GRASSHOPPER
Advanced Liquid Fertilizer

Research and Development

2009 Soybean Test LF808-HG

Crop:
Soybeans; Pioneer

Test Plot Location:
Honey Grove, TX

Soil Type:
Sand

Planting Date:
June 18, 2009 (Double Planted)

Planting Methods:
No-Till

Agronomists, Crop Scouts, Facilitators or Witnesses:
Mr. Danny Garland
Mr. G.W. Sharp
Mr. Larry Foster

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 5nd. A No-Till Drill was used for planting. 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 Grasshopper EXCEL 08/08/09	12.5 lbs 10 oz	R-1 Beginning Bloom	Average	Increase in Root Development 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 the treated section were 2-3 inches greater in height. The soybeans in the treated section were a slightly darker green. 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. The treated section had an average count of 114 pods. The untreated section had an average pod count of 87. 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:
Harvest: This field was owned and operated by a 3rd party. Because of the extremely wet conditions, the soybeans were sold to and harvested by a 3rd party. As a result, there was not an accurate separation of the 2 sections when harvesting. The field

average was 53 bushels per acre. From the data collected in the 2nd analysis, we estimate an average bushel per acre increase of 10+ bushels per acre. The cost for the Grasshopper Fertilizer applications was a total of $22 per acre. With our estimate, the revenue increase per acre would be $100+ (soybean average of $10 per bushel). The net revenue increase per acre with Grasshopper Fertilizer would be $78+.

Table II: Yield and Revenue per acre

Section	Cost	Pod Count	Increase	Percent Increase
Grasshopper Fertilizer 20-20-20 1 applications	$22 Total	114	27	31%
Control	$0	87	0	0

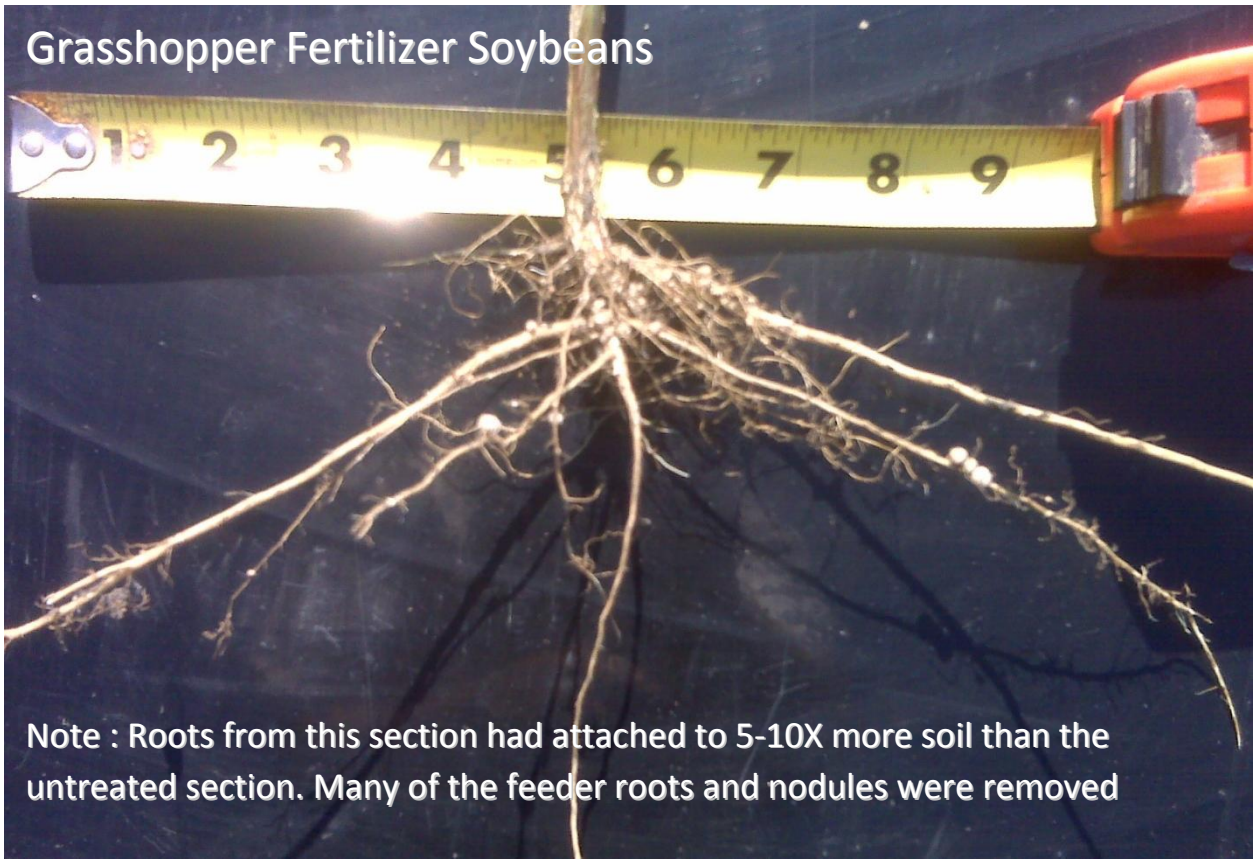
Conclusion:

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:


Untreated Soybeans


Grasshopper Fertilizer Soybeans
Note : Roots from this section had attached to 5-10X more soil than the untreated section. Many of the feeder roots and nodules were removed

Control – Untreated Section

Grasshopper Fertilizer Section