SOYBEAN PRODUCTIVITY RESPONSE TO DIFFERENT MANAGEMENT PRACTICES

TRIAL OVERVIEW

- Modern agriculture is equipped with advanced seed germplasm for optimum productivity.
- Farm operations make every effort to harness as much of the inherent yield potential as possible using some form of agronomic practices.
- The performance of such germplasm as influenced by these agronomic practices needs to be evaluated to understand how they complement these elite seed genetic products.

RESEARCH OBJECTIVE

- To evaluate the impact of in-season agronomic practices on the yield and profitability of soybean.

Location	Soil	Previous Crop	Tillage Type	Planting Date	Harvest Date	Potential Yield/Acre	Planting Rate/Acre
Huxley, IA	Clay Loam	Corn	Conventional	06/01/2017	10/20/2017	60 bu/acre	140,000 seeds/acre

SITE NOTES:

- A 2.7 maturity group soybean product was planted in 200 ft. long strips.
- The trial was carried out in 30-inch row spacing, 6 rows/treatment, with 2 replications.
- Acceleron® Seed Applied Solutions was the base seed treatment. In-season agronomic practices consisting of potassium (K), nitrogen (N), and fungicide with insecticide (FI) were compared in incremental stair-step treatments (Table 1).
- 32% UAN was applied to deliver 40 lbs/acre of N.
- Ele-Max® K-Leaf 0-0-30, the K brand used, was applied at 1 quart/acre.
- Headline AMP® fungicide and Mustang® Maxx insecticide were used for the foliar fungicide and insecticide treatment.

UNDERSTANDING THE RESULTS

Treatments	Input	Cost ($/acre)
A	Acceleron® Seed Applied Solutions (A)	$ -
A+K	Foliar Potassium at R3 (K)	$ 6.59
A+N	Side dress 32% UAN at R3 (N)	$ 9.20
A+FI	Fungicide with Insecticide at R3 (FI)	$ 32.00
AFI+N	Fungicide with Insecticide + Side dress 32% UAN (FI+N) at R3	$ 41.20
AFI+K	Fungicide with Insecticide + Potassium (FI+ K) at R3	$ 38.59

Table 1. Treatments used in trial.

- Yields increased as inputs were added such that the base treatment (A) yielded the lowest and the 3-way stacked treatment (AFI+K) yielded the highest.
- Treatment with potassium (A+K), treatment with fungicide/insecticide (A+FI) and treatment with nitrogen (A+N), had the same yield response of 5 bu/acre over the base treatment of only Accerleron® Seed Applied Solutions (A).
- Yield gained by the other treatments over the base treatment was enough to provide higher economic returns than the base treatment; with return on investment (ROI) ranging from $13 - $38.
- The addition of K to the base treatment (A+K) provided the highest ROI of $464/acre.

WHAT DOES THIS MEAN FOR YOUR FARM?

- Every growing season is different, which has a significant impact on the performance of farm inputs. During the 2017 growing season, the research site experienced drought and high temperatures, which negatively impacted product performance. The yields reported in this trial are generally lower than the site average.

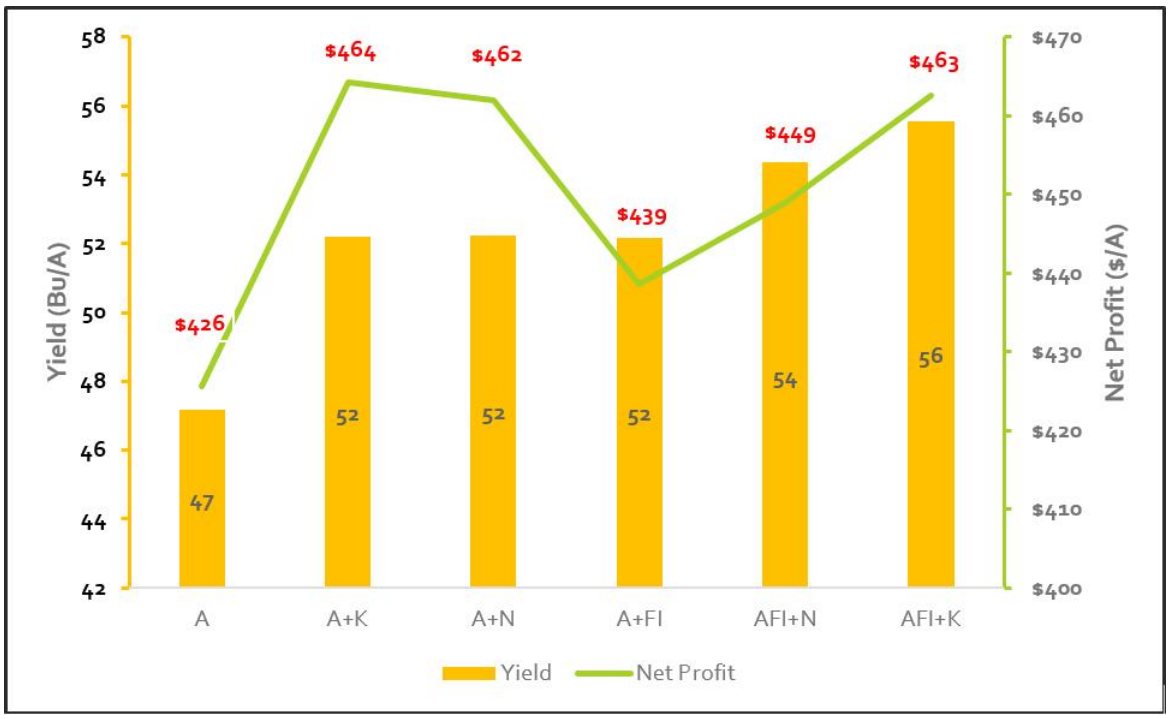

Figure 1. Yield and net profit of different treatments.

- Soybean products also respond differently to farm inputs. As such, it is important that growers have a good discussion with their trusted Agronomists on how well a product of interest performs under different growing conditions and management practices.
- Growers should also make a habit of performing small scale trials on their fields to understand how their management systems impact the economics of their operation.