

2020 Crop Insurance Decisions



ARC/PLC CALCULATOR

Last Updated: Feb 25, 2020

The Gardner ARC/PLC Calculator shows the likelihood of ARC-CO and PLC making payments in each year from 2019 to 2023. Expected payment levels also are given for user-selected counties and crops.



INSURANCE PREMIUMS

Last Updated: Mar 01, 2020

The Insurance Premiums tool shows per acre insurance premiums that farmers will pay for Federally-subsidized crop Insurance products. These per acre premiums are given for customized entries made by users that reflect individual farm cases.

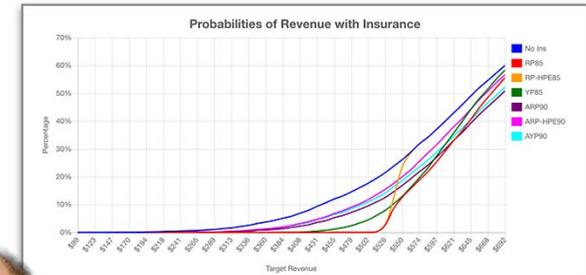
Coverage Level	Revenue Protection				Revenue Protection With Harvest Price Exclusion				Yield Protection			
	Enterprise	Basic	Optional	Min. Revenue Guarantee	Enterprise	Basic	Optional	Revenue Guarantee	Enterprise	Basic	Optional	Yield Guarantee (bushel)
50%	1.48	2.44	3.70	330	1.48	2.44	3.70	330	1.25	2.06	3.16	82
55%	2.03	3.66	5.43	363	2.03	3.66	5.43	363	1.70	3.06	4.59	91
60%	2.63	4.85	7.01	396	2.63	4.85	7.01	396	2.23	4.01	5.90	99
65%	3.40	7.25	10.36	429	3.40	7.25	10.36	429	2.88	5.91	8.57	107
70%	4.75	10.04	13.83	462	4.75	10.04	13.83	462	3.82	7.83	11.12	115
75%	7.12	14.34	19.19	495	7.12	14.34	19.19	495	5.55	10.87	15.20	124
80%	12.63	22.04	28.81	528	12.63	22.04	28.81	528	9.55	16.62	22.87	132
85%	23.84	33.72	42.82	561	23.84	33.72	42.82	561	18.38	24.93	33.62	140



INSURANCE EVALUATOR

Last Updated: Daily

The Insurance Payment Evaluator tool provides helpful information to producers comparing costs and risk reductions across their available crop insurance alternatives.



Bruce Sherrick



Gary Schnitkey



Gardner
Agriculture
Policy
Program



Our webinar sponsor



Crop Insurance Decision Tools – 2020

- Crop Insurance Overview
- Premium Calculator
- Crop Insurance Payment Evaluator
- Price distribution/evaluation tools
- SCO decisions

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INSURANCE PREMIUMS

Last Updated: Mar 01, 2020

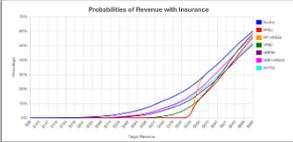
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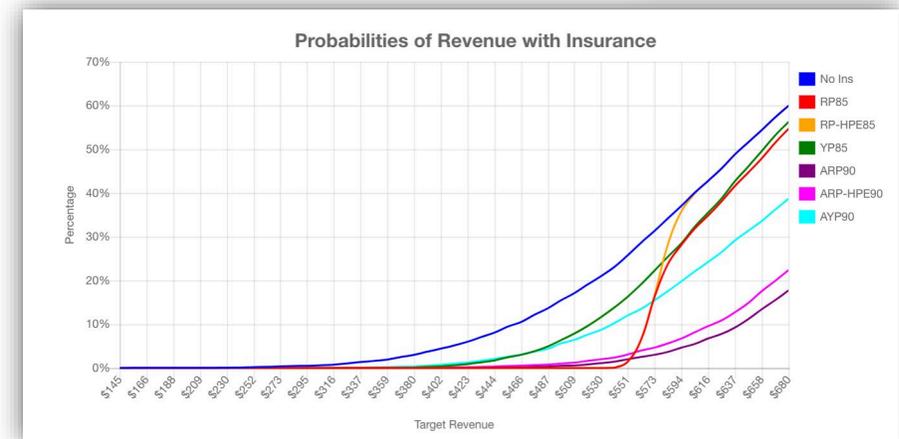
Commodity	Regional Premiums			National Premiums			Crop Premiums		
	Yield	Price	Premium	Yield	Price	Premium	Yield	Price	Premium
CR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
CR	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

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INSURANCE EVALUATOR

Last Updated: Daily

The Insurance Payment Evaluator tool provides helpful information to producers comparing costs and risk reductions across their available crop insurance alternatives.





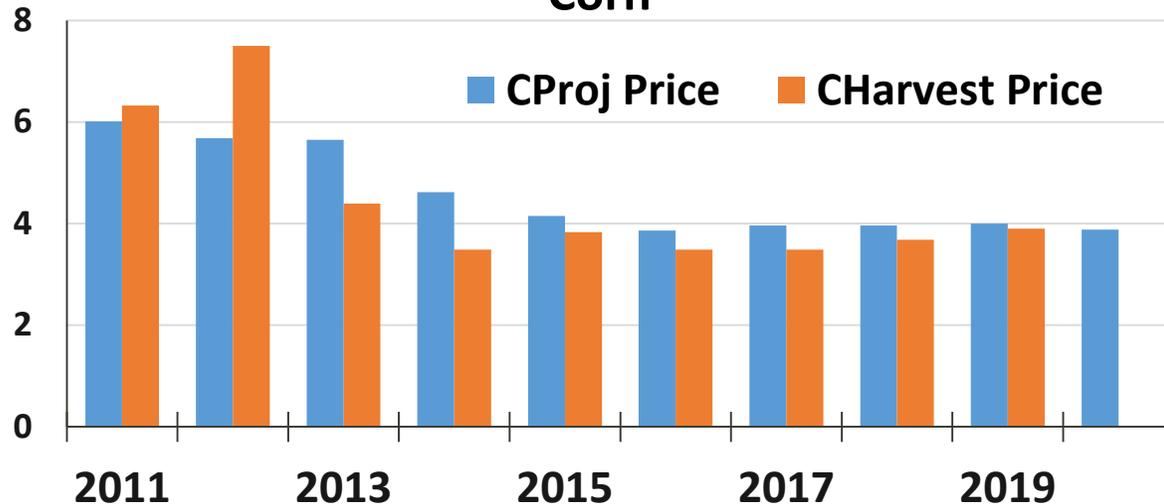
2020 Crop Insurance Prices and Volatilities

Table 1. Projected Prices, Harvest Prices, and Volatilities, Corn and Soybeans, SCD 3/15 (RMA)

