

# Economic Update and 2024 Price Outlook

February 26, 2024

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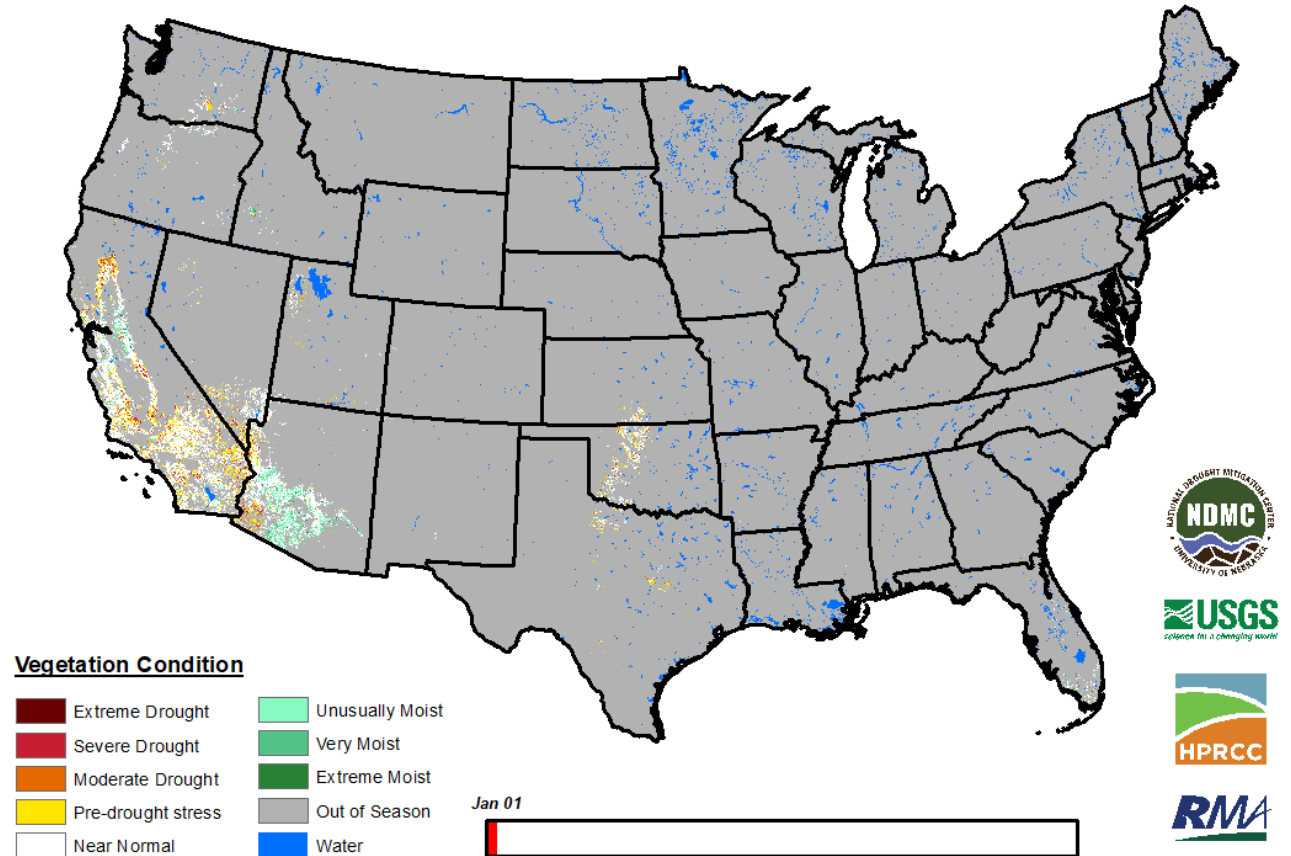
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Web Page: <https://cropeconomics.tennessee.edu>

# Overview

- General Economy
- Input Prices
- Corn and Soybean Supply and Demand
- Old and New Crop Pricing
- Risk Management & Marketing Strategies

## 2023 Vegetation Drought Response Index (VegDRI)

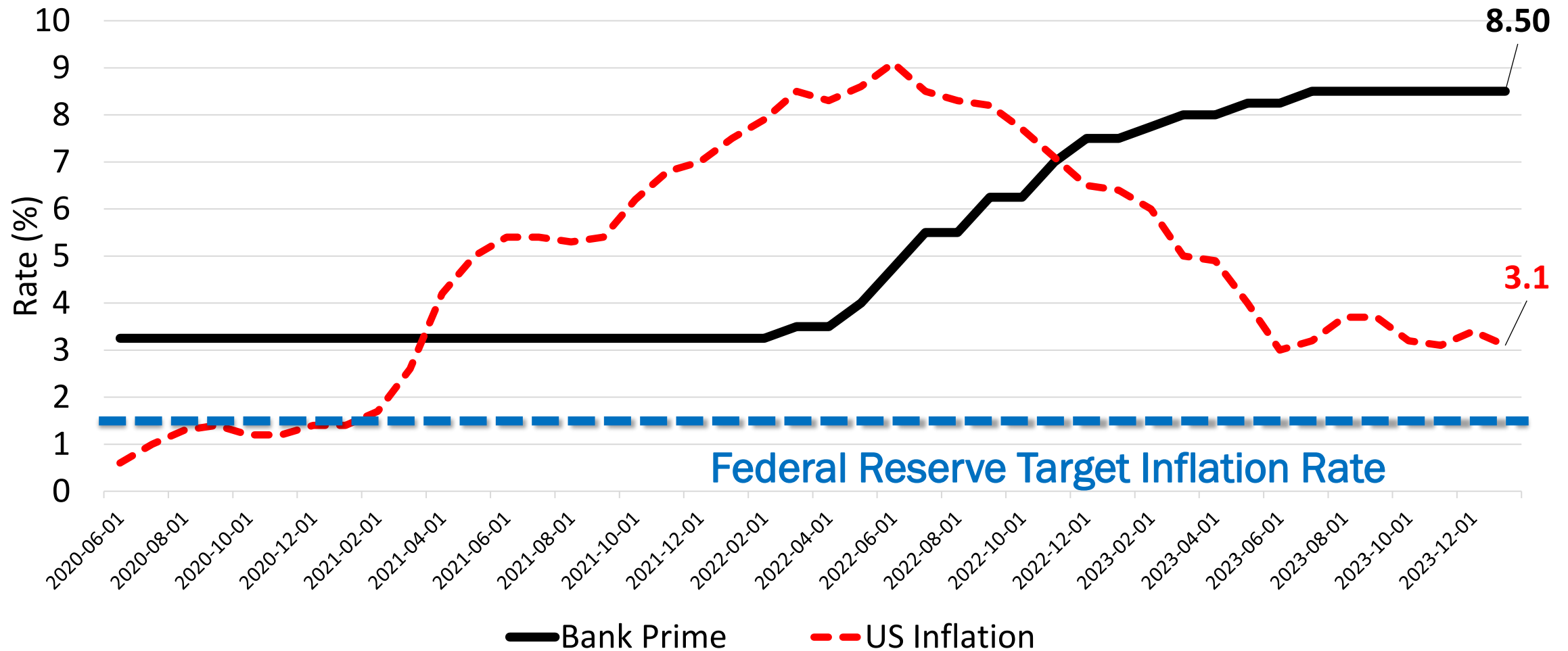


Slow down in 2024?

# GENERAL ECONOMY



# Prime Rate and Inflation Rate, Jun 2020 to Dec 2023

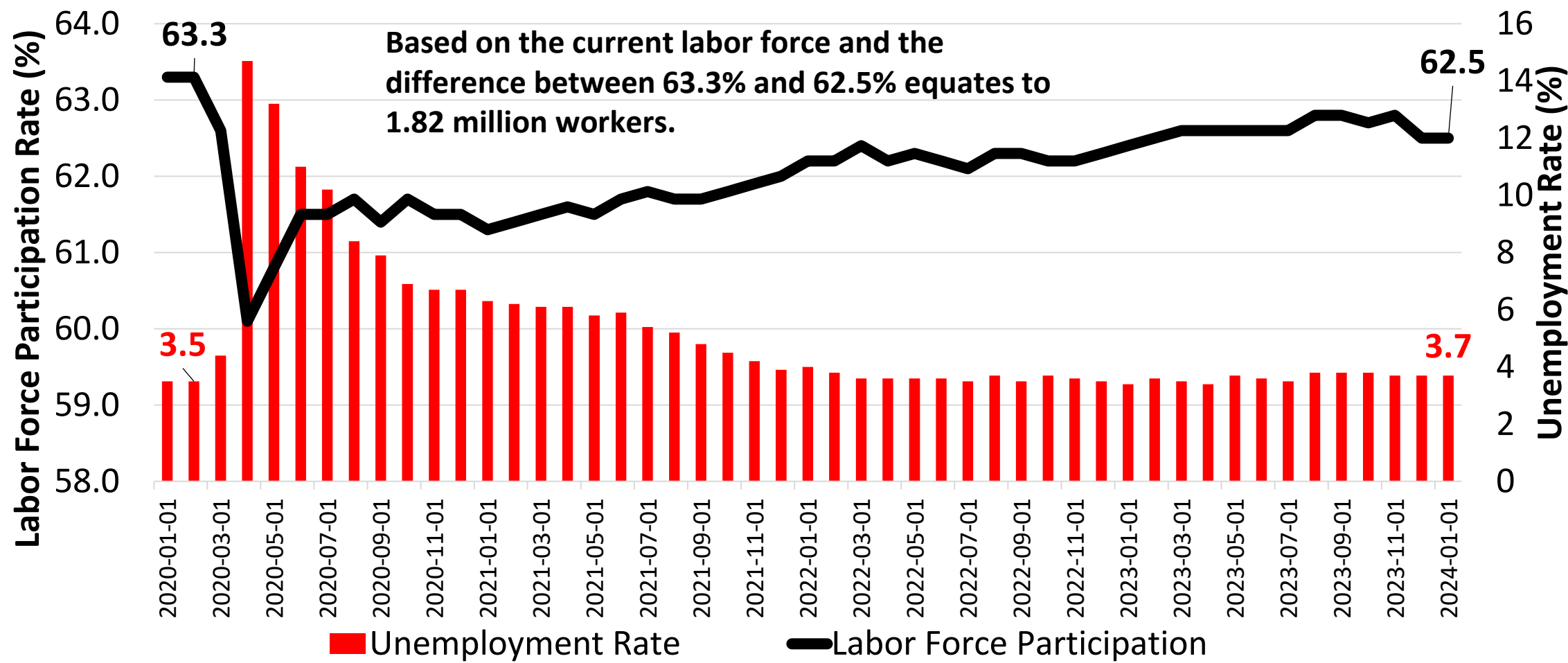


Data Sources:

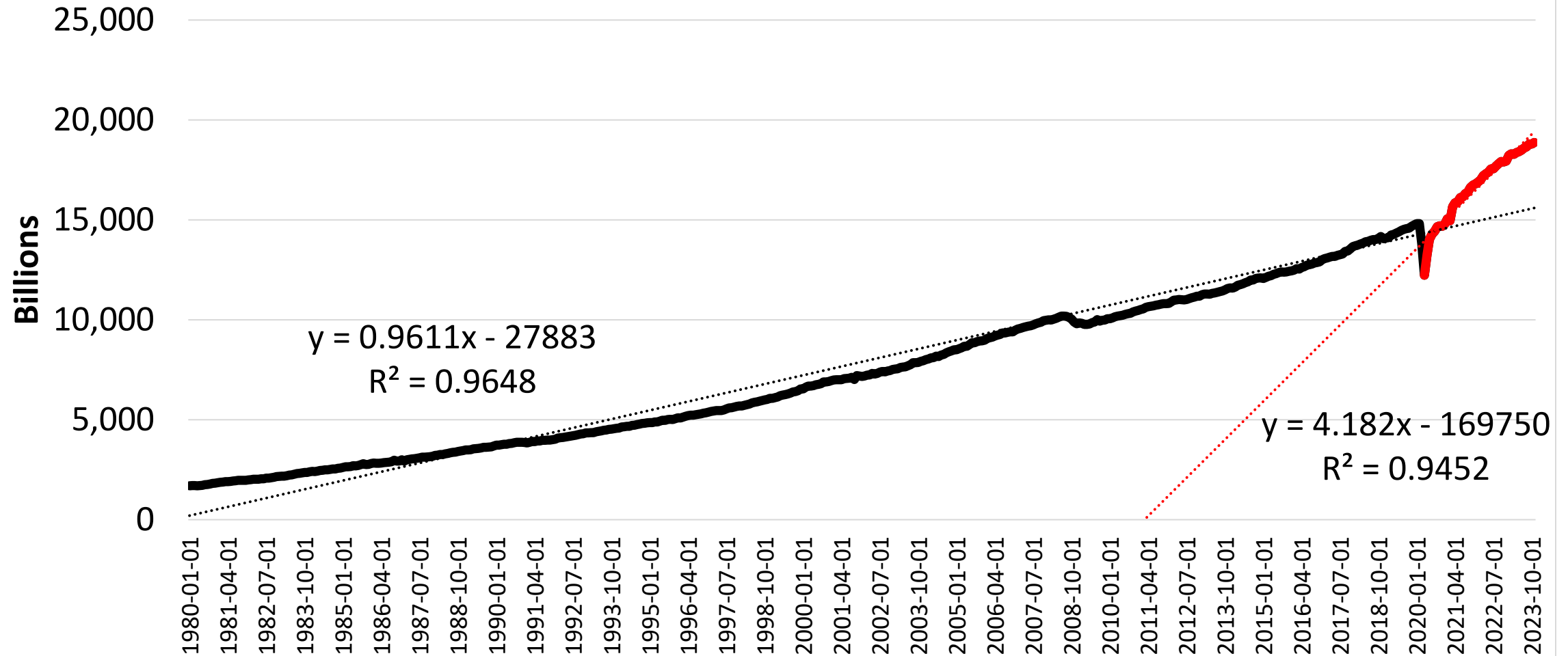
<https://www.statista.com/statistics/273418/unadjusted-monthly-inflation-rate-in-the-us/> and  
<https://fred.stlouisfed.org/series/DPRIME>

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# Unemployment and Labor Force Participation Rate, 2020 to 2023



