

Marketing and Risk Management

March 1, 2023

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Overview

- Government programs
 - ARC and PLC
 - Crop Insurance
- Old crop vs. new crop
- Prices
- Risk Management



ARC-Co and PLC

- Sign-up deadline March 15
- Low likelihood of payments given current market conditions.
 - 0 or >0 .
- Corn, soybean, and wheat base, ARC-CO unless SCO crop insurance is being purchased.
- Seed cotton base, closer decision, argument can be made for PLC or ARC-Co need to look at county ARC guarantees; also consider SCO.

Corn Crop Insurance Prices

Commodity Year	Sales Closing Date	Projected Price Market Symbol	Projected Price Date Range	Projected Price	Price Volatility	Harvest Price Date Range	Harvest Price	Harvest less Projected
2011	3/15/2011	ZCZ11	02/01 - 02/28	\$6.01	0.29	10/01 - 10/31	\$6.32	\$0.31
2012	3/15/2012	ZCZ12	02/01 - 02/29	\$5.68	0.22	10/01 - 10/31	\$7.50	\$1.82
2013	3/15/2013	ZCZ13	02/01 - 02/28	\$5.65	0.2	10/01 - 10/31	\$4.39	(\$1.26)
2014	3/15/2014	ZCZ14	02/01 - 02/28	\$4.62	0.19	10/01 - 10/31	\$3.49	(\$1.13)
2015	3/15/2015	ZCZ15	02/01 - 02/28	\$4.15	0.21	10/01 - 10/31	\$3.83	(\$0.32)
2016	3/15/2016	ZCZ16	02/01 - 02/29	\$3.86	0.17	10/01 - 10/31	\$3.49	(\$0.37)
2017	3/15/2017	ZCZ17	02/01 - 02/28	\$3.96	0.19	10/01 - 10/31	\$3.49	(\$0.47)
2018	3/15/2018	ZCZ18	02/01 - 02/28	\$3.96	0.15	10/01 - 10/31	\$3.68	(\$0.28)
2019	3/15/2019	ZCZ19	02/01 - 02/28	\$4.00	0.15	10/01 - 10/31	\$3.90	(\$0.10)
2020	3/15/2020	ZCZ20	02/01 - 02/29	\$3.88	0.15	10/01 - 10/31	\$3.99	\$0.11
2021	3/15/2021	ZCZ21	02/01 - 02/28	\$4.58	0.23	10/01 - 10/31	\$5.37	\$0.79
2022	3/15/2022	ZCZ22	02/01 - 02/28	\$5.90	0.23	10/01 - 10/31	\$6.86	\$0.96
2023	3/15/2023	ZCZ23	02/01-02/28	\$5.91	0.18	10/01-10/31	NA	NA

Source: USDA RMA <https://prodwebnib.rma.usda.gov/apps/pricediscovery>

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Soybean Crop Insurance Prices

Commodity Year	Sales Closing Date	Market Symbol	Projected Price Date Range	Projected Price	Price Volatility	Harvest Price Date Range	Harvest Price	Harvest less Projected
2011	3/15/2011	ZSX12	02/01 - 02/28	\$13.52	0.24	10/01 - 10/31	\$11.71	(\$1.81)
2012	3/15/2012	ZSX13	02/01 - 02/29	\$12.60	0.18	10/01 - 10/31	\$14.48	\$1.88
2013	3/15/2013	ZSX14	02/01 - 02/28	\$12.91	0.18	10/01 - 10/31	\$12.93	\$0.02
2014	3/15/2014	ZSX15	02/01 - 02/28	\$11.41	0.13	10/01 - 10/31	\$10.32	(\$1.09)
2015	3/15/2015	ZSX16	02/01 - 02/28	\$9.78	0.16	10/01 - 10/31	\$8.66	(\$1.12)
2016	3/15/2016	ZSX17	02/01 - 02/29	\$8.90	0.13	10/01 - 10/31	\$10.07	\$1.17
2017	3/15/2017	ZSX18	02/01 - 02/28	\$10.23	0.15	10/01 - 10/31	\$9.88	(\$0.35)
2018	3/15/2018	ZSX19	02/01 - 02/28	\$10.21	0.13	10/01 - 10/31	\$8.83	(\$1.38)
2019	3/15/2019	ZSX20	02/01 - 02/28	\$9.63	0.12	10/01 - 10/31	\$9.12	(\$0.51)
2020	3/15/2020	ZSX21	02/01 - 02/29	\$9.21	0.11	10/01 - 10/31	\$11.45	\$2.24
2021	3/15/2021	ZSX22	02/01 - 02/28	\$11.81	0.19	10/01 - 10/31	\$12.43	\$0.62
2022	3/15/2022	ZSX23	02/01 - 02/28	\$14.30	0.2	10/01 - 10/31	\$14.44	\$0.14
2023	3/15/2023	ZSX23	02/01 - 02/28	\$13.76	0.13	10/01 - 10/31	NA	NA

