UT Crops Meeting Lexington, TN

February 10, 2023

Dr. S. Aaron Smith, Associate Professor and Extension Economist
Department of Agricultural and Resource Economics
University of Tennessee Institute of Agriculture
Email: aaron.smith@utk.edu
Web Page: https://cropeconomics.tennessee.edu

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Overview

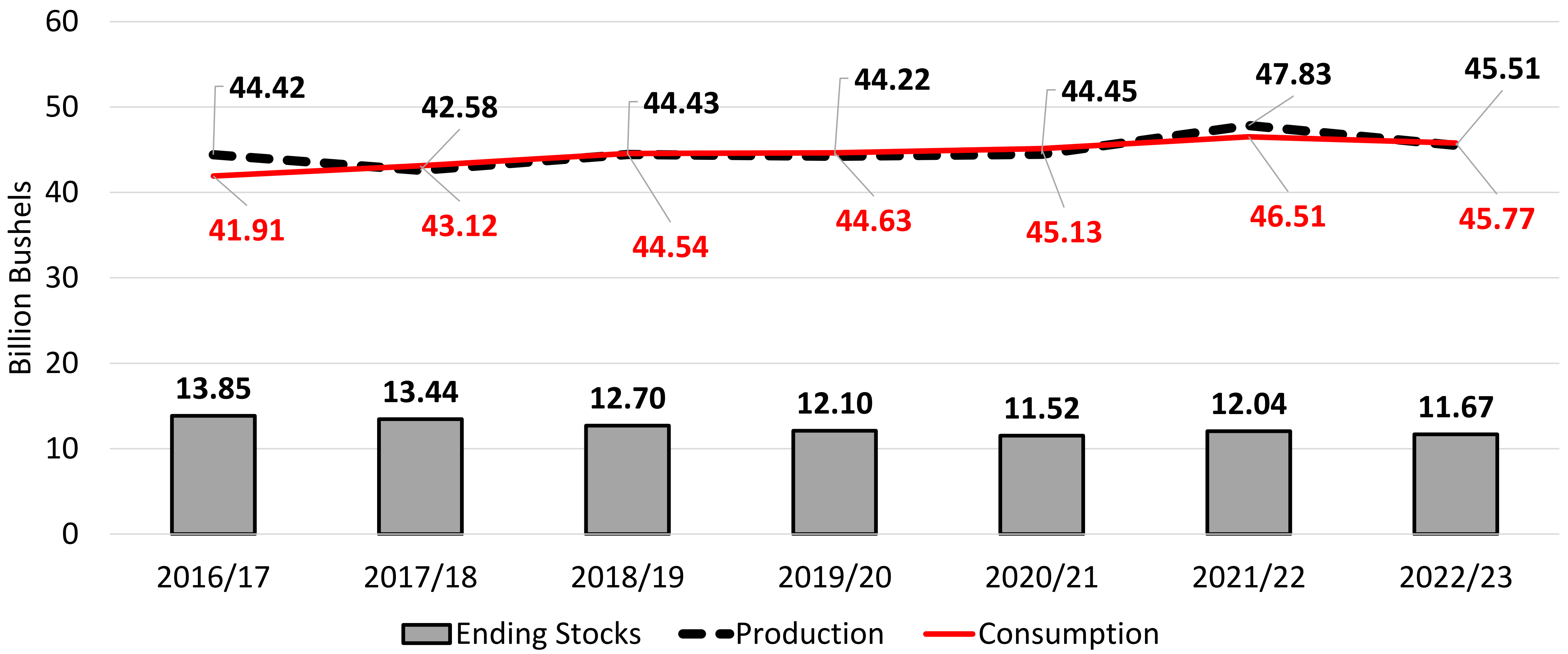
- Supply and Demand
- Prices
- Marketing and Risk Management

Global and U.S. Supply and Demand

USMCA GMO Corn

CORN

Global Corn Production, Consumption, and Ending Stocks, 2016/17 to 2022/23



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

U.S. Corn, 2021 & 2022

	2021/22	2022/23 Projected	2022/23-2021/22
Planted (Million)	93.3	**88.6**	-4.7
Harvested (Million)	85.3	**79.2**	-6.1
U.S. Avg. Yield (Bu/Acre)	176.7	**173.3**	-3.4
Beg. Stocks	1,235	**1,377**	142
Production	**15,074**	**13,730**	**-1,344**
Imports	24	**50**	26
Total Supply	16,333	**15,157**	-1,176
Feed and Residual	5,718	**5,275**	-443
Ethanol	5,326	**5,275**	-51
Food, Seed & Industrial	1,440	**1,440**	0
Exports	**2,471**	**1,925**	**-546**
Total Use	14,956	**13,915**	-1,041
U.S. Ending Stocks	**1,377**	**1,242**	**-135**
Foreign Stocks	**10,668**	**10,428**	**-240**
U.S. Avg. Season Price ($/Bu)	**$6.00**	**$6.70**	**$0.70**
U.S. Stocks/Use	**9.21%**	**8.93%**	**-0.28%**

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

USMCA GMO Corn

- December 2020 when Mexico's president, Andrés Manuel López Obrador, issued a presidential decree calling for GM corn for human consumption to be phased out by the end of January 2024.
- U.S. exports approximately 15% of total corn production.
  - U.S. corn exports to Mexico represented 25% of all corn exports from 2009-2022.
- ~94% of corn imports to Mexico are from the U.S.
- ~92% of corn exported to Mexico is yellow corn.

Corn Supply and Demand

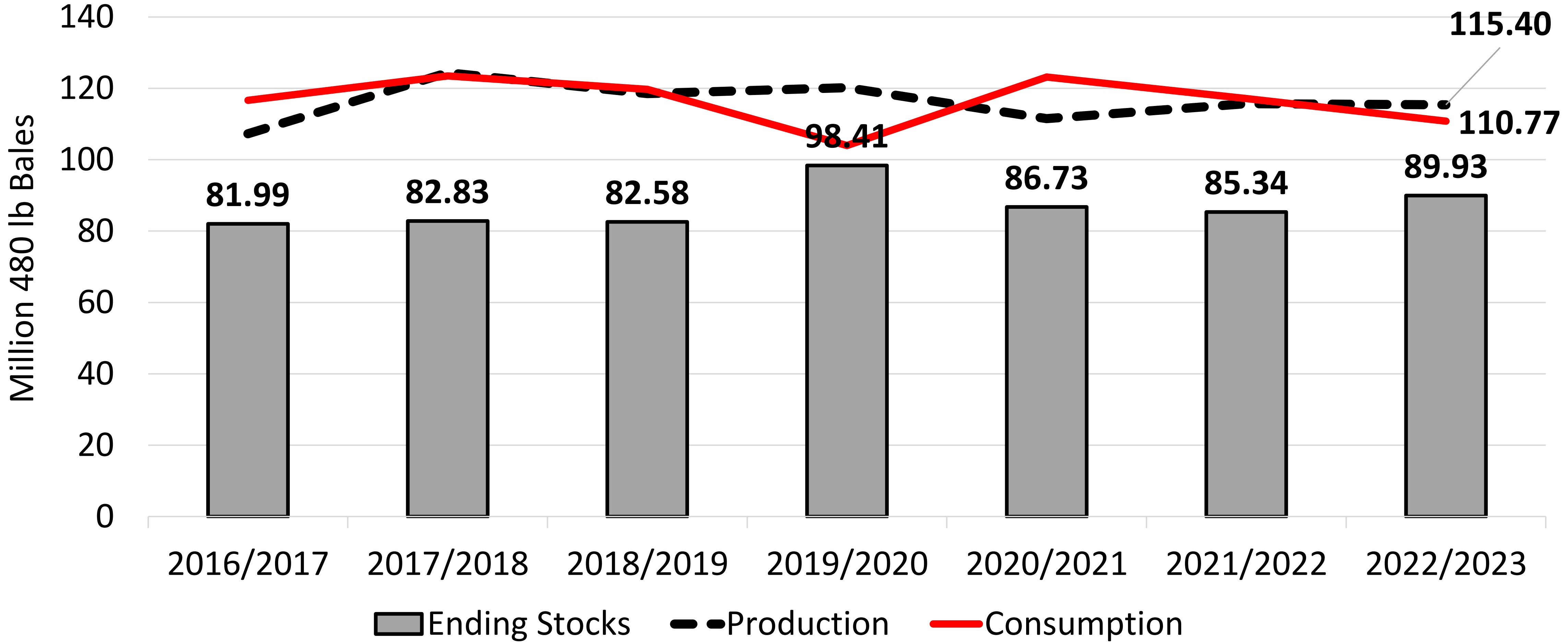
- Reduced U.S. and foreign stocks.
- Russia’s invasion of Ukraine continues to influence grain, energy, and fertilizer markets.
- Drought in Argentina.
- Global economic forces continue to exert a strong influence in agricultural markets.
- Fertilizer prices, fuel and interest rates.
- Projected planted acreage in 2023 (89-93 million acres?).

