

## 2018 Agrocete® Foliar Products in Soybeans

### Background:

Agrocete® has developed a suite of products for foliar feeding in soybeans. This company's products, GRAP® and GRAP® Super Gun, are popular in Brazil. GRAP contains 7 percent magnesium while GRAP Super Gun contains 5 percent nitrogen and 16 percent P<sub>2</sub>O<sub>5</sub>. In University of Illinois testing, these products showed a yield advantage with significantly more branching. In this research, the Iowa Soybean Association On-Farm Network® was seeking to understand the level of yield enhancement for these products under Iowa farming conditions and soils.

### Protocol:

In replicated strip trials, GRAP was applied with GRAP Super Gun near the V5 growth stage of soybeans. Plot sizes were generally the length of the field, from 1,000- to 2,000-feet long, with one to two passes of a commercial sprayer. Rates of GRAP were 7 oz/acre and GRAP Super Gun was applied at 1.7 oz/acre.

Field observations for enhanced vigor, stay green and greater branching were made throughout the season. Aerial images of the fields were collected in mid-August. Fields were harvested with a combine equipped with a GPS-enabled yield monitor.

Yield data was cleaned according to commercial standards and outliers removed. Statistical analysis included generally accepted mixed model methodology by location and across location analysis.

### Outcome:

The On-Farm Network researchers did not see any evidence of greater vigor, increased stay green or increased branching at any of the six locations (data not shown).

Following the trend of absence of visual effects, there was no statistical yield advantage for the Agrocete products (Table 1).

Iowa soils generally have neutral pH and are not limited by available magnesium. Further, soil test values for phosphorous in Iowa are generally high and not yield limiting. This could explain the lack of yield response in these trials.

**Table 1. Soybean yield response to Agrocete® products.**

Location	Agrocete	No-Agrocete	Difference	Pr>t <sup>1</sup>
	-----yield (Bu/A)-----			
92	52.5	51.9	0.6	0.65
114	42.7	42.9	-0.2	0.87
139	63.9	64.1	-0.1	0.83
140	63.1	64.2	-1.1	0.37
175	54.2	53.1	1.2	0.56
220	70.5	71.3	-0.8	0.38
Average	58.0	58.2	-0.2	0.82

<sup>1</sup>Pr>t is the level of significance. Values below 0.15 indicate the treatment differences were greater than we expect to observe by chance alone. In this study none of the locations responded significantly to Agrocete products.