Effect of Foliar Application of Sulfur and Manganese on Soybeans

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Objective

To evaluate grain yield response of soybeans to liquid manganese chelate with sulfur (EEZY MAN) when applied at soybean growth stage R3/R4.

Background

Crop Year:	2013	SCN Count Test 3:	1689 eggs per 100cc
Location:	OSU Unger Farm	Soybean Planting Date:	May 16, 2013
County:	Crawford	Soybean Variety:	Pioneer P93Y06
Soil Type:	Blount/Pewamo	Herbicide:	3.5 oz Canopy, 1 qt glyphosate
Drainage:	Systematic		
Previous Crop:	Corn	Herbicide Post:	1 qt glyphosate 2 times
Tillage:	No – tillage	Treatment Date:	July 25 2013
Soil Test:	pH 5.9, P 50 ppm, K 146 ppm	Soybean seeding rate:	168,000 seeds/acre
SCN Count 1:	0 eggs per 100cc (drained)	Date of Harvest:	October 2, 2013
SCN Count 2:	2920 eggs per 100cc	Rain fall:	25.57 inches (5/16-10/2)

Methods

Pioneer P93Y06 soybeans were planted at a rate of 168,000 seeds per acre on May 16th with a Great Plains 2010P, 10 inch precision drill. The following herbicides were applied on April 24: Canopy at a rate of 3.5 oz/acre with 1 quart/acre glyphosate. Postemergence weed control was accomplished with two applications of 1 quart of glyphosate/acre, applied on June 18 and July 22. The study was conducted both on systematically tiled ground and spot tiled ground (same field).

This study used a randomized complete block design with two treatments replicated four times to compare EEZY MAN at 2 qts/acre treated plots and an untreated control. EEZY MAN (manufactured by The Andersons) contains 2% combined sulfur and 5% chelated manganese by weight. Label suggested rates were 1-2 qts/acre in 10 -20 gallons of water/acre. Plots were treated on June 25 with a 10 foot CO_2 plot sprayer. Each plot was 10 feet wide and 40 feet long. Plots were trimmed to 35 feet in length. Plots were harvested on October 2nd using a Hege 140 small plot combine harvesting the center five feet of the plot and the entire 35 foot length.

Treatments

1) EEZY MAN at 2 qts/acre applied in 15 gallons of water at 40 psi
2) Control (no application of EEZYMAN)

Results

Table 1. Soybean grain yield (adjusted to 13% moisture) in well-drained soil

Treatment	Mean yield (bu/acre)
EEZY MAN @ 2qts/ac	54.6
Control	56.2

F=.3,P>F=.6, NS; CV =7

Table 2. Soybean grain yield (adjusted to 13% moisture) in poorly-drained soil

Treatment	Mean yield (bu/acre)
EEZY MAN @ 2qts/ac	42.7
Control	39.5

F=.33, P>F=.59, NS; CV =18.9

Summary

There was not any treatment effect observed over the two field sites (same field, but different drainage). EEZY MAN cost $12.32 per acre at the rate used and another $10.00 for application and adjuvants for a total cost of $22.32 per acre. Soybeans were priced at $12.23 (cash) on 10/2/13. Therefore, to cover the cost of material and application, 1.8 bushels of soybeans per acre would be required.

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