Global and U.S. Supply and Demand

Exports

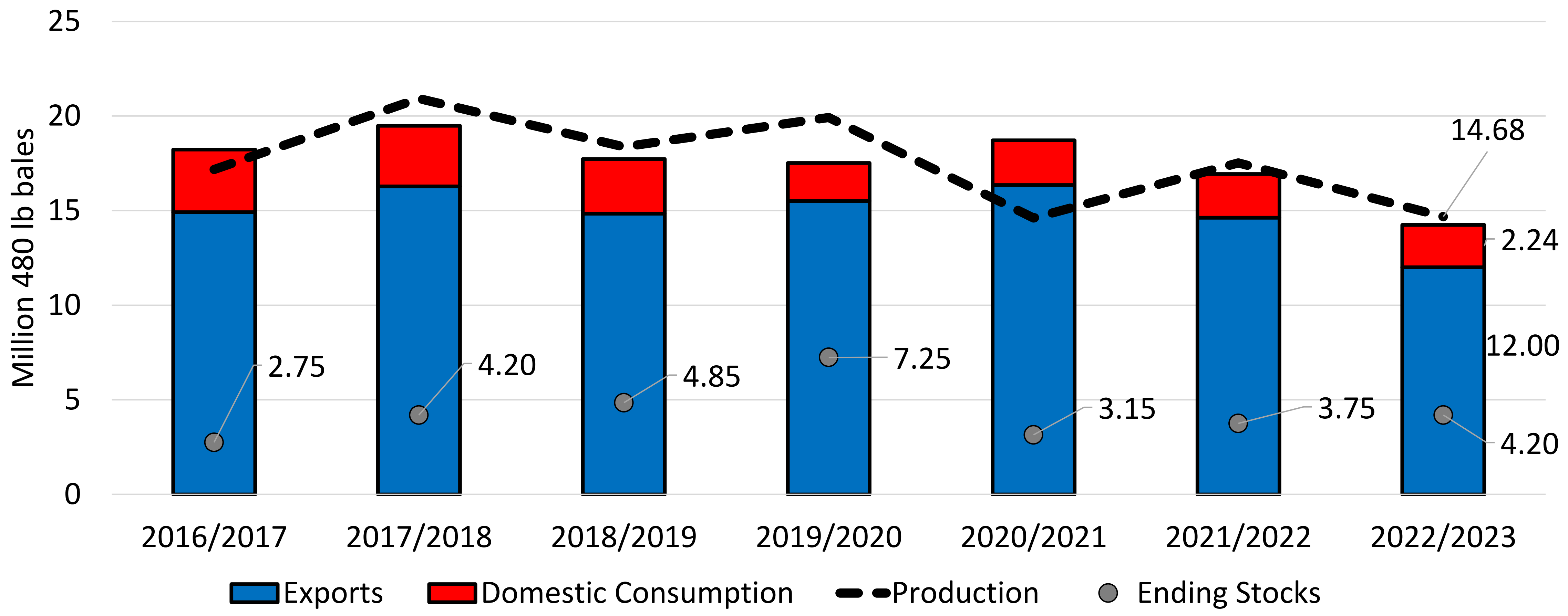
COTTON

Global Cotton Production, Consumption, and Ending Stocks, 2016/17 to 2022/23



Source: USDA FAS - https://apps.fas.usda.gov/psdonline/app/index.html#/app/advQuery

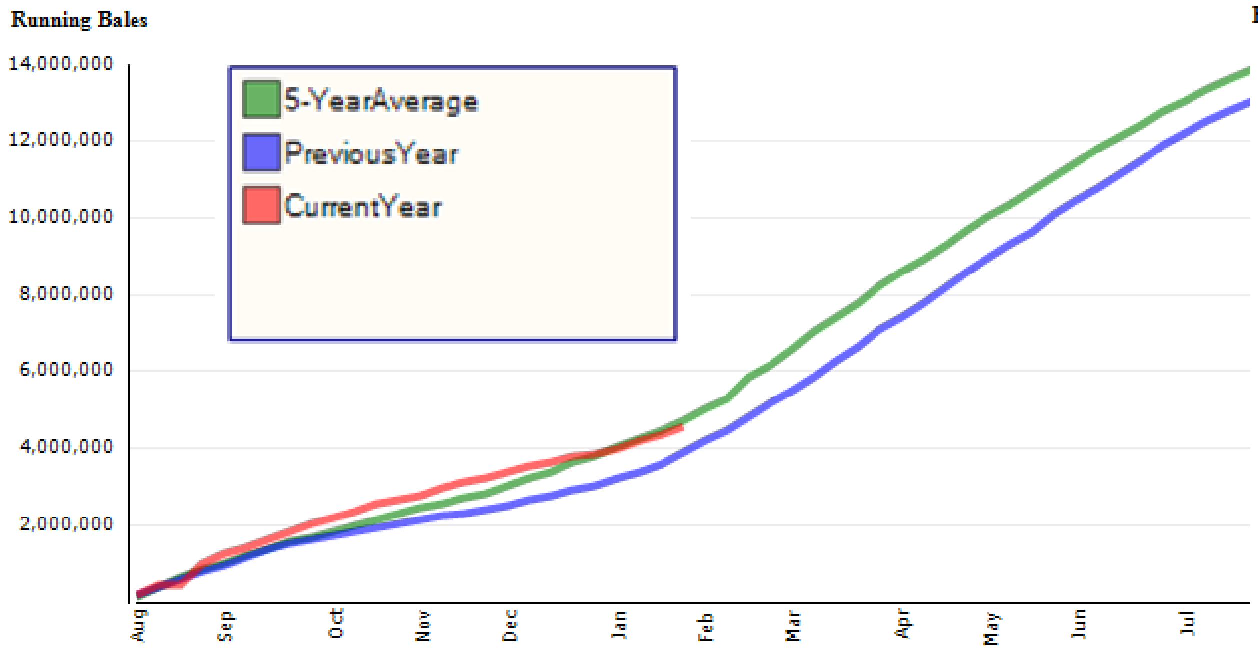
US Cotton Production, Consumption, and Ending Stocks, 2016/17 to 2022/23



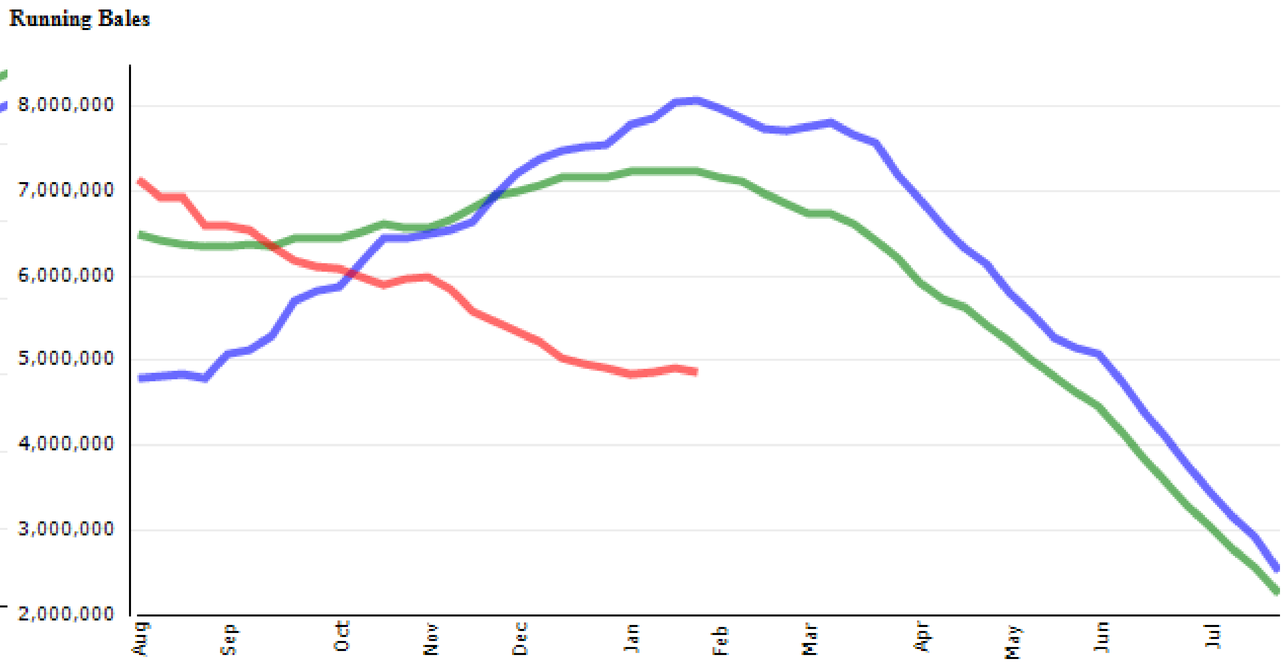
Source: USDA FAS - https://apps.fas.usda.gov/psdonline/app/index.html#/app/advQuery

