

Farm Profitability and Risk Going Into 2022

Crop Insurance & Risk Management in 2022



Gary Schnitkey



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Krista Swanson

Topics

1. Economic outlook

2. Crop insurance

3. Farmland rental



Economic Outlook



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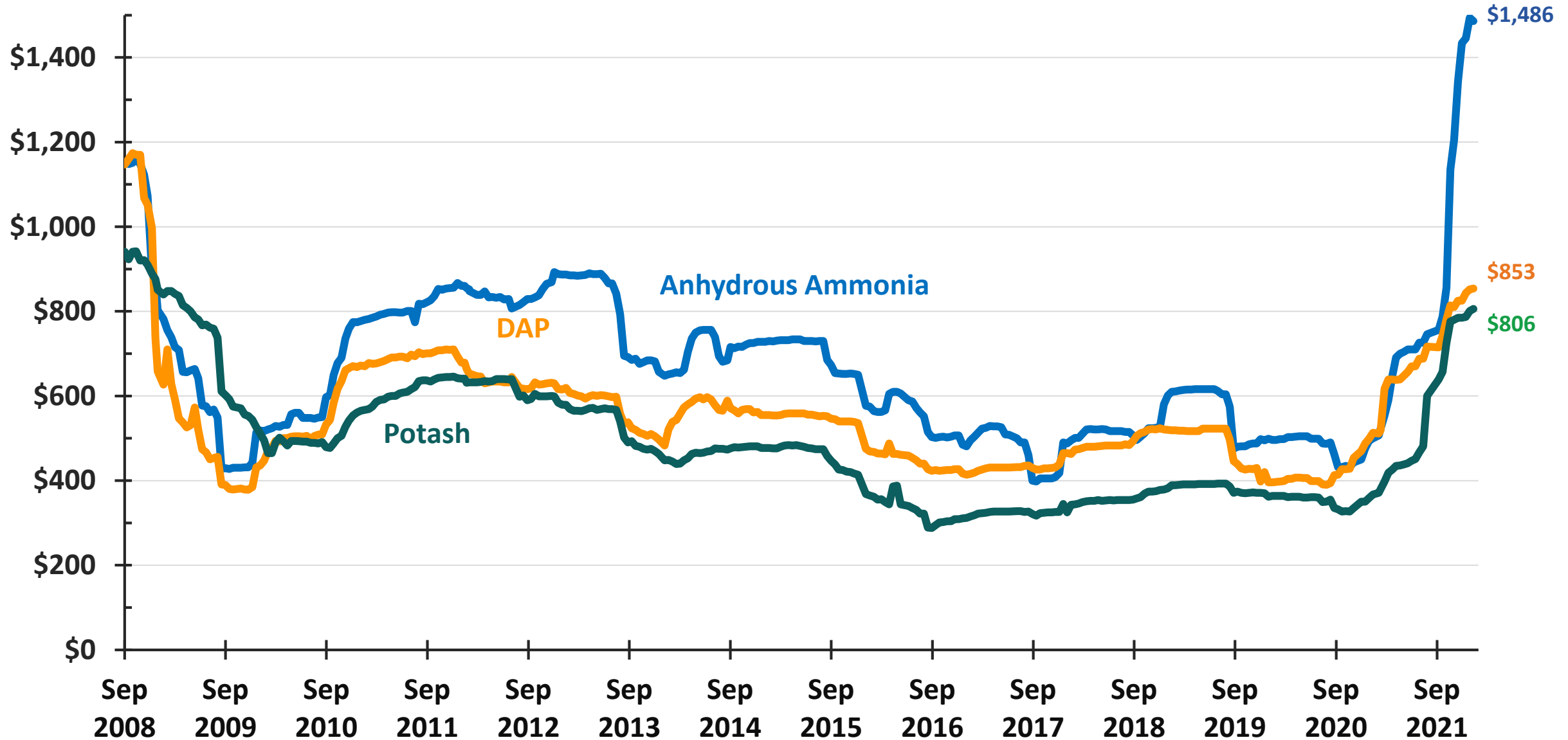


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Fertilizer Prices per Ton in Illinois From 2008 to 2021



Source: US Department of Agriculture, Agricultural Marketing Service

Calculation of Fertilizer Costs, 2021 and 2022

	Rqmts lbs/acre	Prices on 10/22/2020		Prices on 10/21/2021		Change \$/acre
		Prices \$/ton	Costs \$/acre	Prices \$/ton	Costs \$/acre	
Corn						
Anhydrous Ammonia	234/207	\$432	42	\$1,400	\$118	\$76
DAP	177	\$428	38	\$850	\$75	\$37
Potash	88	\$327	14	\$887	\$39	\$25
Total Fertilizer Costs			\$94		\$232	\$138
Soybeans						
DAP	111	\$428	24	\$850	\$47	\$23
Potash	133	\$327	22	\$887	\$59	\$37
Total Fertilizer Costs			\$46		\$106	\$60

See: farmdoc Daily, November 2, 2021

2022 Budgets

	Corn	Soybeans
Yield per acre	220	70
Price per bu	\$5.40	\$13.50
Gross revenue	\$1,188	\$945
Fertilizers	230	102
Pesticides	95	65
Seed	124	80
Drying	24	2
Storage	15	5
Crop insurance	24	16
Total direct costs	\$512	\$270
Total power costs	\$162	\$131
Total overhead costs	\$81	\$75
Total non-land costs	\$755	\$476
Operator and land return	\$433	\$469
Corn-Minus-Soybean Return	-\$36	

