

# ***CORN & SOYBEAN OUTLOOK UPDATE***

## ***SEPTEMBER 16, 2022***

**James Mintert, Professor & Director, Center for Commercial Agriculture**

**Nathan Thompson, Associate Professor, Department of Agricultural Economics**

**Michael Langemeier, Professor, Department of Agricultural Economics**



Center for Commercial Agriculture

## ***Key Changes to U.S. Corn Balance Sheet in USDA's September WASDE***

### **Changes to 2021/2022 Corn Balance Sheet**

- ✓ Industrial usage down by 20 m. bushels to 6.775 billion bushels, result of reduced ethanol usage
- ✓ Increased export estimate by 25 m. bushels to 2.475 billion
- ✓ U.S. corn ending stocks estimate for '21'22 marketing year declined 5 m. bu. to 1.525 billion bushels

### **Changes to the 2022/2023 crop year Corn Balance Sheet**

- ✓ Reduced U.S. yield to 172.5, down from 175.4 last month
- ✓ Reduced harvested acreage estimate to 81.8 m. acres, down from 81.9 in August
- ✓ Total estimated domestic usage down by 150 m. bushels compared to last month
  - ✓ Reduced estimated feed usage by 100 m. bushels and ethanol usage by 50 m. bushels
- ✓ Pulled back export forecast by 100 m. bushels
- ✓ U.S. projected 22/23 carryover = 1.219 billion bushels, down 169 million bu. from last month



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## ***Key Changes in USDA's Corn Trade Projections in September WASDE***

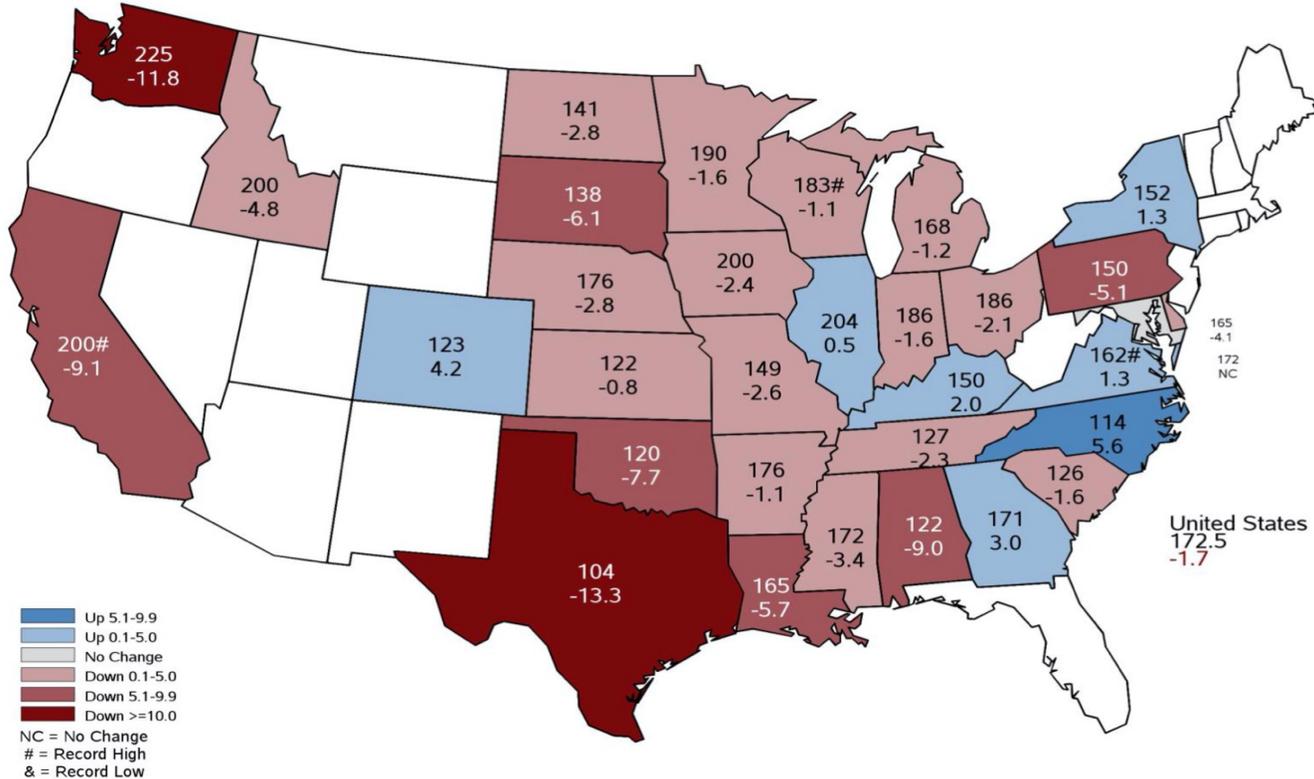
### **Changes in the 2022/2023 crop year corn trade matrix estimates**

