

# GRASSHOPPER

## *Advanced Liquid Fertilizer*

### Research and Development

2009 Soybean Test GH602

**Crop:**

Soybeans; Asgrow 5501

**Test Plot Location:**

Agricultural Lab, Newport High School  
Newport, AR

**Soil Type:**

Sand

**Planting Date:**

June 2, 2009

**Planting Methods:**

No-Till; 7 ½ inch row spacing

**Agronomists, Crop Scouts, Facilitators or Witnesses:**

Mr. Steve Davis  
Mr. Danny Garland

**Objective:**

The objective of this test was to measure bushel per acre yield increase in Soybeans when applying Grasshopper Fertilizer at the pre-bloom stages (V-3 to R-1).

**Materials and Methods:**

Materials used and methods for this experiment were as follows; The soybeans were Asgrow category 5. They were planted on June 2<sup>nd</sup> 2009 following a wheat crop. A No-Till Drill was used with 7 ½ inch row spacing. Grasshopper Fertilizer 9-15-30-5 containing micronutrients (Boron .02, Copper .05, Iron .10, Manganese .05, Molybdenum .001 and Zinc .05) was the brand of fertilizer. The 9-15-30-5 blend was applied at a rate of 12.5 lbs per acre at the V-3 and then the R-1 stage. A test and control section was measured and marked in the field to accurately record and measure data.

**Table I.** Applications

Fertilizer	Rate	Stage	Soil Condition	Response
Grasshopper Fertilizer 9-15-30-5  06/20/09	12.5 lbs	V-3 3 <sup>rd</sup> Trifoliolate	Dry	Increase in Root Development Increase in Nodulation
Grasshopper Fertilizer 9-15-30-5  07/27/09	12.5 lbs	R-1 Beginning Bloom	Wet	15 % Pod Increase
Control	0	0	0	0

### Results and Discussion:

#### 1<sup>st</sup> analysis:

Five weeks after the second application, plants were pulled and a comparative analysis was conducted between those from the test area and the control area. 10 plants were randomly pulled from each section. The soybeans from both sections were equal in height. Visibly, there was little difference at this stage V6. There was a very large and noticeable increase in the root size of the soybeans sprayed with Grasshopper Fertilizer – much larger tap roots and 3-4 times more feeder roots. There was also a significant increase in the number and size of the nodules on the soybeans that were sprayed with Grasshopper Fertilizer. In addition, the soybeans that were not treated had started to bloom and set pods pre-maturely. The soybeans that were sprayed with Grasshopper Fertilizer were still developing and pulling nitrogen while in the vegetative stages.

#### 2<sup>nd</sup> analysis:

4 weeks after the 1<sup>st</sup> analysis, plants were pulled for more comparative data between the test area and the control area. There was an average of 15 % more pods on the test plants. Because of above average rainfall late in the growing season, no noticeable difference in plant height was obtained. I do feel that in a more normal rainfall pattern, the test beans would have been more tolerate of dry conditions because of the amount of root growth exhibited.

#### 3<sup>rd</sup> analysis:

The 2 soybean sections were separately harvested in the 1<sup>st</sup> week of November. The test section that was sprayed with Grasshopper Fertilizer yielded 40 bushels per acre. The control section yielded 31 bushels per acre. The test section that was sprayed with Grasshopper Fertilizer had a yield increase of 9 bushels per acre. The cost for the Grasshopper Fertilizer applications was a total of \$40 per acre. The revenue increase per acre was \$90 (soybean

average of \$10 per bushel). The net revenue increase per acre with Grasshopper Fertilizer was \$50.

Note:

The month of June was extremely dry. The soybeans received an estimated 1-3 inches of rain during the Vegetative stages (in June). The months of July and August were extremely wet with a combined rainfall of 24 inches. These extreme weather conditions were very challenging for soybeans in the area. It is our belief that the test section that was sprayed with Grasshopper Fertilizer would have had an even greater yield increase under more normal weather conditions.

**Table II: Yield and Revenue per acre**

Section	Cost	Bushel per acre	Increase	Revenue per acre
Grasshopper Fertilizer 9-15-30-5 2 applications	\$40 Total	40	9	\$400
Control	\$0	31	0	\$310

**Conclusion:**

Fertilizers have been proven to play an important role in crop production. Although many commercial fertilizers have been shown to increase yields, many of these products are unable to generate a yield increase large enough to cover the input cost of the fertilizer application. Grasshopper Fertilizer is the exception. On average, Grasshopper Fertilizer has generated a revenue increase per acre that is 2-3 times greater than the input cost of the application. By increasing root development and supplying nutrients directly to the plant, Grasshopper Fertilizer helps the plant achieve maximum growth throughout a variety of adverse growing conditions.

Our Research and Development Department will continue testing soybeans in addition to corn, wheat, cotton, milo, rice, alfalfa, grass hay, canola, etc. We will also be working with a number of Universities and Agriculture Departments who will be participating in these tests.

**Images:**



**Misc Images:**

