Coping With High Input Costs

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Manitowoc County Forage Council Field Day

Tuesday, September 23, 2008

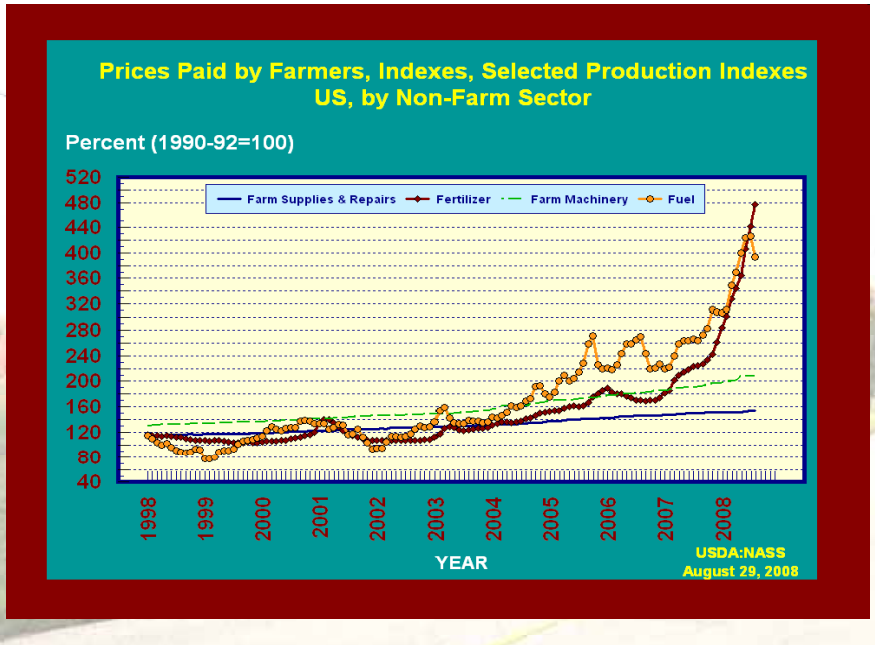
Change in Input Costs

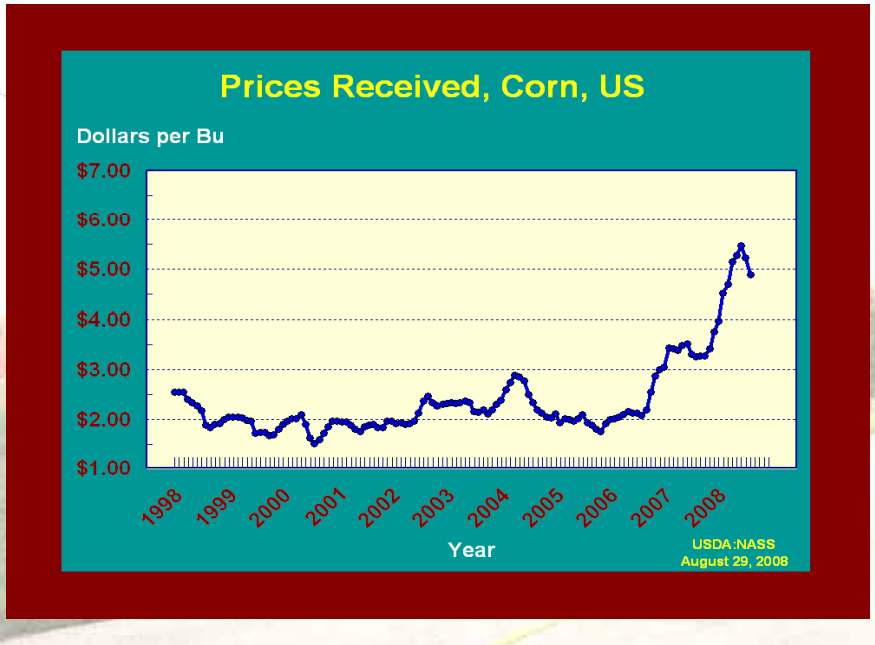
Change in Nitrogen Fertilizer Costs

Changes in Fuel Costs

Impacts of Changes in Input Costs

Cash Rents


Prices Paid by Farmers, Indexes, Selected Production Indexes
US, by Non-Farm Sector
Percent (1990-92=100)
520
480
440
400
360
320
280
240
200
160
120
80
40
Farm Supplies & Repairs
Fertilizer
Farm Machinery
Fuel
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
YEAR
USDA:NASS
August 29, 2008