Current fall bids, very high

Based on \$1,400 ammonia price

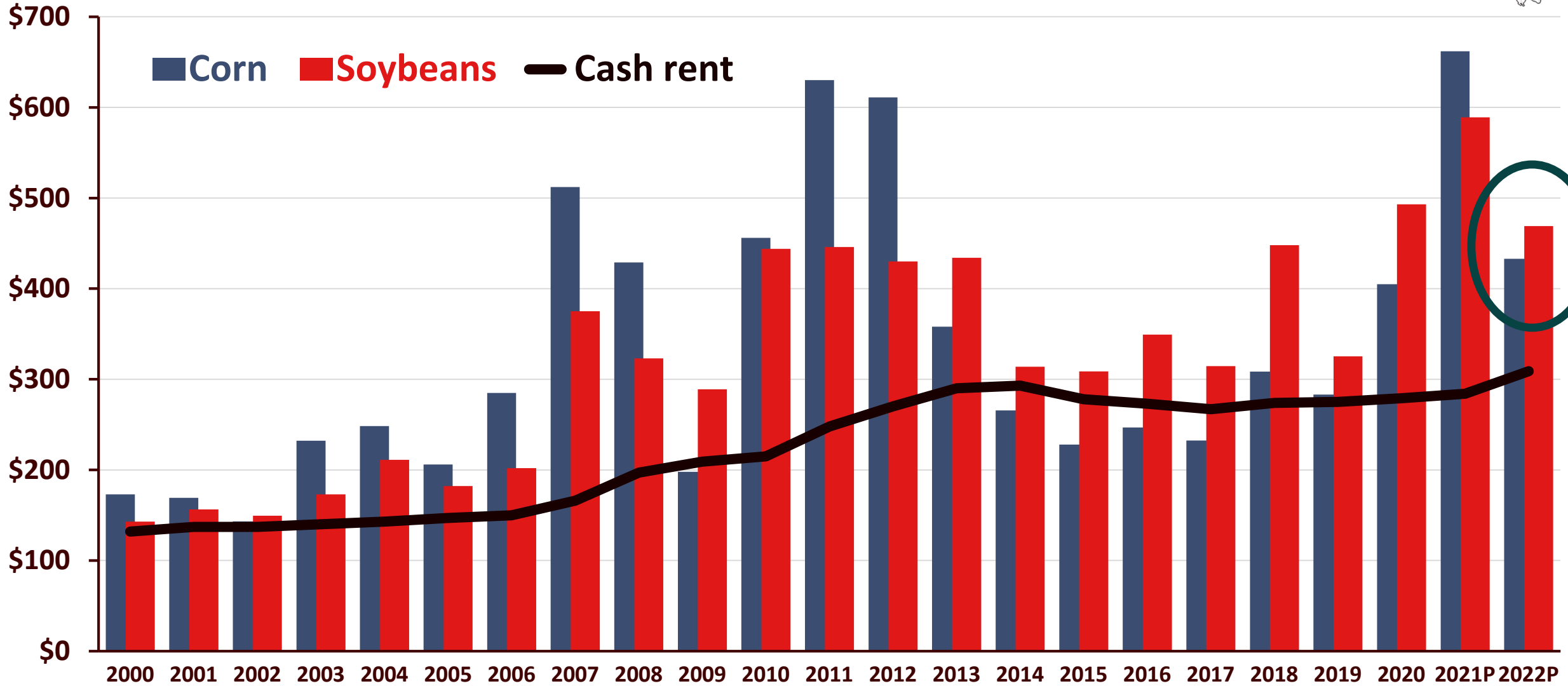
- Those who applied in fall lower priced
- Spring applications and UAN coming in at higher cost levels

Non-land costs higher for corn

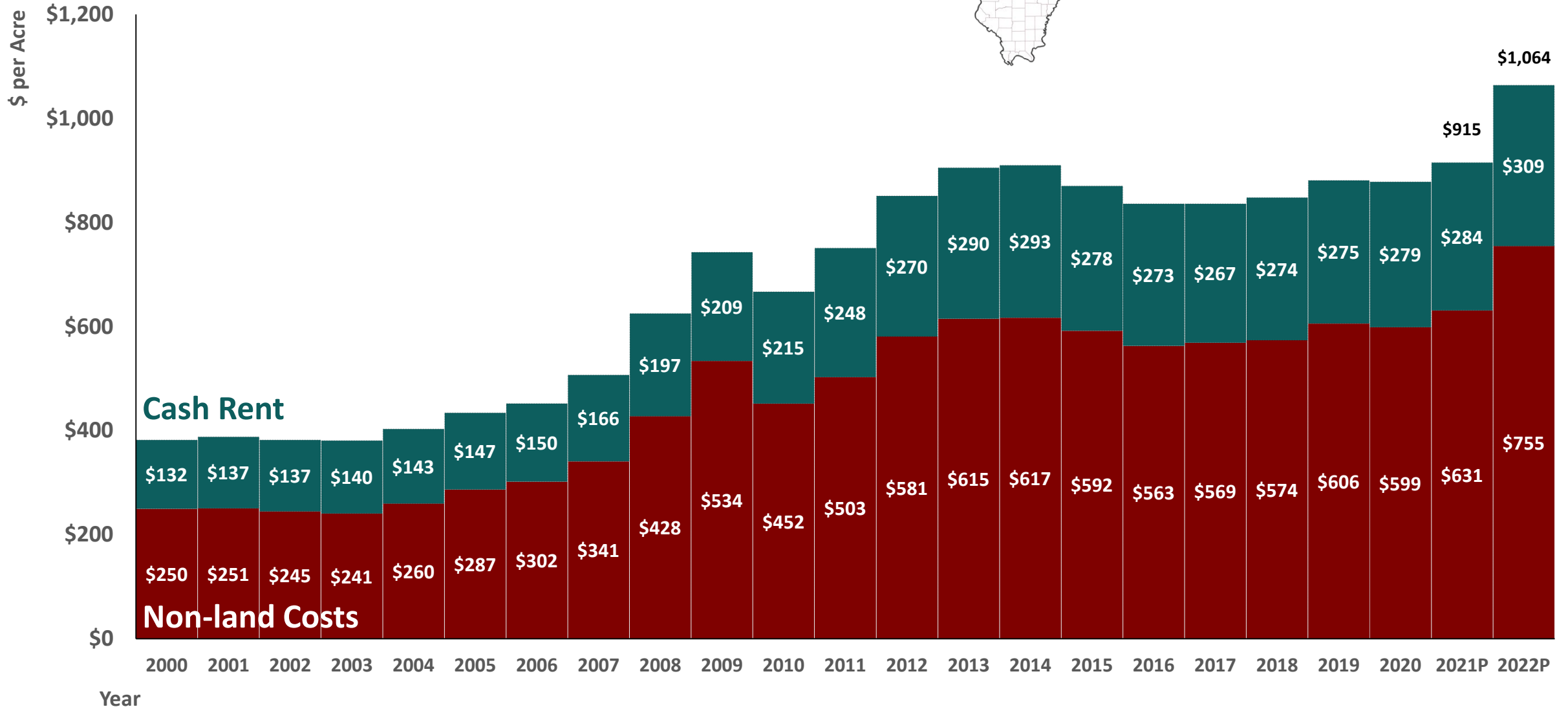
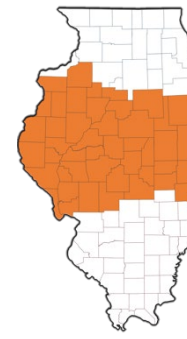
Soybeans projected more profitable, change over from earlier projections