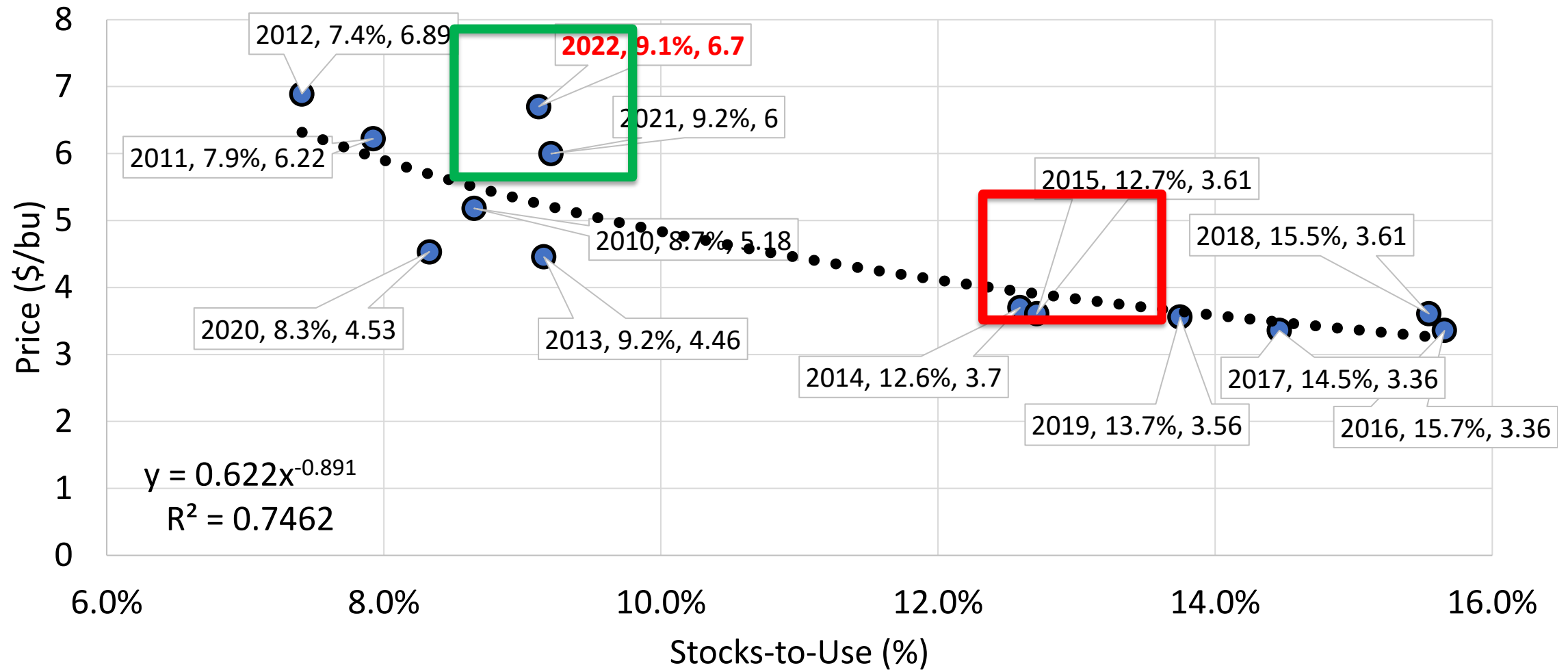
USDA Outlook Forum, February 23, 2023

- 2023 crop year
 - Planted acres
 - Corn – 91 million
 - Soybeans – 87.5 million
 - Cotton – 10.9 million
 - Wheat – 49.5 million
 - Yield
 - Corn – 181.5 bu/acre
 - Soybeans – 52 bu/acre
 - Cotton – 852 lb/acre
 - Wheat – 49.2 bu/acre
- 2023 crop year
 - Ending stocks
 - Corn – 1.887 billion
 - Soybeans – 290 million
 - Cotton – 4 million
 - Wheat – 608 million
 - Exports
 - Corn – 2.2 billion
 - Soybeans – 2.025 billion
 - Cotton – 13.8 million
 - Wheat – 825 million

U.S. Corn, 2021 & 2022

	2021/22	2022/23 Projected February	Change 2022/23- 2021/22	2023/24
Planted (Million)	93.3	88.6	-4.7	91
Harvested (Million)	85.3	79.2	-6.1	83.1
U.S. Avg. Yield (Bu/Acre)	176.7	173.3	-3.4	181.5
Beg. Stocks	1,235	1,377	142	1,267
Production	15,074	13,730	-1,344	15,085
Imports	24	50	26	25
Total Supply	16,333	15,157	-1,176	16,377
Feed and Residual	5,718	5,275	-443	5,600
Ethanol	5,326	5,250	-76	5,250
Food, Seed & Industrial	1,440	1,440	0	1,440
Exports	2,471	1,925	-546	2,200
Total Use	14,956	13,890	-1,066	14,490
U.S. Ending Stocks	1,377	1,267	-110	1,887
Foreign Stocks	10,681	10,358	-323	-
U.S. Avg. Season Price (\$/Bu)	\$6.00	\$6.70	\$0.70	\$5.60
U.S. Stocks/Use	9.21%	9.12%	-0.09%	13.0%

