2010 Demonstration Report

THE LEARNING CENTER

at Monmouth, Illinois

Managing Soybeans for High Yield Potential

While soybean maximum yield potential is genetically determined, actual yield potential depends on environmental conditions and management practices. Growers are considering additional inputs and management practices to more fully exploit the genetic potential of soybean. Studies have shown that stress mitigation practices such as maximizing nutrient availability and reducing competition from weed, disease, and insect pressure can increase soybean yield potential. Rhizobium inoculant, foliar fungicide, foliar insecticide, and sugar application are several inputs being examined for their effect on soybean yield potential.

Study Guidelines

A demonstration trial was conducted at the Monsanto Learning Center near Monmouth, IL in 2010 to evaluate the addition of single and multiple inputs on soybean yield. Both 3.0 and 3.5 maturity soybeans with Genuity® Roundup Ready 2 Yield® technology were planted. Row spacings of 15-inch and 30-inch were examined. Soybeans were planted on April 20 and harvested on October 7. Testing was conducted in a conventional tillage scenario using a chisel plow in the fall and soil finisher in the spring. The treatments were as follows:

Untreated check
Rhizobium inoculant (RI)
Foliar Fungicide @ R3 (FF)
Foliar Insecticide @ R3 (FI)
RI + FF
RI + FI
FF + FI
RI + FF + FI
2 lbs Sugar/acre @ R1 + FF + FI
RI + Sugar + FF + FI

Results and Discussions

2010 soybean yields were higher than average for the Monmouth Learning Center and surrounding areas. With the exception of one data anomaly, 15-inch rows showed an advantage of 2 bu/a over 30-inch row spacing in this trial (Figure 1). Across all Learning Center trials in 2010, 15-inch rows showed a 3 bu/a advantage over 30-inch rows (data not shown). This is consistent with both university and Monmouth Learning Center Data collected over the past several years.

Little to no yield response was seen in the individual fungicide and insecticide treatments (Figure 2). In addition, little difference was noted between the 3.0 and 3.5 maturity soybeans; therefore, these data were combined. However, when fungicide and insecticide applications were combined, an increase of approximately 4 bushels was observed (Figure 2). This positive yield response was in spite of the fact that insect and disease pressures were observed to be lower than normal. This could mean that responses to fungicide and insecticide applications would be even greater in a year with higher pressures. It is important to note that this trial represents only one data point and no definitive conclusions can be drawn from these results. More study is needed, and we will continue to look at these strategies more thoroughly in the coming seasons.

The addition of foliar applied sugar is a practice of interest to many area soybean farmers. However, this treatment showed no benefit in this trial.

The combination of inoculant, fungicide, and insecticide in this trial yielded 4.6 bu/a more than the untreated check and represented an input cost of approximately $26 per acre (excluding application cost). Therefore, break-even price for soybeans would be approximately $5.65 per bushel. At the time of harvest, the cash soybean market was approximately $10 per bushel, resulting in a $20 per acre profit for the combination of inoculant, fungicide, and insecticide.

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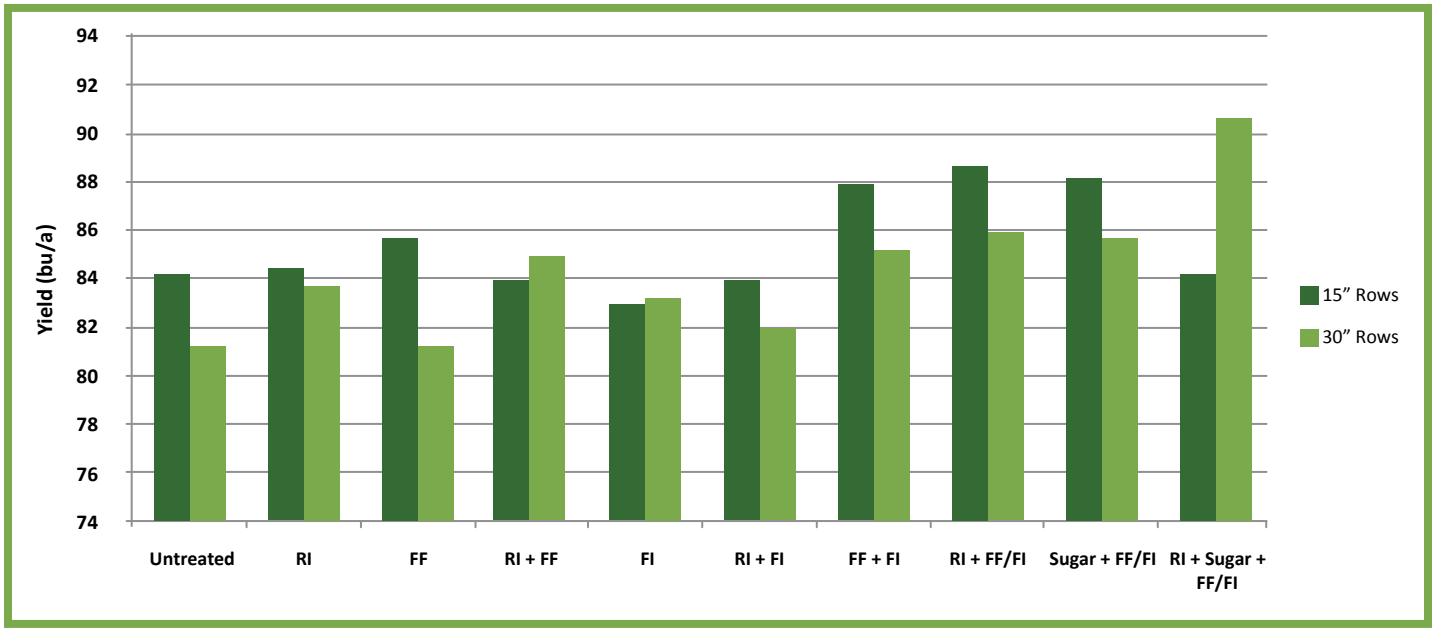