Export Sales, Upland Cotton

Accumulated Exports - World Total
Selected Year: 2022-2023 as of 01/26/2023



Outstanding Sales - World Total
Selected Year: 2022-2023 as of 01/26/2023



Source: USDA FAS -https://apps.fas.usda.gov/esrquery/egraph5y.aspx

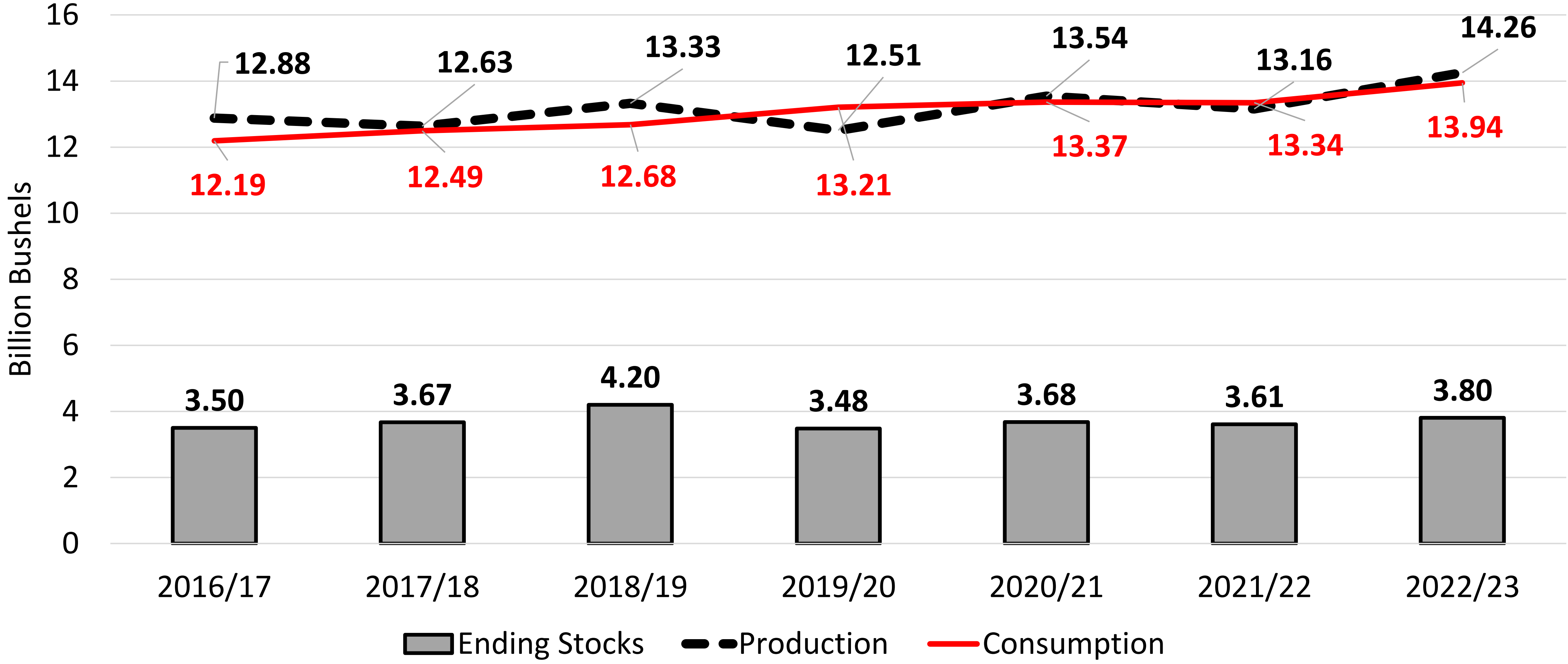
Cotton Supply and Demand

- Export demand
- Recession or concerns with consumer demand
- U.S. ending stock projections have grown through the 2022/23 marketing year.
- Projected planted acreage in 2023? 9.5-12 million acres?

Global and U.S. Supply and Demand

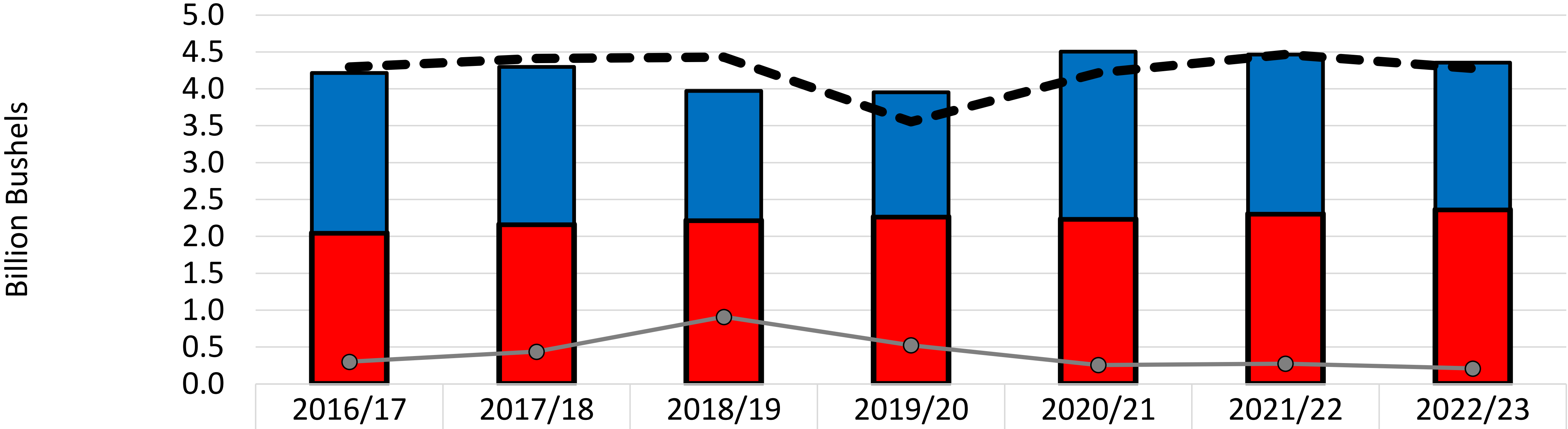
SOYBEAN

Global Soybeans Production, Consumption, and Ending Stocks, 2016/17 to 2022/23



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

U.S. Soybeans Production, Consumption, Exports, Ending Stocks, 2016/17 to 2022/23



	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23
Exports	2.17	2.13	1.75	1.68	2.27	2.16	1.99
Consumption	2.05	2.16	2.22	2.27	2.24	2.31	2.37
Production	4.30	4.41	4.43	3.55	4.22	4.47	4.28
Ending Stocks	0.30	0.44	0.91	0.52	0.26	0.27	0.21

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

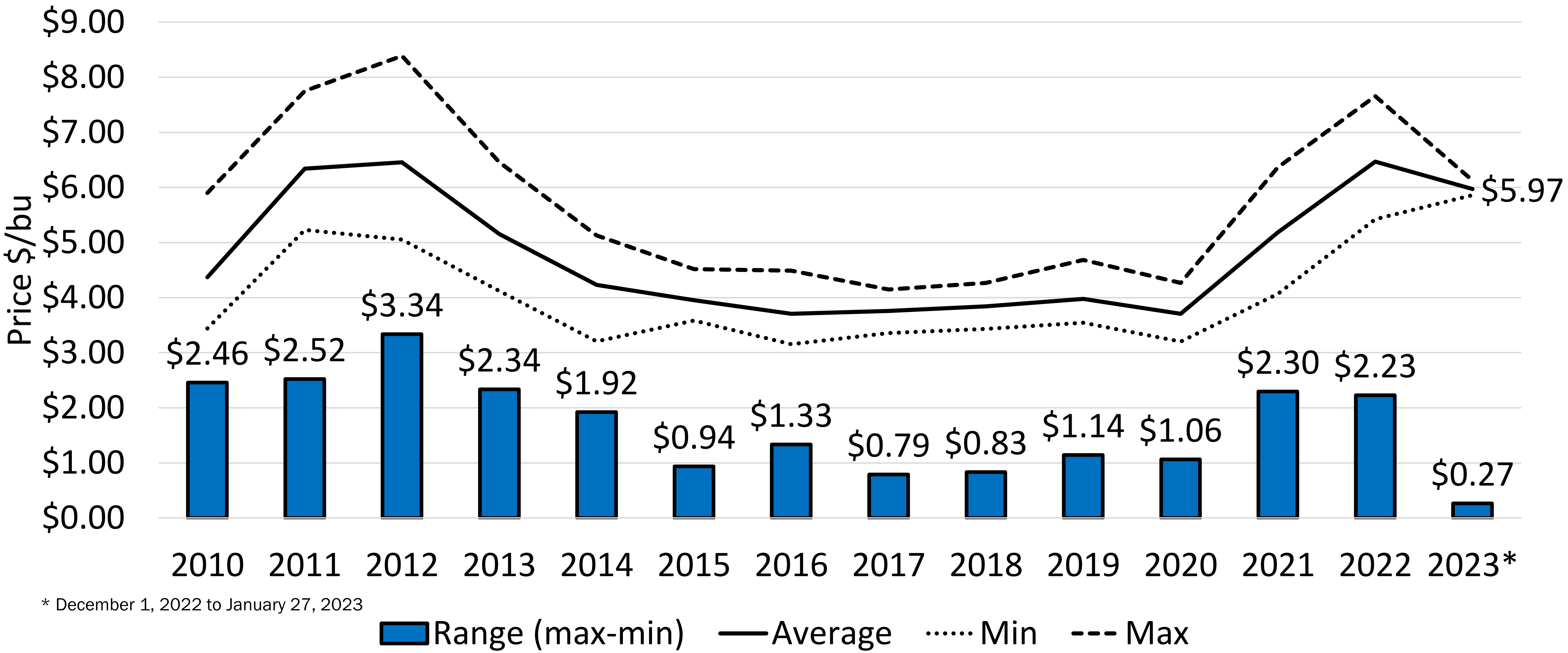
Soybean Supply and Demand

- South American production and exports.
- Global economic forces influence on agricultural markets in 2023.
- U.S. ending stocks are projected lower, global stocks project higher.
- Increased U.S. domestic crushing.
- Projected planted acreage in 2023?

