Effect of Urea Applied on R3 Soybeans in a Modified Relay Intercrop System

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Objective
To evaluate grain yield response of modified relay intercropped (MRI) soybeans to urea applied at soybean growth stage R3.

Background
Crop Year: 2013
Location: OSU Unger Farm
County/Town: Crawford
Soil Type: Blount/Pewamo (silty clay)
Drainage: Systematic
Previous Crop: Wheat
Tillage: No – tillage
Soil Test: pH 6.2, P 34 ppm, K 152 ppm
SCN Count: (MRI area) 1160 eggs/100cc
Row width: 10 inches
Fertilizer (lbs N-P-K): 95-58-78
Soybean Planting Date: June 5, 2013
Soybean Variety: Pioneer P93Y24
Seeding Rate: 225,000 seeds/acre
Herbicide (Post): 1 qt glyphosate (7/22)
Treatment Dates: August 14, 2013
Date of Harvest: October 29, 2013
Rain fall: 25.57 inches (5/16-10/2)

Methods
Soybeans were interseeded into standing wheat with 10 inch row spacing on June 5, 2013 with a Great Plains 2010P precision drill mounted on a 3 point hitch with lift assist wheels. Pioneer P93Y24 were planted at a rate of 225,000 seeds per acre. Wheat was harvested on July 12, 2013. Wheat averaged 70 bushel per acre in the field. An application of 1 quart of glyphosate was applied on July 22.

This study used a randomized complete block design with treatments replicated 4 times to compare the treatment yield effect of urea at 32 pounds nitrogen/acre and a control (no nitrogen applied). Plots were treated on August 14, 2013 with urea utilizing a broadcast spreader, when soybeans were in the R3 growth stage by broadcasting urea at a rate of 32 lbs. actual nitrogen per acre. Plots were 10 by 44. Plots were harvested on October 29, 2013 using a Kincaid 8-XP small plot combine harvesting the center five feet of each plot.

Treatment 1
1) Urea at 32 lbs nitrogen/acre
2) Control (no nitrogen)
Results

Table 1. Yield of MRI soybeans (adjusted to 13% moisture)

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Mean yield (bu/acre)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urea</td>
<td>54.3</td>
</tr>
<tr>
<td>Control</td>
<td>54.2</td>
</tr>
<tr>
<td>F=0, NS; CV =7.99</td>
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</tbody>
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Summary

This study was conducted at OSU Unger Farm in north central Ohio where Modified Relay Intercropping (MRI) is practiced. This trial was conducted to determine if there is a yield response to added nitrogen. In 2013, there was a not a significant difference in soybean yield observed between the urea application (added nitrogen) and the control.

Acknowledgement

The authors express appreciation to Chuck Smith for his cooperation and aid in the planting of this trial.

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