Figure 1. Effect of additional inputs and row spacing on soybean yield. Results averaged across two maturities in 2010.

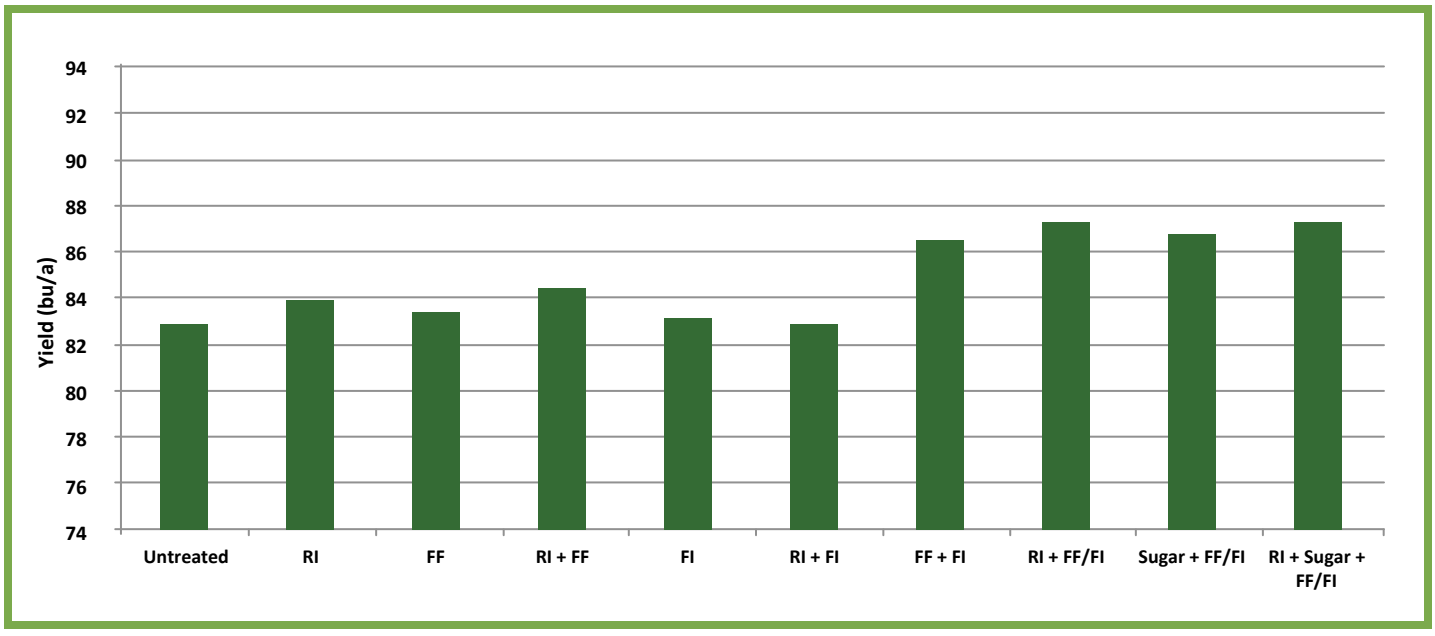

Figure 2. Effect of additional inputs on soybean yield. Results averaged across two maturities and two row spacings in 2010.

The information discussed in this report is from a single site, non-replicated, one-year demonstration. This informational piece is designed to report the results of this demonstration and is not intended to infer any confirmed trends. Please use this information accordingly.

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