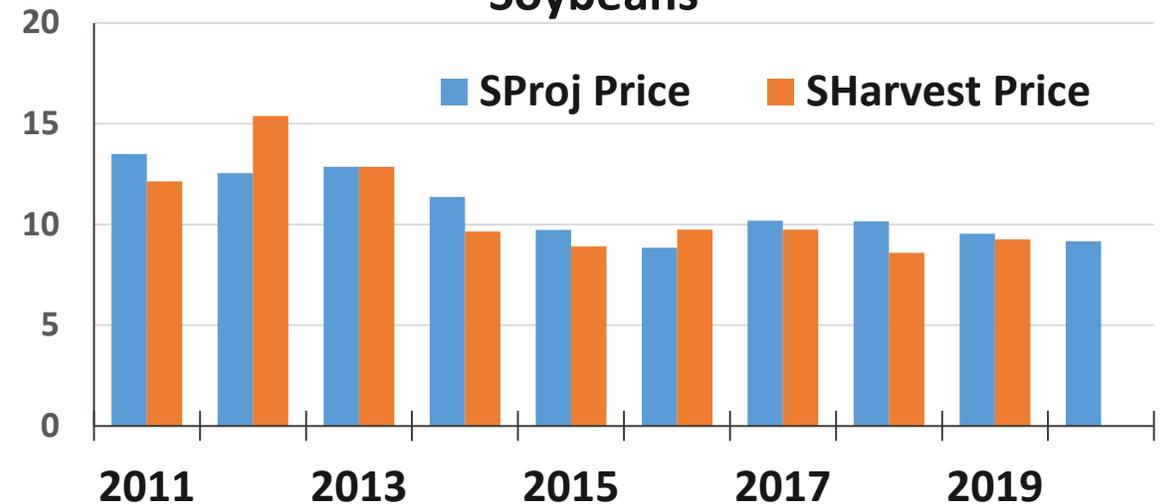
Corn	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Proj Price	6.01	5.68	5.65	4.62	4.15	3.86	3.96	3.96	4.00	3.88
Harvest Price	6.32	7.50	4.39	3.49	3.83	3.49	3.49	3.68	3.90	?
Volatility	0.29	0.22	0.20	0.19	0.21	0.17	0.19	0.15	0.15	0.15
Soybeans	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Proj Price	13.49	12.55	12.87	11.36	9.73	8.85	10.19	10.16	9.54	9.17
Harvest Price	12.14	15.39	12.87	9.65	8.91	9.75	9.75	8.60	9.25	?
Volatility	0.23	0.18	0.17	0.13	0.16	0.12	0.16	0.14	0.12	0.12

- Lower Projected Prices (PP) and steady Volatility Factors
- Recent years' PPs above HPs – 2020?
- Soybean Futures below PP
- Corn Futures slightly below PP