Old Crop - New Crop

PRICES

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



* December 1, 2022 to January 27, 2023

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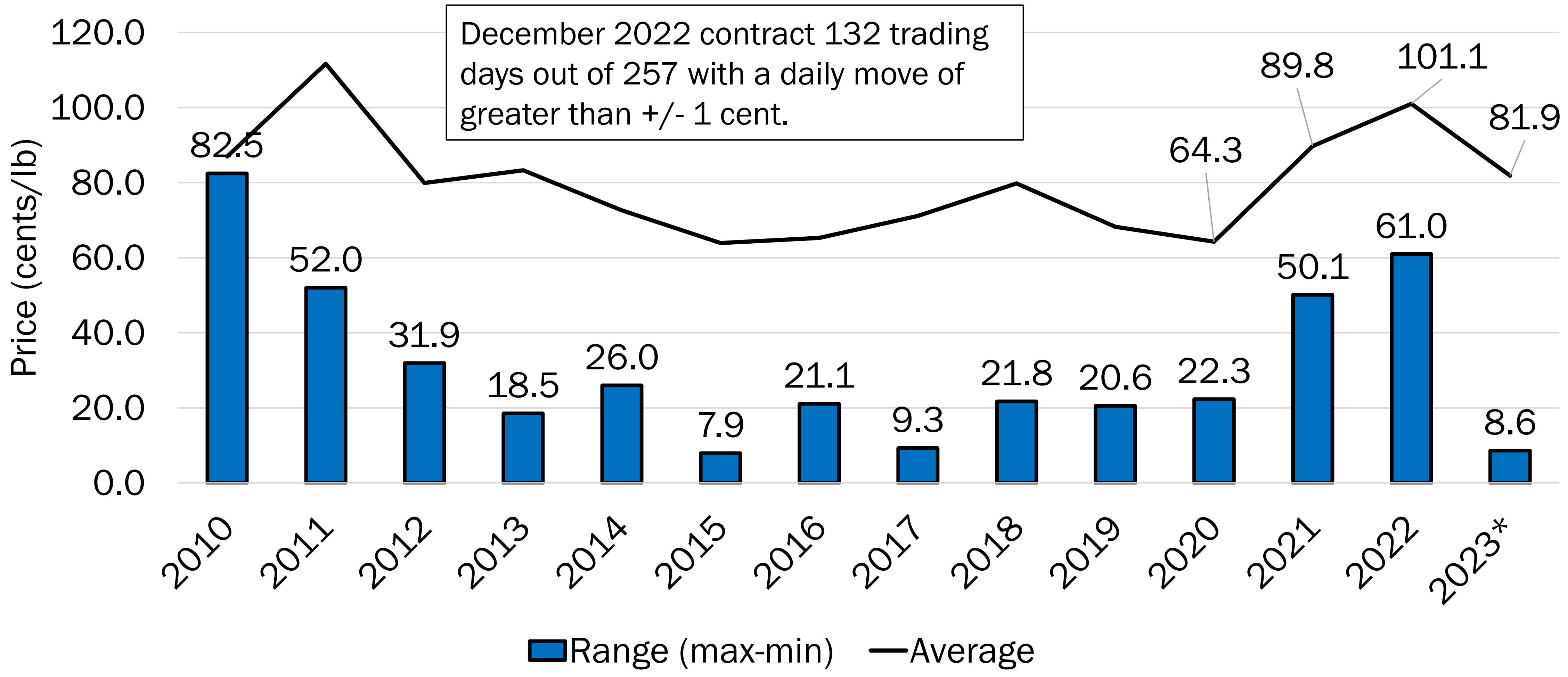
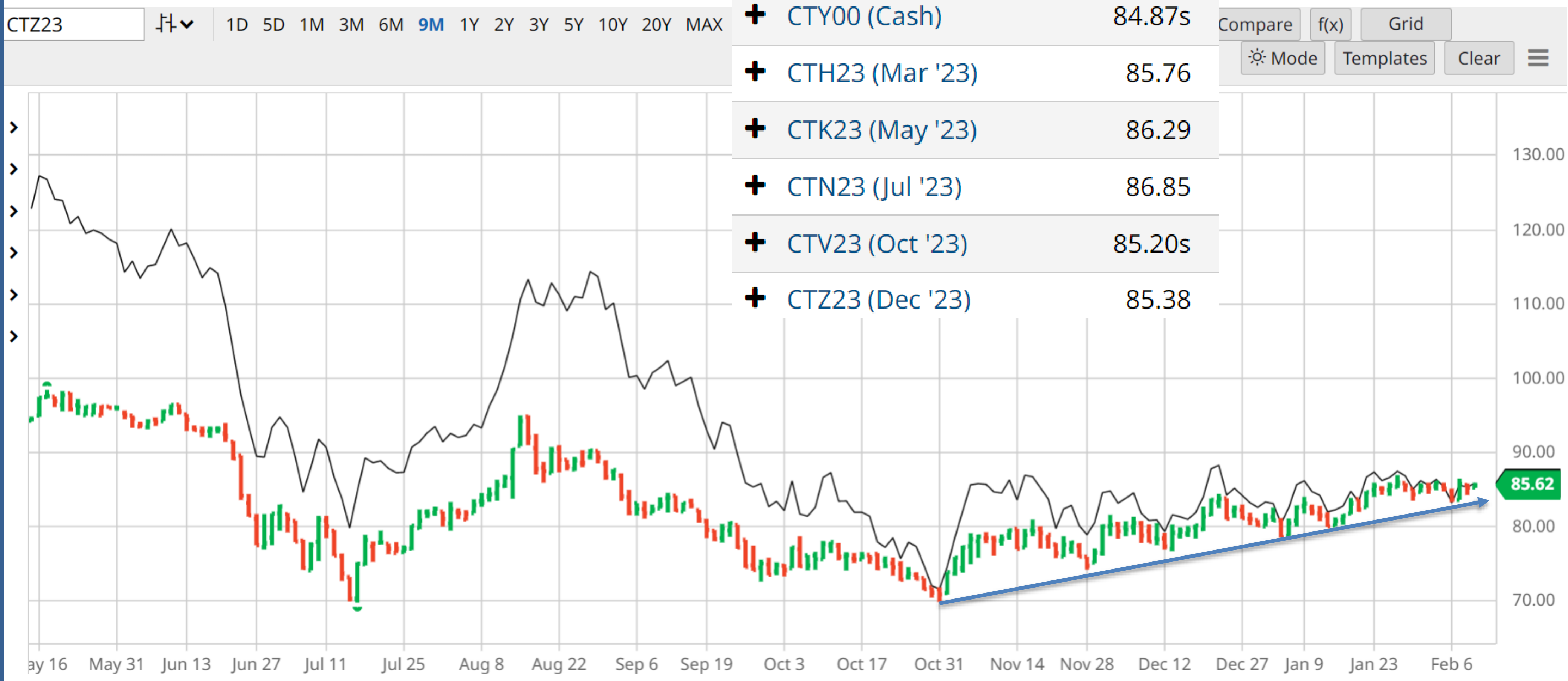
Corn March and December Futures Contract

Contract	Last	Change
+ ZCY00 (Cash)	681-0s	+4-4
+ ZCH23 (Mar '23)	677-4	-1-0
+ ZCK23 (May '23)	675-2	-1-0
+ ZCN23 (Jul '23)	664-2	-1-0
+ ZCU23 (Sep '23)	609-0	-1-2
+ ZCZ23 (Dec '23)	594-6	-0-6

