For data collection, only the middle 6 rows of each plot were harvested. Harvest was conducted October 18.

Introduction

The 2018 soybean nitrogen trial evaluated two different preplant incorporated nitrogen applications on soybeans and one control. The objective was to determine if yield can be increased by applying nitrogen to a soybean crop on sandy, irrigated soils.

Materials and Methods

Soil type was a Fruitland coarse sand soil with approximately one percent organic matter and soil pH of 6.0 (buffer pH of 7.0). The previous crop in 2017 was corn. Fall tillage included a light disking to break up stalks. Spring tillage included a deeper disking to incorporate fertilizer and prepare ground for planting. Potash (0-0-60) fertilizer was applied via broadcast at 120 lb/acre over the entire study. Plots were arranged in a randomized complete block with three replications. A treatment plot consisted of 12 rows x 100 ft long. Treatments were 0 lb N/acre, 50 lb N/acre, and 100 lb N/acre. ESN Smart Nitrogen was applied to each plot with a Gandy drop spreader. On May 21, 2018, Pioneer P31T11R soybean seed was planted at 120,000 plants/acre. Normal herbicide applications were made at preemergence and postemergence.

Results and Discussion

ESN Smart Nitrogen is a urea granule contained within a polymer coating. This was used to help prevent leaching in the case of excessive rainfall, which is common on sandy soils.

The fertilizer treatments had no effect on crop emergence. There was uniform emergence across all treatments. Throughout the growing season there were no observable differences between the treatments.

There was a numerical increase in yield for the treatments with nitrogen (about 4 to 4.5 lb/acre on average). However, there was no difference between the 50 lb/acre and 100 lb/acre treatments (Table 1). The data has not been statistically evaluated.

In order to find more conclusive results, this trial will be conducted in following years.

Acknowledgements

Thanks to Crop Production Services and Nutrien LTD for providing products for evaluation.

Table 1. Soybean yield.

Treatment	Yield (bu/ac)			
	Rep 1	Rep 2	Rep 3	Average
0 lb N/acre	65.2	63.3	62.3	63.6
50 lb N/acre	69.4	67.8	68.6	68.6
100 lb N/acre	66.2	68.6	67.3	67.4