Operator and Land Returns for Corn and Soybeans

Cash Rents on High-Productivity Farmland in Central Illinois



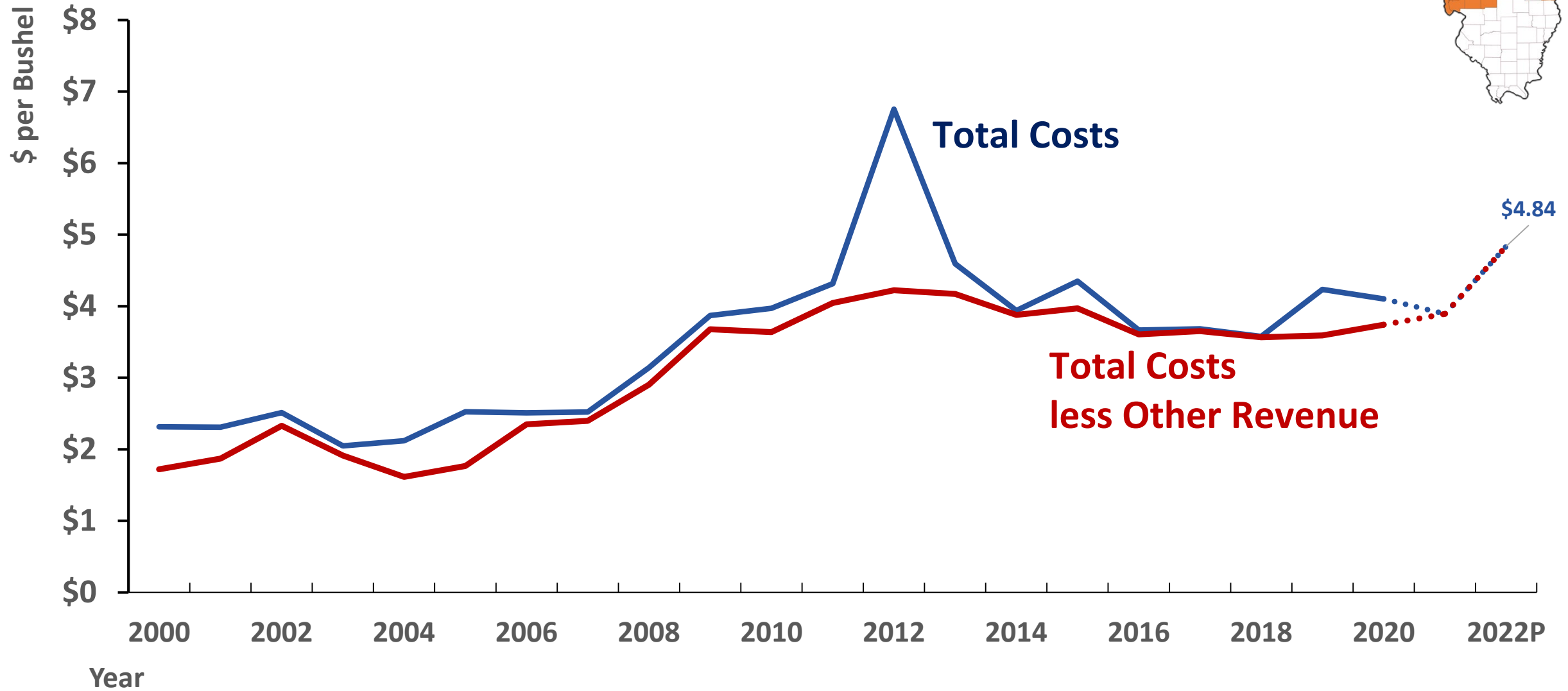
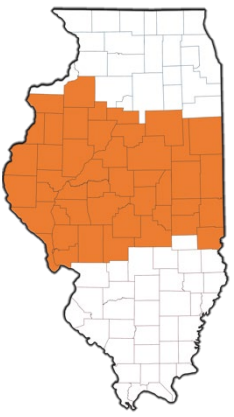
Total Costs of Producing Corn on High-Productivity Farmland in Central Illinois