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



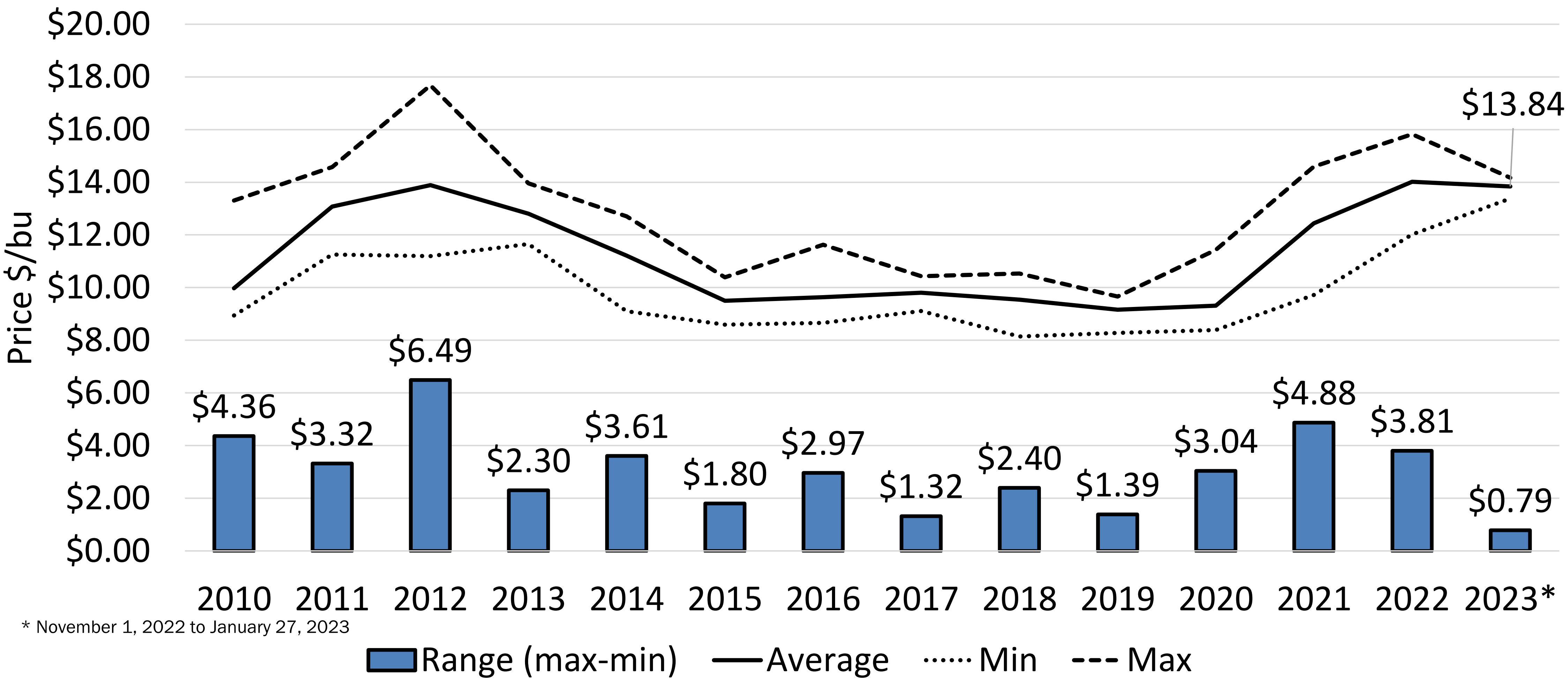
Cotton March and December Futures Contract



Contract	Last
CTY00 (Cash)	84.87s
CTH23 (Mar '23)	85.76
CTK23 (May '23)	86.29
CTN23 (Jul '23)	86.85
CTV23 (Oct '23)	85.20s
CTZ23 (Dec '23)	85.38

December contract projected price range of 77 to 94 cents

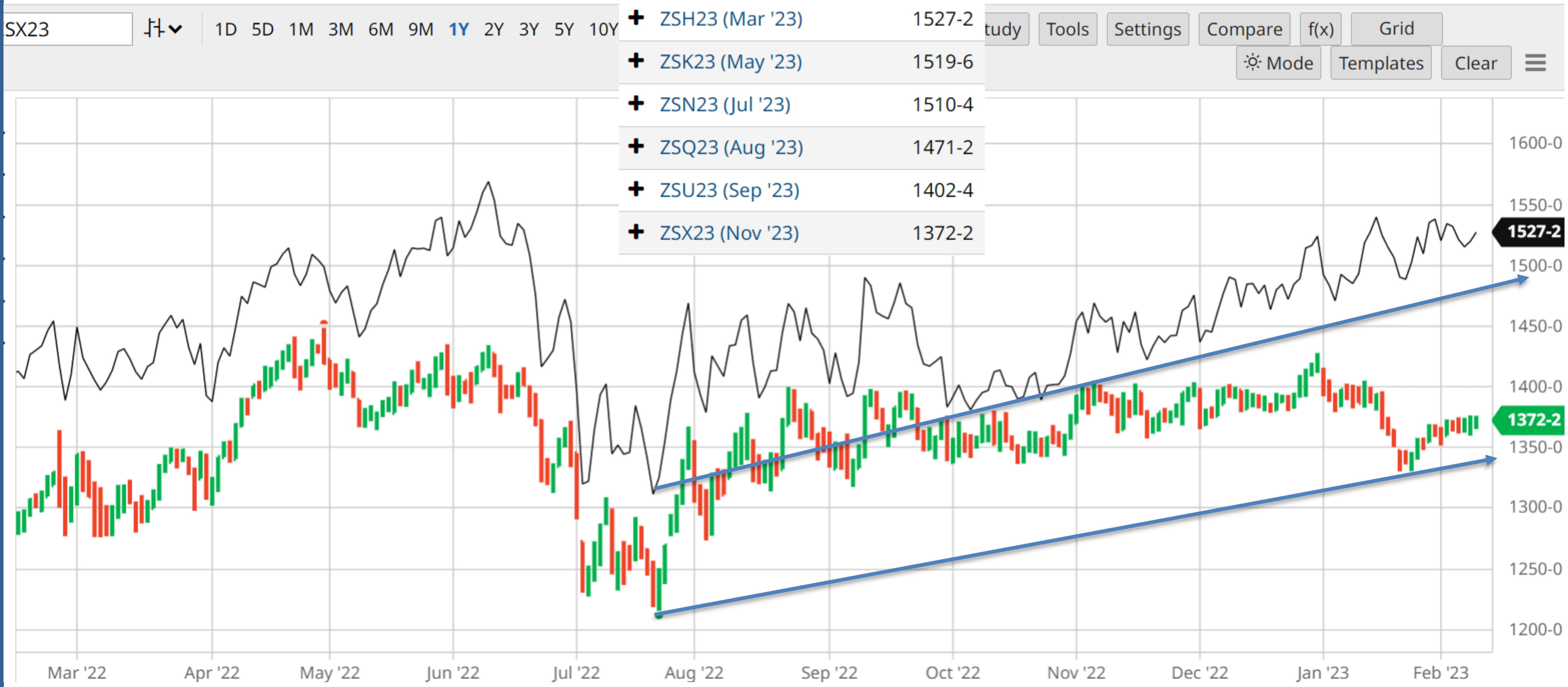
November Soybean Futures Contract, Nov 1 to Expiration, 2010-2023*



* November 1, 2022 to January 27, 2023

Soybean March and November Futures Contract

Contract	Last
ZSY00 (Cash)	1501-0s
ZSH23 (Mar '23)	1527-2
ZSK23 (May '23)	1519-6
ZSN23 (Jul '23)	1510-4
ZSQ23 (Aug '23)	1471-2
ZSU23 (Sep '23)	1402-4
ZSX23 (Nov '23)	1372-2



Managing Price Risk

- Identify risk intervals and develop a marketing and risk management plan.

- Crop insurance protection.
- In season marketing.
- Storage.

- Price protection versus establishing a final price

How Many Bushels to Cover Select Expenses AT $4, $5, $6, and $7 Corn

Expense	Expense ($/acre)	$4.00	$5.00	$6.00	$7.00
Seed	$115.20	28.8	23.0	19.2	16.5
Fertilizer & Lime	$243.00	60.8	48.6	40.5	34.7
Chemical	$64.79	16.2	13.0	10.8	9.3
Variable Cost	$574.18	143.5	114.8	95.7	82.0
Fixed Cost	$285.73	71.4	57.1	47.6	40.8
Total Cost	$859.92	215.0	172.0	143.3	122.8

Breakeven production at:
$4.00 = 215 bushels
$5.00 = 172 bushels
$6.00 = 143 bushels
$7.00 = 123 bushels

Consider downside price protection when inputs are purchased.
Protect against a margin squeeze.

Identify Price Risk Intervals

- Pre-crop insurance price determination
- Crop insurance price discovery
- In season
- Post harvest

- Price risk management vs. final price.

Example: Bridging the price risk gap until crop insurance prices are determined – put option

- On November 11, a $14.00 November 2023 Put Option cost $1.06.
- On January 27, a $14.00 November 2023 Put Option cost $1.09.
- After crop insurance prices are determined:
  - Out-of-the money: exit options position recoup premium.
  - In-the-money: maintain the position as price protection.