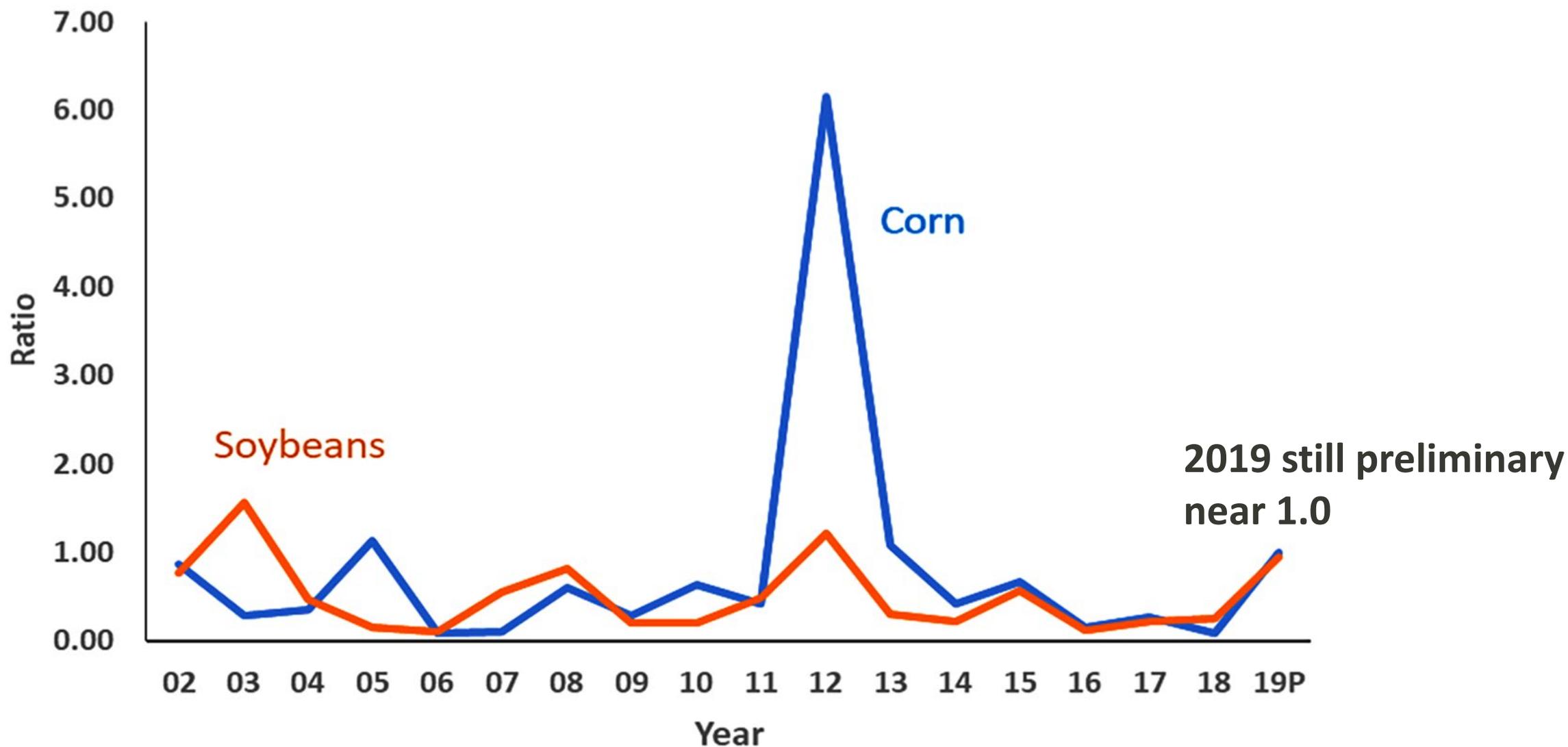
Corn



Soybeans



Loss Ratios In Illinois

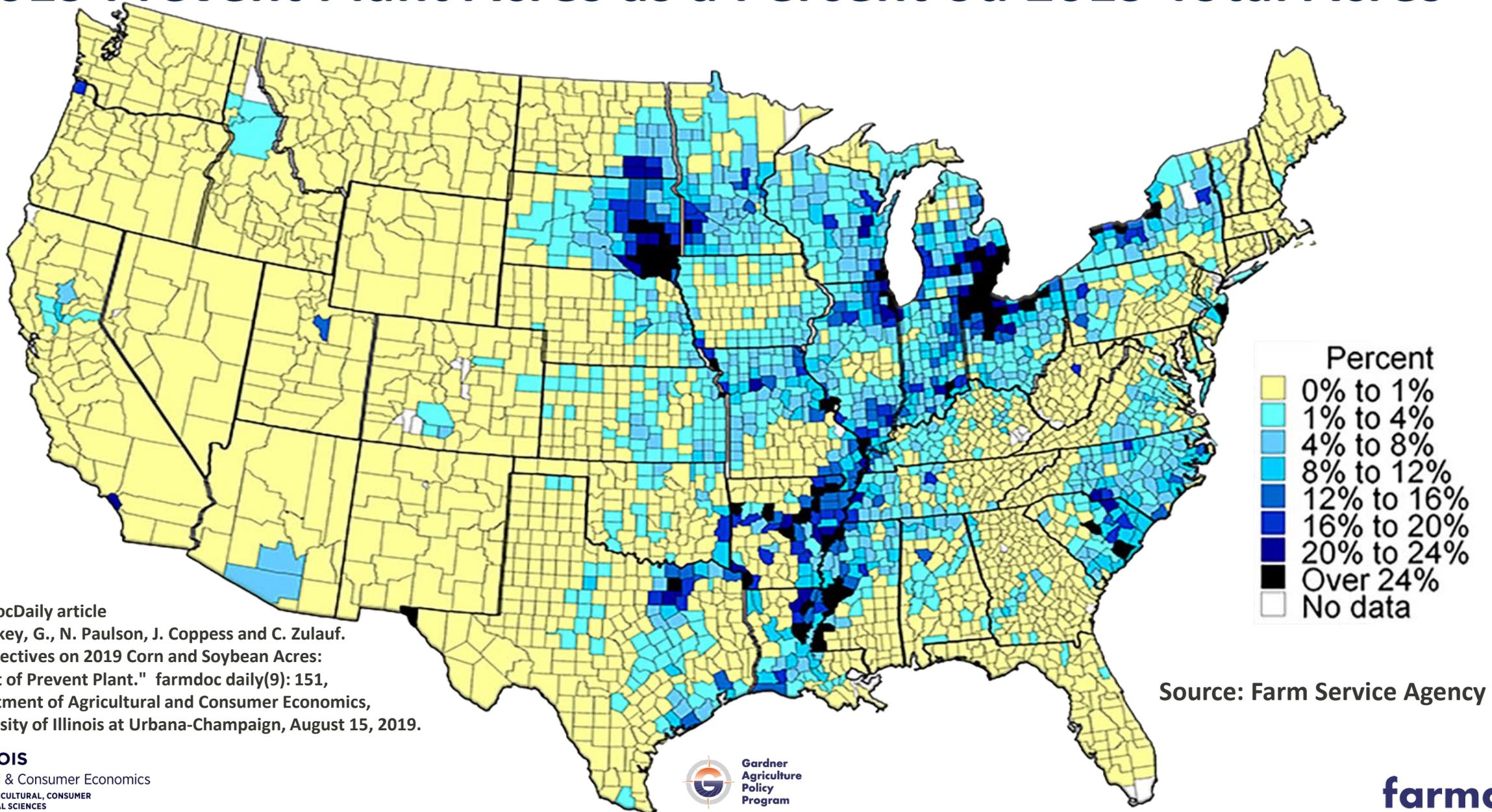


Percent Acres Insured, Illinois, Corn, 2020

Coverage Level	RP	RPwHPE	YP	ARP	ARPwHPE	AYP
50	1%	0%	1%			
55	0%	0%	0%			
60	0%	0%	0%			
65	1%	0%	0%			0%
70	3%	0%	0%	0%		0%
75	15%	0%	%	0%		0%
80	32%	1%	0%	0%	0%	0%
85	42%	1%	0%	0%	0%	0%
90				2%	0%	0%
Total	94%	2%	2%	2%	0%	0%

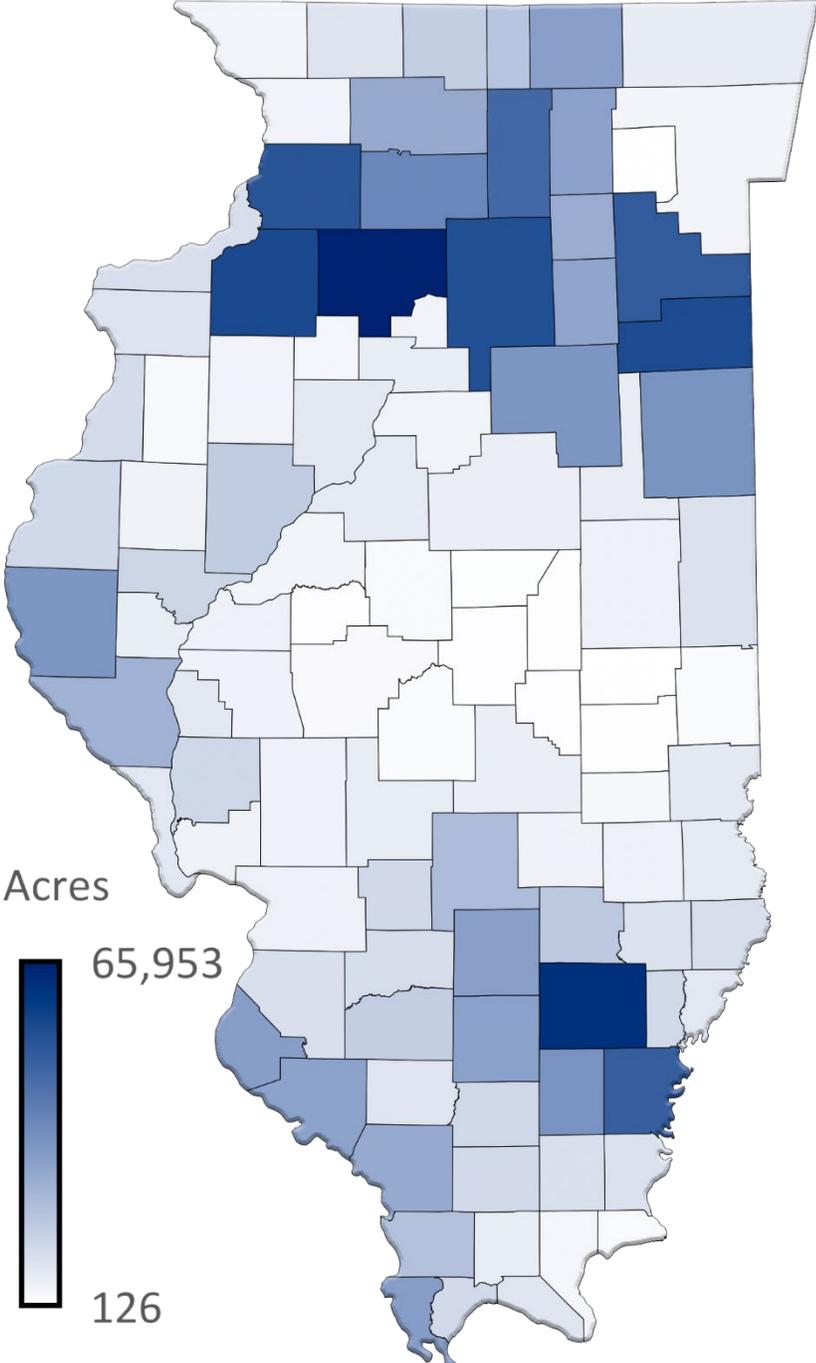
86% of planted corn acres were insured

2019 Prevent Plant Acres as a Percent of 2019 Total Acres



farmdocDaily article
Schnitkey, G., N. Paulson, J. Coppess and C. Zulauf.
"Perspectives on 2019 Corn and Soybean Acres:
Impact of Prevent Plant." farmdoc daily(9): 151,
Department of Agricultural and Consumer Economics,
University of Illinois at Urbana-Champaign, August 15, 2019.

Illinois acres in prevent plant



Prevent Plant

- June 5 is the final plant date for corn over most of Illinois
- May 31 in Southern Illinois
- Presumption is:
Reach the final plant date,
take prevent plant payment

