

GRASSHOPPER

Advanced Liquid Fertilizer

Research and Development

2009 Soybean Test LF808-BN

Crop:

Soybeans; Pioneer

Test Plot Location:

Bonham, TX

Soil Type:

Sand

Planting Date:

June 18, 2009 (Double Planted)

Planting Methods:

No-Till

Agronomists, Crop Scouts, Facilitators or Witnesses:

Mr. John Minoletti

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 stage - R-1.

Materials and Methods:

Materials used and methods for this experiment were as follows; The soybeans were Pioneer category 5. They were planted on June 18nd 2009 following a wheat crop. These soybeans were then re-planted. A No-Till Drill was used for both plantings. Grasshopper Fertilizer 20-20-20 containing micronutrients (Boron .02, Copper .05, Iron .10, Manganese .05, Molybdenum .001 and Zinc .05) with Grasshopper Excel was used. The 20-20-20 blend was applied at a rate of 12.5 lbs per acre at the R-1 stage. Excel was applied at a rate of 10 oz per acre. 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 20-20-20	12.5 lbs	R-1 Beginning Bloom	Average	Increase in Root Development
Grasshopper EXCEL 08/08/09	10 oz			Increase in Nodulation
Control	0	0	0	0

Results and Discussion:

1st analysis:

Two weeks after the application, plants were pulled and a comparative analysis was conducted between those from the test area and the control area. 15 plants were randomly pulled from each section. When pulling the treated plants, the root system has attached itself to the soil, pulling up 3-4 times more soil with each plant. The soybeans from both sections were similar in height. The soybeans in the treated section were a slightly darker green. Because the soybeans were double planted, it was difficult to collect accurate data regarding height and development at this stage. There was a very large and noticeable increase in the root size of the soybeans sprayed with Grasshopper Fertilizer – much larger tap roots and 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.

2nd analysis:

4 weeks after the application, plants were pulled to analyze additional comparative data between the test area and the control area. There was an average of 15-20 % more pods on the test plants. In addition, these pods were developing at an accelerated rate. Because of above average rainfall late in the growing season, there was only a slight difference in plant height. 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.

3rd analysis:

The 2 soybean sections were separately harvested late in the 4th week of November because of extremely wet conditions. The test section that was sprayed with Grasshopper Fertilizer yielded 54 bushels per acre. The control section yielded 46 bushels per acre. The test section that was sprayed with Grasshopper Fertilizer had a yield increase of 8 bushels per acre. The cost for the Grasshopper Fertilizer applications was a total of \$22 per acre. The revenue increase per acre was \$80 (soybean average of \$10 per bushel). The net revenue increase per acre with Grasshopper Fertilizer was \$58.

Note:

The month of June was extremely dry. The soybeans received an estimated 2-3 inches of rain during the Vegetative stages (in June). The months of July and August were extremely wet. 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 20-20-20 1 applications	\$22 Total	54	8	\$540
Control	\$0	46	0	\$460

Net Revenue Increase per acre with Grasshopper Fertilizer & EXCEL = \$58

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:



Root Comparison



Root Comparison