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**

December Futures at $5.95 Feb 9

Soybean Crop Insurance Prices

Commodity Year	Sales Closing Date	Market Symbol	Projected Price Date Range	Projected Price	Price Volatility	Harvest Price Date Range	Market Symbol	Harvest Price	Harvest less Projected
2011	3/15/2011	ZSF12	02/01 - 02/28	$13.52	0.24	10/01 - 10/31	ZSF12	$11.71	($1.81)
2012	3/15/2012	ZSF13	02/01 - 02/29	$12.60	0.18	10/01 - 10/31	ZSF13	$14.48	$1.88
2013	3/15/2013	ZSF14	02/01 - 02/28	$12.91	0.18	10/01 - 10/31	ZSF14	$12.93	$0.02
2014	3/15/2014	ZSF15	02/01 - 02/28	$11.41	0.13	10/01 - 10/31	ZSF15	$10.32	($1.09)
2015	3/15/2015	ZSF16	02/01 - 02/28	$9.78	0.16	10/01 - 10/31	ZSF16	$8.66	($1.12)
2016	3/15/2016	ZSF17	02/01 - 02/29	$8.90	0.13	10/01 - 10/31	ZSF17	$10.07	$1.17
2017	3/15/2017	ZSF18	02/01 - 02/28	$10.23	0.15	10/01 - 10/31	ZSF18	$9.88	($0.35)
2018	3/15/2018	ZSF19	02/01 - 02/28	$10.21	0.13	10/01 - 10/31	ZSF19	$8.83	($1.38)
2019	3/15/2019	ZSF20	02/01 - 02/28	$9.63	0.12	10/01 - 10/31	ZSF20	$9.12	($0.51)
2020	3/15/2020	ZSF21	02/01 - 02/29	$9.21	0.11	10/01 - 10/31	ZSF21	$11.45	$2.24
2021	3/15/2021	ZSF22	02/01 - 02/28	$11.81	0.19	10/01 - 10/31	ZSF22	$12.43	$0.62
2022	**3/15/2022**	**ZSF23**	**02/01 - 02/28**	**$14.30**	**0.2**	**10/01 - 10/31**	**ZSF23**	**$14.44**	**$0.14**

November Futures at $13.69 Feb 9

Source: USDA RMA https://prodwebnlb.rma.usda.gov/apps/pricediscovery

Cotton Crop Insurance Prices, 2010-2023

Commodity Year	Projected Price Market Symbol	Projected Price Date Range	**Projected Price**	Price Volatility	Harvest Price Date Range	**Harvest Price**	**Harvest - Projected**
2011	CTZ11	02/01 - 02/28	**1.23**	0.37	10/01 - 10/31	**1.01**	**(0.22)**
2012	CTZ12	02/01 - 02/29	**0.93**	0.18	10/01 - 10/31	**0.73**	**(0.20)**
2013	CTZ13	02/01 - 02/28	**0.83**	0.16	10/01 - 10/31	**0.83**	**0.00**
2014	CTZ14	02/01 - 02/28	**0.78**	0.14	10/01 - 10/31	**0.64**	**(0.14)**
2015	CTZ15	02/01 - 02/28	**0.64**	0.15	10/01 - 10/31	**0.63**	**(0.01)**
2016	CTZ16	02/01 - 02/29	**0.6**	0.14	10/01 - 10/31	**0.69**	**0.09**
2017	CTZ17	02/01 - 02/28	**0.74**	0.15	10/01 - 10/31	**0.68**	**(0.06)**
2018	CTZ18	02/01 - 02/28	**0.76**	0.14	10/01 - 10/31	**0.77**	**0.01**
2019	CTZ19	02/01 - 02/28	**0.73**	0.13	10/01 - 10/31	**0.63**	**(0.10)**
2020	CTZ20	02/01 - 02/29	**0.68**	0.14	10/01 - 10/31	**0.69**	**0.01**
2021	CTZ21	02/01 - 02/28	**0.83**	0.2	10/01 - 10/31	**1.09**	**0.26**
2022	CTZ22	02/01 - 02/28	**1.03**	0.22	10/01 - 10/31	**0.81**	**(0.22)**
2023**	**CTZ23**	**02/01 - 02/28**	**0.85**	**0.25**	**10/01 - 10/31**	**NA**	**NA**

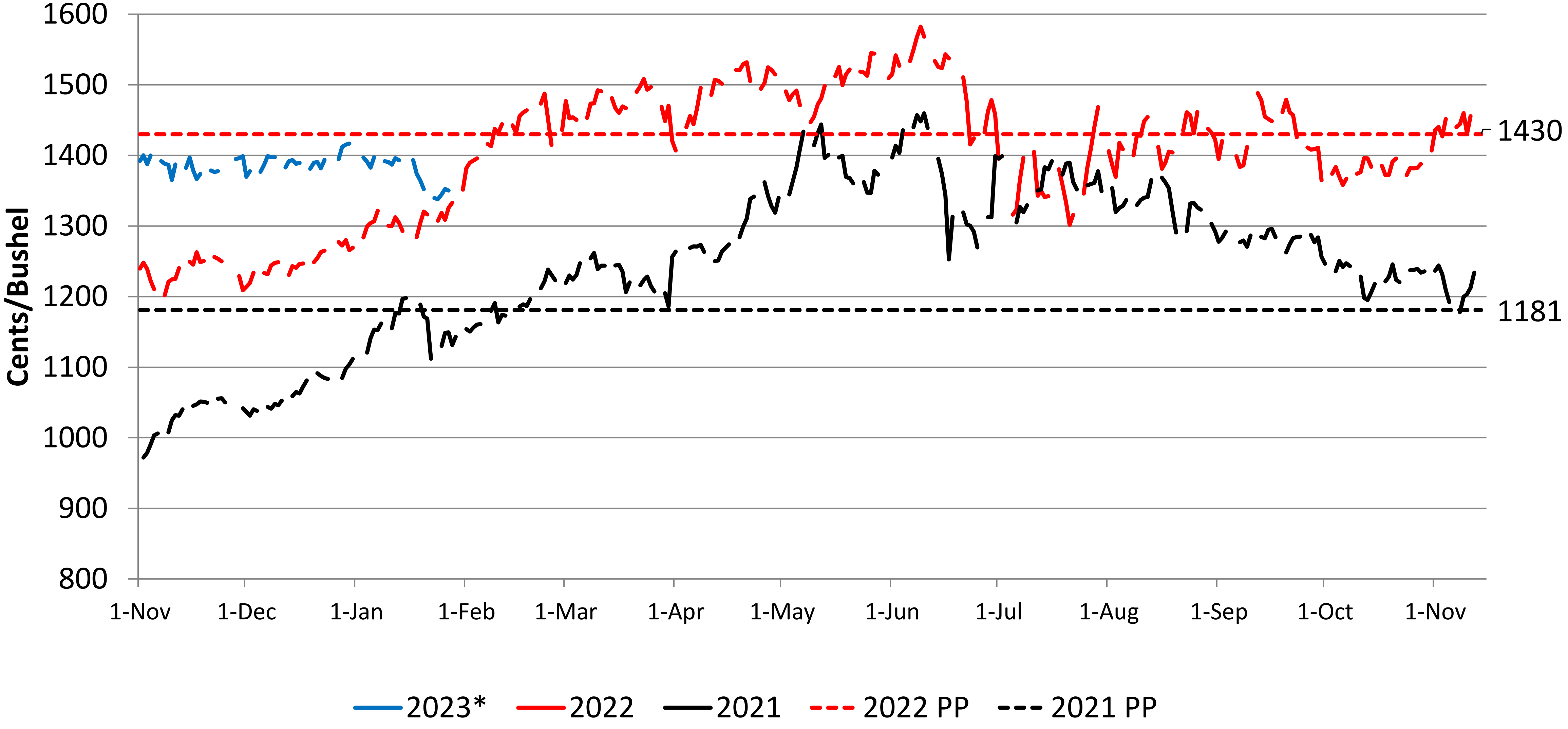
Data Source: https://prodwebnlb.rma.usda.gov/apps/PriceDiscovery/