Corn Stocks-to-Use and Price



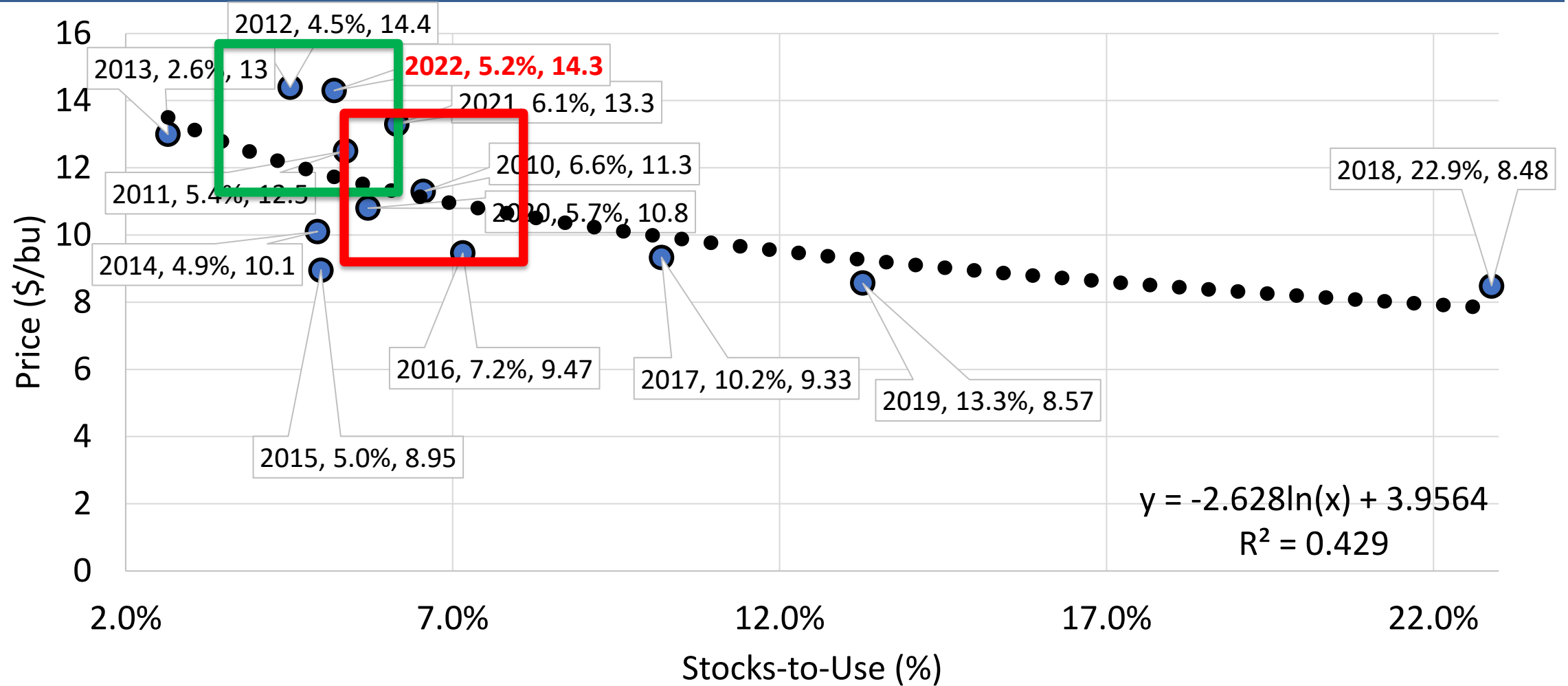
U.S. Soybean, 2021 & 2022

	2021/22 Est.	2022/23 Projected February	Change 2022/23- 2021/22	2023/24
Planted (Million)	87.2	87.5	0.3	87.5
Harvested (Million)	86.3	86.3	0.0	86.7
U.S. Avg. Yield (Bu/Acre)	51.7	49.5	-2.2	52
Beg. Stocks	257	274	17	225
Production	4,465	4,276	-189	4,510
Imports	16	15	-1	15
Total Supply	4,738	4,566	-172	4,750
Crushing	2,204	2,230	26	2,310
Exports	2,158	1,990	-168	2,025
Seed and Residual	103	120	17	126
Total Use	4,464	4,340	-124	4,461
U.S. Ending Stocks	274	225	-49	290
Foreign Stocks	3,357	3,524	167	-
U.S. Average Season Price (\$/Bu)	\$13.30	\$14.30	\$1.00	12.90
U.S. Stocks/Use	6.14%	5.18%	-0.95%	6.5%

Data Source: <https://apps.fas.usda.gov/psdonline/app/index.html#/app/advQuery>

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Soybean Stocks-to-Use and Price