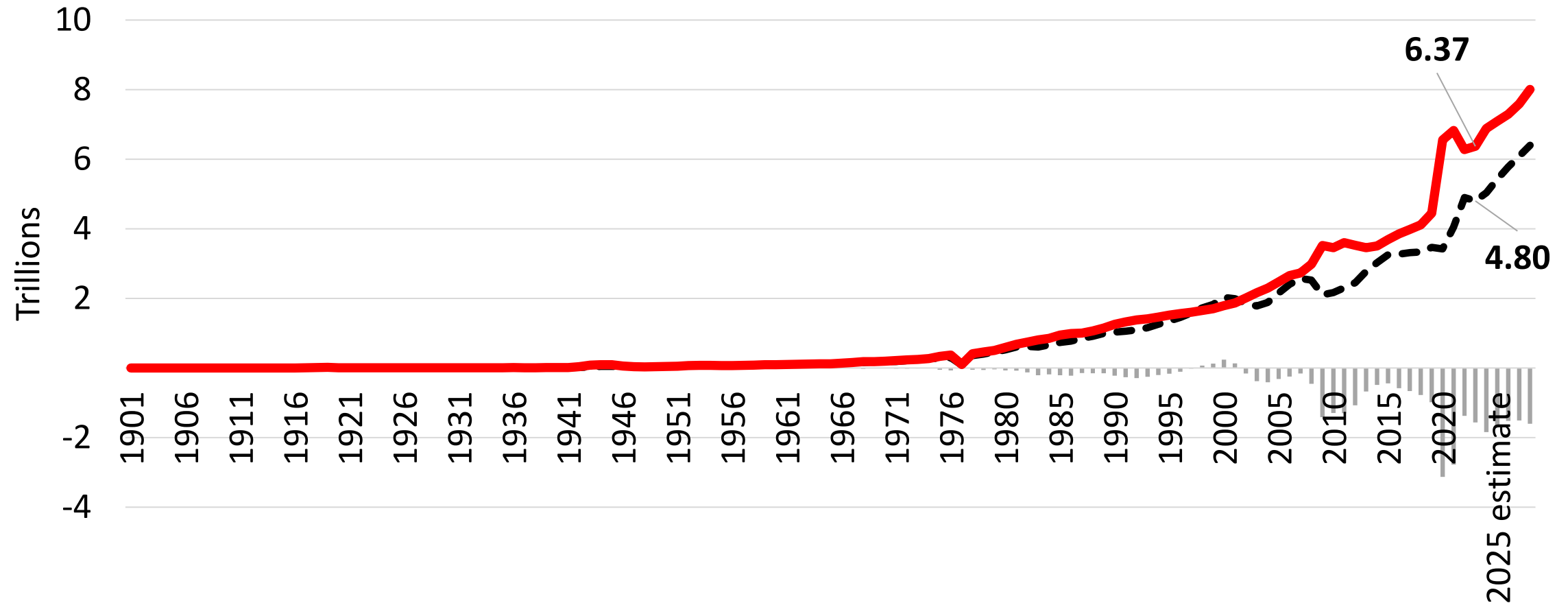
# Personal Consumption Expenditures, Monthly Seasonally Adjusted, 1980 to 2023



Data Source: <https://fred.stlouisfed.org/series/PCE>

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# U.S. Receipts, Outlays, and Surplus or Deficits, 1901 to 2028 (projected)

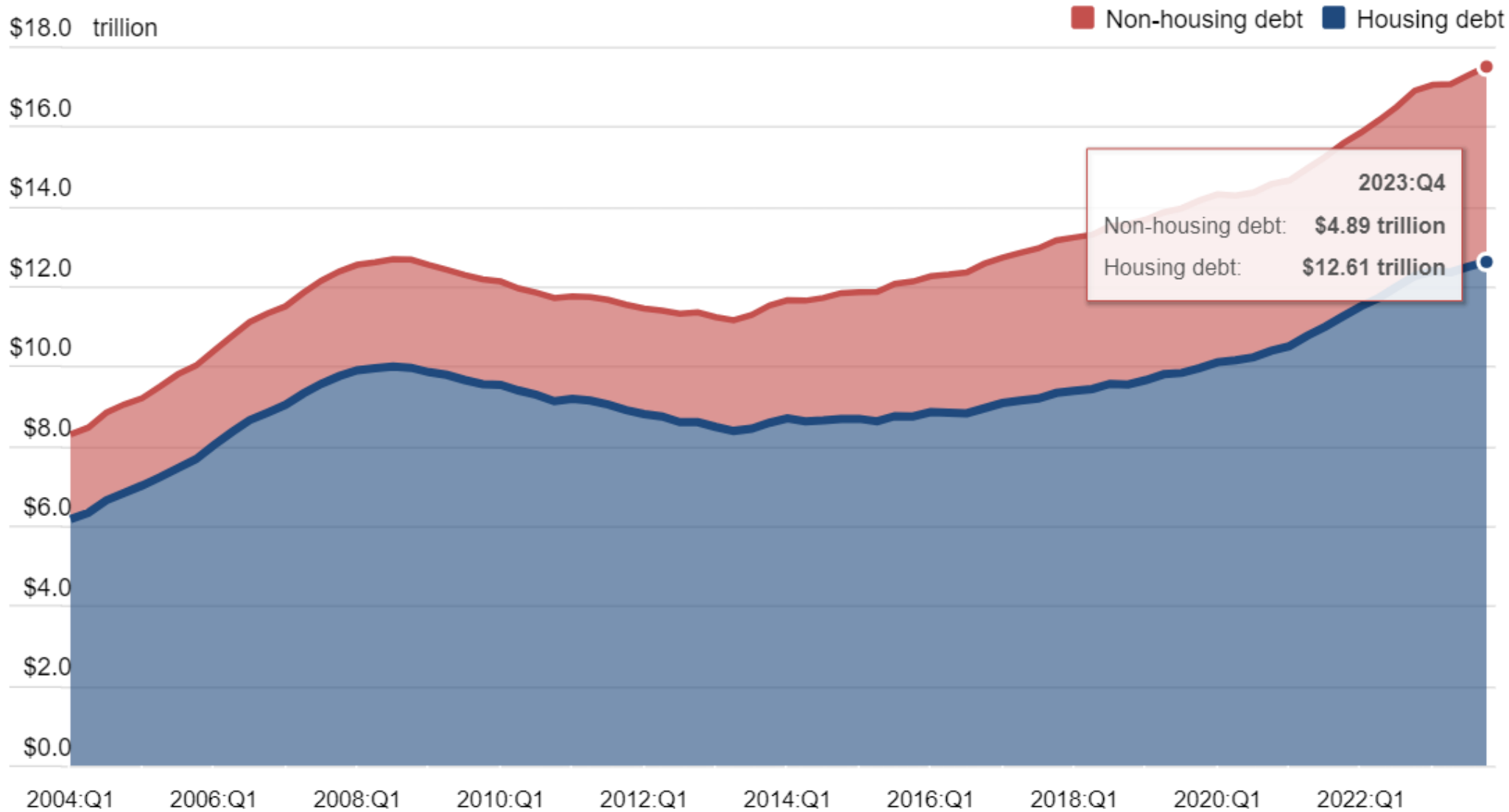


■ Surplus or Deficit (-)    - - - Receipts    — Outlays

Data Source: <https://www.whitehouse.gov/omb/budget/historical-tables/>

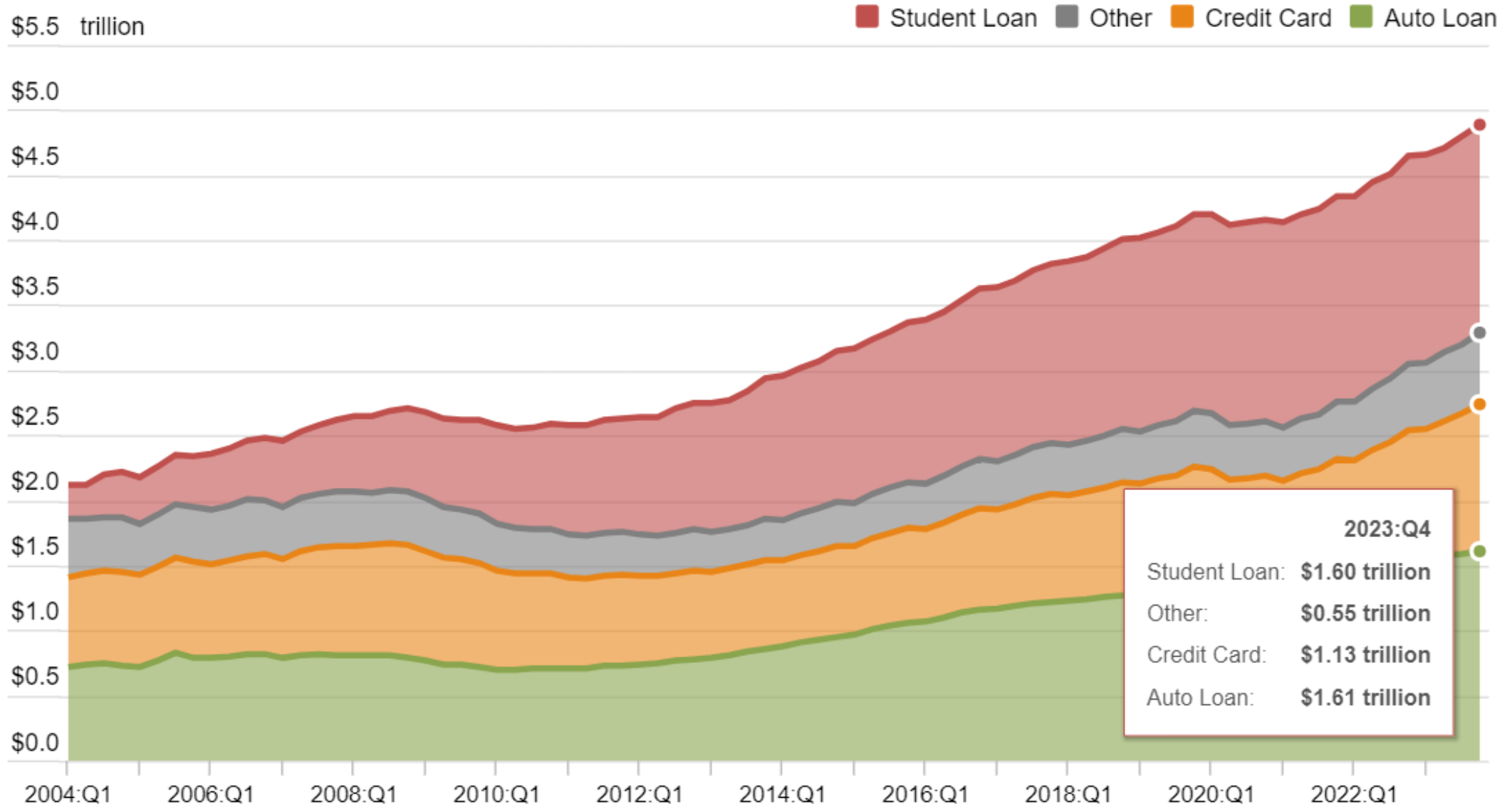
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# Total Debt Balance





