



# Foliar Applications of NResponse on Soybeans (20-507a)

## Experiment Info:

Planted:	5/25/2020
Harvest:	10/8/2020
Yield Goal:	65 bu/A
Target Fert.:	
Variety:	P20T64E
Population:	140,000
Row Width:	15"
Prev. Crop:	Corn
Plot Size:	15 X 44
Replications:	1

## Soil Test Values (ppm):

pH:	6.6
CEC:	8.1
%OM:	2
Bray P1:	30
Bicarb P:	0
K:	154
S:	6
%K:	4.9
%Mg:	18.6
%Ca:	69.2
%H:	6.5
Zn:	1.1
Mn:	5
B:	0.3

## Objective:

Make foliar applications of NResponse to soybeans and track tissue test levels and yield.

Even though soybeans make their own nitrogen through the symbiotic relationship with *Rhizobia* bacteria, they tend to "slow down" later in the season when soybeans need more N for pod development. Thus some researchers have found late-season applications of N, like urea, can result in a yield increase. In this experiment, foliar applications of the liquid urea-based NResponse were applied at several rates along with an application of urea. These plots were essentially demonstration plots that were not replicated as is done in research experiments. But they were uniform and arranged in succession across the field. From the yields, they were in a highly productive irrigated site. Tissue samples were collected 7 days after the applications. There were some interesting findings worth reporting, and will serve as a guide for further experimentation in 2021.

### Effect of Foliar Applications of NResponse on Soybeans

Tissue sample: +7 days (R3)

Treatment	%N	%S	ppm Fe	Bu/A
check	5.9 H-E	0.27 S	83 L	86.8
75 lb/A urea	6.04 H-E	0.3 S	93 S	82.2
1 qt/A NResp.	6.24 H-E	0.29 S	94 S	86.8
2 qt/A NResp.	6.3 H-E	0.29 S	97 S	92.4
2 gal/A NResp.	6.41 H-E	0.28 S	94 S	95.2
Normal:	4.8	0.3	95	

L: Low; S: Sufficient; H: High; E: Excessive

\* - broadcast over the top of the soybeans

Applications made on 7/21 with backpack sprayer: 15 gpa/50 psi/TJ02 nozzle.

Soybeans were 25" tall in the R2 stage (full flower with small pods forming in lower nodes).

Rainfall and irrigation after application and before tissue sampling: 1.12".

Tissue sampling collected the uppermost fully developed trifoliolate leaf. There were 15 samples per plot.

Row spacing: 15". Applied with planter on 5/25: 5 gal/A Sure-K + 1 qt/A Micro 500.

## Conclusions:

- The soybeans in this test looked very good at the time of application and all treatments, including the check, had High to Excessive N levels. Future testing should include later stages and check to see if N levels are dropping.
- NResponse contains 1% Sulfur, but applications did not elevate the tissue Sulfur level, although actual Sulfur applied is low. But Sulfur levels of all treatments were Sufficient.
- Interestingly, Iron tissue levels increased from Low to Sufficient with Nitrogen application.
- This was an NCRS summer intern project developed by Michigan State University student Karson Spiker.