

Nebraska Soybean & Feed Grains Profitability Project

**Years:** 1995-2008  
**Title:** Lime Use on Acid Soils  
**Crop:** Corn (95, 97, 99, 01, 03, 05, 07)  
 Soybeans (96, 98, 00, 02, 04, 06, 08)  
**NSFGPP Operator:** Rusty Hilgenkamp, Washington County  
**Private Industry Cooperator:** Jim Peterson & Dave Varner  
**Objective:** To determine & document the profitability of using lime on acid soil in a corn/soybean rotation.  
**Treatments:** No lime vs. lime according to soil test @ 2.5 ton/acre (prorated \$44/7 years). Soil pH: 5.5

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Results: 1995		Corn		
<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>	
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		
<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>	
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		
<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>	
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		
<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>	
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		
<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>	
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		
<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>	
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		
<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>	
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		
<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>	
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		
<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>	
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)		
<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>	
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)

<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>
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)

<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>
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)

<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>
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

<u>Variable</u>	<u>No Lime</u>	<u>Lime</u>	<u>Prob &gt;/T/</u>
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
Cost/ac	---	---	

Planting Date: 5/26/08

Harvesting Date: 10/10/08

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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.