Prices Received, Corn, US
Dollars per Bu
$7.00
$6.00
$5.00
$4.00
$3.00
$2.00
$1.00
1998
1999
2000
2001
2002
2003
2004
2005
2006
2007
2008
Year
USDA:NASS
August 29, 2008

Price Indices (1990-1992 = 100) For Selected Crop Inputs

Source: Agricultural Prices, National Agricultural Statistics Service, USDA

Input	2000	2004	2006	2008
Nitrogen	109	156	211	320
Phosphorus	106	114	160	370
Potassium	106	114	160	370
Seed	121	162	177	218
Herbicide	116	110	116	125
Insecticide	141	147	142	155
Diesel	136	142	259	394
Gasoline	139	138	202	270
LP Gas	196	204	166	292
Rent – Cash	135	145	159	195

Percentage Change In The Prices Of Selected Crop Inputs Since 2000

Source: Agricultural Prices, National Agricultural Statistics Service, USDA

Input	2004	2006	2008
Nitrogen	43.12	93.58	193.58
Phosphorus	7.55	50.94	249.06
Potassium	7.55	50.94	249.06
Seed	33.88	46.28	80.17
Herbicide	-5.17	0.00	7.76
Insecticide	4.26	0.71	9.93
Diesel	4.41	90.44	189.71
Gasoline	-0.72	45.32	94.24
LP Gas	4.08	-15.31	48.98
Rent – Cash	7.41	17.78	44.44

USDA
United States Department of Agriculture

WRS-0702
August 2007

Outlook

A Report from the Economic Research Service

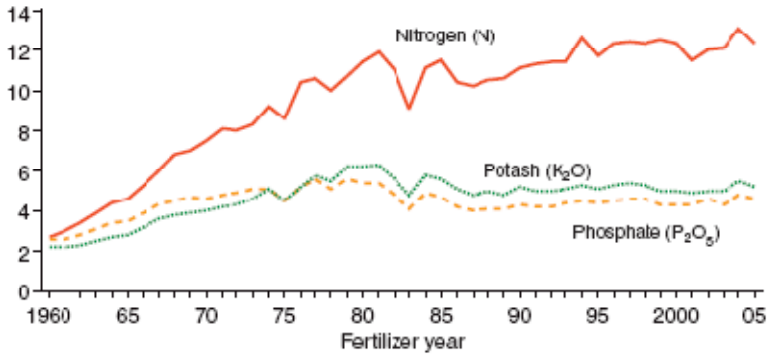
www.ers.usda.gov

Impact of Rising Natural Gas Prices on U.S. Ammonia Supply

Wen-yuan Huang

Abstract

Figure 1
U.S. plant nutrient consumption
Mil. tons



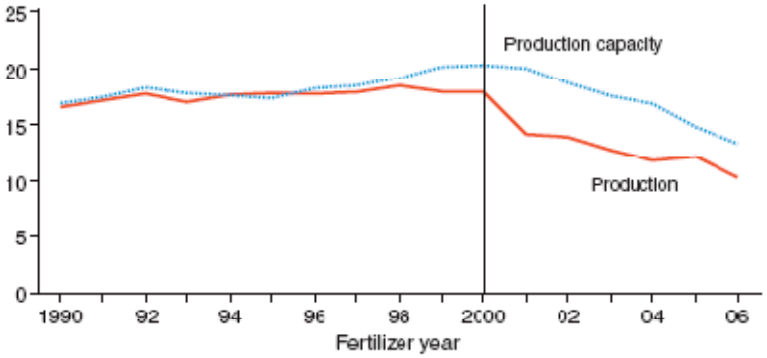
Note: Fertilizer year runs from July of the preceding year to June of the year indicated in the chart.