# Non-Housing Debt Balance



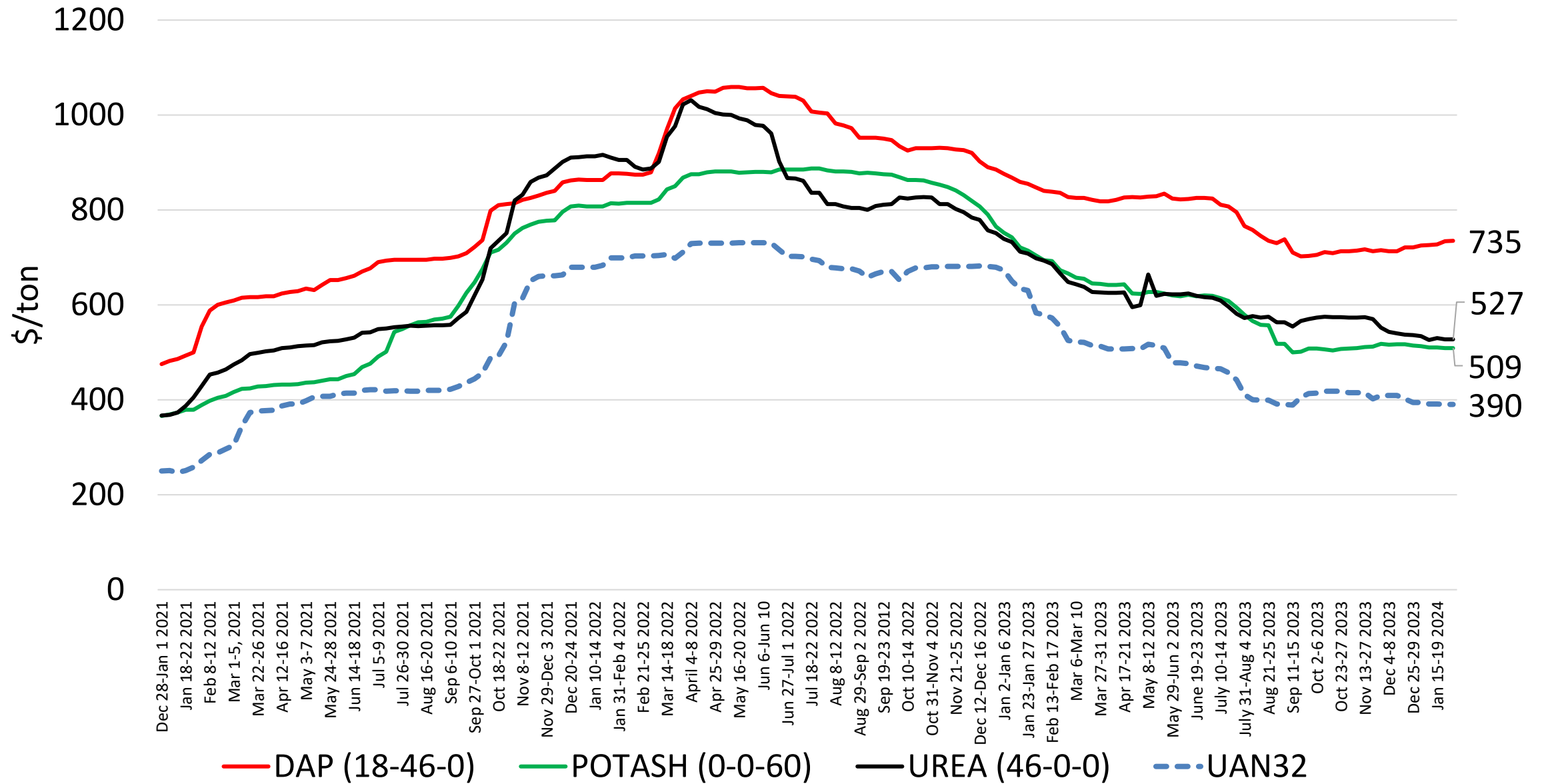


Fertilizer, Fuel, Land

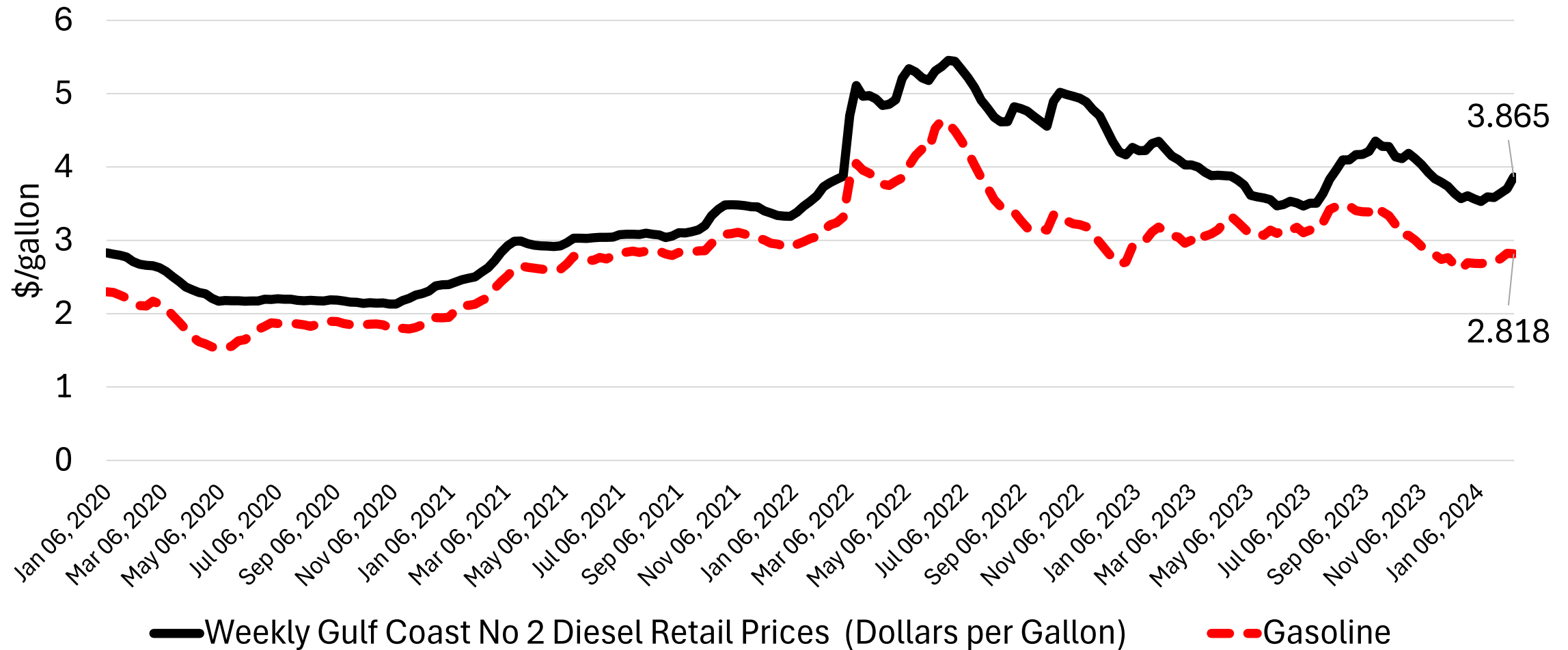
# INPUT PRICES



# Select Fertilizer Prices



# Weekly Gasoline and Diesel Prices, January 2020 to February 2024



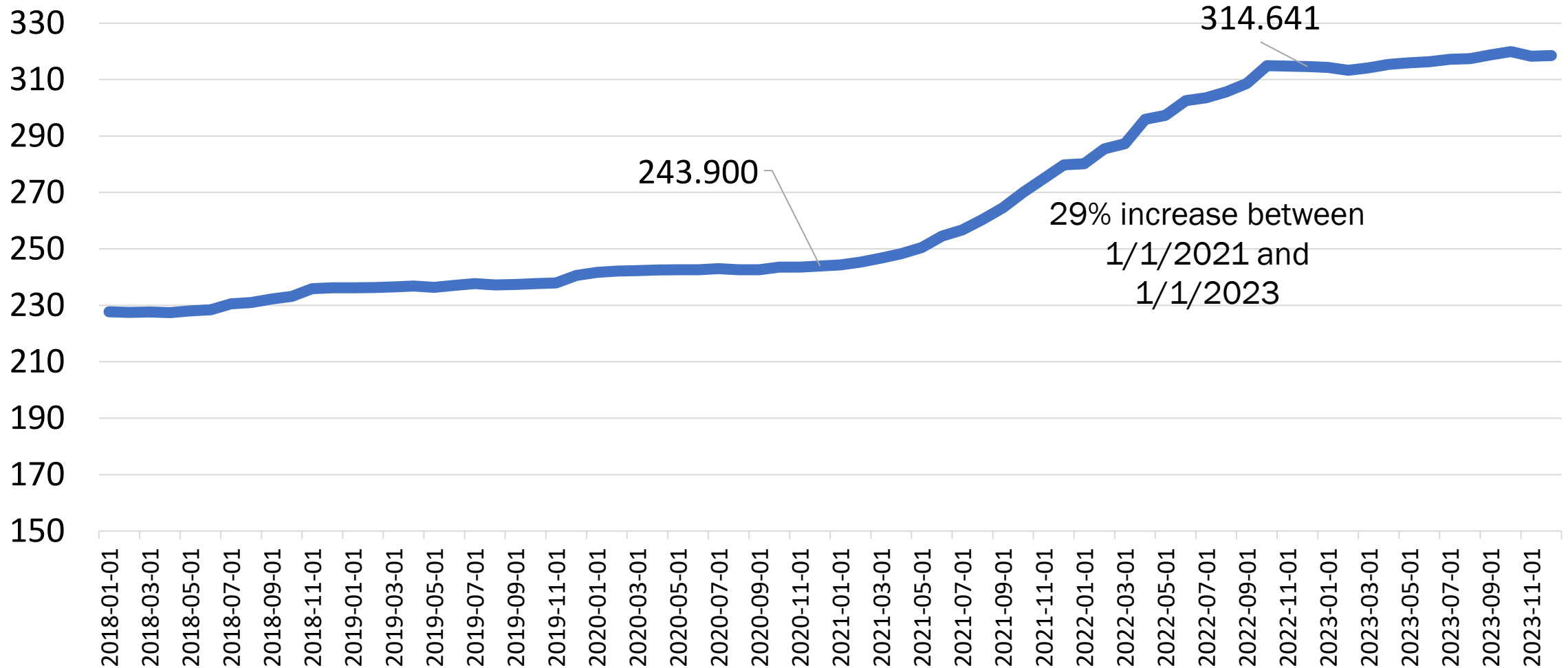
— Weekly Gulf Coast No 2 Diesel Retail Prices (Dollars per Gallon)

- - Gasoline

Data Source: <https://www.eia.gov/petroleum/gasdiesel/>

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# Producer Price Index by Commodity: Machinery and Equipment: Agricultural Machinery and Equipment

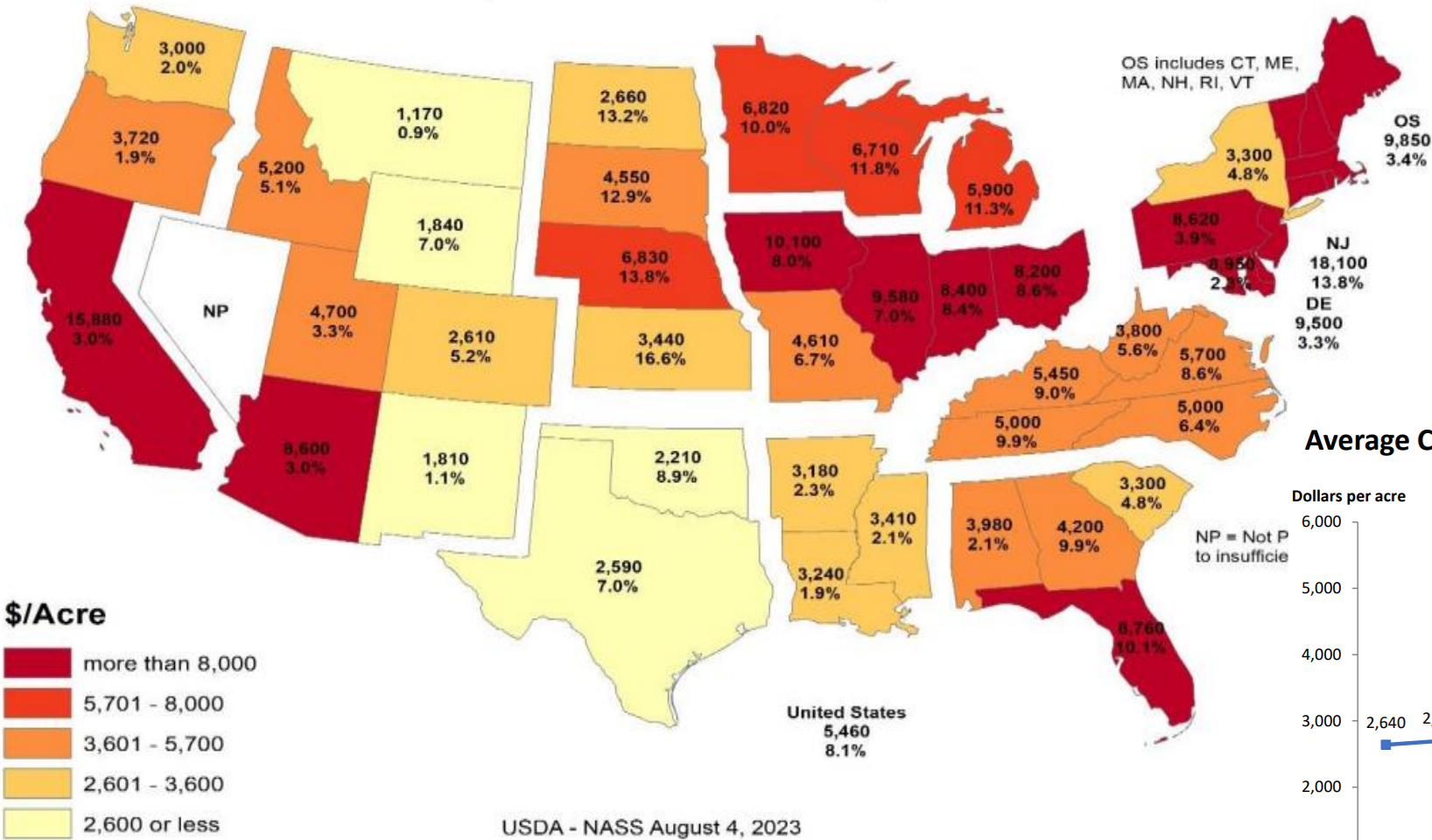


Data Source: <https://fred.stlouisfed.org/series/WPU111>

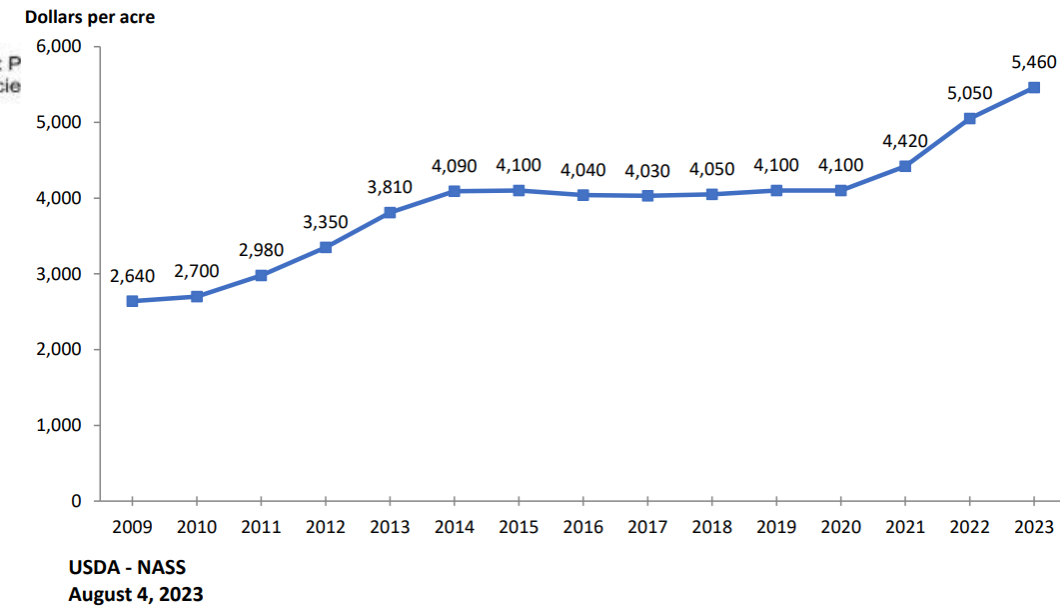
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# 2023 Cropland Value by State

Dollars per Acre and Percent Change from 2022



## Average Cropland Value – United States: 2009-2023



# Crop Share Example

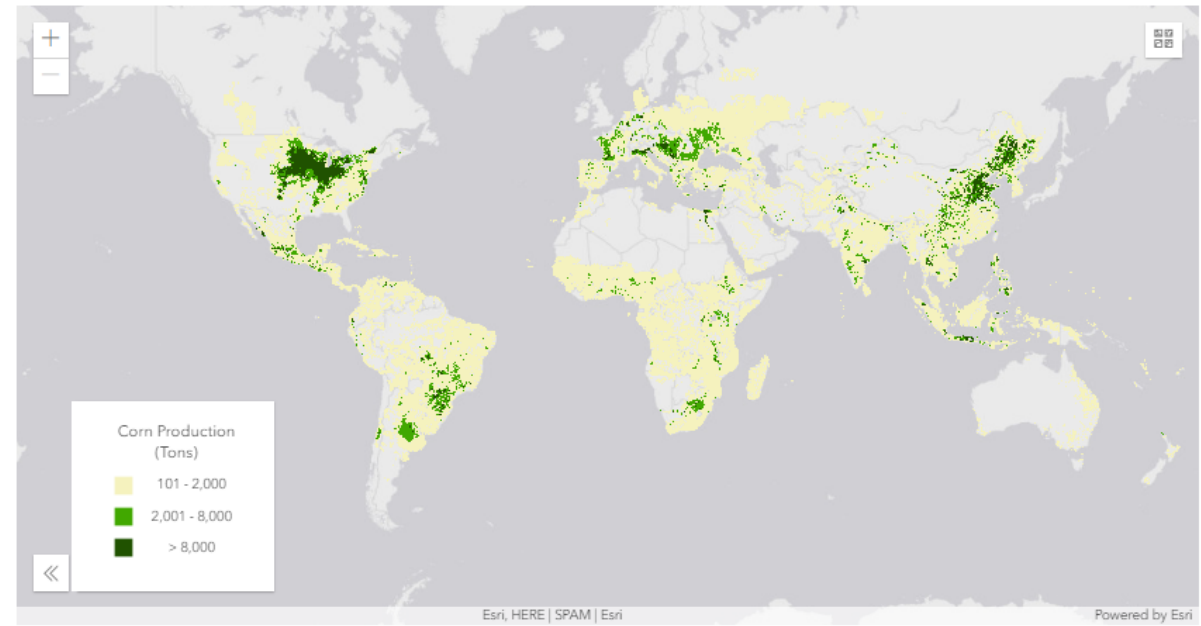
## 2023

- Yield 175 bu/acre
- December 2023 contract \$5.26/bu
- Gross Revenue \$920.50/acre
- $\frac{1}{4}$  Share = \$230.13/acre

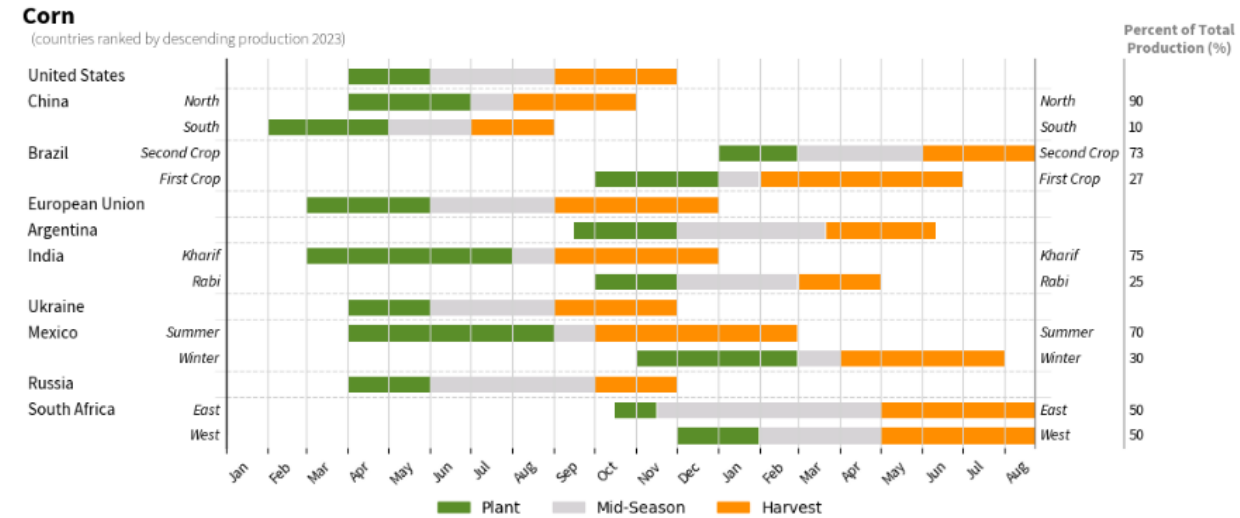
## 2024

- Yield 175 bu/acre
- December 2024 contract \$4.63/bu
- Gross Revenue \$810.25/acre
- $\frac{1}{4}$  Share = \$202.56/acre