Supply and Demand

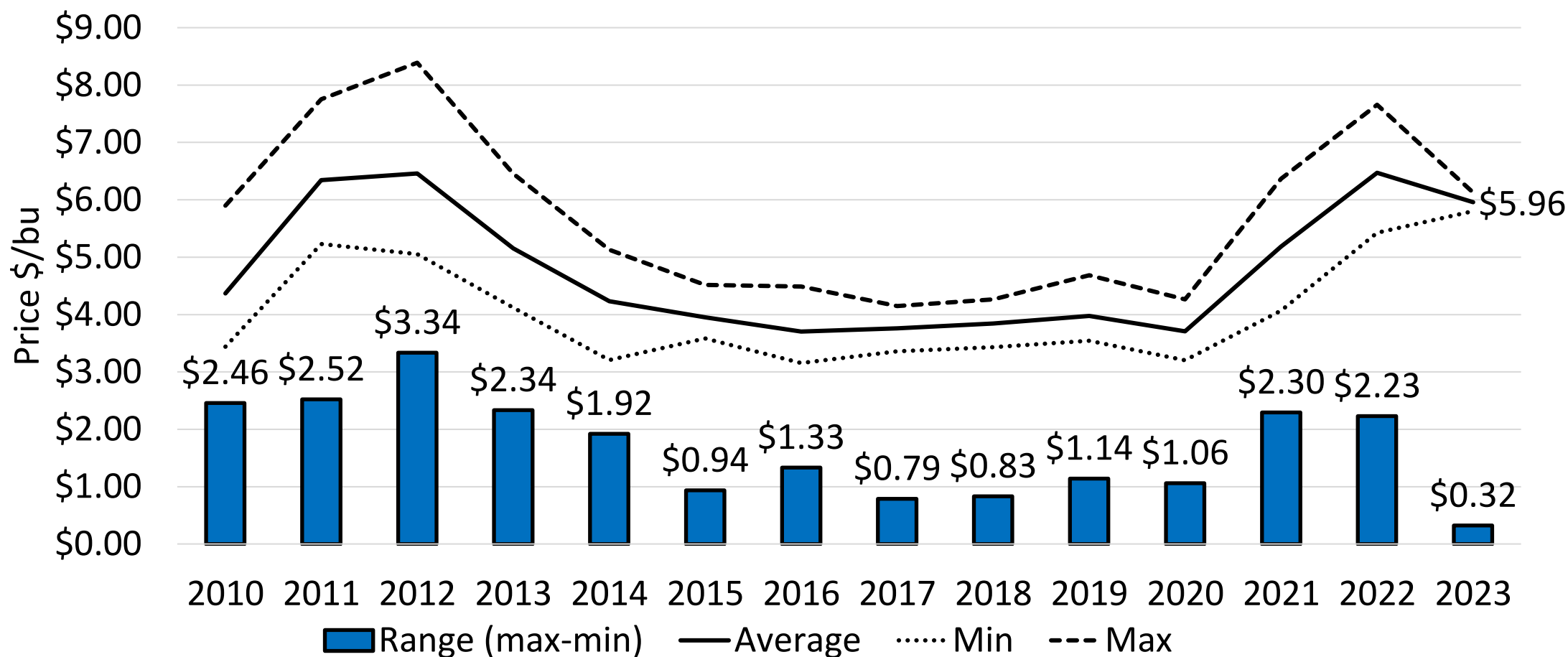
- Russia's invasion of Ukraine continues to influence grain, energy, and fertilizer markets.
- Brazil production and exports.
- Global economic forces influence on agricultural markets in 2023.
- Corn reduced U.S. and foreign stocks. Export sale pace critical for old crop futures price.
- Soybean U.S. ending stocks are projected lower, global stocks project higher.
- Projected planted acreage in 2023.
 - Cheaper inputs vs. lower price ratio with corn



