



Fertilizer Program Comparisons in Soybeans: Multi-year Results (714/715)

Experiment Info:

Planted:
Harvest:
Yield Goal:
Target Fert.:
Variety:
Population:
Row Width:
Prev. Crop:
Plot Size:
Replications:

Soil Test Values (ppm):

pH:
CEC:
%OM:
Bray P1:
Bicarb P:
K:
S:
%K:
%Mg:
%Ca:
%H:
Zn:
Mn:
B:

Objective:

Evaluate different fertilizer programs in soybeans for effects on soybean yield.

This is the companion experiment with the program comparisons in corn "Fertilizer Program Comparisons in Corn (715/714)". Paired treatments are rotated in the same plots each year of the experiment. One of the treatments is a foliar application of Sure-K plus Manganese. This treatment has yielded well for many years since being evaluated at the NCRS over twenty years ago. In fact, a well-timed foliar application has often produced yields that are higher than those from a treatment that applied a higher rate through the planter. It is thought that the nutrients are absorbed and translocated through the plant just prior to reproductive stages where they are utilized in pod formation. This soil has adequate phosphorus levels, so only potassium is added for soybeans.

Fertilizer Program Effects on Yield of Soybeans in 15" Rows. Programs applied to the same plots in a corn - soybean rotation. North Central Research Station. Data shown are average of four replications.

Program	Fertilizer Placement	2011	2012	2013	2014	2015	Average
1 No Fertilizer	No fertilizer (N sidedressed only in corn)	70.3	81.8	61.4	61.1	68.1	68.5
2 Agroliquid planter	5 gal Sure-K + 1 qt Micro 500 (in furrow)	77.5	89.6	66.2	66.7	70.4	74.1
3 Agroliquid foliar	3 gal Sure-K + 2 qt Manganese (foliar V4)	75.8	87.8	71.6	66.7	71.3	74.6
4 Low Rate Potash	20 lb 0-0-62 (Fall after 2013 soybeans)	76	85.6	63.4	63.8	68.3	71.4
5 Potash	200 lb 0-0-62 (Fall after 2013 soybeans)	73.1	83.6	63.2	65.9	68.5	70.9
6 Potash	200 lb 0-0-62 (Fall after 2013 soybeans)	72.9	84	64.1	64.9	67.3	70.6
		74.3	85.4	65.0	64.9	69.0	71.7

Conclusions:

- Highest five-year average yield was obtained with the foliar treatment. The planter applied Sure-K was very close in average yield, although two more gallons per acre per year was applied.
- The potash application treatments were around three bushels per acre lower than the Agroliquid treatments. Oddly enough, the low rate potash treatment had a higher yield than the full-rate potash treatments.
- Although yields were good in 2015, the treated plots produced yields only slightly more than that of the check. This summer had low rainfall of around 2" per month in July and August. There was timely rainfall in early season that promoted good early growth, but lower rainfall during reproductive stages perhaps lowered yield. In spite of being dry in late summer, there was not excessive heat which enabled yields that were still respectable.