Source: Illinois Farm Business Farm Management

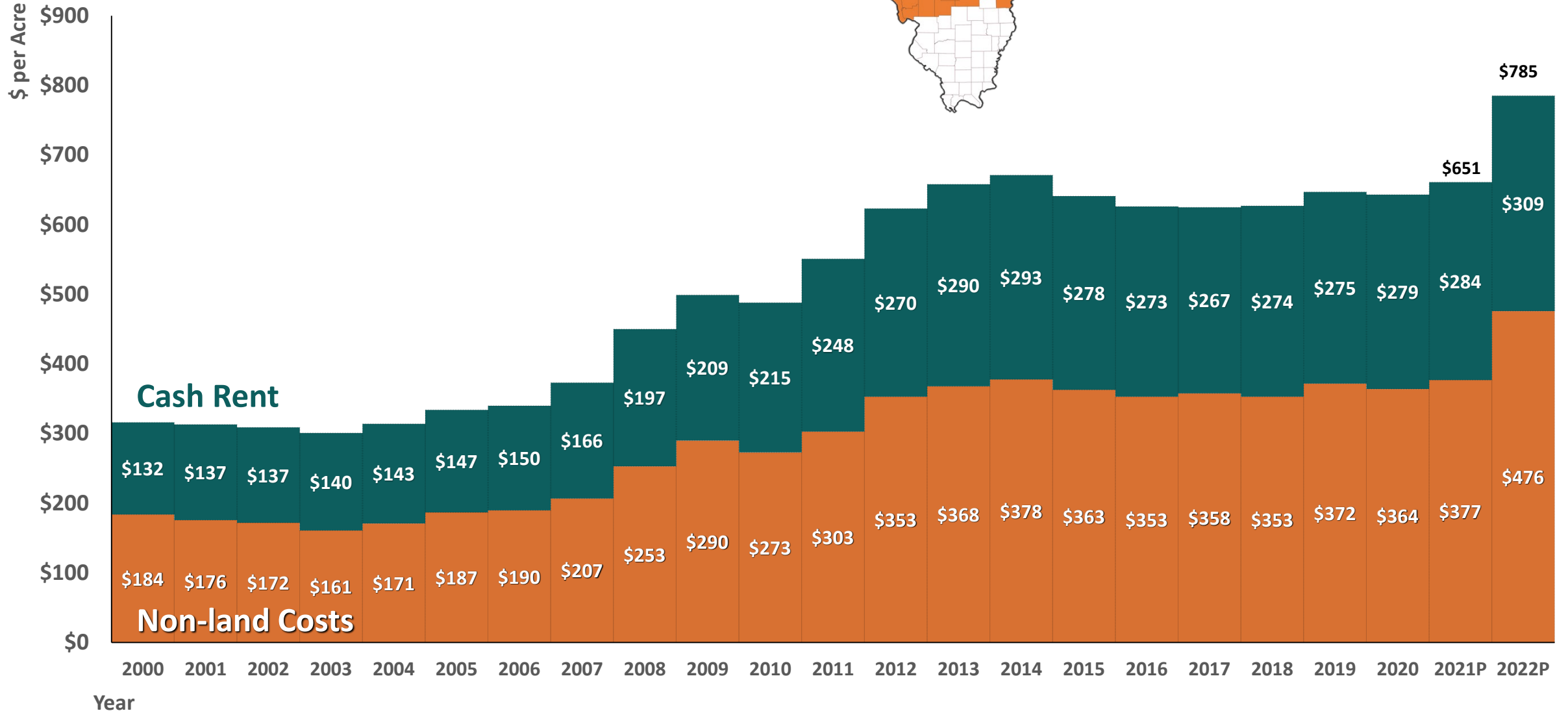
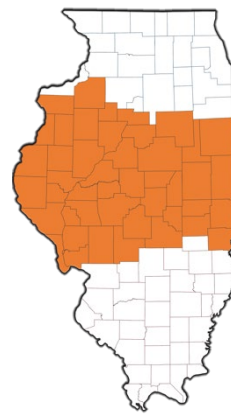
Break-even **Corn** Prices to Cover Different Levels of Costs

High-Productivity Farmland, Central Illinois



Source: Illinois Farm Business Farm Management

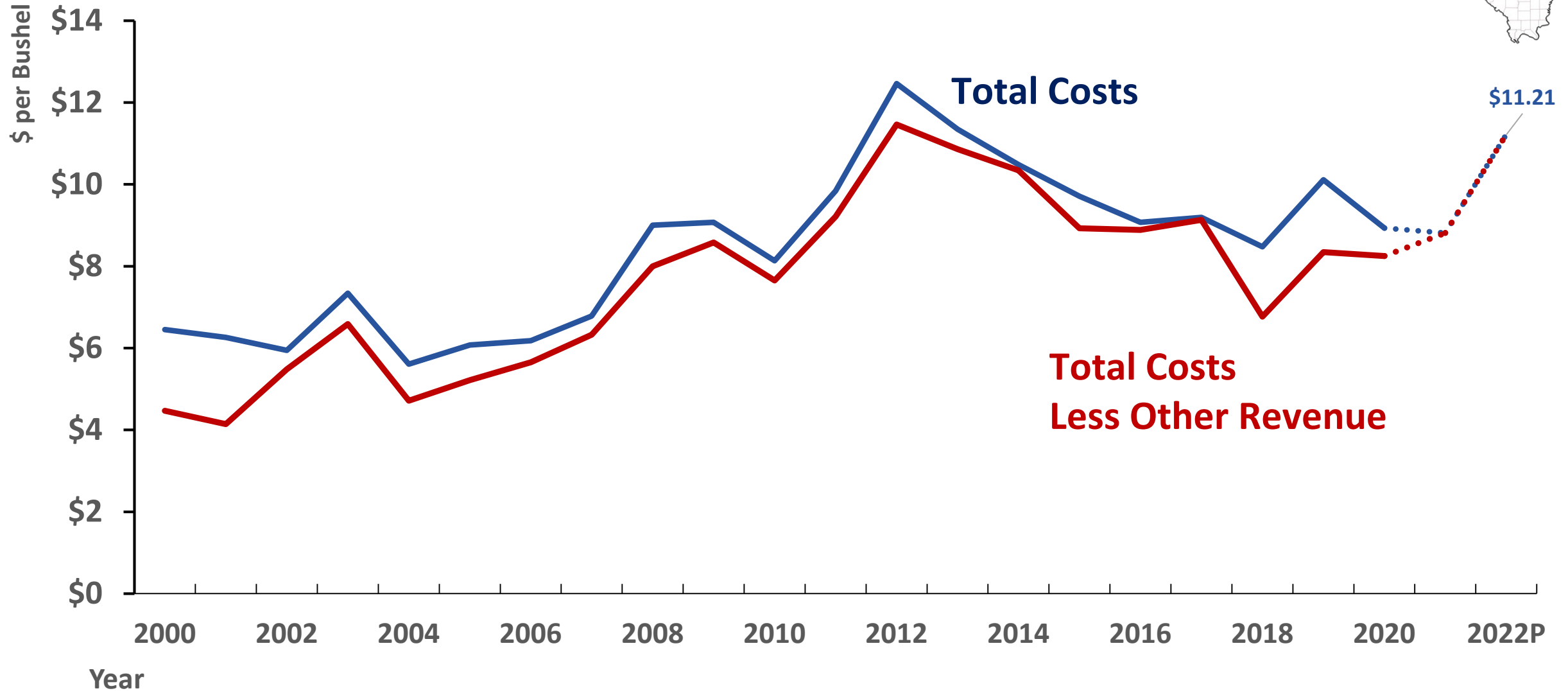
Total Costs of Producing Soybeans on High-Productivity Farmland in Central Illinois