Source: USDA, Economic Research Service using data from AAPFCO.

Figure 5

U.S. ammonia production and production capacity

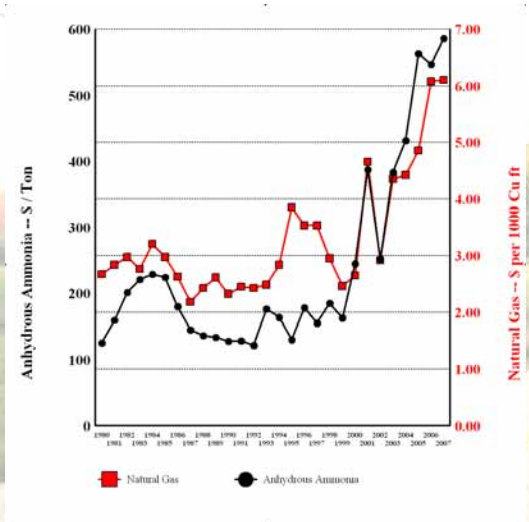
Mil. tons



Note: Fertilizer year runs from July of the preceding year to June of the year indicated in the chart.

Source: USDA, Economic Research Service using capacity data from IFDC and production data from DOC.

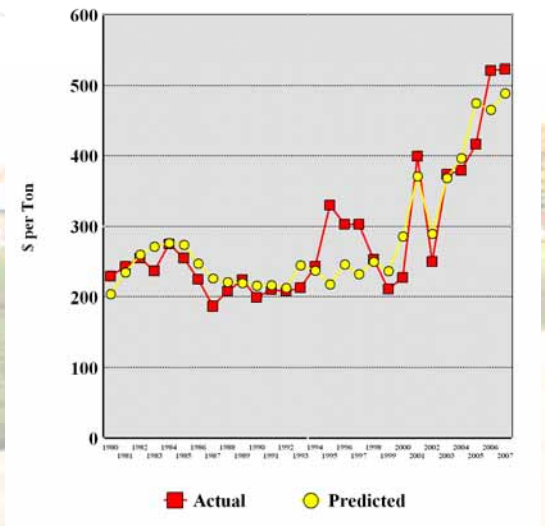
Natural Gas and Anhydrous Ammonia Prices



Anhydrous Ammonia Price Per Ton (P_A) as a Function of the Price of 1000 Cubic Feet of Natural Gas (P_N) For The 1980 – 2007 Period

Variable	Coefficient Value (t)
Intercept	134.40
P_N	46.76 (7.14)
Year	1.21 (0.92)
R^2	0.8280

Actual and Predicted Anhydrous Ammonia Prices



Wisconsin Nitrogen Response

Corn Nitrogen Rate Calculator

Finding the Maximum Return To N and Most Profitable N Rate

A Regional (Corn Belt) Approach to Nitrogen Rate Guidelines

State: Wisconsin – VH/HYP Soils
Number of sites: 33
Rotation: Corn Following Corn
Non-Responsive Sites Not Included

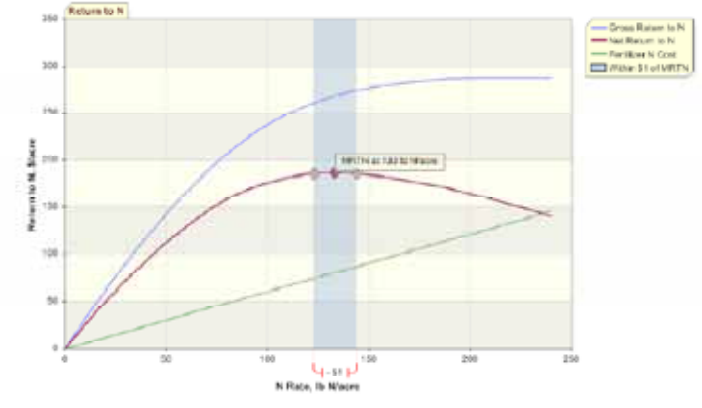
Nitrogen Price ($/lb): 0.61
Corn Price ($/bu): 5.00
Price Ratio: 0.12