Old Crop - New Crop

PRICES

December Corn Futures Contract, Dec 1 to Expiration, 2010-2023*



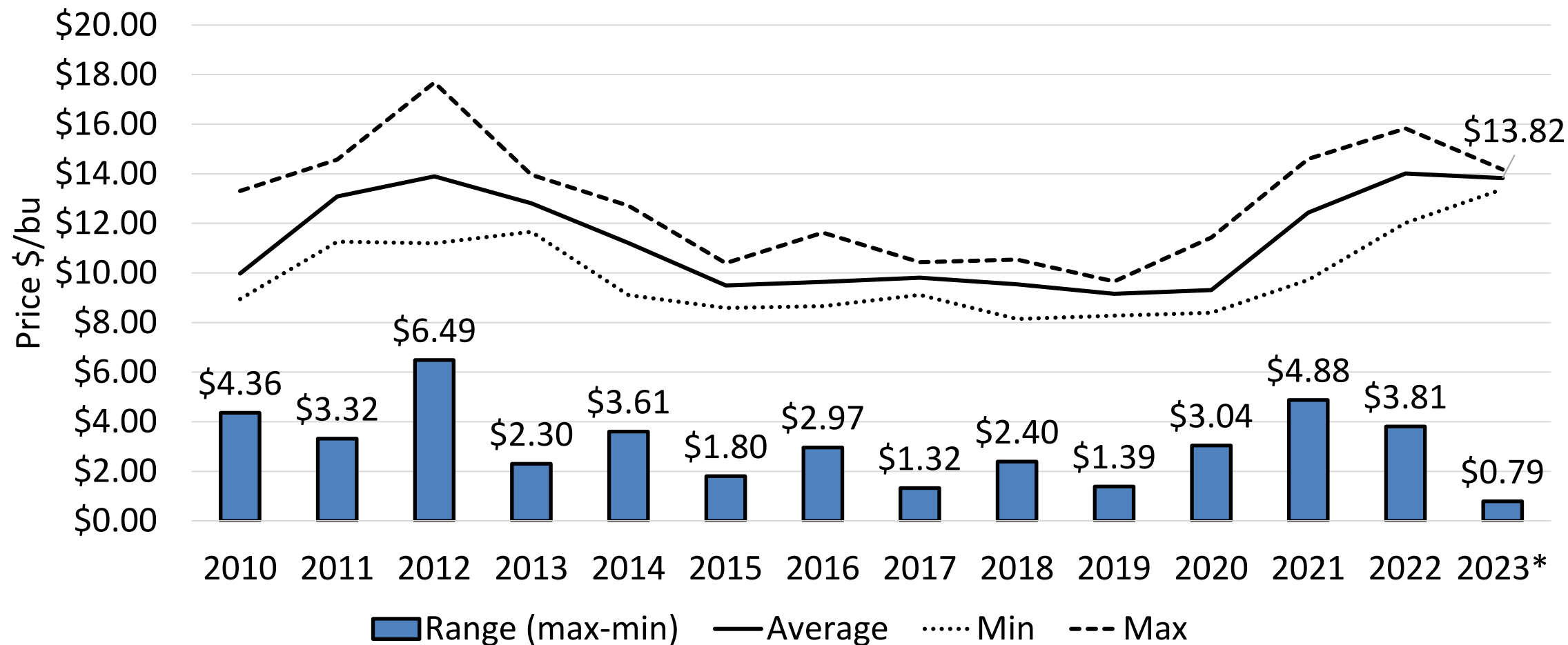
* December 1, 2022 to February 24, 2023

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Corn March and December Futures Contract



November Soybean Futures Contract, Nov 1 to Expiration, 2010-2023*



* November 1, 2022 to February 24, 2023

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Soybean March and November Futures Contract



