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FINAL **Nebraska Soybean & Feed Grains Profitability Project** FINAL

Years:	1995-2010
Title:	Lime Use on Acid Soils
Crop:	Corn (95, 97, 99, 01, 03, 05, 07, 09) Soybeans (96, 98, 00, 02, 04, 06, 08, 10)
NSFGPP Operator:	Rusty Hilgenkamp, Washington County
Private Industry Cooperator:	Dave Varner
Objective:	To determine & document the profitability of using lime on acid soil in a corn/soybean rotation.
Soil Type:	Marshall

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Results: 1995 Corn

Variable	No Lime	Lime	Prob >/T/
Yield, bu/ac at 15.5%	74	73	0.59 ns
Moisture, %	16.4	16.5	0.42 ns
Test Wt, lbs/bu	57.8	57.6	0.07 *
Cost/ac	---	$6.29	

Results: 1996 Soybeans

Variable	No Lime	Lime	Prob >/T/
Yield, bu/ac at 13%	42	43	0.32 ns
Moisture, %	9.0	8.9	0.03 **
Test Wt, lbs/bu	56.1	56.1	0.88 ns
Cost/ac	---	$6.29	

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Results: 1997 Corn

Variable	No Lime	Lime	Prob >/T/
Yield, bu/ac at 15.5%	121	125	0.10 *
Moisture, %	19.5	19.5	0.56 ns
Test Wt, lbs/bu	56.4	56.3	0.88 ns
Cost/ac	---	$6.29	

Results: 1998 Soybeans

Variable	No Lime	Lime	Prob >/T/
Yield, bu/ac at 13%	50	58	0.0002 ***
Moisture, %	12.8	12.9	0.48 ns
Test Wt, lbs/bu	55.2	54.4	0.002 ***
Cost/ac	---	$6.29	

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Results: 1999 Corn

Variable	No Lime	Lime	Prob >/T/
Soil pH	5.6	6.3	---
Yield, bu/ac at 15.5%	145	149	0.177 ns
Moisture, %	12.9	12.5	0.002 ***
Test Wt, lbs/bu	58.4	58.1	0.045 **
Cost/ac	---	$6.29	

Results: 2000 Soybeans

Variable	No Lime	Lime	Prob >/T/
Yield, bu/ac at 13%	37	43	0.0001 ***
Moisture, %	8.7	8.9	0.0046 ***
Test Wt, lbs/bu	57.4	57.7	0.099 *
Cost/ac	---	$6.29	

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Results: 2001 Corn

Variable	No Lime	Lime	Prob >/T/
Soil pH	5.3	6.0	
Yield, bu/ac at 15.5%	130	132	0.657 ns
Moisture, %	15.1	14.9	0.020 **
Test Wt, lbs/bu	58.0	57.8	0.128 ns
Cost/ac	---	$6.29	

Results: 2002 Soybeans

Variable	No Lime	Lime	Prob >/T/
Soil pH	5.2	6.1	
Yield, bu/ac at 13%	43	50	0.0003 ***
Moisture, %	9.9	9.9	0.477 ns
Test Wt, lbs/bu	55.6	55.8	0.284 ns
Cost/ac	---	---	

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Results: 2003 Corn

Variable	No Lime	Lime	Prob >/T/
Yield, bu/ac at 15.5%	88	99	0.016 **
Moisture, %	12.5	12.7	0.171 ns
Test Wt, lbs/bu	60.1	61.0	0.017 **
Cost/ac	---	---	

Results: 2004 Soybeans (DK 25-51)

Variable	No Lime	Lime	Prob >/T/
Yield, bu/ac at 13%	40	44	0.0067 ***
Moisture, %	11.2	11.2	0.501 ns
Test Wt, lbs/bu	56.2	56.1	0.803 ns
Cost/ac	---	---	

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Results: 2005 Corn (Pioneer 33P97)

Variable	No Lime	Lime	Prob >/T/
Soil pH	5.5	6.5	
Yield, bu/ac at 15.5%	145	147	0.306 ns
Moisture, %	15.4	15.2	0.108 ns
Test Wt, lbs/bu	59.8	59.6	0.284 ns

Results: 2006 Soybeans (Asgrow 3005)

Variable	No Lime	Lime	Prob >/T/
Yield, bu/ac at 13%	53	57	0.0186 **
Moisture, %	14.9	14.9	0.7040 ns
Test Wt, lbs/bu	56.2	56.0	0.1084 ns
Plants, 1000/ac	133.8	125.8	0.1876 ns

Planting Date: 5/12/06 Harvesting Date: 10/24/06

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Results: 2007 Corn (LG 2540BT)

Variable	No Lime	Lime	Prob >/T/
Soil pH	5.5	6.2	
Yield, bu/ac at 15.5%	121	119	0.256 ns
Moisture, %	15.7	15.4	0.003 ***
Test Wt, lbs/bu	58.7	58.7	0.859 ns
Plants, 1000/ac	20.4	19.8	0.756 ns

Planting Date: 5/2/07 Harvesting Date: 10/22/07

Results: 2008 Soybeans

Variable	No Lime	Lime	Prob >/T/
Yield, bu/ac at 13%	40	45	0.0009 ***
Moisture, %	10.5	10.6	0.208 ns
Test Wt, lbs/bu	57.6	57.4	0.345 ns
Plants, 1000/ac	182.2	155.2	0.385 ns

Planting Date: 5/26/08 Harvesting Date: 10/10/08

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Results: 2009 Corn (Midwest 79504)

Variable	No Lime	Lime	Prob >/T/
Yield, bu/ac at 15.5%	212	204	0.234 ns
Moisture, %	17.6	16.5	0.005 ***
Test Wt, lbs/bu	58.6	59.3	0.041 **
Plants, 1000/ac	24.6	24.0	0.500 ns

Planting Date: Harvesting Date: 11/11/09

Results: 2010 Soybeans (Asgrow 2909)

Variable	No Lime	Lime	Prob >/T/
Yield, bu/ac at 13%	49	62	0.0292 **
Moisture, %	8.5	8.6	0.374 ns

Planting Date: 5/31/10 Harvesting Date: 10/7/10

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Summary: A 2-ton lime application with a 7-year life expectancy was applied in spring 1995. A significant difference was detected between test weights at the 90% confidence level in 1995. In 1996, there was a significant difference in moisture content of seed at harvest. In 1997, the use of lime increased corn grain yield slightly. In 1998, lime increased seed yield of soybeans significantly; however, seed test weight was reduced. In 1999, lime reduced grain moisture at harvest and resulted in a slightly lower test weight. In 2000, the lime application resulted in higher seed yield, slightly higher moisture, and slightly higher seed test weight. In 2001, grain moisture was lower at harvest where lime had been applied. In 2002, seed yield of soybeans was increased significantly by lime. In 2003, grain yield of corn was increased and grain test weight was higher where lime had been applied. Seed yield was again higher in 2004 where lime had been applied in 1995. Lime application had no effect on corn in 2005; however, soil pH was still higher where lime had been applied. In 2006, soybean seed yield was significantly higher where lime had been applied. The grain moisture of corn was significantly lower at harvest in 2007 where lime had been applied. Soil pH was higher in the fall of 2007 where lime had been applied and soybean seed yield in 2008 was significantly higher from lime application. Yield of corn was not significantly effected in 2009 from lime application; however, grain moisture at harvest was lower and test weight was higher where lime had been applied. In 2010, the seed yield of soybeans was increased significantly by the application of lime.

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