Source: Illinois Farm Business Farm Management

Break-even Soybeans Prices to Cover Different Levels of Costs

High-Productivity Farmland, Central Illinois



Source: Illinois Farm Business Farm Management

Farm Profitability and Risk Going Into 2022

Crop Insurance

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RMA Insurance Products (deadline is March 15)

Acronym	Name	Yields used	Insures	Guarantee Increase
RP	Revenue Protection	Farm (unit)	Revenue	Yes
RPhpe	RP with harvest price exclusion		Revenue	No
YP	Yield Protection		Yield	No
ARP	Area Revenue Protection	County	Revenue	Yes
ARPhpe	ARP with harvest price exclusion		Revenue	No
AYP	Area Yield Plan		Yield	No

Add-ons to Farm Level

(provides revenue/yield or guarantee increase like underlying RP, RPhpe, YP):

SCO (Supplemental Coverage Option): county coverage from 86% to coverage of underlying RP, RPhpe, YP

ECO (Enhanced Coverage Option): county coverage from [90% or 95%] to 86%

Percent Acres Insured, Illinois, Corn, 2020

Coverage Level	RP	RPhpe	YP	ARP	ARPhpe	AYP
50	1%	0%	0%			
55	0%	0%	0%			
60	0%	0%	0%			
65	1%	0%	0%			0%
70	3%	0%	0%	0%		0%
75	15%	0%	1%	0%		0%
80	36%	0%	1%	0%	0%	0%
85	37%	1%	1%	0%	0%	0%
90				2%	0%	0%
Total	93%	1%	3%	2%	0%	0%

3% of acres with Margin Protection

11% of acres in Supplemental Coverage Option

7% of acres in Enhance Coverage Option

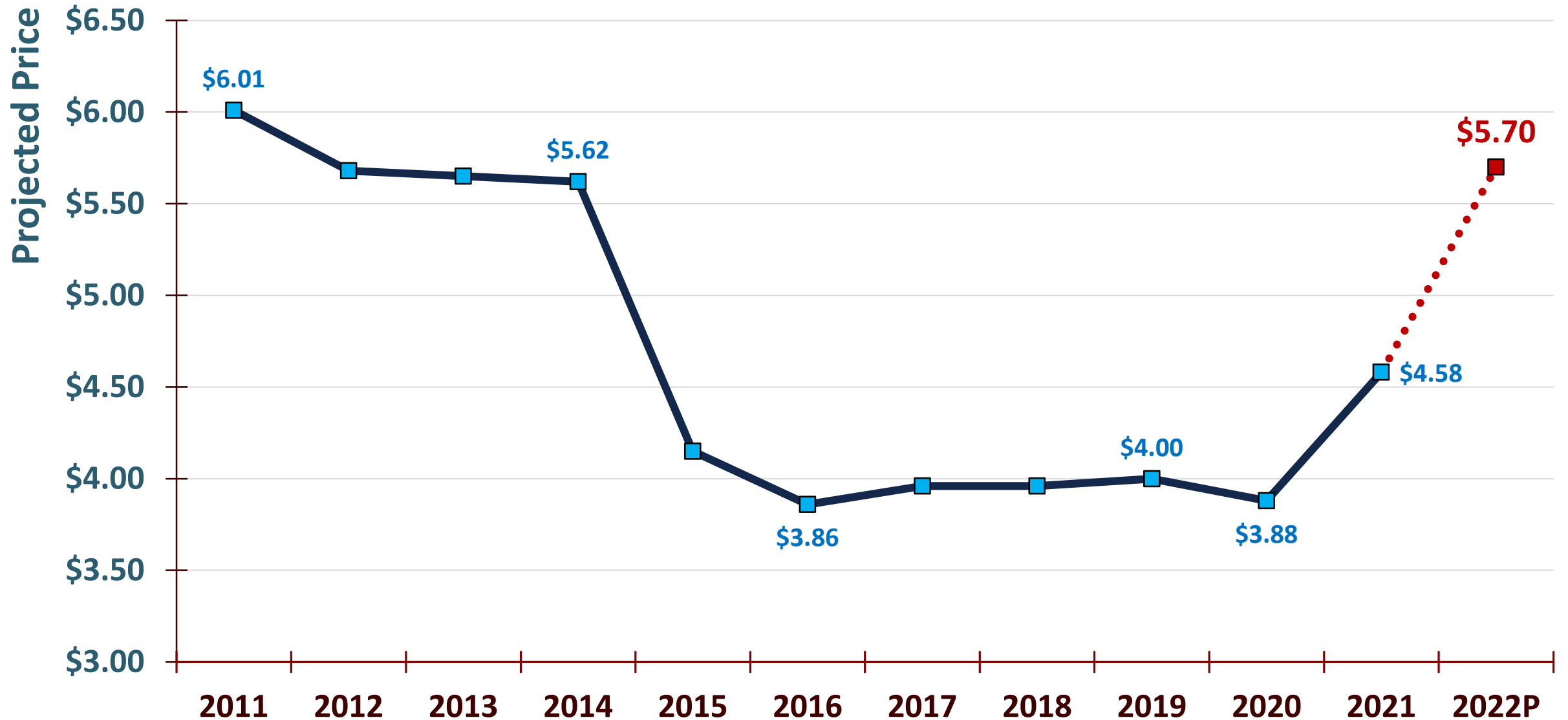
The preferred crop insurance policy of most farmers