**\$27.57 per acre decrease.**



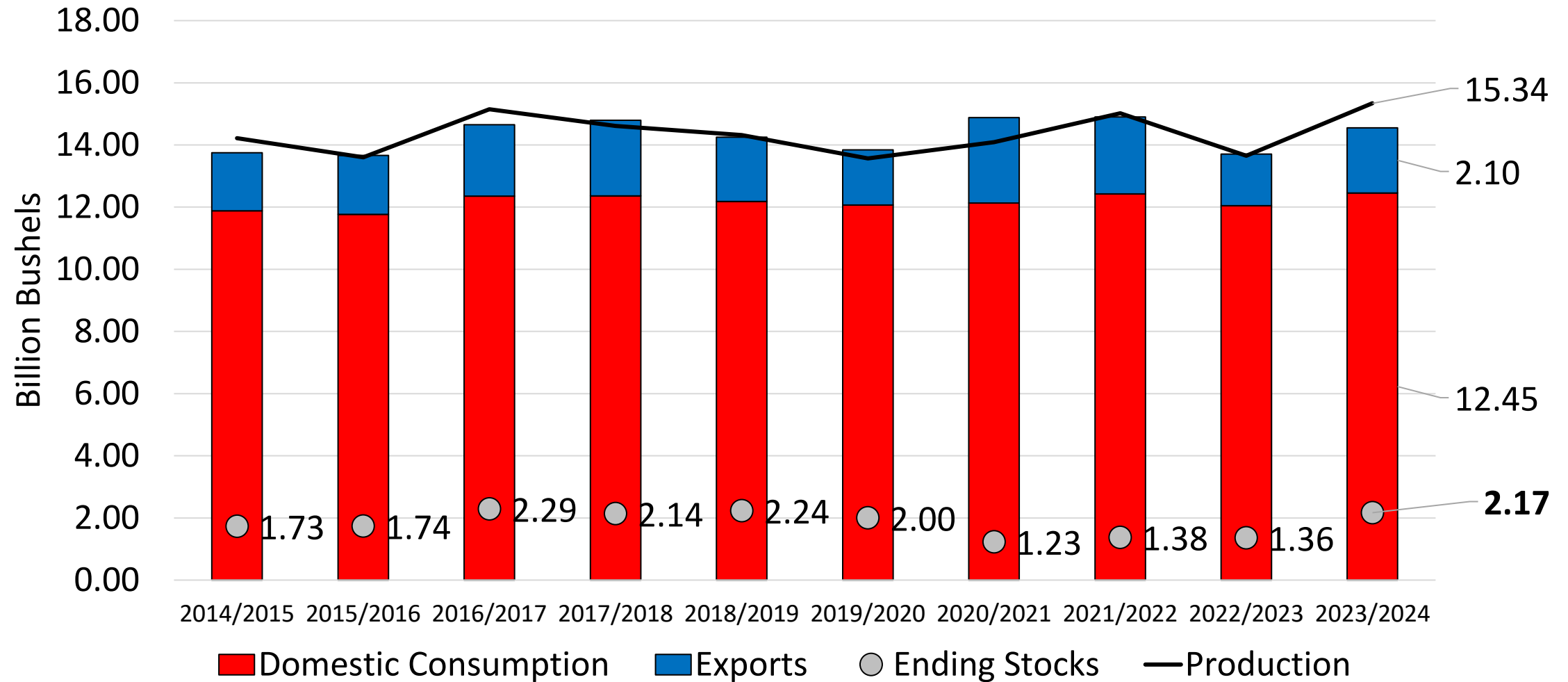
Corn Calendar



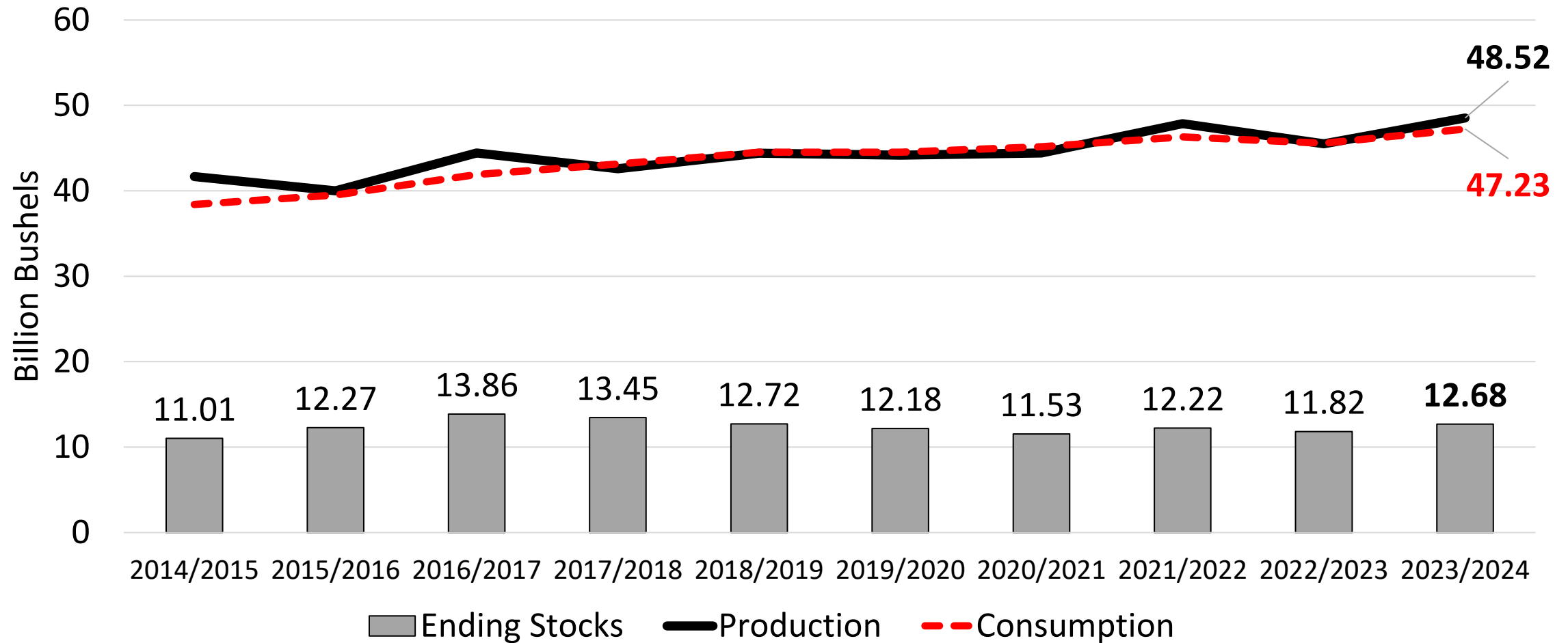
# CORN SUPPLY AND DEMAND



# U.S. Corn Production, Consumption, Exports, and Ending Stocks, 2014/15 to 2023/24



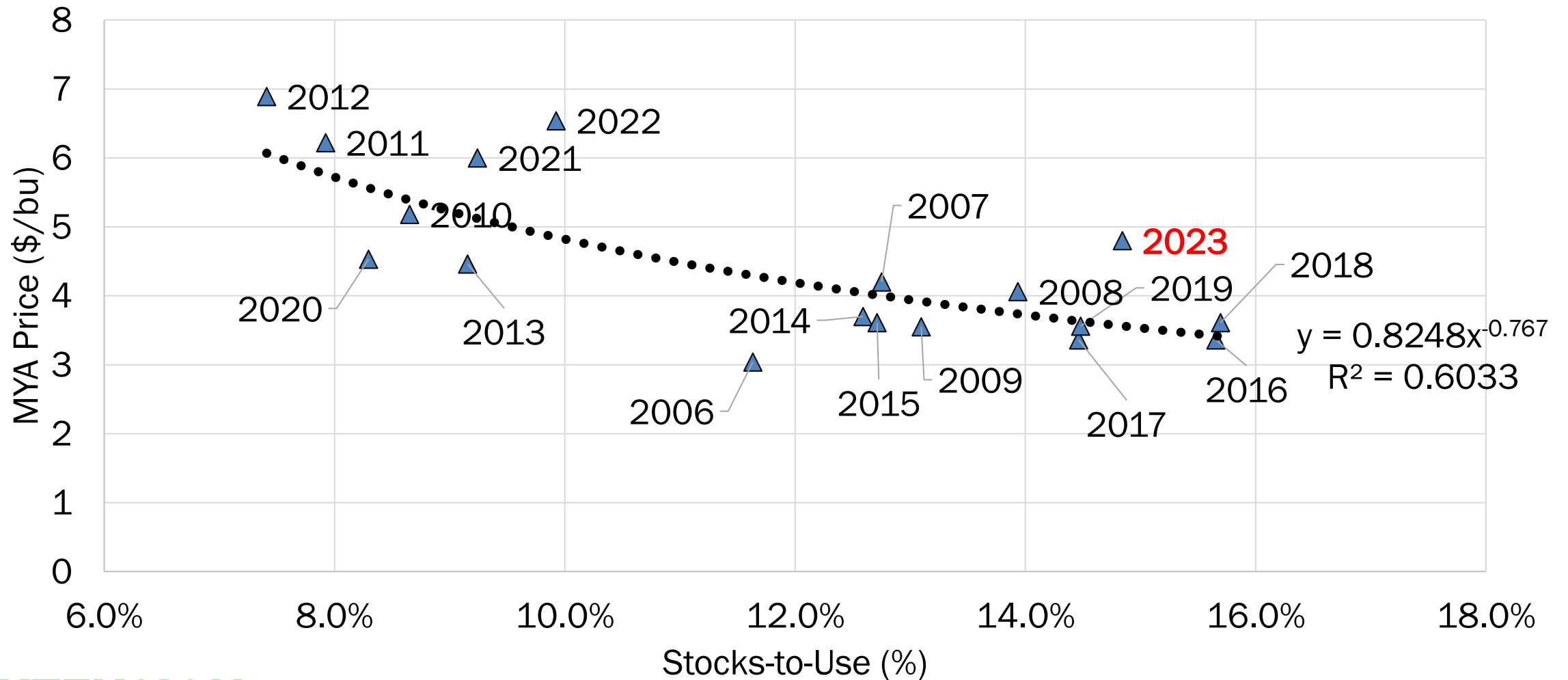
# World Corn Production, Consumption, and Ending Stocks, 2014/15 to 2023/24



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

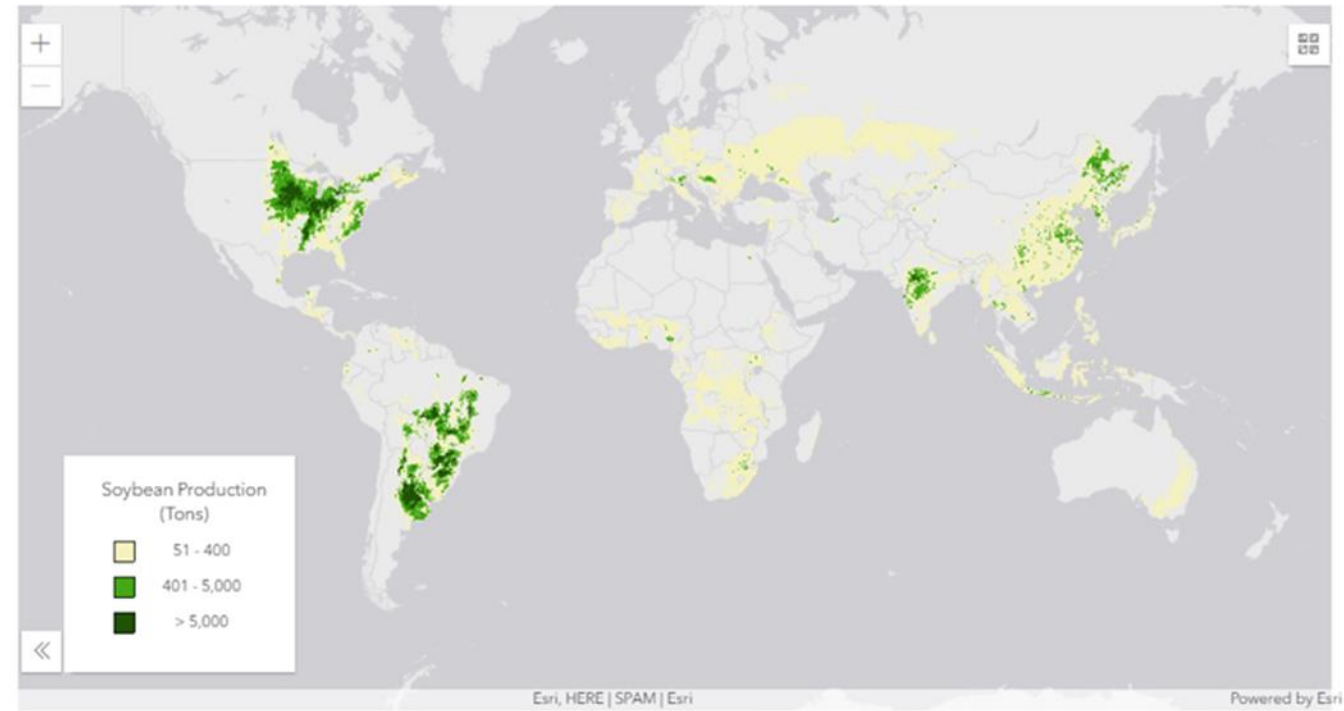
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# U.S. Corn Stocks-to-Use and Price Relationship, 2006-2023



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

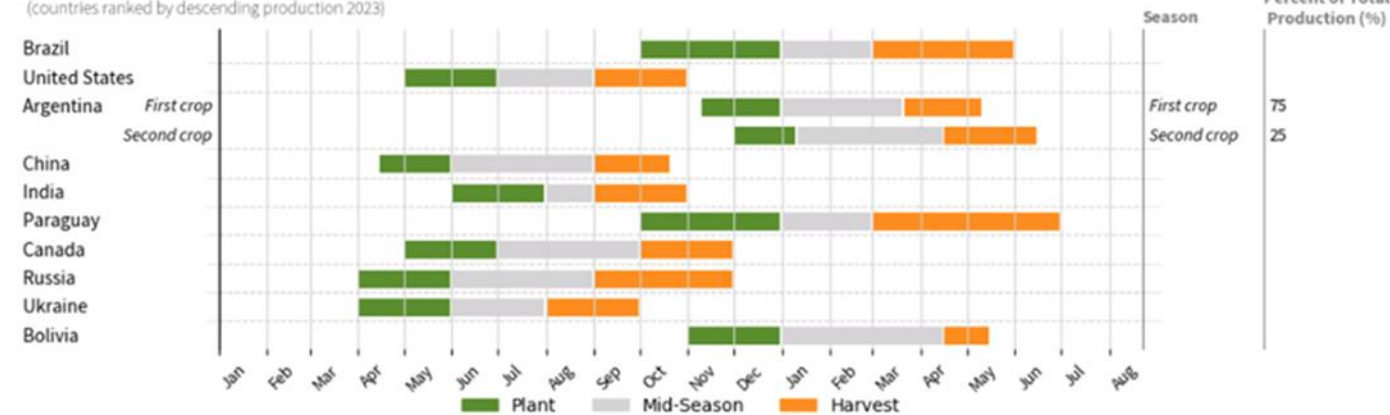
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## Soybean Calendar