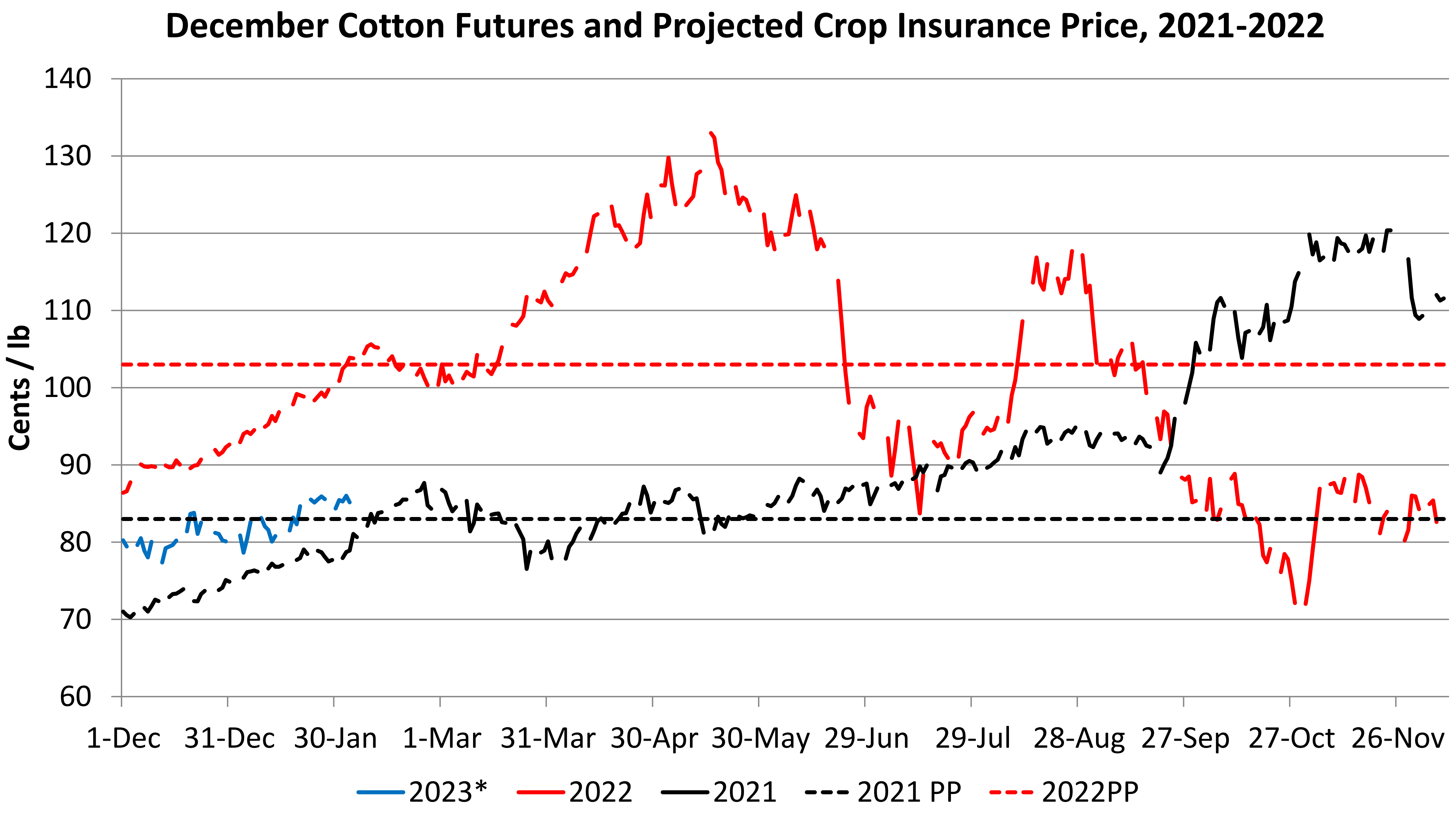
Breaking Down Price Risk

- Cash price for corn of $7.00
  - – $6.00 futures price (86% of price risk)
  - – $1.00 basis (14% of price risk)

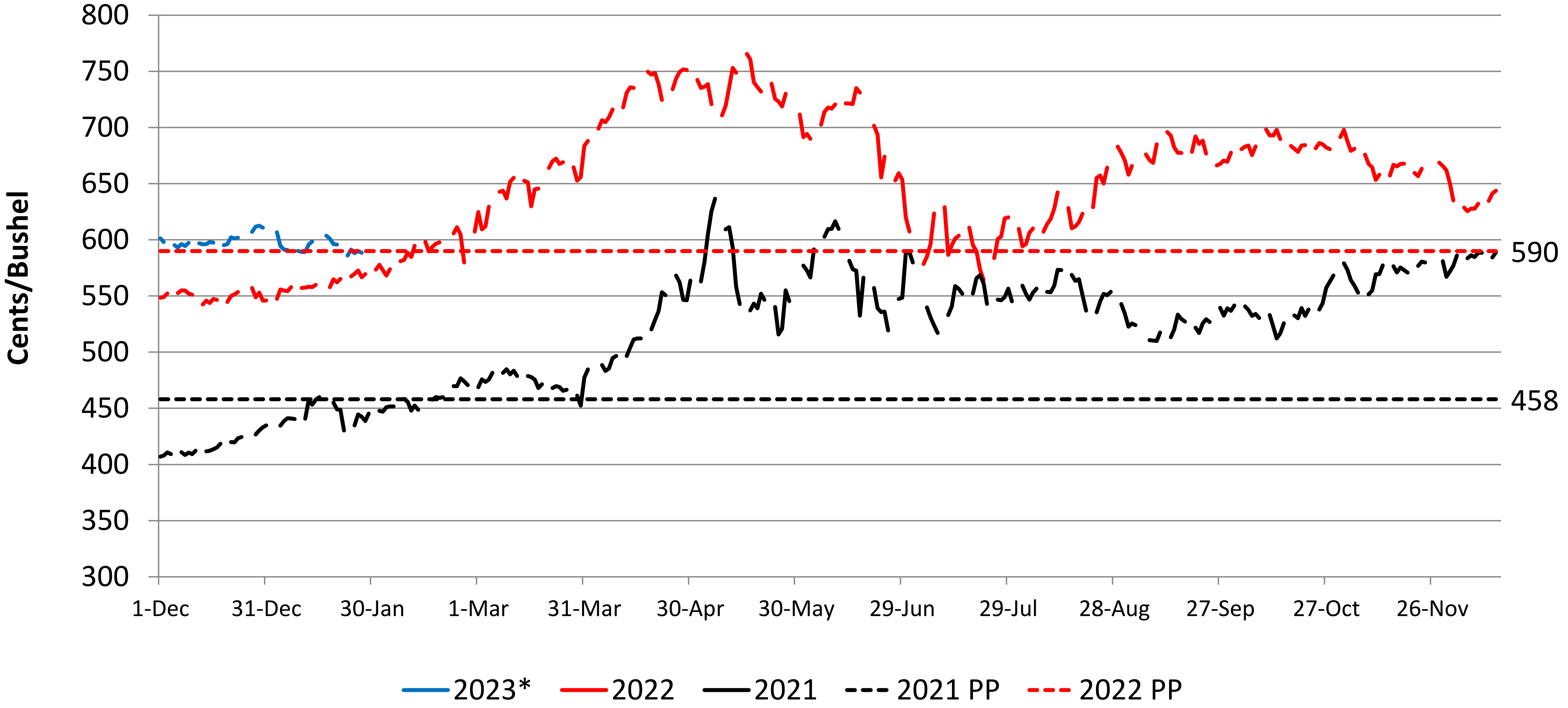
- Buy a $5.50 December Put Option for 30 cents setting a $5.20 futures floor.
- This removes 87% ($5.20/$6.00) of the futures price risk (74% of total price).
- Leaves the upside open in futures markets and the flexibility to set basis at a later date.