Most Farmers:

- Revenue Protection (RP)
- With Trend Adjustment
(and use Yield Exclusion if available)
- At high coverage level

Stay with the above program, perhaps add SCO/ECO

Projected Prices, Corn



McLean County Example

- 220 bushels per acre TA-APH yield
- \$5.70 Projected price
- 0.23 volatility
- Enterprise Units

Show “simulation” model results of policies for 2022.
We used history to determine possible price
and yield outcomes in 2022.



2021 Revenue Protection Premium in \$ per acre Enterprise Units, Corn, McLean County

YEAR		2021	2022P	
Projected Price		\$4.58	\$5.70	
Volatility		.23	.23	Change
Coverage Level	50%	\$0.46	\$0.57	\$.11
	55%	\$0.76	\$0.95	\$.19
	60%	\$1.16	\$1.46	\$.30
	65%	\$1.81	\$2.28	\$.47
	70%	\$2.84	\$3.57	\$.73
	75%	\$5.36	\$6.73	\$1.37
	80%	\$11.36	\$14.23	\$2.87
	85%	\$24.00	\$30.03	\$6.03



220 TA Yield

Corn, No Insurance and RP, Values Per acre

	No Insurance	RP-80%	RP-85%
Premium	\$0	\$14	\$30
Expected Revenue	\$1,174	\$1,190	\$1,194
Minimum Revenue	NA	\$773	\$829
Chance of Revenue Below			
\$1,050	33%	33%	32%
\$950	19%	12%	6%
\$850	9%	0%	0%

Farmer-paid premium

Crop revenue + crop insurance proceeds
– crop insurance premium

**RP provides a
minimum revenue**

**Neither has much impact at
\$1,050, but do lower risk at
lower revenues**

Summary

- RP-80% and RP-85% provide effective coverage
- RP-85% has higher expected return.
This is because crop insurance is subsidized
- Only reason not to do RP-85% is the higher of the premium



Supplement Coverage Option (SCO)

- **County** coverage available in 86% to coverage level of RP policy
- Can only be used if commodity title choice is Price Loss Coverage
- Eligible for RP, RPhpe, YP (not ARP, ARPhpe, AYP)
- Coverage of ECO mimics that of the underlying RP, RPhpe, YP

Enhanced Coverage Option (ECO)

- **County** coverage available in:
 - 95% to 86%
 - 90% to 86%
- Can be used with or without SCO
(County coverage from 85% to RP, RPhpe, or YP coverage)
- Can be used regardless of Commodity title choice (ARC and PLC)
- Eligible for RP, RPhpe, YP (not ARP, ARPhpe, AYP)
- Coverage of ECO minics that of the underlying RP, RPhpe, YP

Thinking about ECO and SCO

- Think about two policies: a county policy and a farm policy
- Example: RP 80%, SCO (86% to 80%), ECO (90% to 86%)
 - Do not have coverage from 90% down to 0%
 - **County coverage from 90% to 80%**
and **farm coverage from 80% to 0%**
- County coverage is good for “general” economics:
 - but it does not provide farm coverage
 - does not provide prevent plant payments

Corn, RP-85, and SCO

	RP-85%	RP-85% SCO	
Premium	\$30	\$32	SCO premium is \$1.89
Expected Revenue	\$1,194	\$1,197	Increases because of subsidy effect
Minimum Revenue	\$829	\$828	Little impact on minimum revenue
Chance or Revenue Below			
\$1,050	32%	31%	Some but not much impact on lower revenue chance
\$950	6%	5%	
\$850	0%	0%	

Corn, RP-85, and ECO-90%

	RP-85%	RP-85% SCO	RP-85% SCO ECO-90%
Premium	\$30	\$32	\$46
Expected Revenue	\$1,194	\$1,197	\$1,212
Minimum Revenue	\$829	\$828	\$834
Chance or Revenue Below			
\$1,050	32%	31%	20%
\$950	6%	5%	3%
\$850	0%	0%	0%

ECO premium is \$14.96
(highest protection level)

Increases because of subsidy effect

Little impact on minimum revenue

Reduction in the chance
of having a low revenue

Corn, RP-85, and ECO-95%

	RP-85%	RP-85% SCO	RP-85% SCO ECO-90%	RP-85% SCO ECO-95%
Premium	\$30	\$32	\$46	\$72
Expected Revenue	\$1,194	\$1,196	\$1,212	\$1,222
Minimum Revenue	\$829	\$828	\$834	\$849
Chance or Revenue Below				
\$1,050	18%	16%	9%	7%
\$950	1%	1%	0%	0%
\$850	0%	0%	0%	0%

ECO premium is \$39.97
(highest protection level)

