Evaluation of Seed Treatments in Soybeans at Different Planting Dates

Acceleron® seed treatment products provide protection against fungal root and seedling diseases as well as early season insect damage, such as bean leaf beetle and aphids. In addition, Acceleron® seed treatment products may improve plant health through more rapid and increased emergence of seedlings under certain colder conditions.

Study Guidelines

A demonstration trial was conducted in 2010 at the Monsanto Learning Center at Gothenburg, NE to compare the yields of soybeans treated with Acceleron® seed treatment products and un-treated soybeans across three planting dates.

The Acceleron® seed treatment products contain a fungicide combination of pyraclostrobin and metalaxyl, the insecticide imidacloprid and a plant health agent known as the harpin protein. Two soybean varieties were evaluated with relative maturities (RM) of 2.5 and 3.1. The varieties were planted at a population of 160,000 plants/acre at three planting dates: early (April 19th), medium (May 14th) and late (May 26th). The plots were two row, side by side comparisons. One two row entry contained soybeans with Acceleron® seed treatment products and the other two row entry contained soybeans with no seed treatment. This provided a side-by-side treatment comparison for both varieties of soybeans.

Results and Discussion

On average, the soybeans treated with Acceleron® seed treatment products had a 2.6 bu/acre yield advantage across varieties and planting dates, compared to the untreated soybeans (Figure 1). This yield advantage was larger at some planting dates and varieties (Figure 2). Average yields of each variety, at each planting date, indicate that soybeans treated with Acceleron® seed treatment products out-yielded the untreated soybeans at all planting dates and both varieties, with the exception of Variety 1 (RM 2.5) planted on April 19th. In this case the low yield of the soybeans with Acceleron® seed treatment products may have been a result of heavy residue on that portion of the plot or soil temperatures below 50° F that occurred during that early planting date. Figures 3 - 5 show visual comparisons of soybean plants from this trial. Finally, average yields at each planting date indicate the two earlier dates (April 19th and May 14th) had higher yields compared to the later May 26th planting date (Figure 6).

Figure 1. Average soybean yields with and without Acceleron® seed treatment products across varieties and planting dates at the Monsanto Learning Center near Gothenburg, NE in 2010.

Figure 2. Average soybean yields with and without Acceleron® seed treatment products for both varieties and all planting dates at the Monsanto Learning Center near Gothenburg, NE in 2010.

Figure 3. An example of the vigor that soybeans with the Acceleron® seed treatment products had compared to the untreated soybeans at the Monsanto Learning Center near Gothenburg, NE in 2010.
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Conclusions

- In this trial, the soybeans treated with Acceleron® seed treatment products had higher yields compared to untreated seeds in 5 out of 6 comparisons.
- Different planting dates were utilized to help quantify the value of a seed treatment at early, normal and late planting dates. The earlier planted soybeans had higher yields compared to the later planted soybeans.
- Results observed in this trial were similar to research from the University of Nebraska at Lincoln (UNL) which encourages growers to plant between late April to mid-May for maximum yield potential.
- Based on the UNL research and results from this study, using soybeans treated with Acceleron® seed treatment products when planting early may help avoid insect damage to the seed before germination and provide better protection from fungal root and seedling diseases which can maximize yield potential.