

## Soybean Potash Fertilizer Application Rate Trial 2004, Greenville OH

Conducted by:

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### Objective

To determine the need for applied potash fertilizer in a soybean crop.

### Background

County:	Darke	Herbicide:	glyphosate + 2,4-D
Soil Type:	Eldean- Miamian and Miamian		preplant, glyphosate in crop
Drainage:	surface, non-systematic tile	Variety:	Pioneer brand 92M71 and 93B09
Previous Crop:	corn	Row Width:	7.5 inch
Tillage:	no till	Planting Rate:	160,000 seeds/A
Soil Test (2002):	pH 5.9, LTI 66, CEC 14, P 162 lbs/A, K 393 lbs/A	Planting Date:	April 10, 2004
Fertilizer applied:	varies with treatment	Harvest Date:	September 28, 2004
	0 lbs/ A,		
	110 lbs/ A 0-0-61 or		
	231 lbs/A 0-0-61		

### Methods

The trial was conducted at the Darke County South Farm near Greenville Ohio, on Eldean-Miamian and Miamian soils with the Eldean-Miamian areas somewhat eroded. The site was a production soybean field in a corn-soybean rotation. The trial was designed as a randomized complete block with four replications of zero potash fertilizer added, 110 pounds of 0-0-61 analysis potash fertilizer (67 lb/A K<sub>2</sub>O) applied and 231 pounds of 0-0-61 analysis potash fertilizer (141 lb/A K<sub>2</sub>O). Treatments were applied one day before planting.

We used a Great Plains no-till drill to plant two varieties of soybeans split in the drill in 40 foot wide plots. The commercial broadcast fertilizer applicator spread on 40-foot centers and was operated in the center of each 40-foot wide plot. Harvest was with a production combine with one swath taken from the center of each plot with weight and moisture determined. Plot size harvested was 22 feet wide by 465 feet long.

Data analysis was performed using Microsoft XL, Analysis of Variance – two factor.

## Results

Table 1. Soybean Potash Fertilizer trial Greenville, Ohio, 2004.

<u>Treatment</u>	<u>Yield bu/A</u>			
0 lb K <sub>2</sub> O	60.3			
67 lb K <sub>2</sub> O	61.7			
141 lb K <sub>2</sub> O	56.5			
	NS	Not significantly different at 5% level		
ANOVA	df	F	P-value	F crit
Treatments	2	0.9615	0.4343	5.1433

## Summary

With the implementation of the Tri-State Fertilizer Recommendations, some have concerns that Ohio and other eastern cornbelt states are applying less potash fertilizer than needed. There are also concerns that applying potash ahead of corn in the corn-soybean rotation may lead to shortages in the soybean crop.

Our one-year trial results shown in Table 1 indicate that soil potash levels were adequate to produce a 60 bushel per acre crop. Additions of 110 pounds per acre or 231 pounds per acre of 0-0-61 analysis fertilizer did not improve yields.

Submitted by Harold Watters.