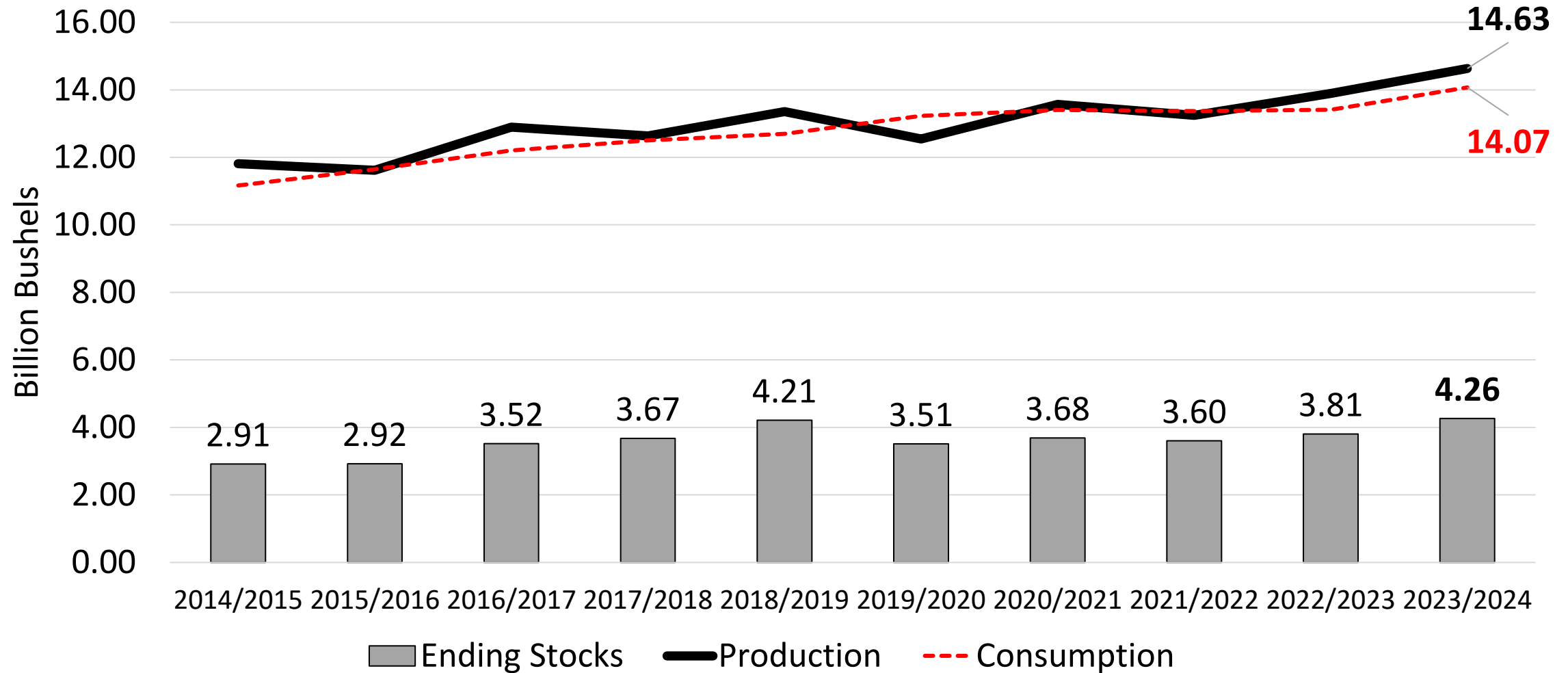
## Soybean

(countries ranked by descending production 2023)



# SOYBEAN SUPPLY AND DEMAND

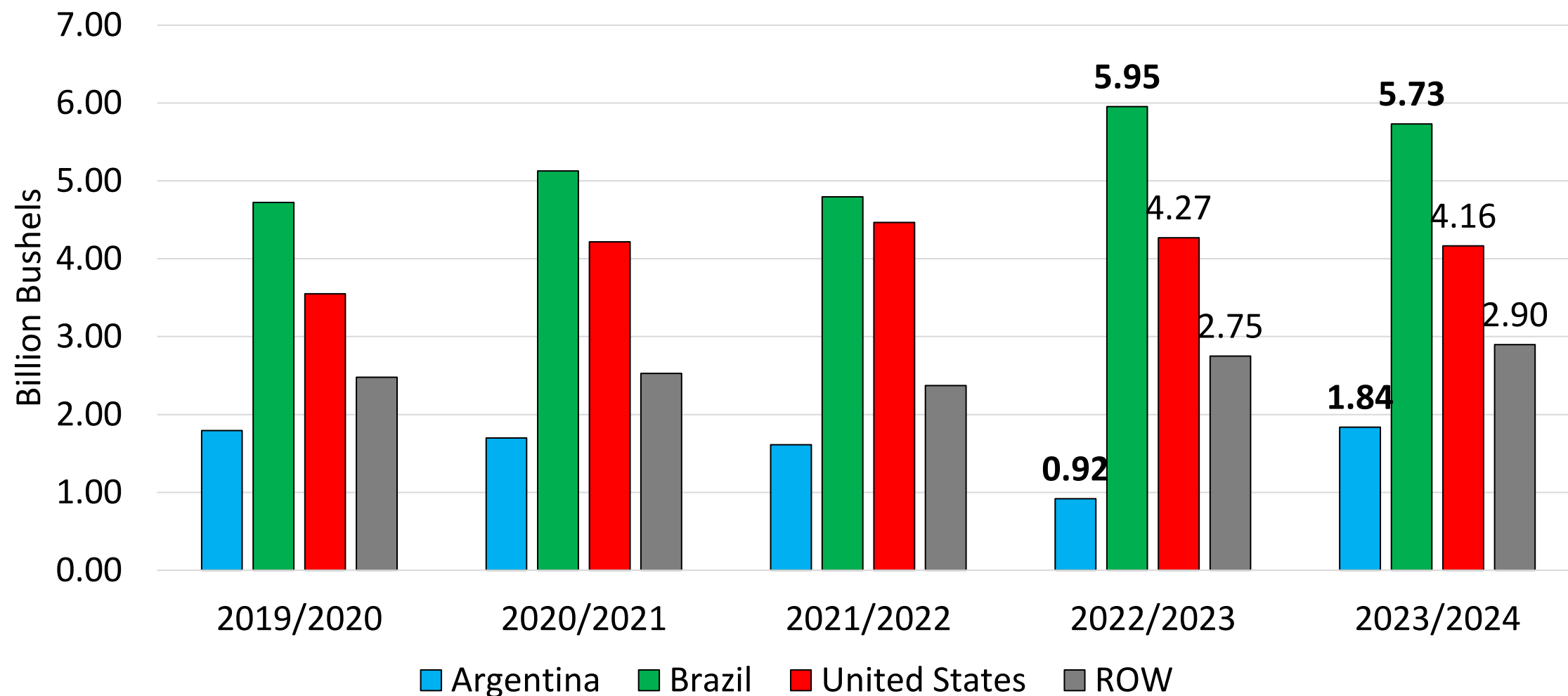
# World Soybean Production, Consumption, and Ending Stocks, 2014/15 to 2023/24



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

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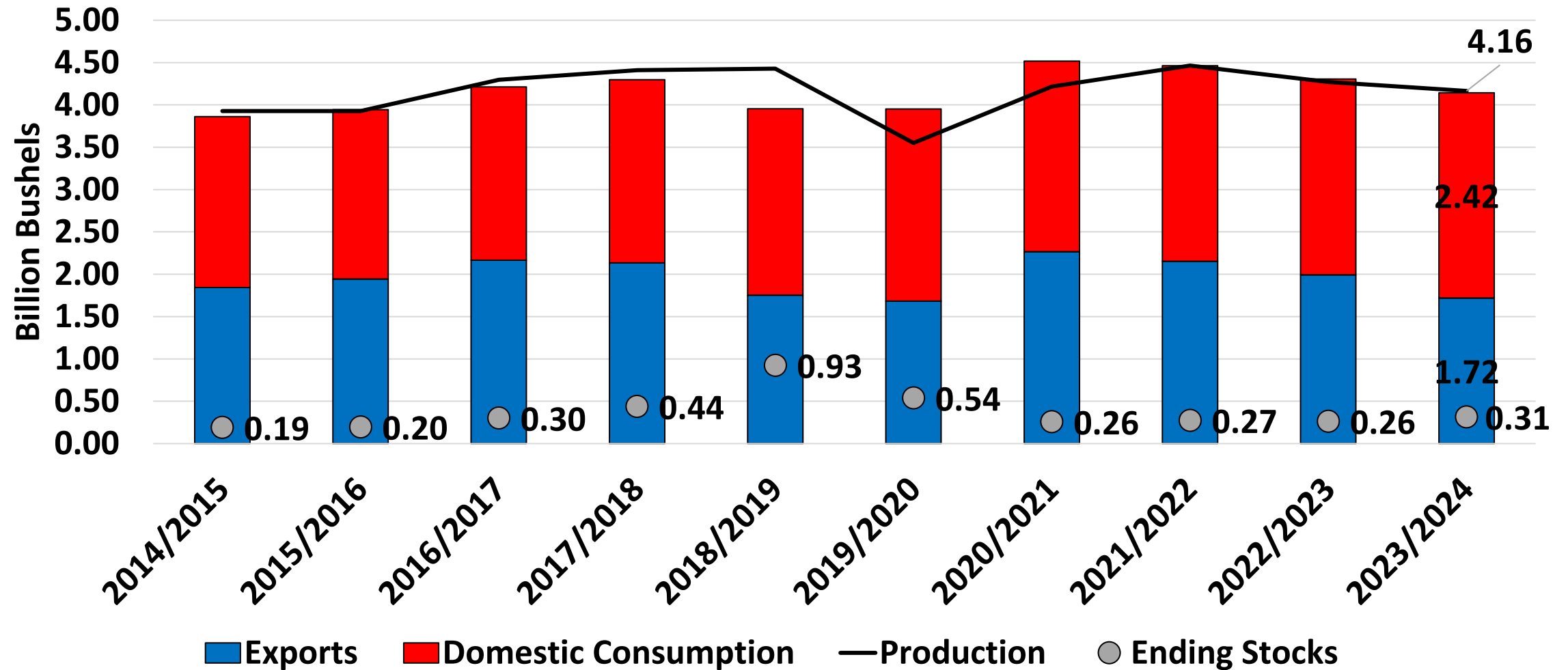
# World Soybean Production, 2019/20 to 2023/24



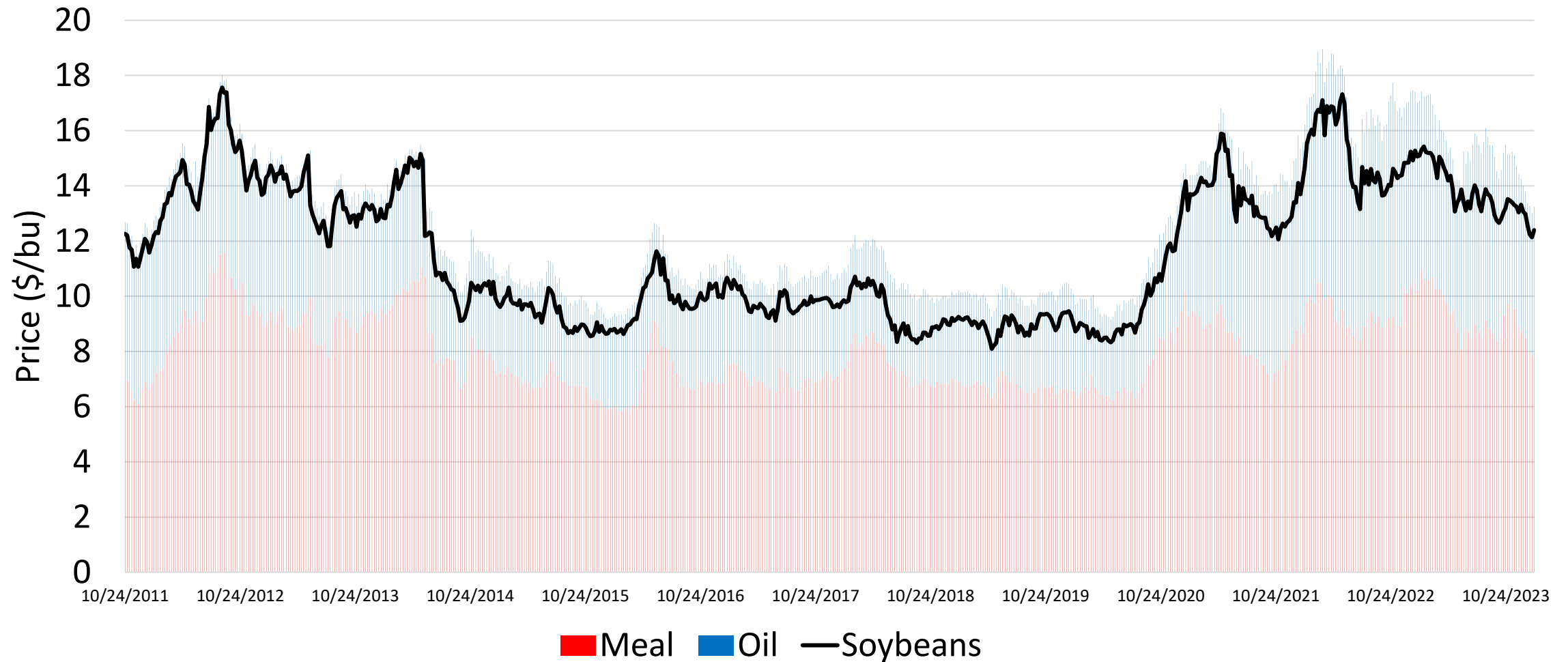
Data Source: USDA PSD - <https://apps.fas.usda.gov/psdonline/app/index.html#/app/advQuery>

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# U.S. Soybean Production, Consumption, Exports, and Ending Stocks, 2014/15 to 2023/24



