

Phosphorus Fertilizer vs. No Fertilizer-Soybeans

Brian Rouse

Private Industry Cooperator: Steve Mills

OBJECTIVE: To determine and document the profitability of using phosphorus fertilizer versus no fertilizer on soybeans.

FERTILIZER

Treatment:

Disk

Disk

Fertilize: 1992-18-46-0, 124 pounds/acre
1993-18-46-0, 100 pounds/acre
1994-1 1-52-0, 126 pounds/acre

Herbicide: 1992-1 quart Treflan, .5 pints
Command and .5 pints Scepter

1993-1 quart Prowl, .5 pints
Command and 2 ounces Scepter

1994-1 quart Treflan, .5 pints
Command, .5 pints Scepter, 12
ounces Poast + , .5 pints Crop Oil
and .5 ounces Classic

Plant

Cultivate: 1992-1993

Rouge

Harvest

NO FERTILIZER

Treatment:

Disk

Disk

None

Herbicide: 1992-1 quart Treflan, .5 pints
Command and .5 pints Scepter

1993-1 quart Prowl, .5 pints
Command and 2 ounces Scepter

1994-1 quart Treflan, .5 pints
Command, .5 pints Scepter, 12
ounces Poast + , .5 pints Crop Oil
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Plant

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FERTILIZER	Comparative cost (per acre)				NO FERTILIZER			Comparative cost (per acre)
	1992	1993	1994		1992	1993	1994	
Fertilizer	\$9.40	\$9.40	\$12.85	None	\$0.00	\$0.00	\$0.00	
Total	\$9.40	\$9.40	\$12.85	Total	\$0.00	\$0.00	\$0.00	

VARIABLE	1992 SOYBEANS	1993 SOYBEANS	1994 SOYBEANS
Final population (seeds/acre)			
Fertilizer	305,000	117,100	N/A
No Fertilizer	307,000	119,900	N/A
Plant height			
Fertilizer	33.0"	27.0" ***	N/A
No Fertilizer	31.3"	23.6"	N/A
Pod height			
Fertilizer	5.9"	4.8"	N/A
No Fertilizer	5.4"	5.1"	N/A
Moisture (%)			
Fertilizer	11.6	9.9 **	12.6
No Fertilizer	11.6	9.8	12.7
Test weight (pounds/bushel)			
Fertilizer	56.2	57.7	52.9
No Fertilizer	56.2	57.6	51.9
Yield (13 %) (bushels/acre)			
Fertilizer	46 *** (3 Yr. Avg. = 49)	44 **	57 ***
No Fertilizer	42 (3 Yr. Avg. = 42)	36	48

** significantly different at 95% confidence level
*** significantly different at 99% confidence level

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Soil Test		
1992 SOYBEANS	1993 SOYBEANS	1994 SOYBEANS
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4 ppm, Bray P ₁	5 ppm, Bray P ₁	N/A (Same field.. . similar to 1992 and 1993)

Summary: The yield for the phosphorous fertilizer treatment has been significantly higher in all three years.