November Soybean Futures and Projected Price for Crop Insurance, 2021-2022

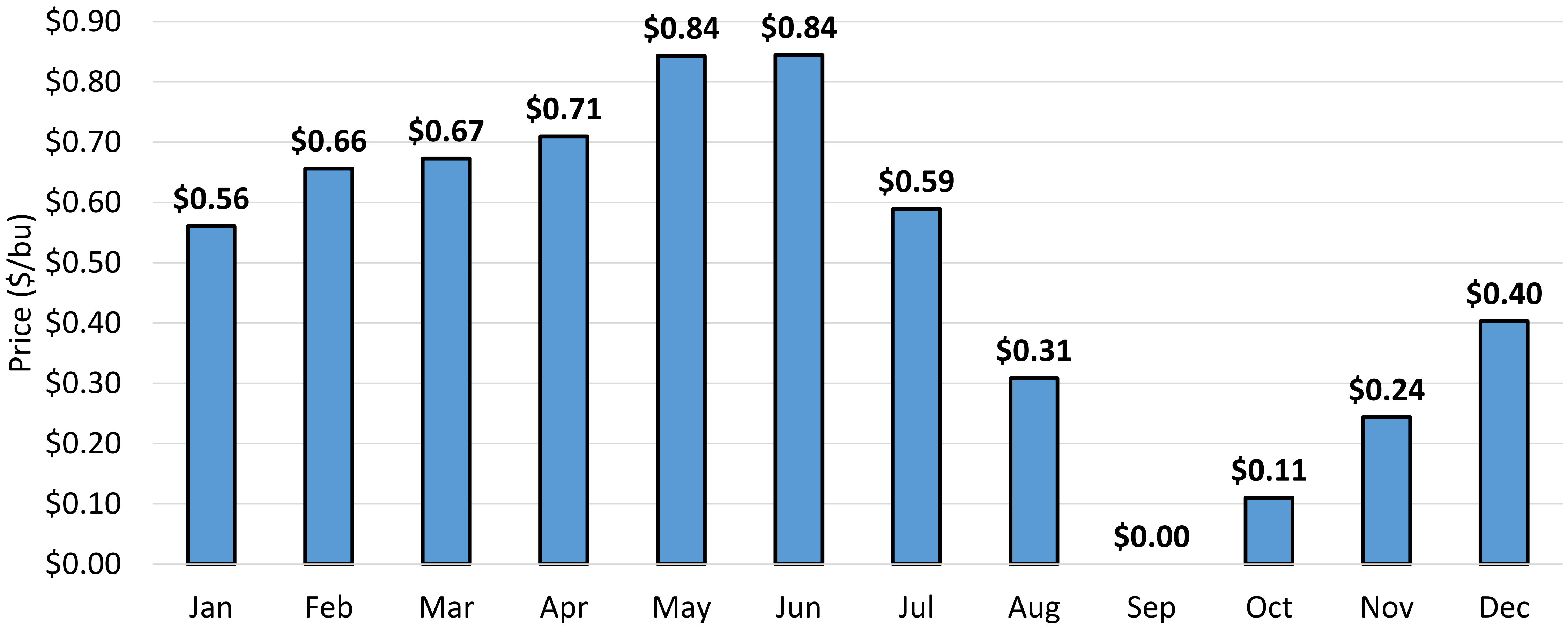



December Cotton Futures and Projected Crop Insurance Price, 2021-2022
Cents / lb
140
130
120
110
100
90
80
70
60
1-Dec
31-Dec
30-Jan
1-Mar
31-Mar
30-Apr
30-May
29-Jun
29-Jul
28-Aug
27-Sep
27-Oct
26-Nov
2023*
2022
2021
2021 PP
2022PP

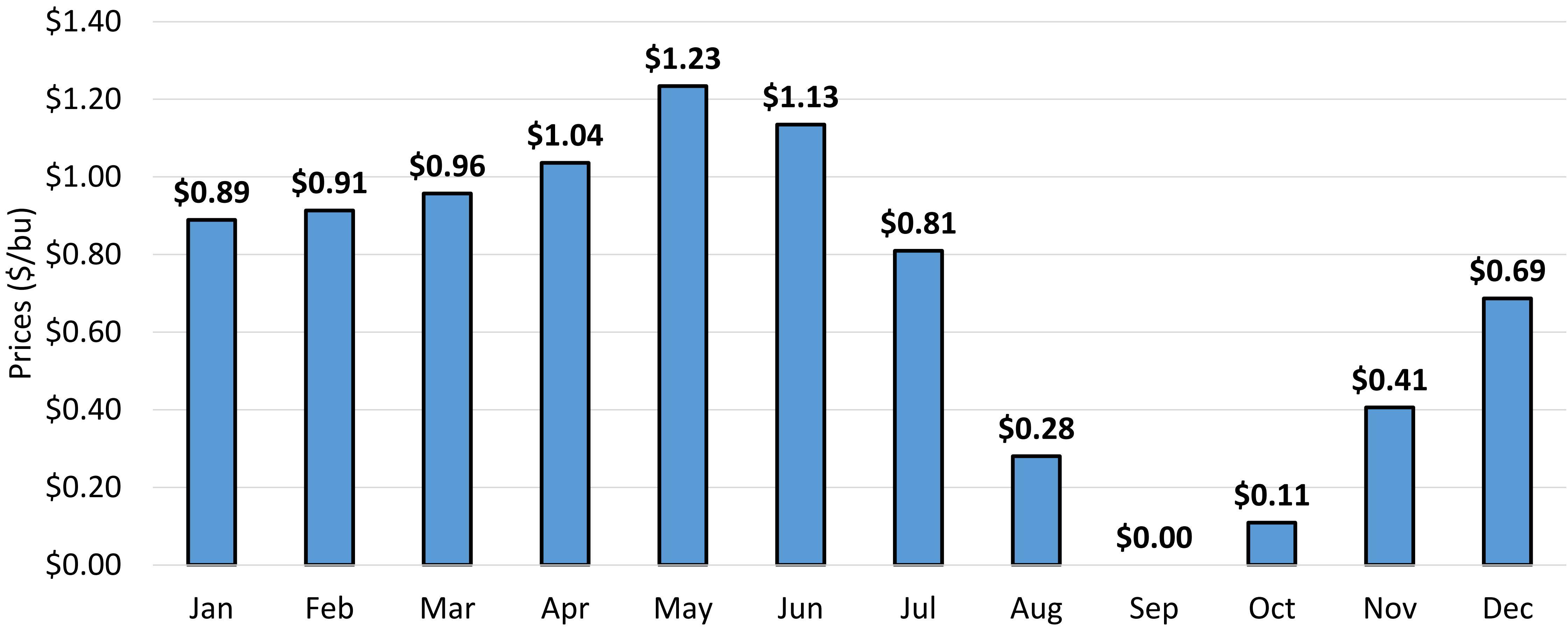
December Corn Futures and Projected Price for Crop Insurance, 2021-2022



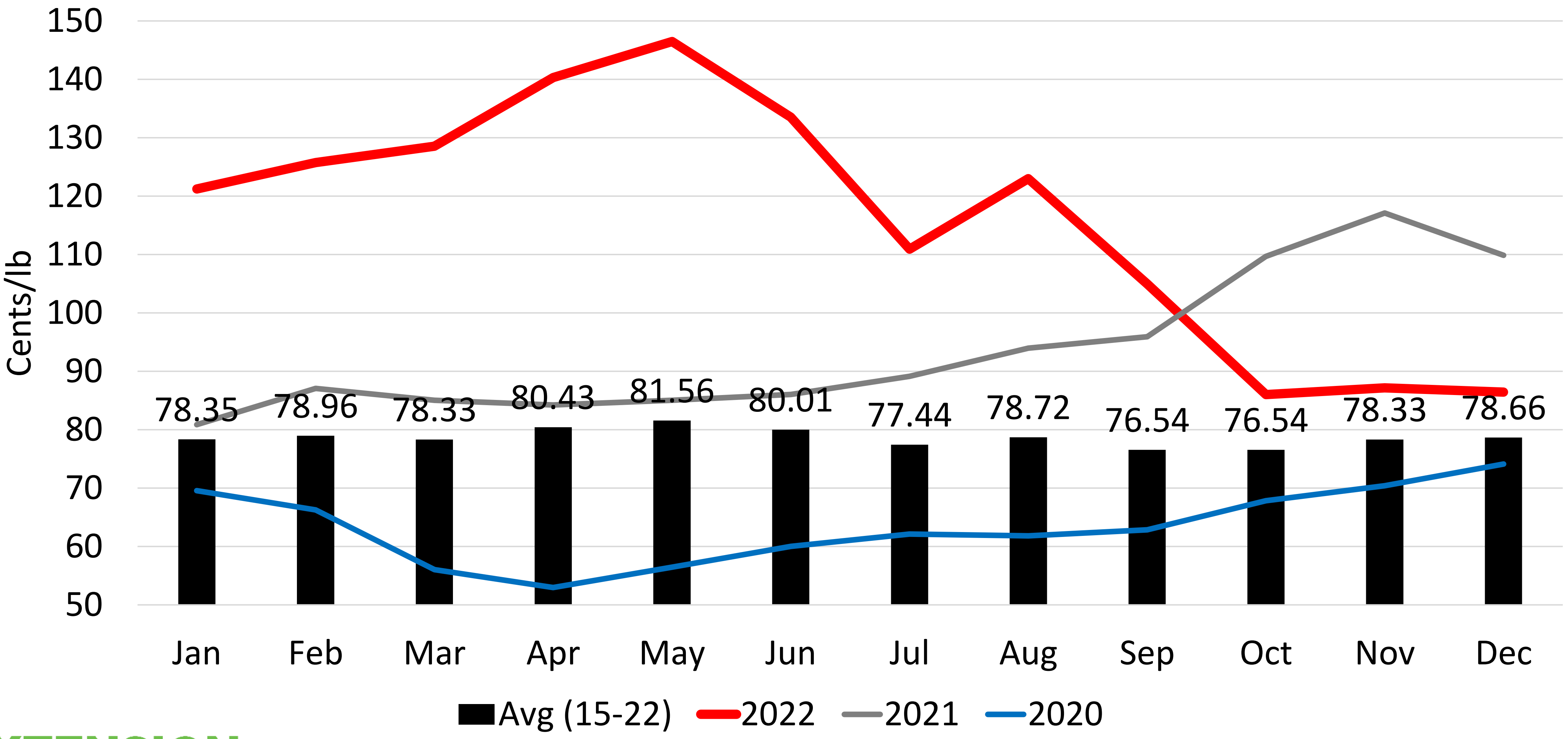
Tennessee Corn 10-Yr Average Improvement in Cash Prices at Elevators and Barge Points



Tennessee Soybean 10-Yr Average Improvement in Cash Prices at Elevators and Barge Points



USDA Delta Spot Cotton Prices, 2015-2022



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Take Home Message

- Global and U.S. economic warning signs for 2023/2024.
- 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.

February 10, 2023

Dr. S. Aaron Smith Associate Professor and Extension Economist
Department of Agricultural and Resource Economics
University of Tennessee Institute of Agriculture
Email: aaron.smith@utk.edu
Web Page: https://cropeconomics.tennessee.edu

THANK YOU