Increases because of
subsidy effect

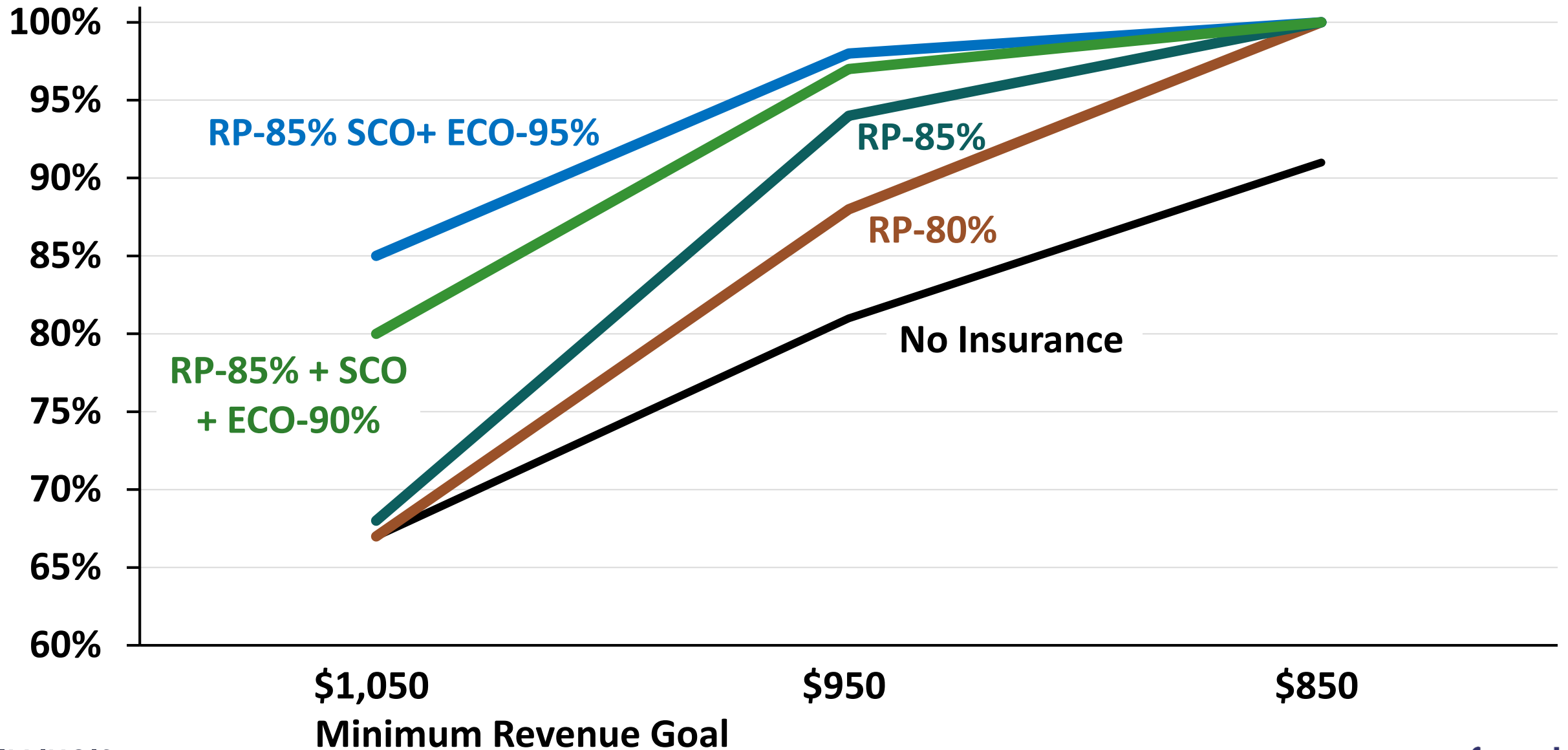
Little impact on
minimum revenue

Some reduction
in the chance of
having a low
revenue

RP-85% Versus RP-80% plus ECO and SCO

	RP-85%	RP-80%	RP-80% SCO	RP-80% SCO ECO-90%	RP-80% SCO ECO-95%
Premium	\$30	\$14	\$23	\$38	\$63
Expected Revenue	\$1,194	\$1,190	\$1,201	\$1,210	\$1,222
Minimum Revenue	\$829	\$788	\$813	\$825	\$802
Chance or Revenue Below					
\$1,050	32%	33%	39%	24%	18%
\$950	6%	12%	6%	4%	3%
\$860	0%	0%	0%	0%	0%