Wisconsin Nitrogen Response

MRTN Rate (lb N/acre):	**133**
Profitable N Rate Range (lb N/acre):	123 - 144
Net Return to N at MRTN Rate ($/acre):	$187.55
Percent of Maximum Yield at MRTN Rate:	98%
Anhydrous Ammonia (82% N) at MRTN Rate (lb product/acre):	162
Anhydrous Ammonia (82% N) Cost at MRTN Rate ($/acre):	$81.13

Most profitable N rate is at the maximum return to N (MRTN).
Profitable N rate range provides economic return within $1/acre of the MRTN.

Wisconsin Nitrogen Response



Optimal Nitrogen Application Rates

(Pounds per Acre)

	$4.00 Corn	$5.00 Corn
$1000 / T Anhydrous ($0.61/lb.)	127	133
$1200 / T Anhydrous ($0.73/lb.)	119	127

Nitrogen Expenditures With Optimal Nitrogen Application

($ Per Acre)

	$4.00 Corn	$5.00 Corn
$1000 / T Anhydrous ($0.61/lb.)	77.47	81.13
$1200 / T Anhydrous ($0.73/lb.)	86.87	92.71

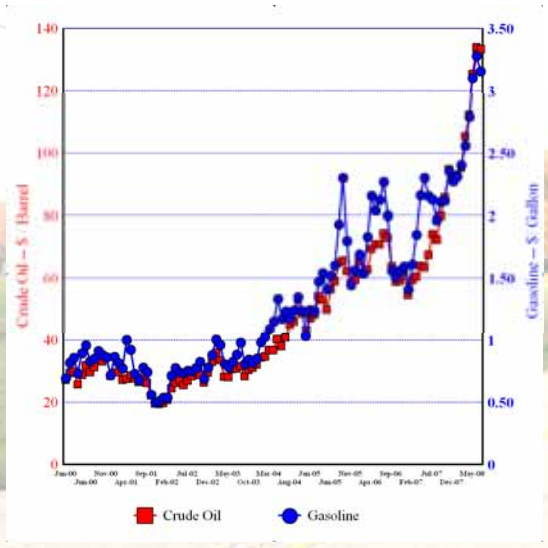
Yield Response With Optimal Nitrogen Application

(Bu. Per Acre)

	$4.00 Corn	$5.00 Corn
$1000 / T Anhydrous ($0.61/lb.)	52.97	53.74
$1200 / T Anhydrous ($0.73/lb.)	51.66	52.97

Fuel Costs

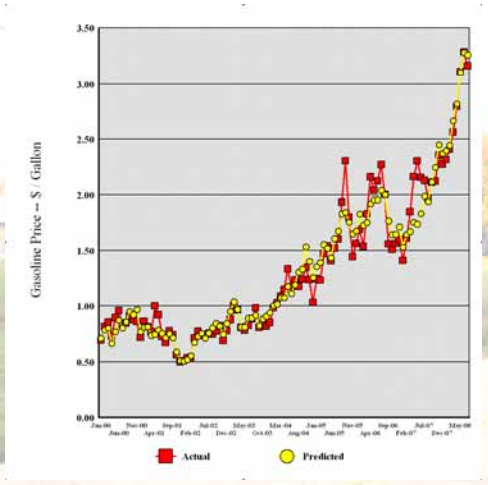
Crude Oil and Gasoline Prices



Gasoline Price Per Gallon (P_G) as a Function of the Price of a Barrel of Crude Oil (P_{BC}) For The January 2000 – July 2008 Period