# Nearby Soybean, Meal, and Oil Futures Value



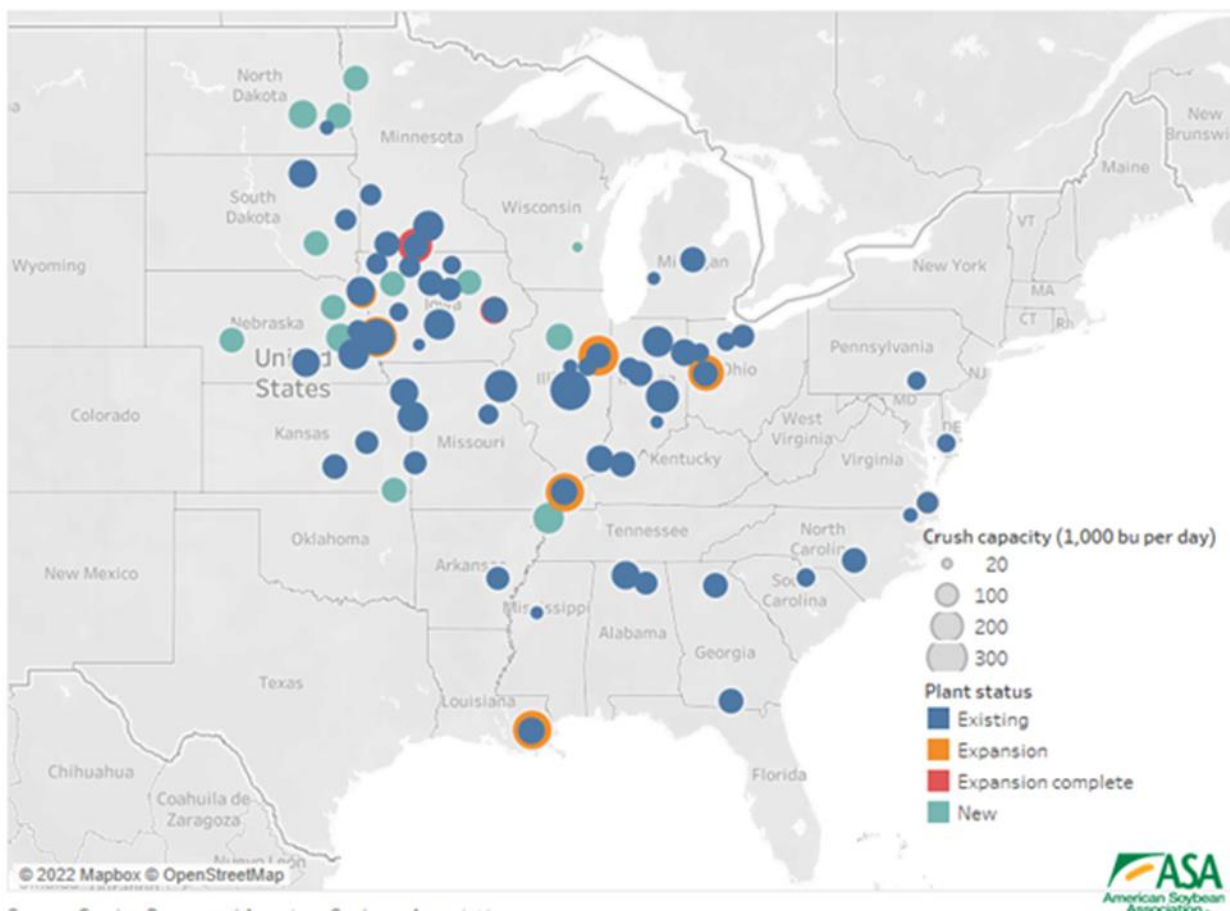
Data Source: [https://www.barchart.com/futures/quotes/ZS\\*0/futures-prices?viewName=main](https://www.barchart.com/futures/quotes/ZS*0/futures-prices?viewName=main)

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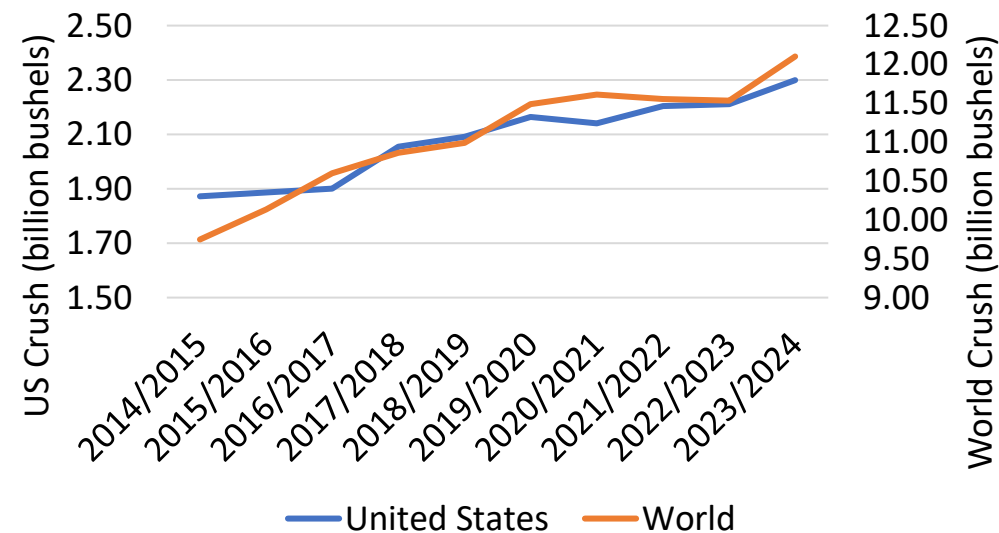
# US Soybean Crush, 2000/01 to 2023/24

U.S. Soybean Crush Plants



- Past Ten Years
  - US crush up – 22.8%
  - World crush up – 24.2%

Crush, 2014-2023





Historical, Old, and New Crop

# PRICES

# Old Crop

## Corn

+ ZCH24 (Mar '24)	399-6s
+ ZCK24 (May '24)	413-4s
+ ZCN24 (Jul '24)	426-2s
+ ZCU24 (Sep '24)	435-2s
+ ZCZ24 (Dec '24)	449-4s
+ ZCH25 (Mar '25)	463-4s

## Soybean

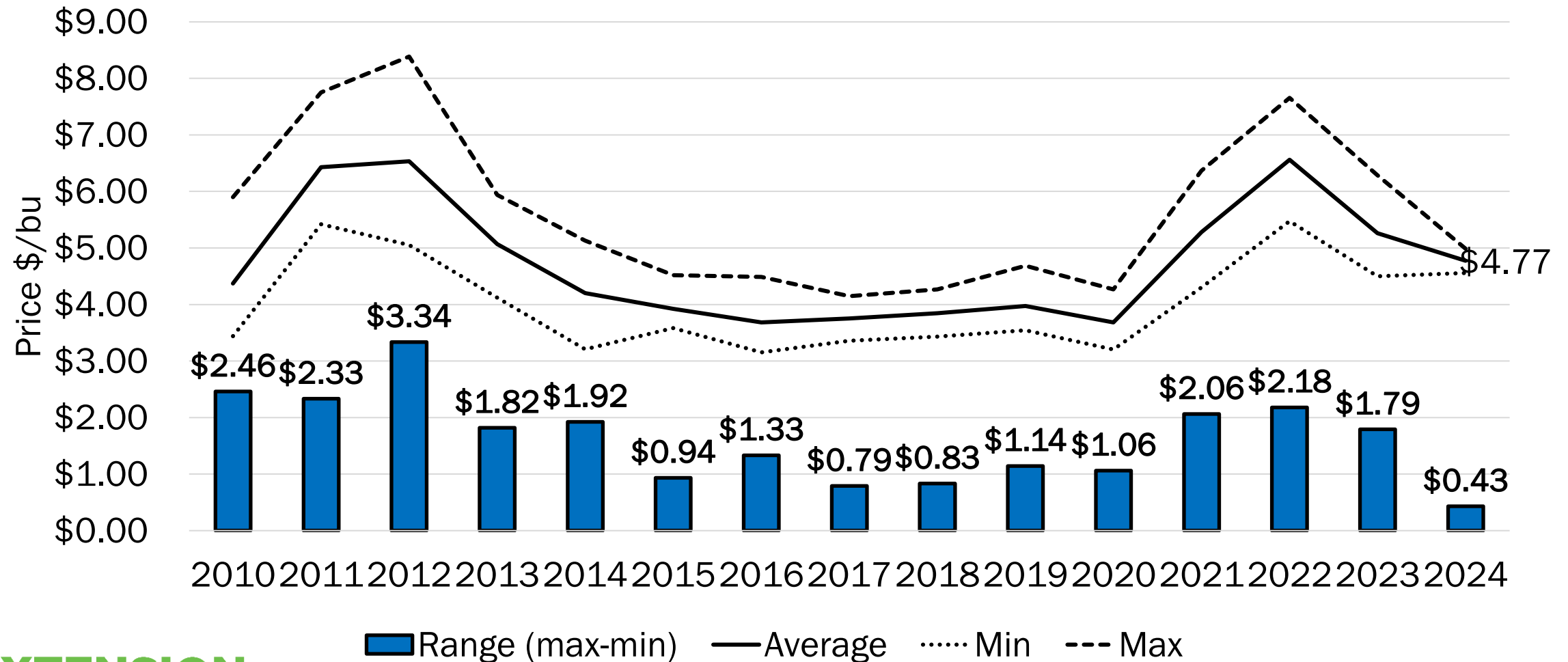
+ ZSH24 (Mar '24)	1133-0s
+ ZSK24 (May '24)	1141-6s
+ ZSN24 (Jul '24)	1151-2s
+ ZSQ24 (Aug '24)	1149-2s
+ ZSU24 (Sep '24)	1135-4s
+ ZSX24 (Nov '24)	1130-2s
+ ZSF25 (Jan '25)	1140-4s

# Corn – Interest Cost (\$/bu) @ 8.5%

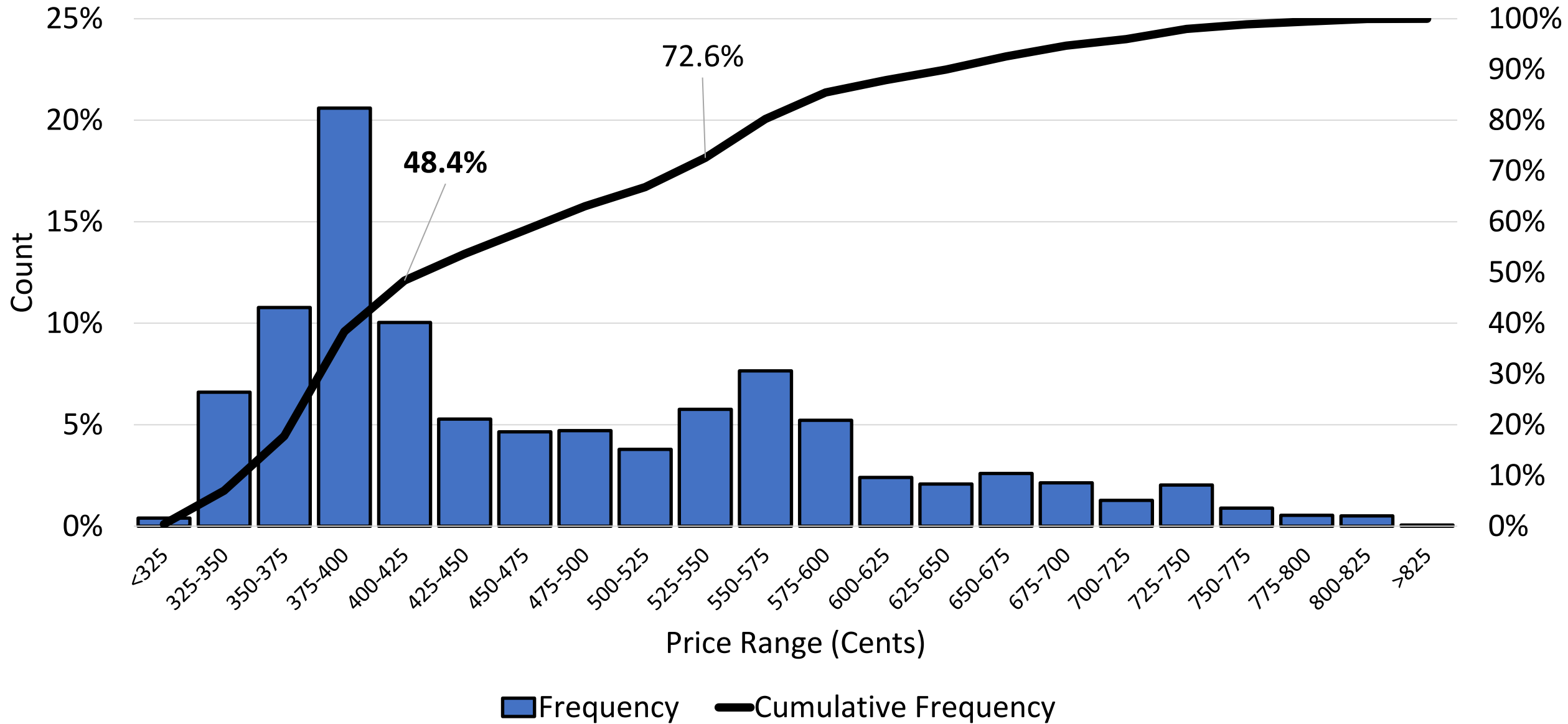
	<u>Months</u>				
<u>Corn Price</u>	1	2	3	4	5
\$ 4.00	\$0.03	\$0.06	\$0.09	\$0.11	\$0.14
\$ 4.25	\$0.03	\$0.06	\$0.09	\$0.12	\$0.15
\$ 4.50	\$0.03	\$0.06	\$0.10	\$0.13	\$0.16
\$ 4.75	\$0.03	\$0.07	\$0.10	\$0.13	\$0.17
<b>\$ 5.00</b>	<b>\$0.04</b>	<b>\$0.07</b>	<b>\$0.11</b>	<b>\$0.14</b>	<b>\$0.18</b>
\$ 5.25	\$0.04	\$0.07	\$0.11	\$0.15	\$0.19
\$ 5.50	\$0.04	\$0.08	\$0.12	\$0.16	\$0.19
\$ 5.75	\$0.04	\$0.08	\$0.12	\$0.16	\$0.20
\$ 6.00	\$0.04	\$0.09	\$0.13	\$0.17	\$0.21
\$ 6.25	\$0.04	\$0.09	\$0.13	\$0.18	\$0.22
\$ 6.50	\$0.05	\$0.09	\$0.14	\$0.18	\$0.23
\$ 6.75	\$0.05	\$0.10	\$0.14	\$0.19	\$0.24
\$ 7.00	\$0.05	\$0.10	\$0.15	\$0.20	\$0.25

\* Does not include other storage costs (~ 10 – 20 cents)

# December Corn Futures Contract, Jan 1 to Expiration, 2010-2024\*



# December Corn Closing Futures Price Frequency, 12/1/09 to 1/26/24

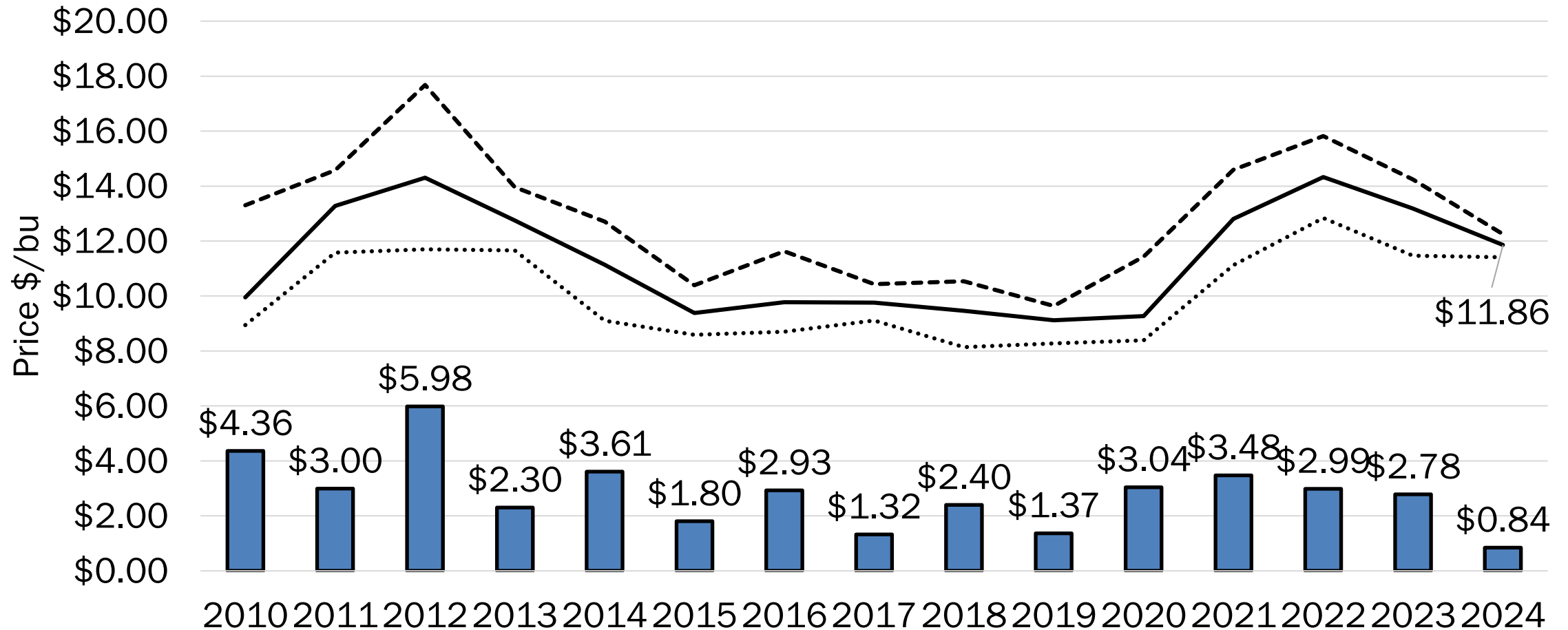


# December 2024 Corn Futures



Prices have broken out of the trading range and are looking to establish a new range.