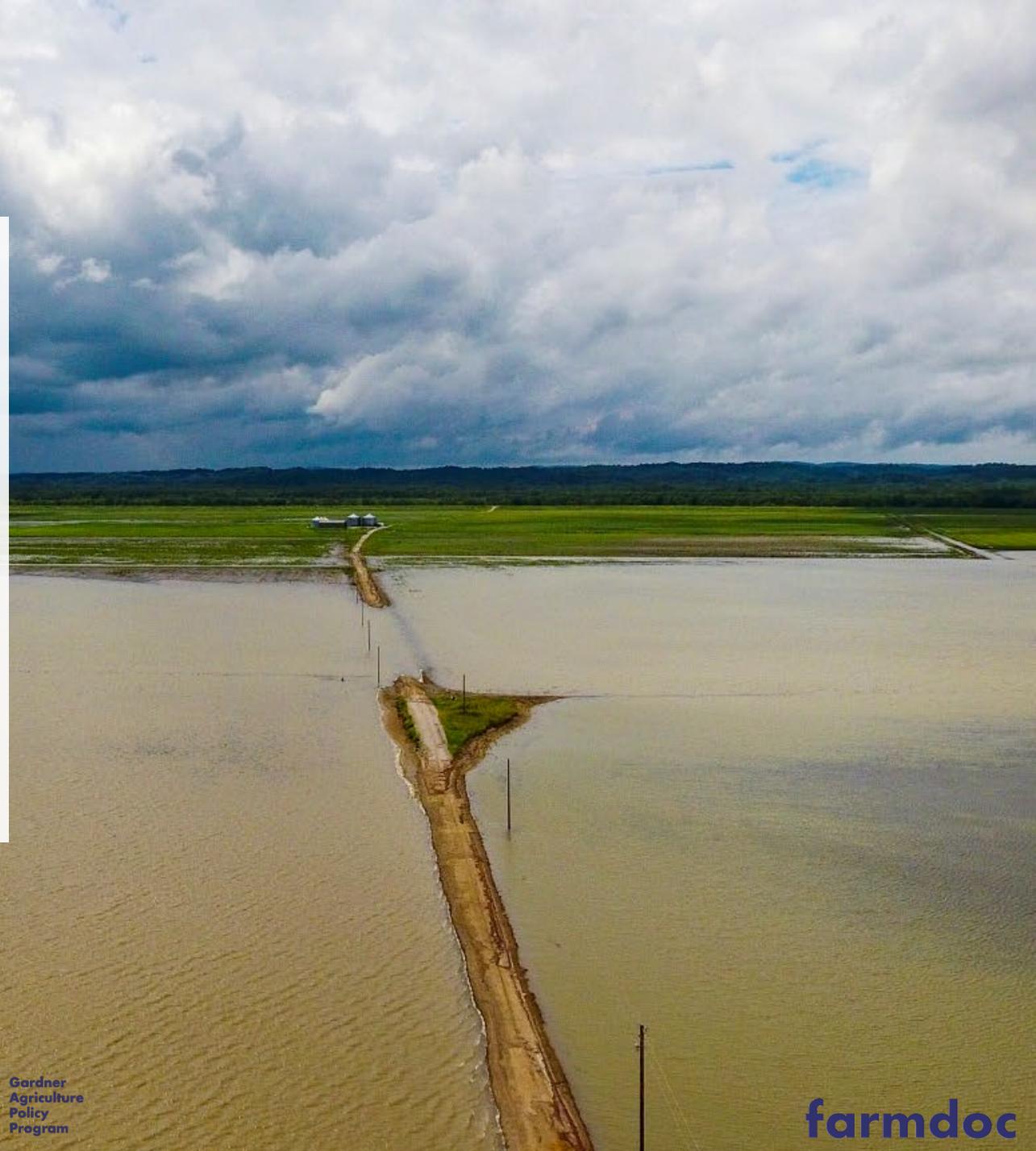


Figure 2. Final Planting Date, Corn

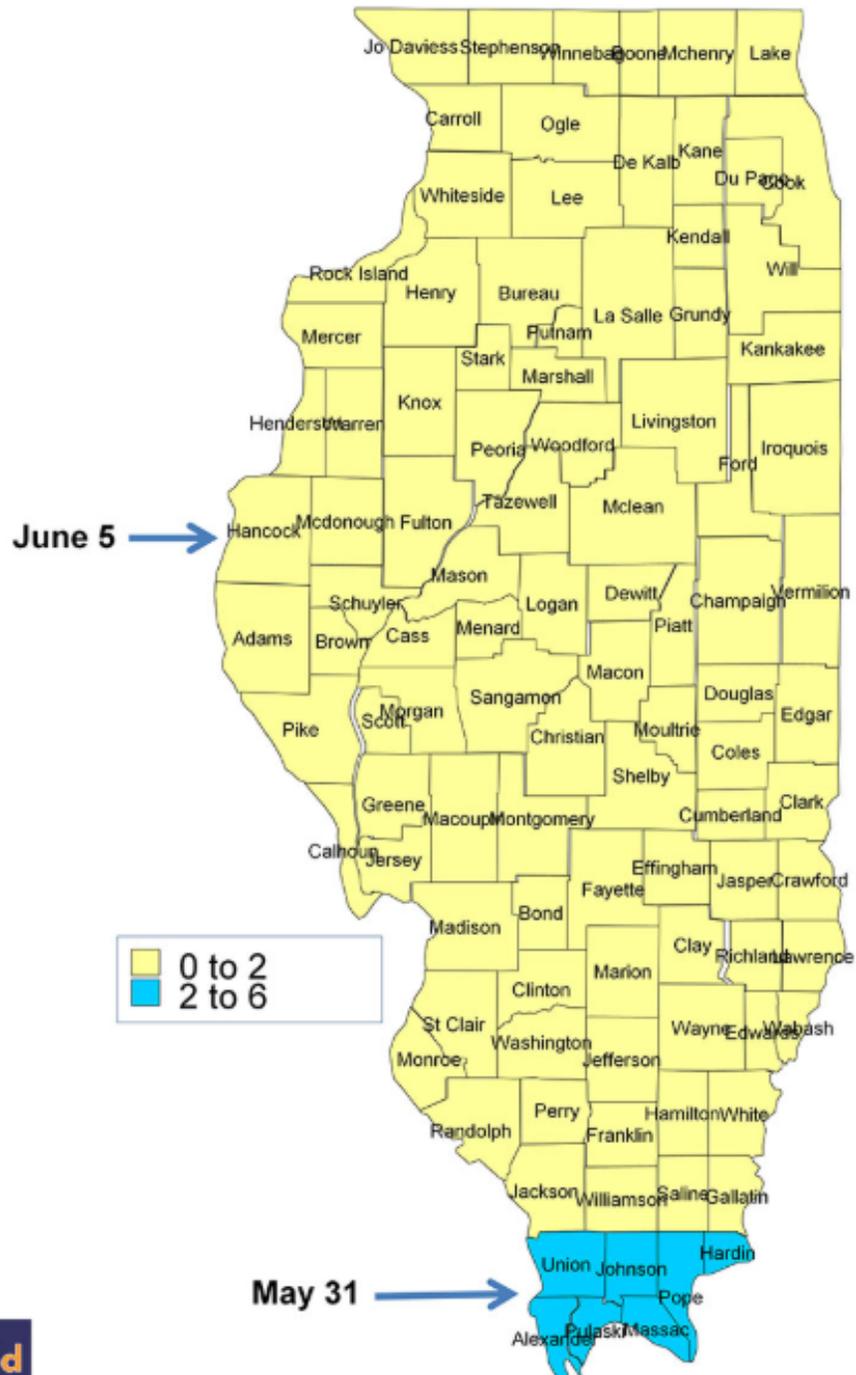
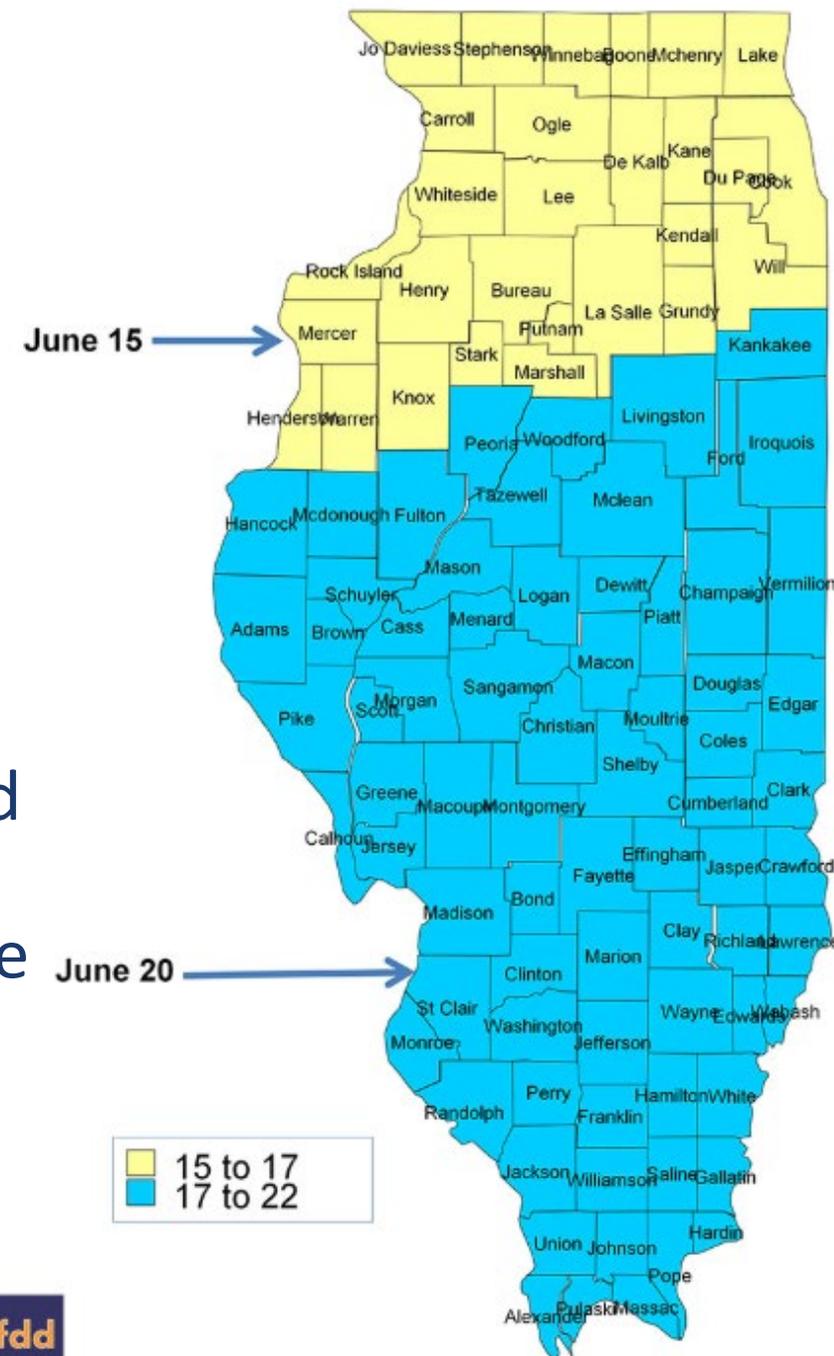