Variable	Coefficient Value (t)
Intercept	-0.2259
P_{BC}	0.0344 *(9.19)*
Time (Month)	0.0051 *(4.77)*
P_{BC}*Time	-0.0001 *(-3.46)*
R^2	*.9608*

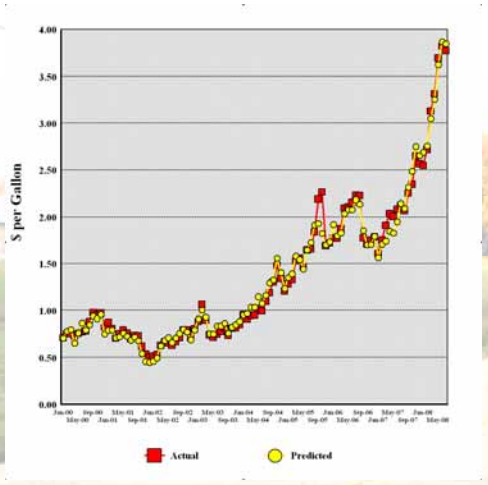
Actual and Predicted Gasoline Prices



Diesel Price Per Gallon (P_D) as a Function of the Price of a Barrel of Crude Oil (P_{BC}) For The January 2000 – July 2008 Period

Variable	Coefficient Value (t)
Intercept	-0.2567
P_{BC}	0.0353 *(14.97)*
Time (Month)	0.0020 *(2.99)*
P_{BC}*Time	-0.00006 *(-2.74)*
R^2	*.9887*

Actual and Predicted Diesel Prices



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Continuous Corn Budget for Wisconsin – 2008

