

On-Farm Comparison Results

- SMITH

Nebraska Soybean & Feed Grains Profitability Project

Years: 1997 - 2003

Title: Top-dressing 11-52-0 on No-Till Corn and Soybeans

Crop: Corn and Soybeans

NSFGPP Operator: Roy Smith, Cass County

Private Industry Cooperator: Ed Penas

Objective: To determine and document the effect of 11-52-0 broadcast surface applied prior to planting on the profitability of corn and soybean production.

Treatments: Corn: 10-34-0 banded (80 lbs/ac) vs. 11-52-0 surface applied (100 lbs/ac) plus 10-34-0 banded. (80 lbs/ac). Soybeans: No fertilizer vs. 11-52-0 surface applied. Treatments split in 2000: no till vs. tillage

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Results:

Soybeans

1997

<u>Variable</u>	<u>No Bdct</u>	<u>Bdct</u>	<u>Prob >/T/</u>
Yield, bu/ac at 13.0%	50	53	0.02 **

Soil test P
= 9 ppm

Cost/acre	---	\$14.30	
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Corn

1998

<u>Variable</u>	<u>No Bdct</u>	<u>11-52-0</u>	<u>Prob >/T/</u>
Yield, bu/ac at 15.5%	147	153	0.06 *
Moisture, %	16.0	15.7	0.13 ns
Test Wt., lbs/bu	58.8	58.9	0.83 ns
Cost/ac	\$10.20	\$14.30	
	Appl. <u>3.82</u>	10.20	
	Total \$14.02	Appl. <u>3.82</u>	
		Total \$28.32	

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	<u>Variable</u>	<u>No Bdct</u>	<u>11-52-0</u>	<u>Prob >/T/</u>
Soybeans 1999	Yield, bu/ac at 13%	44	47	0.013**
	Moisture, %	9.0	9.0	1.00 ns
	Test Wt., lbs/bu	56.9	56.9	0.22 ns
	Cost/ac	---	16.80	
			appl. <u>3.50</u> \$20.30	

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Corn
2000 (68 lbs/ac 10-34-0, 100 lbs/ac 11-52-0)

<u>Treatment</u>	<u>Yield, bu/ac</u>	<u>Moisture</u>	<u>Test wt.</u>	<u>Cost</u>
	<u>At 15.5%</u>	<u>%</u>	<u>lbs/bu</u>	<u>\$/ac</u>
No Bdct P/No Till	134	13.0	59.0	\$29.23
No Bdct P/Tilled	148	13.0	58.9	\$38.75
Bdct P/No Till	147	13.2	59.3	\$46.73
Bdct P/Tilled	153	13.0	59.5	\$56.25

Statistical Analysis: (Prob > F)

Broadcast Phos (P)	0.021**	0.182 ns	0.007***
Tillage (T)	0.001***	0.097*	0.589 ns
PXT	0.061*	0.097*	0.048**

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Treatment Costs: 2000

All Plots

Preplant herbicide	\$17.57
Banded 10-34-0 (68 lbs/ac @ \$240/T)	8.16
Application 10-34-0	<u>3.50</u>
<i>Total</i>	\$29.23

Tillage Plots

Tillage Cost	\$ 5.00
Post Herbicide (Salvo)	1.52
Post Herbicide Application	<u>3.00</u>
<i>Total</i>	\$ 9.52

Broadcast Phosphorus Plots

11-52-0 Broadcast (100 lbs/ac @ \$280/T)	\$14.00
Spread 11-52-0	<u>3.50</u>
<i>Total</i>	\$17.50

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Soybeans

2001

<u>Treatment</u>	<u>Yield, bu/ac</u>	<u>Moisture,</u>	<u>Test wt.,</u>	<u>Cost,</u>
	<u>At 13.0%</u>	<u>%</u>	<u>lbs/bu</u>	<u>\$/ac</u>
No Bdct P/No Till	45	12.4	55.5	\$16.19
No Bdct P/Tilled	46	12.4	55.6	\$40.22
Bdct P/No Till	49	12.4	55.5	\$31.19
Bdct P/Tilled	53	12.4	55.6	\$55.22

Statistical Analysis: (Prob > F)

Broadcast Phos (P)	0.015**	0.638ns	0.833ns
Tillage (T)	0.144ns	0.387ns	0.356ns
PXT	0.270ns	0.766ns	0.750ns

Soil P Test (0-4") – Fall 2001

No Bdct P Fertilizer: 11 ppm
 5 Years Bdct P Fertilizer: 23 ppm

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Treatment Costs: 2001

No-Till Plots

Herbicide	\$16.19
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Tillage Plots

Herbicide	\$ 16.22
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Chisel Plow	10.00
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Disc	7.00
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Mulch Tredder	<u>7.00</u>
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<i>Total</i>	\$ 40.22
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Broadcast Phosphorus Plots

11-52-0 Broadcast (100 lbs/ac @ \$240/T)	\$12.00
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Spread 11-52-0	<u>3.00</u>
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<i>Total</i>	\$15.00
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Corn

2002

<u>Treatment</u>	<u>Yield, bu/ac</u> <u>At 15.5%</u>	<u>Moisture</u> <u>%</u>	<u>Test wt.</u> <u>lbs/bu</u>	<u>Cost</u> <u>\$/ac</u>
No Bdct P/No Till	49	25.1	52.8	-----
No Bdct P/Tilled	23	24.1	54.2	-----
Bdct P/No Till	54	23.7	53.0	\$13.05
Bdct P/Tilled	37	22.9	55.4	\$13.05

Statistical Analysis: (Prob > F)

Broadcast Phos (P)	0.022**	0.029 **	0.049**	
Tillage (T)	0.0009***	0.032**	0.0009***	
PXT	0.324 ns	0.705 ns	0.198 ns	

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Treatment Costs: 2002

Broadcast Phosphorus Plots

11-52-0 Broadcast (98 lbs/ac @ \$205/T)	\$10.05
Spread 11-52-0	<u>3.00</u>
<i>Total</i>	\$13.05

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Soybeans, 2003 (NC+ 3All)

<u>Treatment</u>	<u>Yield, bu/ac</u> <u>at 13%</u>	<u>Moisture</u> <u>%</u>	<u>Test wt.</u> <u>lbs/bu</u>	<u>Cost</u> <u>\$/ac</u>
No Bdct P/No Till	32	8.0	56.7	----*
No Bdct P/Tilled	31	8.1	56.8	----*
Bdct P/No Till	35	8.1	56.7	----*
Bdct P/Tilled	36	8.1	56.8	----*

Statistical Analysis: (Prob > F)

Broadcast Phos (P)	<.0001 ***	0.015 **	0.794 ns
Tillage (T)	0.752 ns	0.228 ns	0.346 ns
PXT	0.284 ns	0.670 ns	0.628 ns

* *Residual study in 2003. No treatments applied.*

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Summary: The application of 11-52-0 broadcast increased seed yield of soybeans in 1997 and 1999. Corn grain yields were increased by the 11-52-0 broadcast in 1998. In 2000, phosphorus broadcast increased grain yield (9 bu/ac) and test weight (0.4 lbs/bu). Tillage also increased grain yield (10 bu/ac) and reduced grain moisture at harvest slightly. In 2001 broadcast phosphorous increased the seed yield of soybeans 6 bu/ac. In 2002, broadcast phosphorus increased grain yield and test weight and reduced grain moisture at harvest. Tillage done in 2000 and 2001 resulted in reduced yields and grain moisture at harvest and increased test weights in 2002. Residual effects of phosphorus gave increased seed yield and a slight increase in seed moisture in 2003.