Figure 3. Final Planting Date, Soybeans



Final Planting Dates

- Date you can take a prevented planting payment for crop
- Can plant after it, but guarantee is reduced
 - 1% per day during late planting period
 - 60% of initial guarantee after late planting period

Eligibility and Prevented Planting Payment

Prevented planting payments on COMBO product:

- PP paid on Revenue Protection (RP), Yield Protection (YP), RP with harvest price exclusion
- Not on SCO
- Not on ARPI (ARP, AYP, ARP with harvest price exclusion)

Payment equals:

PP payment factor x coverage level x TA-APH yield x projected price

PP factor is:

- 55% for corn (could have bought up to 60%)
- 60% for soybean (could have both up to 65%)

Note: Some farmers have private add-ons that increase prevented planting coverage to 90% and 95%

Example of Payment

(high yield/ high coverage level)

- 55% payment factor
- 85% coverage level
- 200 TA-APH
- \$4.00 projected price

\$374 per acre = .55 x .85 x 200 x 4.00

Example of Payment

(lower yield/lower coverage level)

- 55% payment factor
- 75% coverage level
- 160 TA-APH
- \$4.00 projected price

\$264 per acre = .55 x .75 x 160 x 4.00

Crop Insurance Dates and Guarantee

- Final planting date:

- Date after which you can take prevented planting

- Late planting period:

- 20 day after final planting period for corn, 25 days for soybeans
- Can plant, but crop insurance guarantee goes down 1% per day

- After late planting period:

- Insurance guarantee is 60% of original
- Can plant another crop for harvest, but prevented planting payment is 35% of original amount

Premium Calculator for 2020

Corn, Champaign County, 2020

- Many counties in Illinois have lower premiums
- Note slightly lower projected prices and rates
- Premium available at:
<https://fd-tools.ncsa.illinois.edu>

Coverage Level	Revenue Protection			
	Enterprise	Basic	Optional	Min. Revenue Guarantee
50%	0.54	0.91	1.40	388
55%	0.75	1.41	2.13	427
60%	1.03	2.04	2.96	466
65%	1.40	3.26	4.59	504
70%	2.08	4.82	6.59	543
75%	3.47	7.64	10.09	582
80%	6.87	12.76	16.24	621
85%	13.81	20.63	25.39	660

2020 Crop Insurance Payment Evaluator

- Evaluates expected payments, frequency of payments, net cost of insurance, risk reduction, and likelihood of revenue for corn and soybean producers under actual current conditions
- 11 States, all counties, representative case farm by county
- Example county used to demonstrate - note that insurance offering rates can vary widely within a small geographic region – important to consult qualified insurance agent



fd-tools.ncsa.illinois.edu

Evaluator - Enter your farm information to evaluate crop insurance options for 2020

State	County	Crop	Acres *
Illinois	Piatt	Corn	100
<input type="button" value="➤ RUN INSURANCE EVALUATOR"/>			

This tool develops a case farm for most counties in the major corn and soybean production regions, and provides estimates of premiums for all available crop insurance products, along with the expected frequency of payments, average payment per acre, net cost per acre, and risk reductions associated with alternative crop insurance products.

Case Farm Info

Insurance Evaluator

Revenue Risk Info

		Farm Yield (bu/acre)	County Yield (bu/acre)
Farm Average Yield	199.85 bu/acre		
Farm Std Dev of Yield	42.01 bu/acre	30% of years yields below	179.44
County Average Yield	199.85 bu/acre	20% of years yields below	164.75
County Std Dev of Yield	33.60 bu/acre	10% of years yields below	143.71
Current Futures Price	\$3.83 /bu	5% of years yields below	126.06
Std Dev of Price	0.67 /bu		
Average Harvest Cash Basis	0.35 /bu	Farm Trend-Adjusted APH	199.85 bu/acre
Average Gross Crop Rev	\$684 /acre	County TA Rate	1.92 bu/acre/year
		Farm APH (ref)	190.40 bu/acre

2020 Crop Insurance Payment Evaluator

fd-tools.ncsa.illinois.edu

RMA 2020 Projected Price is \$3.88 with Volatility Factor of 0.15. Last Updated on Mar 01, 2020.

State: Illinois | County: Piatt | Crop: Corn | Acres*: 100

RUN INSURANCE EVALUATOR

Individual Farm Level Policies

Unit: Basic

Coverage Level	Revenue Protection (RP)					Revenue Protection With Harvest Price Exclusion (RP-HPE)					Yield Protection (YP)				
	Est. Premium (\$/acre)	Avg. Payment (\$/acre)	Payment Frequency (%)	Net Cost (\$/acre)	Avg. Gross Rev (\$/acre)	Est. Premium (\$/acre)	Avg. Payment (\$/acre)	Payment Frequency (%)	Net Cost (\$/acre)	Avg. Gross Rev (\$/acre)	Est. Premium (\$/acre)	Avg. Payment (\$/acre)	Payment Frequency (%)	Net Cost (\$/acre)	Avg. Gross Rev (\$/acre)
50%	0.77	0.98	1.5%	-0.21	684	0.64	0.52	1.0%	0.12	684	0.64	0.71	1.2%	-0.07	684
55%	1.16	1.93	2.9%	-0.77	685	0.86	1.10	2.0%	-0.24	684	0.94	1.36	2.2%	-0.42	685
60%	1.70	3.65	5.2%	-1.95	686	1.05	2.18	3.8%	-1.13	685	1.29	2.42	3.5%	-1.13	685
65%	2.76	6.51	8.3%	-3.75	688	1.50	4.12	6.1%	-2.62	687	2.00	4.15	5.5%	-2.15	686
70%	4.13	10.98	12.9%	-6.85	691	2.10	7.20	9.9%	-5.10	689	2.82	6.88	8.5%	-4.06	688
75%	6.66	17.47	18.6%	-10.81	695	3.19	11.92	14.8%	-8.73	693	4.19	10.91	12.4%	-6.72	691
80%	11.33	26.64	25.7%	-15.31	699	5.55	18.66	20.4%	-13.11	697	6.70	16.66	17.2%	-9.96	694
85%	18.66	39.30	35.4%	-20.64	705	9.30	28.05	28.5%	-18.75	703	10.26	24.53	23.4%	-14.27	698