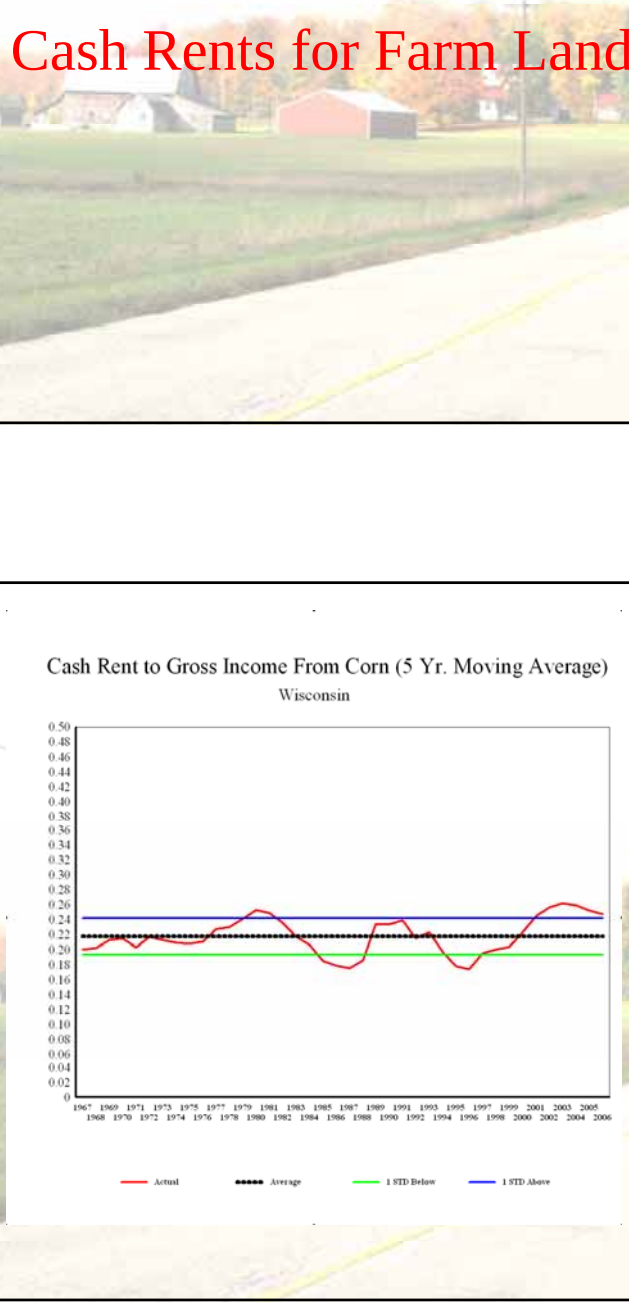
Ken Barnett

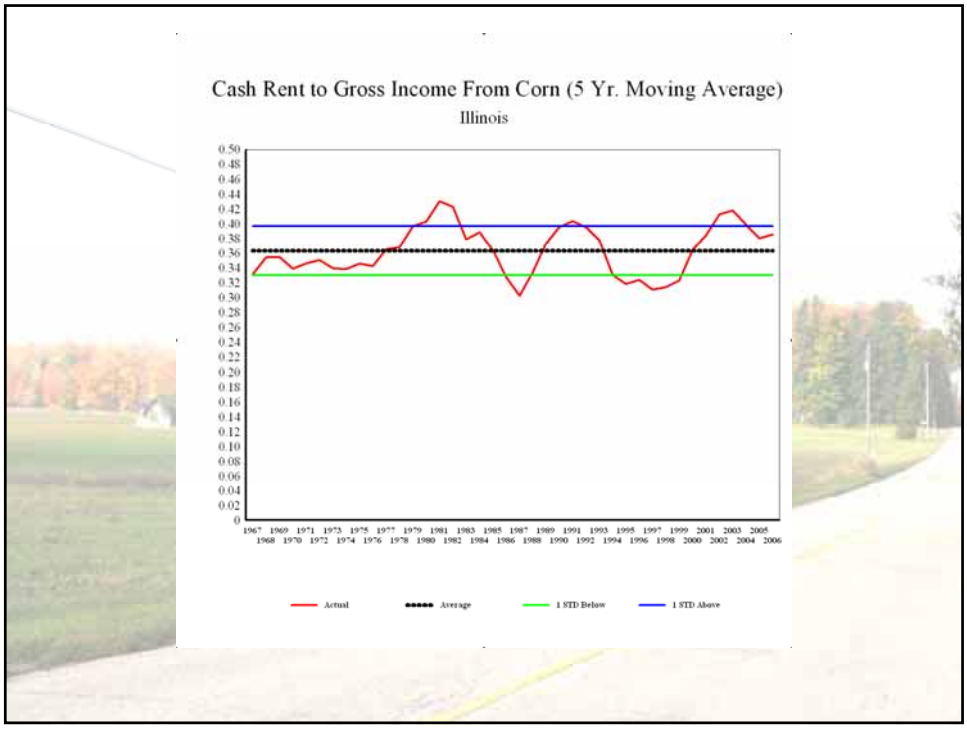
	Unit	Quantity	Price ($)	Amount ($/acre)
Corn, Shelled	bu/acre	160.00	3.29	526.40
			Total	526.40
Input Expenses				
Nitrogen	lbs of product	120.00	0.51	61.20
Phosphorus	lbs of product	70.00	0.20	14.00
Potassium	lbs of product	45.00	0.20	9.00
Corn Seed	bag	0.38	150.00	57.00
Weed Control-- Harness	gal	0.23	114.00	26.22
Weed Control-- Hornet WDG	lbs of product	0.22	72.00	15.84
Insect Control-- Counter 15G	lbs of product	8.70	1.70	14.79
Energy Expenses				
Diesel Fuel	gal	7.89	2.82	22.25
Gasoline	gal	4.09	2.81	11.49
LP Gas	gal	2.50	1.68	4.20
Electricity	KW hr	2.00	0.11	0.22
Engine Lubrication	acre	1.00	5.69	5.69
Total Value of Inputs				235.99