Risk Management and Marketing

Crop Insurance

Price Risk Management

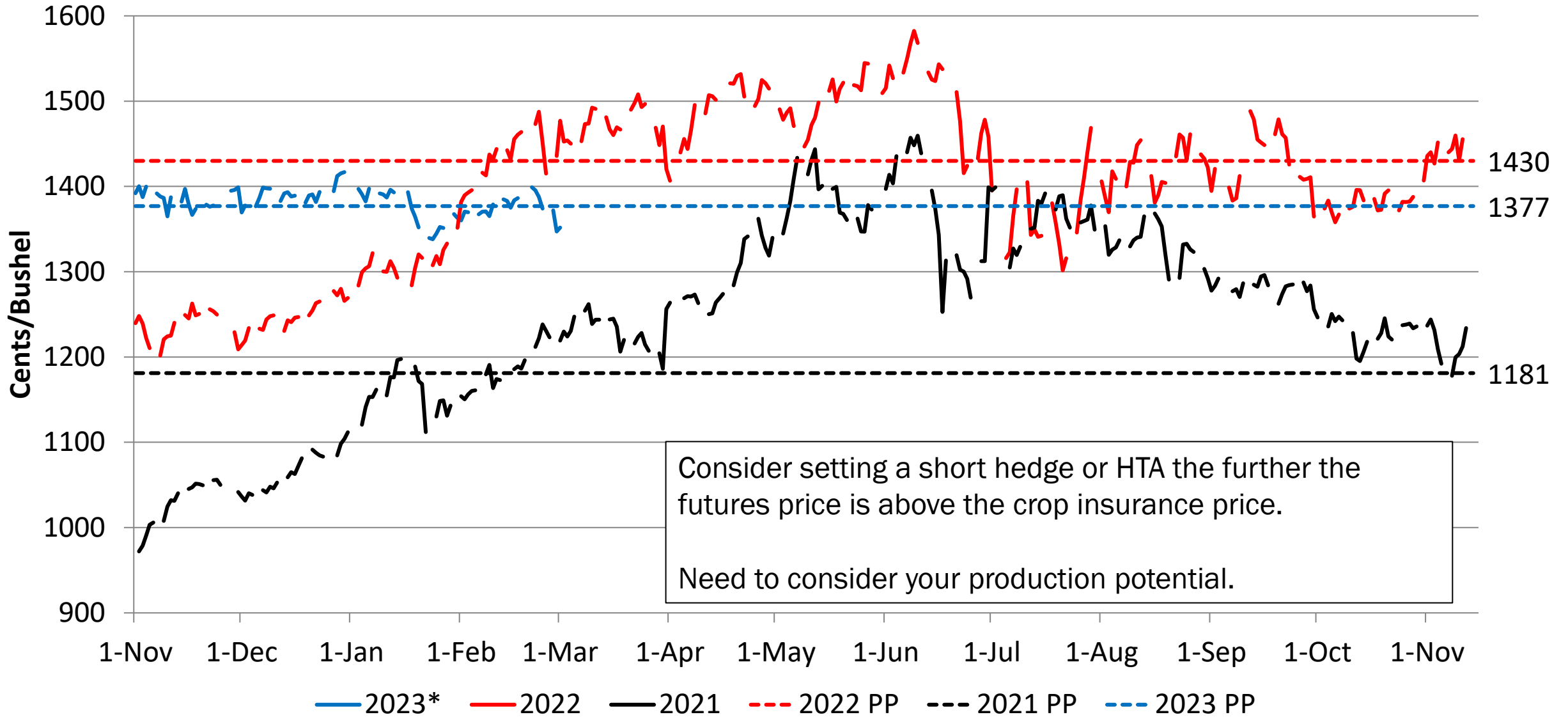
Storage

Price Protection

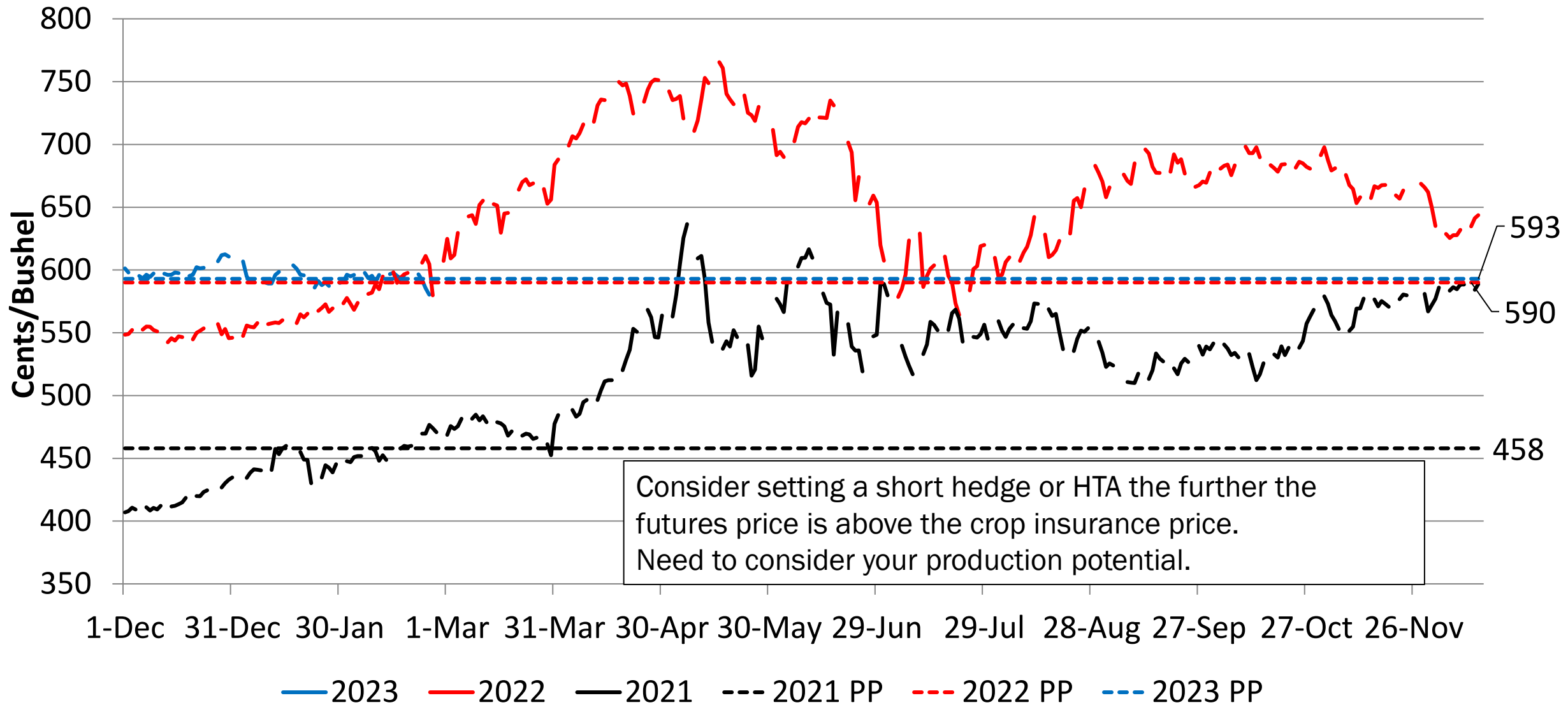


Final Price

November Soybean Futures



December Corn Futures



Breaking Down Price Risk

- Cash price for corn of \$6.70
 - \$5.70 futures price (85% of price risk)
 - \$1.00 basis (15% of price risk)
- Buy a \$5.50 December Put Option for 32 cents setting a \$5.18 futures floor.
- This removes 91% ($\$5.18/\5.70) of the futures price risk (77% of total price).
- Leaves the upside open in futures markets and the flexibility to set basis at a later date.
- Exit the position prior to expiration and recoup remaining time value in the premium.