2020 Crop Insurance Payment Evaluator

fd-tools.ncsa.illinois.edu

State: Illinois | County: Piatt | Crop: Corn | Acres*: 100

▶ RUN INSURANCE EVALUATOR

County Level Products

Coverage Level	Area Revenue Protection (ARP)					Area Revenue Protection With Harvest Price Exclusion (ARP-HPE)					Area Yield Protection (AYP)				
	Est. Premium (\$/acre)	Avg. Payment (\$/acre)	Payment Frequency (%)	Net Cost (\$/acre)	Avg. Gross Rev (\$/acre)	Est. Premium (\$/acre)	Avg. Payment (\$/acre)	Payment Frequency (%)	Net Cost (\$/acre)	Avg. Gross Rev (\$/acre)	Est. Premium (\$/acre)	Avg. Payment (\$/acre)	Payment Frequency (%)	Net Cost (\$/acre)	Avg. Gross Rev (\$/acre)
70%	1.44	22.77	9.4%	-21.33	695	1.32	12.22	13.3%	-10.90	706	1.28	14.36	8.3%	-13.08	697
75%	3.25	37.70	16.8%	-34.45	703	1.71	22.28	22.5%	-20.57	720	1.77	22.43	13.2%	-20.66	705
80%	7.58	59.58	26.6%	-52.00	715	3.97	37.95	34.6%	-33.98	740	4.01	33.83	19.9%	-29.82	714
85%	16.36	88.28	38.1%	-71.92	727	9.40	59.23	48.1%	-49.83	763	6.36	49.35	28.7%	-42.99	727
90%	30.76	123.39	51.0%	-92.63	739	17.68	86.01	62.9%	-68.33	790	11.40	69.61	39.6%	-58.21	742

2020 Crop Insurance Payment Evaluator

fd-tools.ncsa.illinois.edu

State: Illinois | County: Piatt | Crop: Corn | Acres*: 100

RUN INSURANCE EVALUATOR

Change Gross Target Revenue To Run Again: \$ 608 /acre i

Probability of not reaching above target with no insurance: 32.1%

1% Value at risk with no insurance: \$349

5% Value at risk with no insurance: \$437

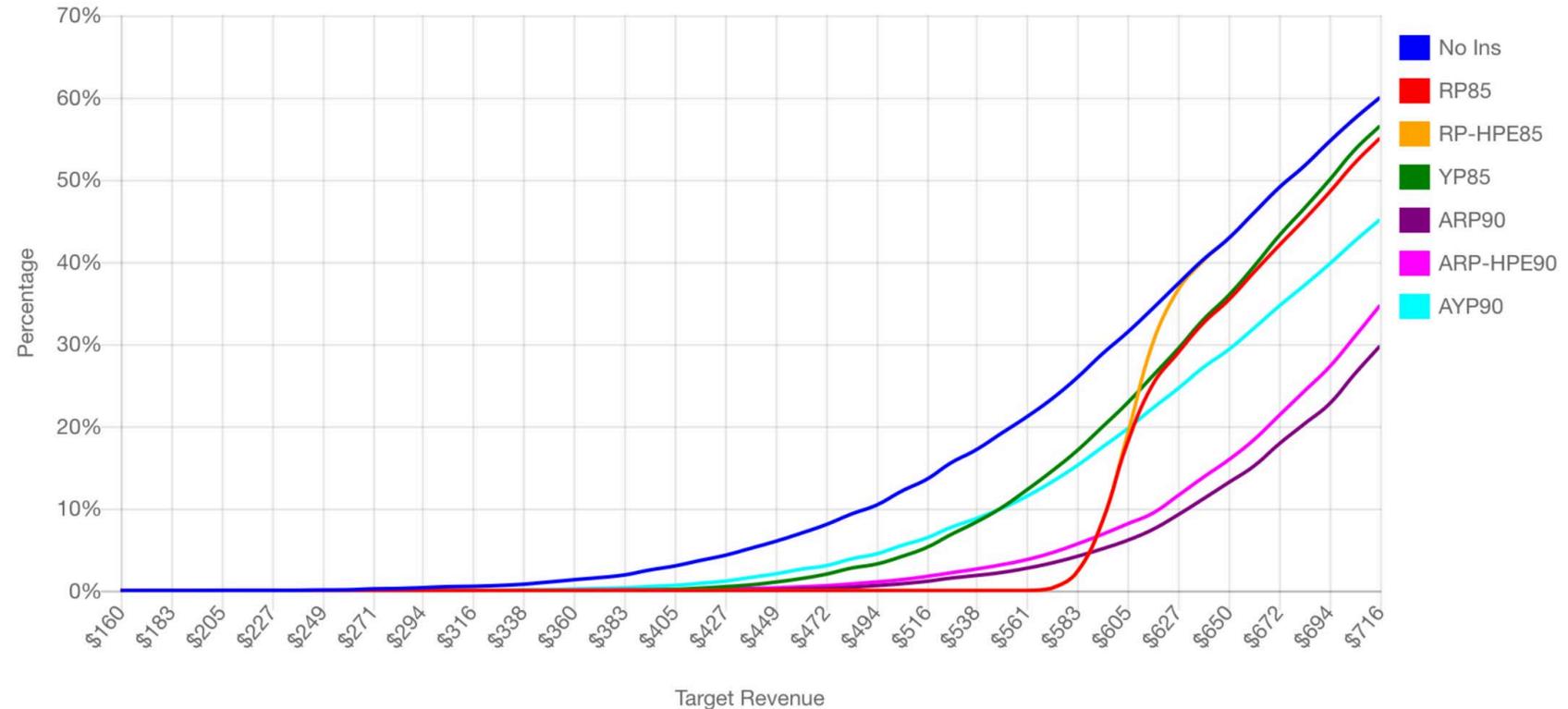
10% Value at risk with no insurance: \$489

25% Value at risk with no insurance: \$580

Revenue Risk compared across insurance alternatives:

Graph features interactive feature to compare and contrast probability of achieving different revenue levels with and without insurance coverage.

Probabilities of Revenue with Insurance



2020 Crop Insurance Payment Evaluator

fd-tools.ncsa.illinois.edu

Individual Farm Level Policies

Unit: Basic

State: Illinois | County: Piatt | Crop: Corn | Acres*: 100

Coverage Level	Revenue Protection (RP)				Revenue Protection With Harvest Price Exclusion (RP-HPE)				Yield Protection (YP)			
	Value At Risk (VAR)				Value At Risk (VAR)				Value At Risk (VAR)			
	1% (\$/acre)	5% (\$/acre)	10% (\$/acre)	25% (\$/acre)	1% (\$/acre)	5% (\$/acre)	10% (\$/acre)	25% (\$/acre)	1% (\$/acre)	5% (\$/acre)	10% (\$/acre)	25% (\$/acre)
50%	366	438	490	579	360	436	489	579	367	438	490	579
55%	387	443	491	579	388	436	488	579	380	442	491	579
60%	416	452	496	579	417	439	488	579	389	451	494	579
65%	446	461	502	580	448	462	488	578	395	458	501	580
70%	476	490	509	584	478	492	502	578	404	469	509	582
75%	506	519	528	587	510	522	531	577	417	477	518	588
80%	533	545	553	590	539	551	559	580	429	491	529	594
85%	560	570	577	597	570	580	587	602	439	504	539	602

Price Distribution Tool

What do the markets say prices are likely to be?