# November Soybean Futures Contract, Jan 1 to Expiration, 2010-2024\*

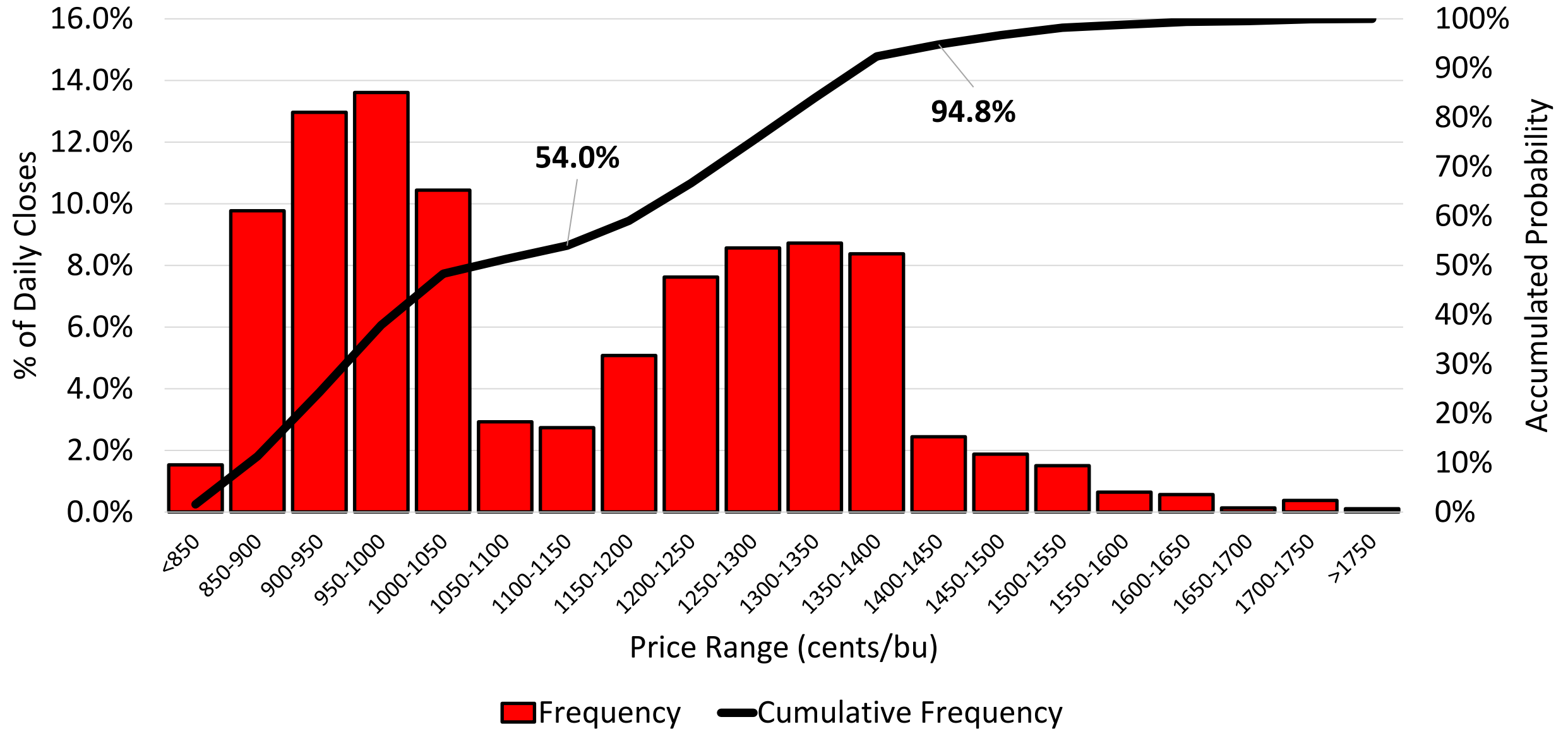


Range (max-min) — Average ..... Min --- Max

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# November Soybean Closing Futures Price Frequency, 11/1/09 to 1/26/24



# November 2024 Soybean Futures



South American production will continue to strongly influence price direction. \$12.40 price gap will provide resistance.

# Supply and Demand Summary

- General economy
  - Labor markets remain tight / GDP growth exceeded expectations last quarter
  - Increased consumer debt, inflation, and high interest rates create cautionary notes
- Inputs and commodity prices are down
  - Margins will be tighter in 2024.
- Prices are forecast to continue to move lower.
- Develop and execute a risk management and marketing plan.



Timing is everything.

# RISK MANAGEMENT

# Marketing Steps

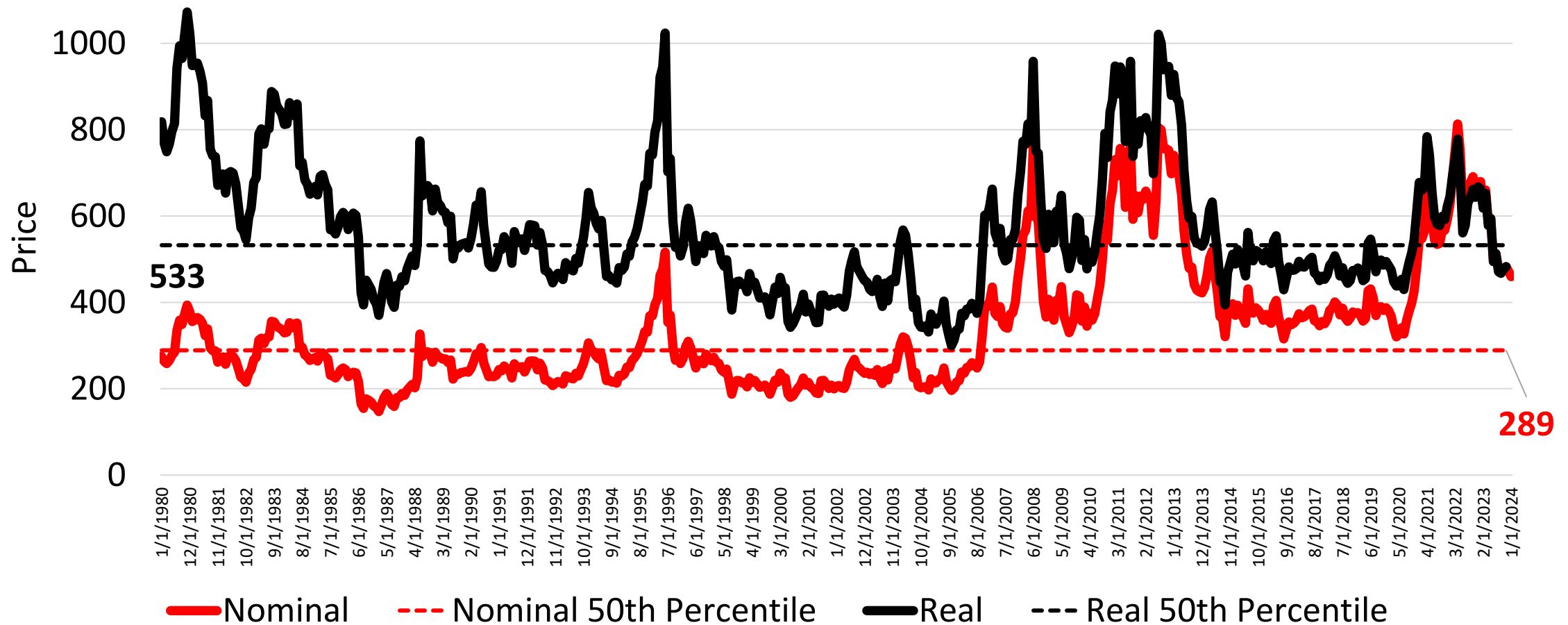
- Understand your market
- Identify risks and timing
- Determine cost of production
- Identify available tools
- Develop a plan
- Execute and evaluate



# Understand Your Market

- Local, regional, national, and global influences will influence futures and cash prices received for your commodities.
- Disaggregate cash prices
  - Cash = Futures + Basis
  - Typically, 90%+ of price risk is in the futures market.
  - Timing – Low basis levels the past three years do to the Mississippi river.

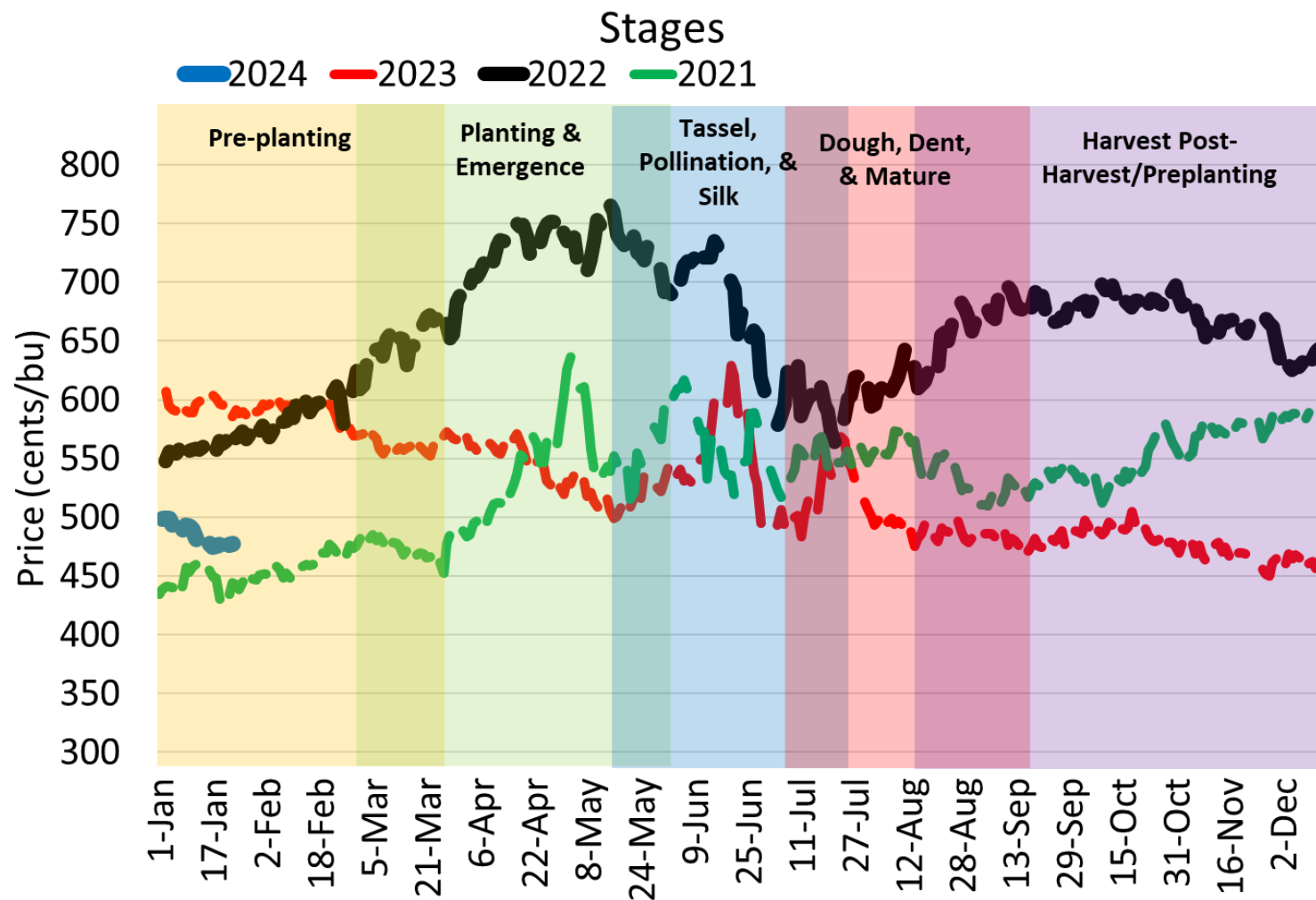
# Monthly Real and Nominal Nearby Corn Futures Prices, 1980-2023 (Base = November 2023)



# Identifying Risk and Timing

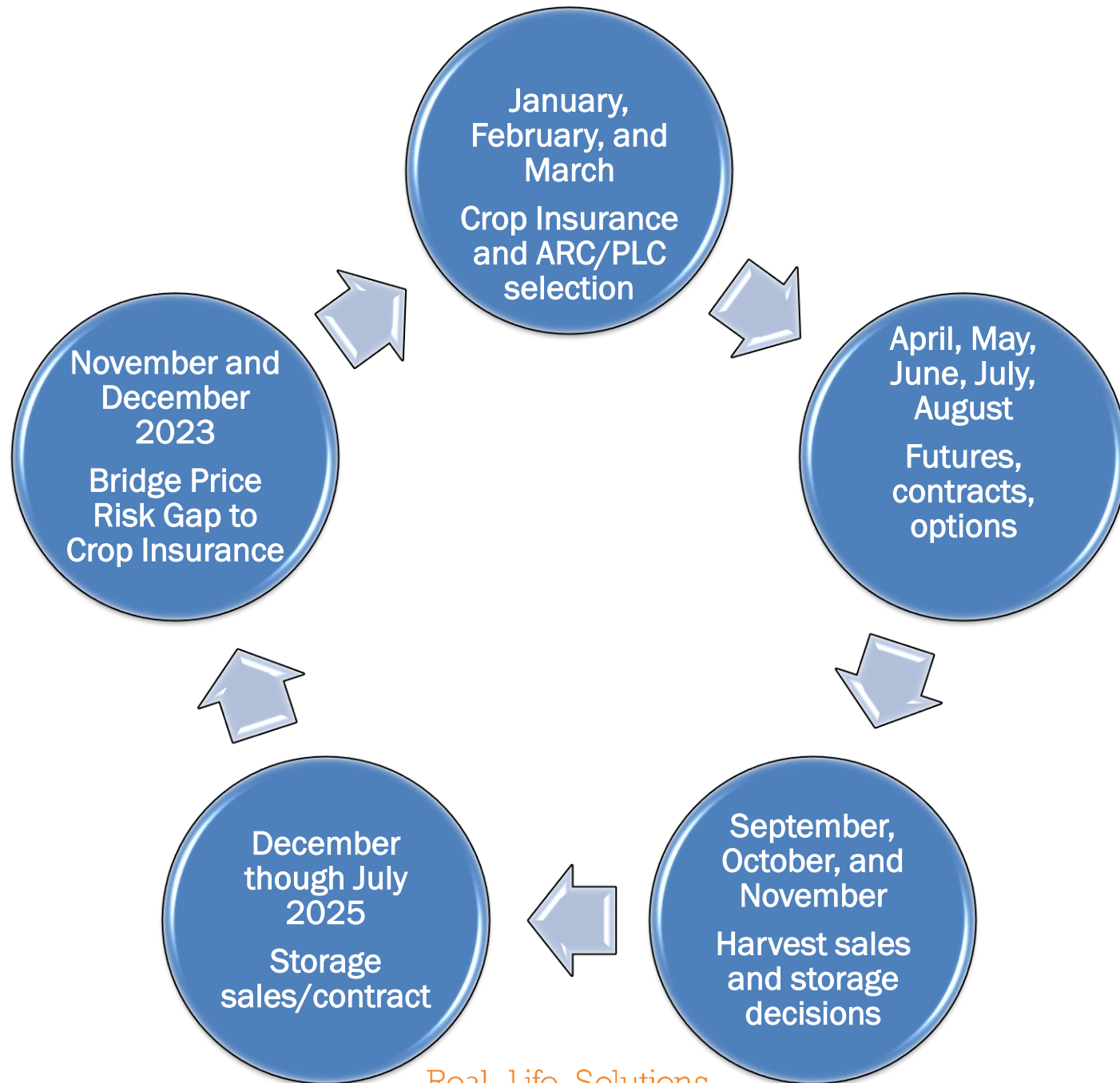
- When does production risk occur?
- When does risk decrease?
- When are prices typically highest?
- Are markets near the top of the cycle or bottom?