Continuous Corn Budget for Wisconsin

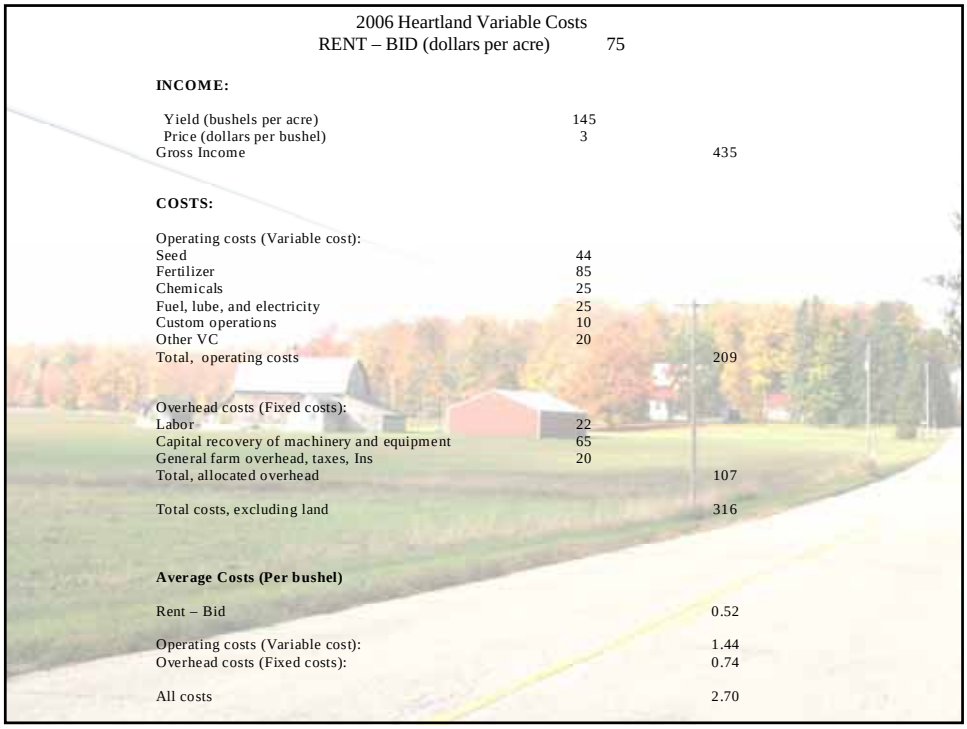
	2000	2004	2006	2008
	Amount ($/Bu)	Amount ($/Bu)	Amount ($/Bu)	Amount ($/Bu)
Corn, Shelled	1.86	2.15	3.04	5.50
Input Expenses				
Fertility				
Nitrogen	0.13	0.19	0.25	0.38
Phosphorus	0.03	0.03	0.04	0.09
Potassium	0.02	0.02	0.02	0.06
Corn Seed	0.20	0.26	0.29	0.36
Weed Control –1	0.15	0.14	0.15	0.16
Weed Control –2	0.09	0.09	0.09	0.10
Insect Control	0.08	0.09	0.08	0.09
Energy Expenses				
Diesel Fuel	0.05	0.05	0.09	0.14
Gasoline	0.04	0.04	0.05	0.07
LP Gas	0.02	0.02	0.01	0.03
Electricity	0.00	0.00	0.00	0.00
Engine Lubrication	0.04	0.04	0.04	0.04
Total Value of Inputs	0.80	0.92	1.09	1.47
Profit Margin Rate	0.57	0.57	0.64	0.73

