

PLANTING RATE: 128,800 plants/ac

DESIGN: Randomized strip plots, 3 replicates per treatment

RESEARCHER(S): Data compiled and submitted by The Farm Research Center, LLC, Garden City, MO.

Write up of results by Kyle Lilly, CCA and Dr. John D. Bailey, PhD, Timac Agro USA.

## OBJECTIVE

The current study was conducted to determine the effects of Fertiactyl LEG (aka Fertiactyl ST) and BioSinc treated soybean seeds on final grain yield compared to competing soybeans treatments.

## INTRODUCTION

Optimize contains a molecule important for nodulation formation, BigYieldCoat is a liquid bacterial product containing various *Bacillus* spp. strains, Fertiactyl LEG is a root biostimulant that contains cobalt and molybdenum (important for bacterial metabolism and growth) whereas BioSinc is Fertiactyl LEG + live rhizobial bacteria.



Three randomly chosen plants from individual plots. From L to R: Control (no seed treatment), Fertiactyl LEG, BigYieldCoat, BioSinc, and Optimize.

## KEY FINDINGS

**+4 bu/ac**  
**Fertiactyl LEG vs.**  
**Untreated Control**

## DETAILED RESULTS

Results are shown in Table 1. Soybeans that were treated with Fertiactyl LEG showed the highest numerical average yield across all treatments, and yielded an additional 4 bu/ac compared to control. The next highest yields were BioSinc and BigYieldCoat treatments at +2 bu/ac above the Control. Finally, Optimize was 1 bu/ac over the Control. Environmental stresses and products' abilities to help the crop cope with stress may have affected the final yields. The soybeans were planted the last week in May. During the month of June there was a two week period of high temperatures, low moisture, and high winds.

The anti-stress molecule found in Fertiactyl LEG and BioSinc, glycine betaine, may have helped the crop adapt to these stresses better than the other treatments which do not contain this molecule. Although BioSinc also contains this molecule, it is at a lower concentration. This may account for the difference in yield between Fertiactyl LEG and BioSinc. This coupled with adequate background population of rhizobia in the soil could also explain the difference in yield between LEG and BioSinc. The soil type was fine textured with a neutral pH and had been in a soybean rotation recently.

**Table 1. Effects of various seed treatments on grain yield and gross revenue in soybeans**

Treatment	Yield (bu/ac)	Yield Difference vs. Control	Gross Revenue/ac @ \$9.90/bu
Fertiactyl LEG (aka Fertiactyl ST)	63 <sup>a</sup>	+4 bu/ac	\$623.70
BioSinc	61 <sup>a,b</sup>	+2 bu/ac	\$603.90
Big Yield Coat	61 <sup>a,b</sup>	+2 bu/ac	\$603.90
Optimize	60 <sup>a,b</sup>	+1 bu/ac	\$594.00
Control	59 <sup>b</sup>	-	\$584.10

\*Means with different superscripts are statistically different ( $P < 0.05$ )