Storage

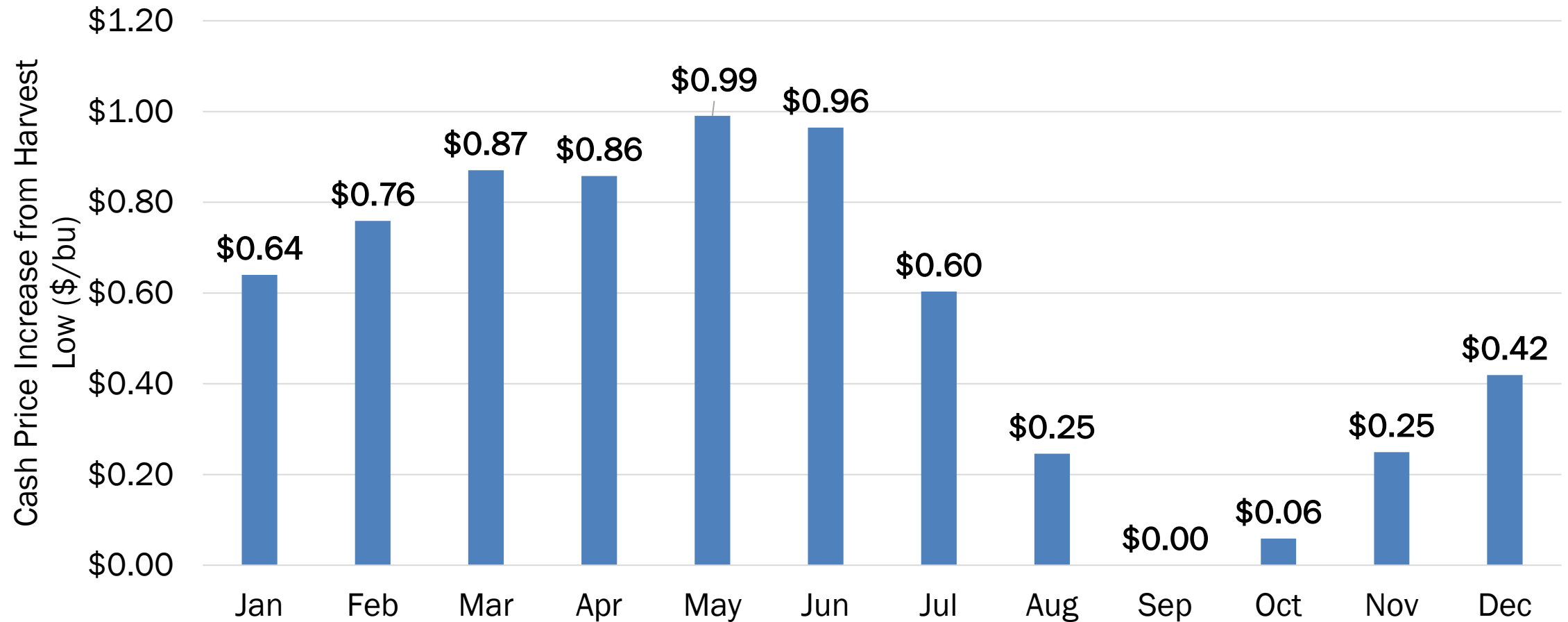
- Reduce harvest delays
- Allow for higher harvest moisture (drying and aeration)
- Spread out labor requirements
- Avoid seasonal price lows
- Extend the marketing window
- Reduce production risk in the marketing cycle
- On demand sales to terminal markets