Chance of Reaching Your Minimum Revenue Goal



ECO Summary

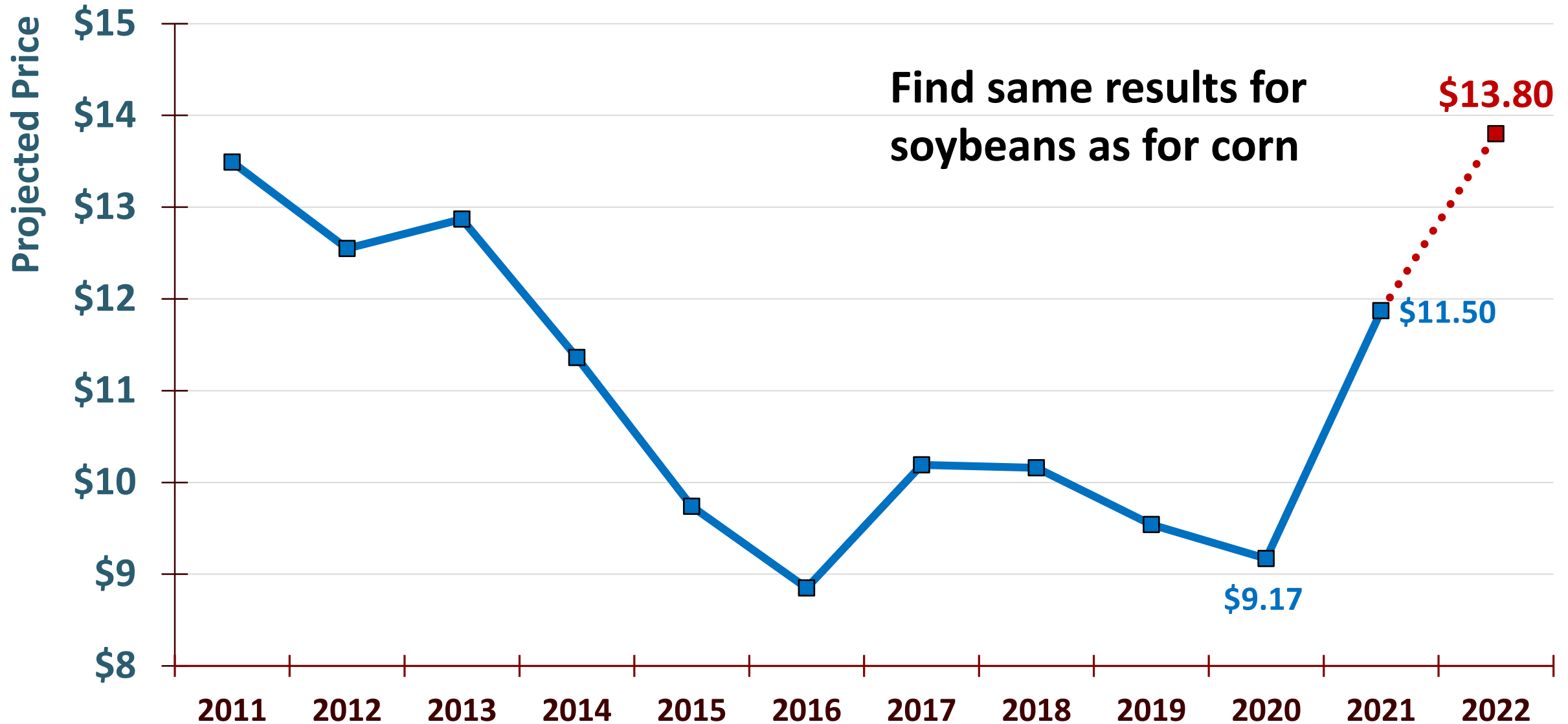
- Vary high premiums because payouts occur often
- Will increase expected revenue, but will significantly reduce returns in a “normal” year
- Will have some downside risk protection

Decision:

How much do you want to pay in premium.

Can you withstand a \$60 per acre premium in a normal year.

Projected Prices for Soybeans



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2022 Farmland Leasing

- Lease types
 - Traditional Cash Rent
 - Traditional Share Rent
 - Variable Cash Rent
- 2022 Lease agreements already established
- Evaluate farmer and landowner returns for alternative rental agreements

2022 Forecast Revenue and Returns Per Acre for Corn on High-Productivity Farmland in Central Illinois



Harvest Price	Estimated Cash Price	Crop Revenue	RP Payment	Gross Revenue	Operator and Land Return	Payment to Land Owner			Net Return to Farmer		
						Share Rent	Cash Rent	Variable Cash Rent	Share Rent	Cash Rent	Variable Cash Rent
3.90	3.60	792	208	1,000	245	244	310	253	1	-65	-9
4.50	4.20	924	76	1,000	245	244	310	296	1	-65	-51
5.10	4.80	1,056	0	1,056	301	272	310	338	29	-9	-37
5.70	5.40	1,188	0	1,188	433	338	310	380	95	123	53
6.30	6.00	1,320	0	1,320	565	404	310	422	161	255	143

Harvest Price = Estimated Futures Price at Harvest

Estimated Cash Price = Harvest Price - \$0.30 Basis

Crop Revenue = Est. Cash Price x Trend Yield Projection

RP Projection = 85% Coverage, \$5.70 Price, 220 bu. Guarantee

Gross Revenue = Crop Revenue + RP Payment

Operator & Land Return = Gross revenue - \$755 Non-Land Costs

Share Rent = 50%/50% Share Rent with \$512/acre split

Cash Rent = \$310/acre

Variable Cash Rent = 32% crop revenue, with \$200 minimum

2022 Forecast Revenue and Returns Per Acre for Soybeans on High-Productivity Farmland in Central Illinois



Harvest Price	Estimated Cash Price	Crop Revenue	RP Payment	Gross Revenue	Operator and Land Return	Payment to Land Owner			Net Return to Farmer		
						Share Rent	Cash Rent	Variable Cash Rent	Share Rent	Cash Rent	Variable Cash Rent
11.10	10.80	756	44	800	324	265	310	325	59	14	-1
12.00	11.70	819	0	819	343	275	310	352	69	33	-9
12.90	12.60	882	0	882	406	306	310	379	100	96	27
13.80	13.50	945	0	945	469	338	310	406	132	159	63
14.70	14.40	1,008	0	1,008	532	369	310	433	163	222	99

Harvest Price = Estimated Futures Price at Harvest

Estimated Cash Price = Harvest Price - \$0.30 Basis

Crop Revenue = Est. Cash Price x Trend Yield Projection

RP Projection = 85% Coverage, \$13.80 Price, 70 bu. Guarantee

Gross Revenue = Crop Revenue + RP Payment

Operator & Land Return = Gross revenue - \$476 Non-Land Costs

Share Rent = 50%/50% Share Rent with \$270/acre split

Cash Rent = \$310/acre

Variable Cash Rent = 43% crop revenue, with \$200 minimum

2022 Farmland Leasing

- **If** price \geq current AND yield \geq trend **then** farmers and landowners **profitable**
- **If** decline in returns (price and/or yield) **then**
 - **Farmer Impact:**
 - Returns lower for all lease types
 - At a \$310 cash rent farmer returns can be negative for corn and low for soybeans even with RP 85%
 - **Landowner Impact:**
 - Returns lower for landowners with share and variable cash leases
 - Unchanged with fixed cash rent
- Rent factors of 32% for corn and 43% for soybeans calculated in 2021 at rates that resulted in equal fixed and variable cash rents from 2000-2020
- If rent factor adjustments are made, higher non-land costs suggest lowering rent factors

Summary

- 2022 should be a profitable year but will have risks
- RP at high coverage levels will provide risk reductions
- ECO will further reduce risks, but comes at a high premium cost
- Tenure relationship matter, need to consider lowering rent factors on variable cash rents



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