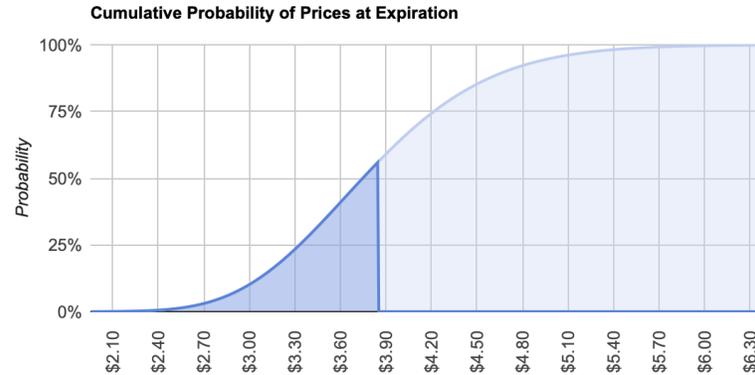
Near real time tool that uses market data to assess the **probabilities** of price movements from current date to expiration of the underlying contract. Corn and Soybeans, major traded contract months with volume.

farmdoc.illinois.edu/decision-tools/price-distribution

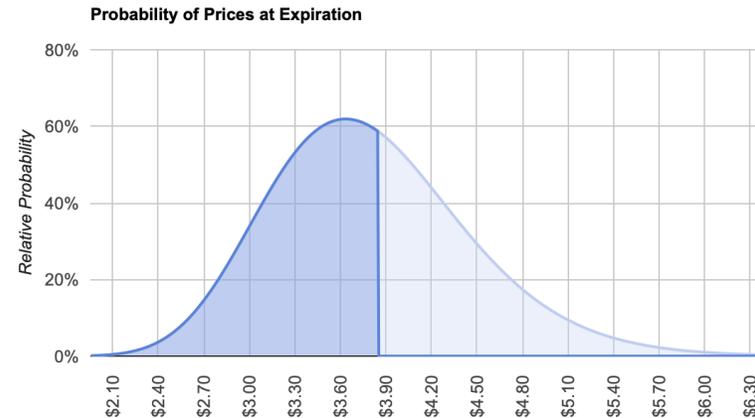


Results

The charts below show the current Dec 2020 corn price distribution at expiration in two related forms. The top shows the cumulative probability distribution for expiration prices and can be interpreted by identifying a price of interest and reading the associated probability on the left axis. The lower chart contains the same information in a probability density form. The associated tables tabulate the information from the charts by price and probability.



Price at Expiration	Prob Below
\$2.75	3.82%
\$3.00	10.13%
\$3.25	20.74%
\$3.50	34.79%
\$3.75	50.16%
\$4.00	64.57%
\$4.25	76.45%
\$4.50	85.28%
\$4.75	91.28%



Prob Below	Price
5%	\$2.81
15%	\$3.13
25%	\$3.33
35%	\$3.50
45%	\$3.67
50%	\$3.75
55%	\$3.83
65%	\$4.01
75%	\$4.22
85%	\$4.49
95%	\$4.99



Results



Select Crop:

Crop:

Corn

Futures Month:

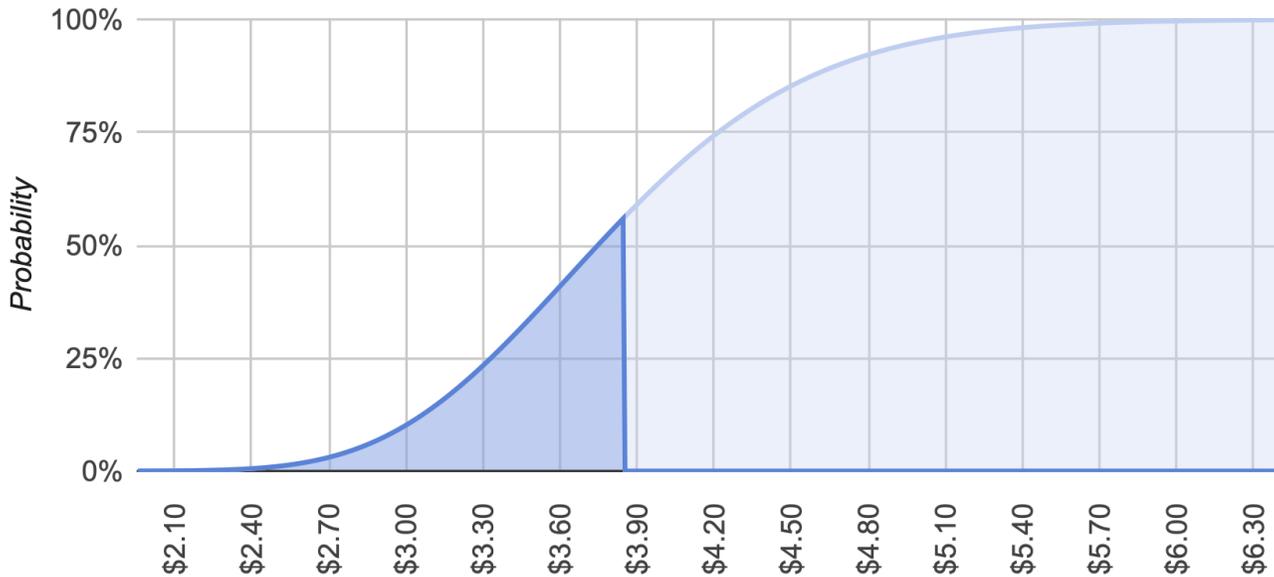
Dec

Year:

2020

The charts below show the current Dec 2020 corn price distribution at expiration in two related forms. The top shows the cumulative probability distribution for expiration prices and can be interpreted by identifying a price of interest and reading the associated probability on the left axis. The lower chart contains the same information in a probability density form. The associated tables tabulate the information from the charts by price and probability.

Cumulative Probability of Prices at Expiration



Price at Expiration	Prob Below
\$2.75	3.82%
\$3.00	10.13%
\$3.25	20.74%
\$3.50	34.79%
\$3.75	50.16%
\$4.00	64.57%
\$4.25	76.45%
\$4.50	85.28%
\$4.75	91.28%

farmdoc.illinois.edu/decision-tools/price-distribution

farmdoc



Results



Select Crop:

Crop:

Corn

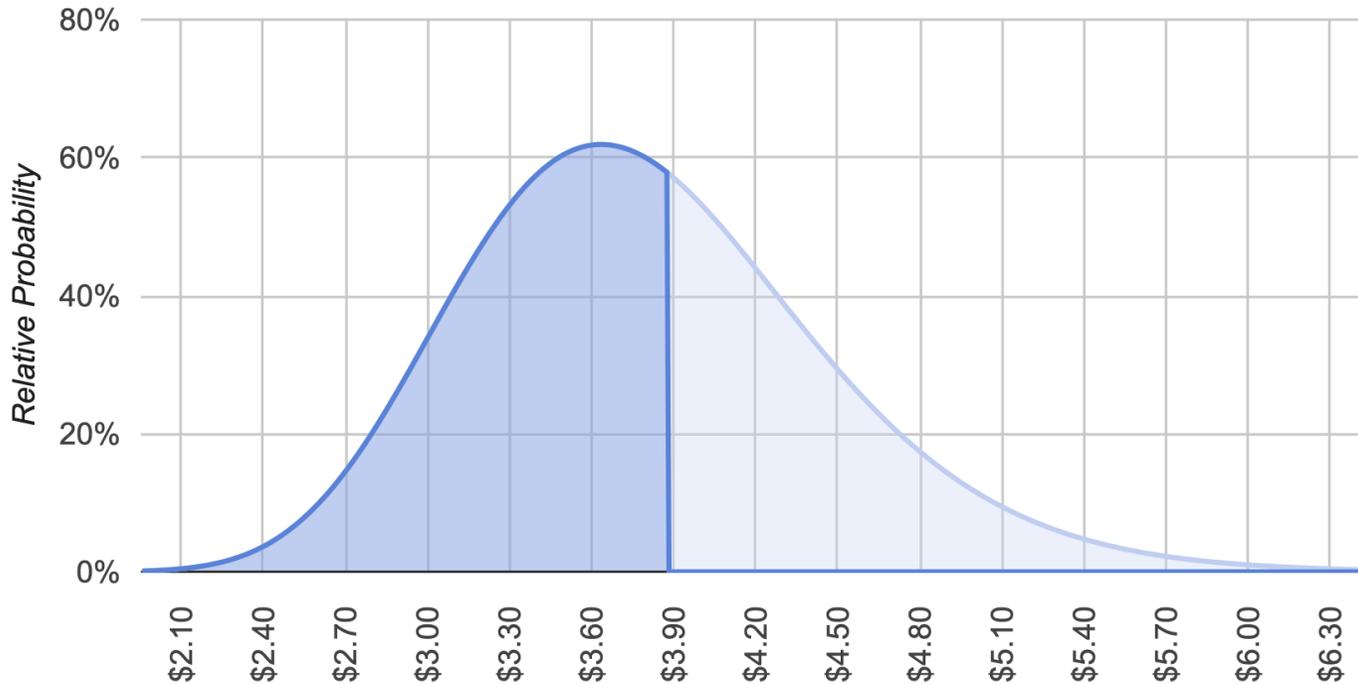
Futures Month:

Dec

Year:

2020

Probability of Prices at Expiration



Enter Price to Evaluate:

3.88

The implied distribution indicates that there is a 57.90% probability that the price will be below \$3.88 at expiration.

At Expiration

Prob Below	Price
5%	\$2.81
15%	\$3.13
25%	\$3.33
35%	\$3.50
45%	\$3.67
50%	\$3.75
55%	\$3.83
65%	\$4.01
75%	\$4.22
85%	\$4.49
95%	\$4.99

farmdoc.illinois.edu/decision-tools/price-distribution

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Supplemental Coverage Option (SCO)

1. Overview and motivations for using SCO
2. Must take Price Loss Coverage (PLC)
as commodity title choice (got a pass in 2019)

Advice on 2019 and 2020 Commodity Title Choices

1. Enroll paying farms in ARC-IC (not eligible for SCO)
2. Lean to PLC for corn (eligible for SCO)
3. Lean to ARC-CO for soybeans (not eligible for SCO)
4. Lean to PLC on wheat (eligible for SCO)

SCO: Band of Coverage

SCO Coverage level established at 86%

Indemnities triggered when county revenues/yields fall below 86% of guarantee

SCO coverage ends at the coverage level selected by the producer for underlying crop insurance

Band of coverage = 86% down to the coverage level chosen on crop insurance

SCO Background

SCO provides county-level product from 86% down to coverage-level of Revenue Protection (RP) policy

- SCO can also be combined with Yield Protection (YP) and RP with harvest price exclusion, but we focus on RP

Example:

- Farmer purchases RP with 75% coverage level and SCO
- Two independent payments
 - RP 75% provides farm-level coverage at a 75% coverage level
 - SCO provides county-level coverage from 86% to 75%

All the Following are Possible

1. RP and SCO both make payments (years like 2012)
2. SCO makes a payment and RP does not
have a price decline but not large enough to trigger RP
3. RP makes a payment and SCO does not
farm has poor yielding year, county does not
4. Neither make a payment
e.g., 2016, 2017, 2018

Motivation for Taking SCO

**Currently taking 85%
RP Coverage Level**

Pro: Aid a bit more protection

Con: Nothing really

**Currently taking 75%
RP Coverage Level (less than max)**

Likely because of premium costs
(e.g., Southern Illinois, higher risk area, or
optional units)

Pro: Get county-level coverage
from 86% to RP coverage level

Con: Adding a higher RP coverage
would be better.

Corn in LaSalle County

Premiums

Coverage Level	RP	SCO	RP + SCO
50%	0.55	4.49	5.04
55%	0.8	4.49	5.29
60%	1.13	4.49	5.62
65%	1.57	4.48	6.05
70%	2.33	4.34	6.67
75%	3.86	3.98	7.84
80%	7.64	2.98	10.62
85%	16.12	0.71	16.83

Add SCO to an 85% RP Policy

- Add \$.71 to premium costs
- Get 1% more protection
- SCO return \$1.04

Corn in LaSalle County

Premiums

Coverage Level	RP	SCO	RP + SCO
50%	0.55	4.49	5.04
55%	0.8	4.49	5.29
60%	1.13	4.49	5.62
65%	1.57	4.48	6.05
70%	2.33	4.34	6.67
75%	3.86	3.98	7.84
80%	7.64	2.98	10.62
85%	16.12	0.71	16.83

Lower coverage to 80% and add SCO

- Reduce premium cost from \$16.12 to \$10.62
- Reduce RP average payment by \$12 per acre (derived from premium calculator)
- Increasing SCO expected payment by \$7 per acre
- Reduce Prevent plant payment

SCO and ARC

- In 2020, not eligible for SCO if take ARC
- June 15th planting report is key
- IF purchase SCO on ARC acres
 - SCO will be cancelled
 - Customer will owe 60% of SCO premium



Thanks to our webinar sponsor



Thank you for joining Please submit any questions



ARC/PLC CALCULATOR

Last Updated: Feb 25, 2020

The Gardner ARC/PLC Calculator shows the likelihood of ARC-CO and PLC making payments in each year from 2019 to 2023. Expected payment levels also are given for user-selected counties and crops.

Year	ARC-CO Payments	PLC Payments	Expected Payment (\$)	Likelihood of Payment (%)	Payment Distribution	MA Price (\$)	Expected Cost (Bushels/Acre)
2019	11.38	21.85	\$15.36	42%	↓ 4%	\$3.85	114.3
2020	17.64	23.25	\$20.44	51%	↓ 4%	\$3.71	116.0
2021	14.97	27.95	\$14.97	46%	↓ 4%	\$3.65	117.6
2022	11.83	30.24	\$11.83	39%	↓ 4%	\$3.62	119.3
2023	18.23	32.11	\$18.23	47%	↓ 4%	\$3.60	121.0

INSURANCE PREMIUMS

Last Updated: Mar 01, 2020

The Insurance Premiums tool shows per acre insurance premiums that farmers will pay for Federally-subsidized crop Insurance products. These per acre premiums are given for customized entries made by users that reflect individual farm cases.

Coverage Level	Revenue Protection				Revenue Protection With Harvest Price Exclusion				Stack Protection		Total Subsidy Payment
	Contract	Rate	Cost	MA Annual Payment	Contract	Rate	Cost	Revenue Payment	Contract	Rate	
85%	1.46	5.84	3.38	330	1.08	2.81	5.70	330	1.70	3.08	316
80%	2.00	5.88	4.40	300	2.03	3.85	5.41	300	1.70	3.08	316
75%	2.63	6.05	5.01	270	2.63	4.65	5.01	270	2.20	4.08	304
70%	3.42	7.28	7.30	420	3.42	7.05	7.30	420	2.80	6.08	292
65%	4.78	10.08	10.00	480	4.78	10.08	10.00	480	3.80	7.08	278
60%	7.12	14.38	14.18	495	7.12	14.38	14.18	495	5.00	10.08	258
55%	12.48	22.08	20.88	510	12.48	22.08	20.88	510	7.00	14.08	232
50%	20.88	35.70	32.00	540	20.88	35.70	32.00	540	10.00	20.08	198

INSURANCE EVALUATOR

Last Updated: Daily

The Insurance Payment Evaluator tool provides helpful information to producers comparing costs and risk reductions across their available crop insurance alternatives.

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