December Corn Futures and Tennessee Production





# 2024 Crop Marketing Cycle



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

- Example: Bridging the price risk gap until crop insurance prices are determined – put option
  - On November 14, a \$5.20 December 2024 Corn Put Option cost \$0.44, setting a \$4.76 futures floor.
    - If December 2024 corn < \$4.76, in the money
      - February 9 \$5.20 put option was at \$0.71.
  - 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 MYA and Crop Insurance Prices, 2011-2023

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
MYA	\$6.22	\$6.89	\$4.46	\$3.70	\$3.61	\$3.36	\$3.36	\$3.61	\$3.56	\$4.53	\$6.00	\$6.54	<b>\$4.80</b>
Projected	\$6.01	\$5.68	\$5.65	\$4.62	\$4.15	\$3.86	\$3.96	\$3.96	\$4.00	\$3.88	\$4.58	\$5.90	<b>\$5.91</b>
Harvest	\$6.32	\$7.50	\$4.39	\$3.49	\$3.83	\$3.49	\$3.49	\$3.68	\$3.90	\$3.99	\$5.37	\$6.86	<b>\$4.88</b>

**February 23, December corn at \$4.50; November Soybeans at \$11.30.**

# Soybean MYA and Crop Insurance Prices, 2011-2023

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
MYA	\$12.50	\$14.40	\$13.00	\$10.10	\$8.95	\$9.47	\$9.33	\$8.48	\$8.57	\$10.80	\$13.30	\$14.20	<b>\$12.75</b>
Projected	\$13.49	\$12.55	\$12.87	\$11.36	\$9.73	\$8.85	\$10.19	\$10.16	\$9.54	\$9.17	\$11.87	\$14.33	<b>\$13.76</b>
Harvest	\$12.14	\$15.39	\$12.87	\$9.65	\$8.91	\$9.75	\$9.75	\$8.60	\$9.25	\$10.55	\$12.30	\$13.81	<b>\$12.84</b>

# Farm Bill

- Extended to September 30, 2024.
- Budget, narrow majorities in both chambers, and an election cycle will make negotiations challenging and likely necessitate another extension.
- Price Loss Coverage (PLC) effective reference prices
  - Corn: +31 cents @ \$4.01
  - Soybeans: +86 cents @ \$9.26
  - Seed cotton (\$0.367) and wheat (\$5.50) unchanged

# Determine Cost of Production

## 2024 Soybean Budget

	<u>Unit</u>	<u>Quantity</u>	<u>Price</u>	<u>Total</u>
<b>Revenue</b>			<b><u>Gross Revenue (\$/Acre)</u></b>	
Soybeans	Bu/acre	50	\$12.20	\$610.00
			<b>Total Revenue</b>	<b>\$610.00</b>
<b>Variable Expenses</b>				
Seed	Thous.	140	\$0.45	\$63.00
Fertilizer & Lime	Acre	1	\$60.00	\$60.00
Chemical	Acre	1	\$86.73	\$80.00
Crop Scout or Consultant	Acre	1	\$10.00	\$10.00
Repair & Maintenance	Acre	1	\$33.13	\$35.00
Fuel, Oil & Filter	Acre	1	\$17.37	\$18.00
Operator Labor	Acre	1	\$8.90	\$9.00
Crop Insurance	Acre	1	\$15.00	\$15.00
Operating Interest	%	\$145.00	8.50%	\$12.33
			<b>Total Variable Expenses</b>	<b>\$302.33</b>
			<b>Return Above Variable Expenses</b>	<b>\$307.68</b>
<b>Fixed Expenses</b>				
Machinery				
Capital Recovery	Acre	1	\$115.28	\$115.00
General Overhead	Acre	1	\$20.00	\$20.00
Cash Rent	Acre	1	\$113.00	\$150.00
			<b>Total Fixed Expenses</b>	<b>\$285.00</b>
			<b>Total Expenses</b>	<b>\$587.33</b>
			<b>Return Above Specified Expenses</b>	<b>\$22.68</b>

- Estimate the cost for the production cycle
  - Cash expenses
  - Non-cash expenses
- Sensitivity to changes in cost categories
- Determine breakeven
- Identify price points

# Identify Available Tools

- Crop Insurance / Commodity Programs
- Managed Products
- Cash Sales
- Contracts
- Futures / Options



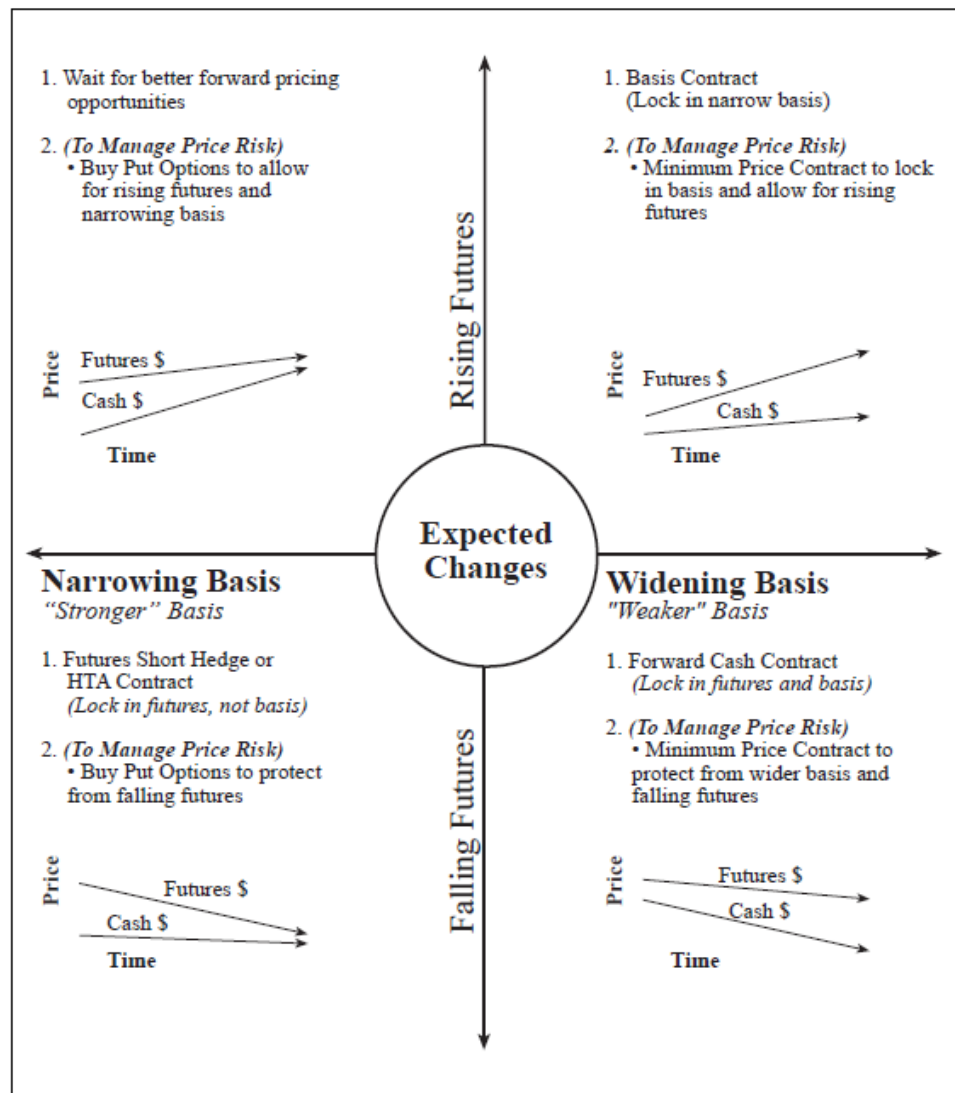
Table 1. Price Trend Effects and Risk Exposure with Various Grain Pricing Alternatives

Pricing Alternatives	Price Trend Effects				Areas of Risk Exposure			
	Falling Futures Prices	Rising Futures Prices	Wider Cash Basis	Narrower Cash Basis	Options Volatility	Production Risk if Preharvest	Counter Party Risk	Control Risk
Cash Market (Harvest & postharvest sales)	(-)	(+)	(-)	(+)	-	-	-	Yes
<b>Forward Contracts</b>								
Forward Cash Contract	None	None	None	None	-	Yes	Yes	-
Basis Contract	(-)	(+)	None	None	-	Yes	Yes	Yes
Hedge-To-Arrive (HTA) Contract (non-rolling)	None	None	(-)	(+)	-	Yes	Yes	Yes
Minimum Price Contract	None	(+)	None	None	Yes	Yes	Yes	Yes
Price Later Contract	(-)	(+)	(-)	(+)	-	-	Yes	Yes
<b>Futures &amp; Options</b>								
Futures Short Hedge (Sell futures, owning cash grain)	None	None	(-)	(+)	-	Yes	-	Yes
Buy Put OptionsNone (Setting futures price floors)	(+)	(-)	(+)	Yes	Yes	-	Yes	
Sell Cash, Buy Call Options (Harvest sale & buying call option)	None	(+)	None	None	Yes	-	-	Yes
<b>Other Marketing Tools</b>								
Marketing Loan with LDPs (LDP: Loan Deficiency Payment)	None	(+)	(-)	(+)	-	-	-	Yes

Risk Exposure and Price Trend



Chart 1. Preharvest Grain Sales Strategies for Selected Market Conditions



# Market Expectations

What is happening with prices? Trend and volatility.

What is happening globally, domestically, and locally with supply and demand?

Is there a greater likelihood of futures and basis strengthening or weakening?



## Fence in a Price?



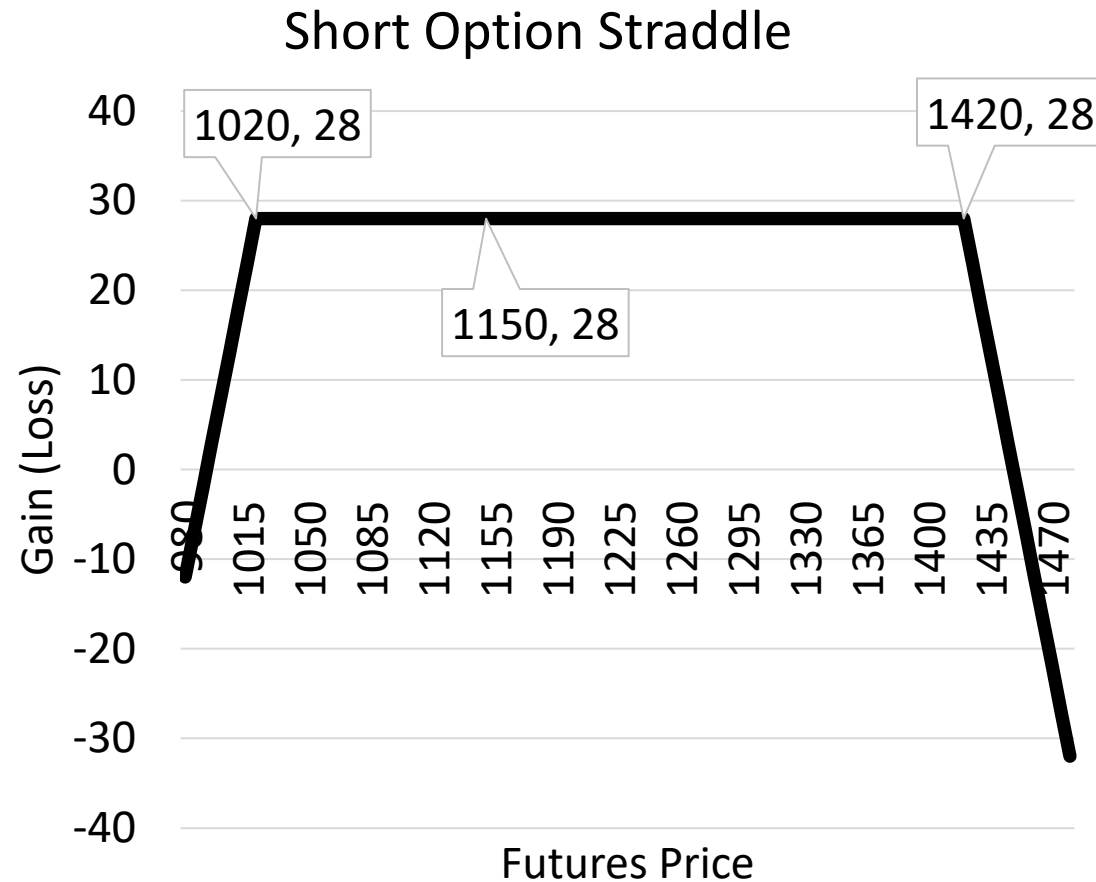
December corn currently at \$4.50.

- Buy a \$4.20 December Put option for \$0.21.
- Sell a \$5.50 December Call Option for \$0.10.

Futures price range established between \$4.20 to \$5.50 for \$0.11 premium.

- Set basis during the production year.

# Short Option Straddle



- **Speculative position**

	Action	Strike	Premium
Call	Sell	1420	10
	Sell	1020	18

# Execute and Evaluate

- Make all decisions based on well thought analysis and risk preferences.
  - Wishing and hoping ruin good marketing and risk management plans.
- Execute the strategy – be comfortable with the potential range of outcomes.
- Examine successes and failures from the strategy employed
  - Was the result what you expected?
  - Why or why not?

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THANK YOU