Cash Rents for Farm Land



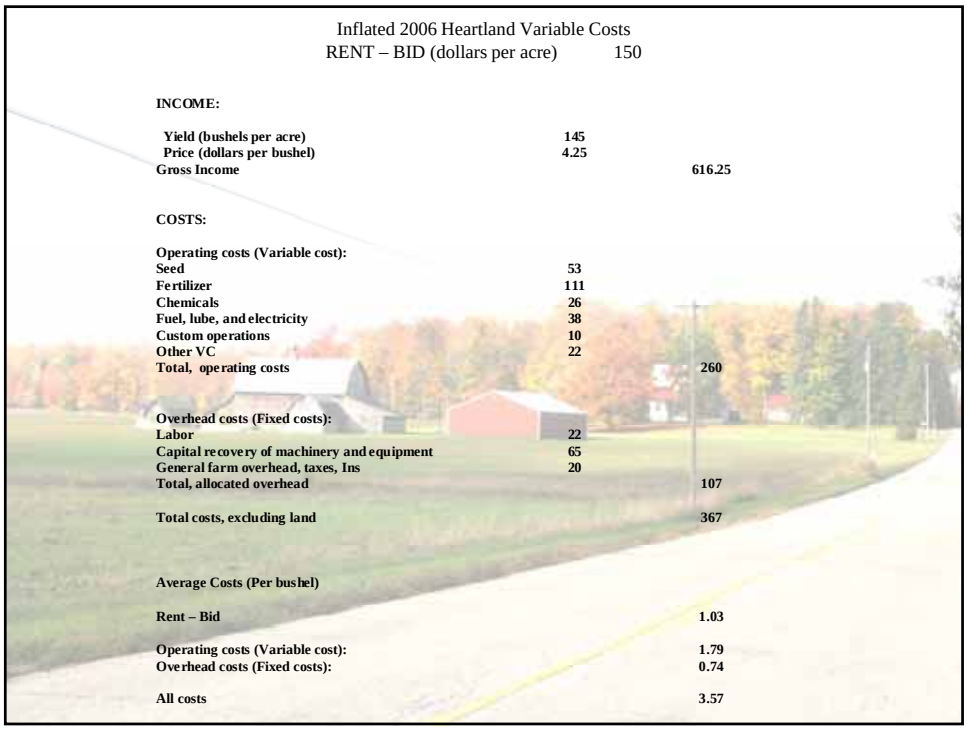

Cash Rent to Gross Income From Corn (5 Yr. Moving Average)
Illinois
Actual
Average
1 STD Below
1 STD Above


Cash Rent to Gross Income From Corn (5 Yr. Moving Average)
Iowa
Actual
Average
1 STD Below
1 STD Above



2006 Heartland Variable Costs
RENT – BID (dollars per acre) 75

INCOME:		
Yield (bushels per acre)	145	
Price (dollars per bushel)	3	
Gross Income		435
COSTS:		
Operating costs (Variable cost):		
Seed	44	
Fertilizer	85	
Chemicals	25	
Fuel, lube, and electricity	25	
Custom operations	10	
Other VC	20	
Total, operating costs		209
Overhead costs (Fixed costs):		
Labor	22	
Capital recovery of machinery and equipment	65	
General farm overhead, taxes, Ins	20	
Total, allocated overhead		107
Total costs, excluding land		316
Average Costs (Per bushel)		
Rent – Bid		0.52
Operating costs (Variable cost):		1.44
Overhead costs (Fixed costs):		0.74
All costs		2.70



Inflated 2006 Heartland Variable Costs
RENT – BID (dollars per acre) 150

INCOME:		
Yield (bushels per acre)	**145**	
Price (dollars per bushel)	**4.25**	
Gross Income		**616.25**
COSTS:		
Operating costs (Variable cost):		
Seed	**53**	
Fertilizer	**111**	
Chemicals	**26**	
Fuel, lube, and electricity	**38**	
Custom operations	**10**	
Other VC	**22**	
Total, operating costs		**260**
Overhead costs (Fixed costs):		
Labor	**22**	
Capital recovery of machinery and equipment	**65**	
General farm overhead, taxes, Ins	**20**	
Total, allocated overhead		**107**
Total costs, excluding land		**367**
Average Costs (Per bushel)		
Rent – Bid		**1.03**
Operating costs (Variable cost):		**1.79**
Overhead costs (Fixed costs):		**0.74**
All costs		**3.57**