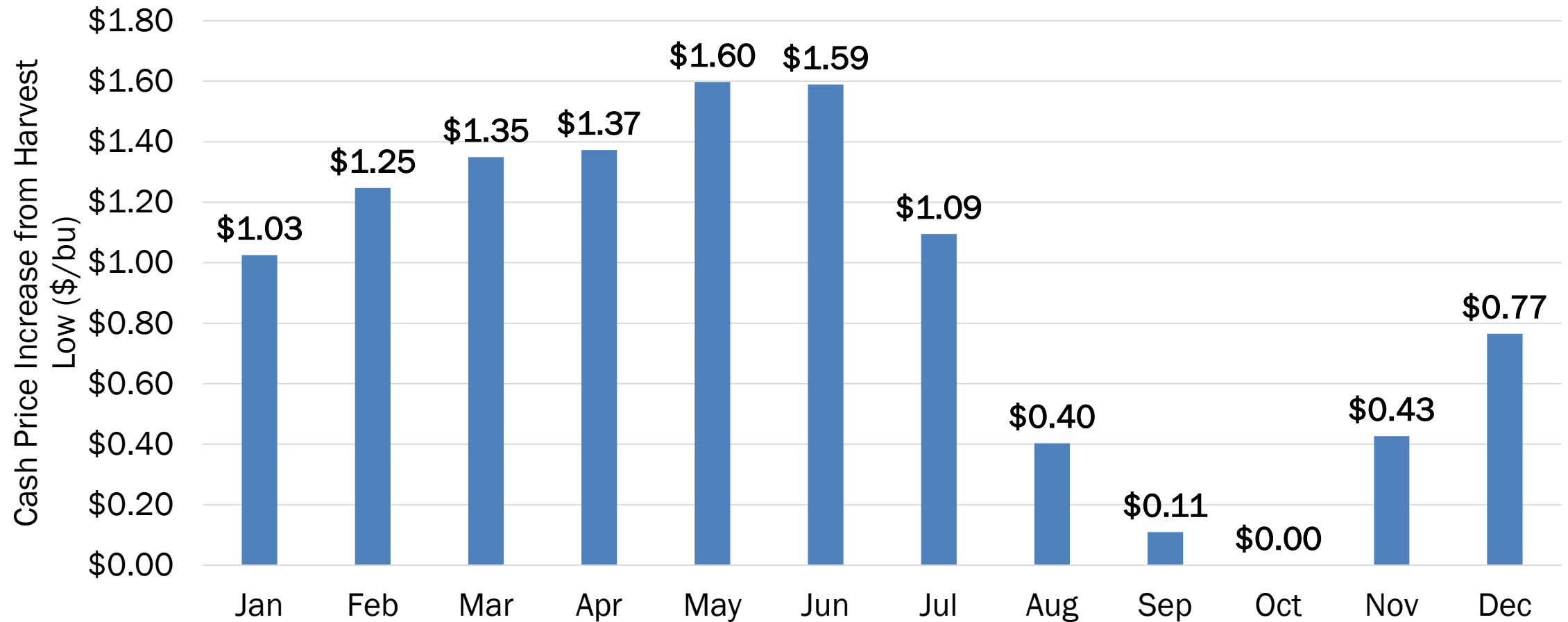
Cost Considerations

- Storage is one of the most advantageous marketing and risk management tools for Tennessee producers.
- Costs are substantially higher for grain infrastructure
 - Increased purchase price and establishment costs
 - Higher finance / capital recovery expense
- Higher interest rates need to be accounted for in carrying grain.
 - $\$1,000,000 \times 7.75\% = \$77,500$
 - $\$77,500 / 5 \text{ months} = \$15,500$
 - $\$15,500 / 370,000 \text{ bushels (185 bu/acre} \times 2,000 \text{ acres)} = 4.2 \text{ cents/bu}$

10-year average corn cash price improvement by month in Tennessee at elevators and barge points, 2013-2022

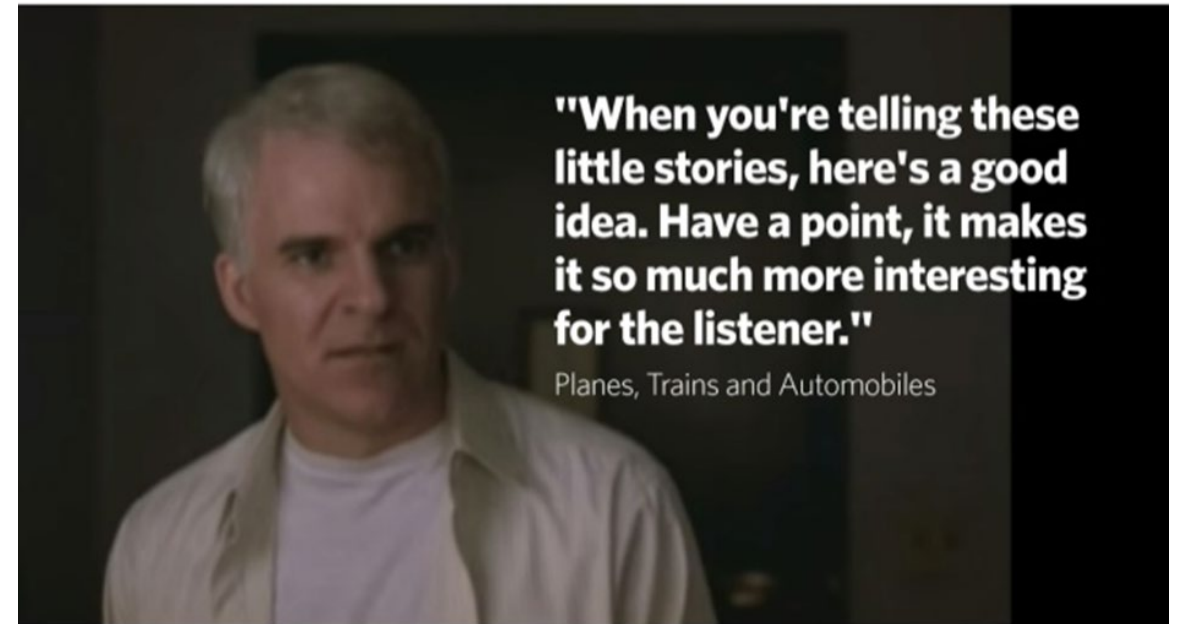


10-year average soybean cash price improvement by month in Tennessee at elevators and barge points, 2013-2022



Take Home Message

- Global economic uncertainty and geopolitical tensions.
- Input costs coming down but are still elevated relative to pre 2021 prices.
- Volatility in prices will likely remain in 2023.
- Identify price risk and seek mitigating strategies.
- Crop insurance + price risk management + storage.



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THANK YOU