- ✓ **Reduced Ukraine's beginning stocks from '21/22 by 0.7 million metric tons (mmt)**
- ✓ **Increased Ukraine's '22 crop size by 1.5 mmt**
- ✓ **Increased Ukraine's export '22 crop export forecast by 0.5 mmt**
- ✓ **Ukraine's Ending Stocks estimate down 0.7 mmt vs. August forecast**
- ✓ **Major corn exporters Ending Stocks expected to decline 3% vs. August forecast**
- ✓ **World Ending Stocks (outside China) down by 5% (2.15 mmt) vs. August estimate**

# Widespread Yield Reductions Compared to August Estimates



## September 2022 Corn Yield Bushels and Percent Change from Previous Month

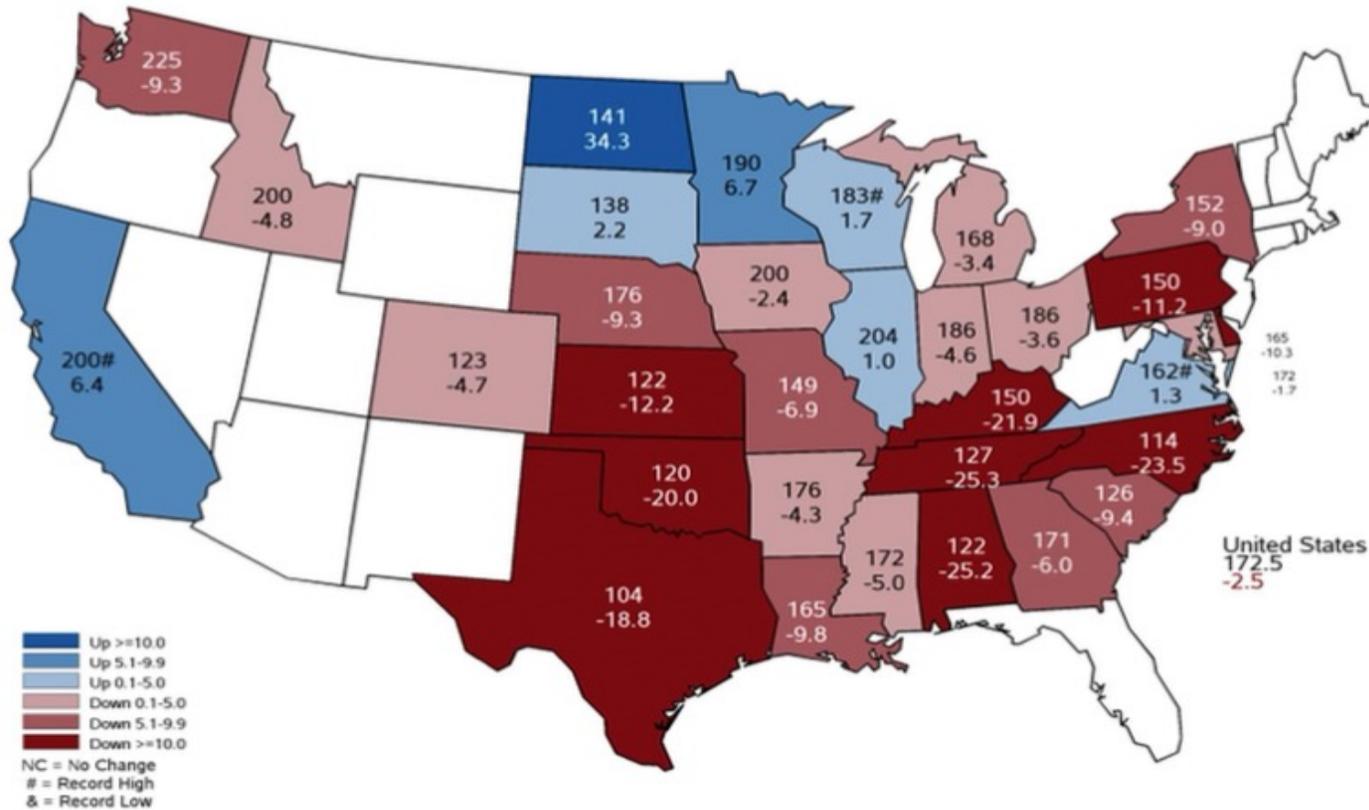


1/14/22

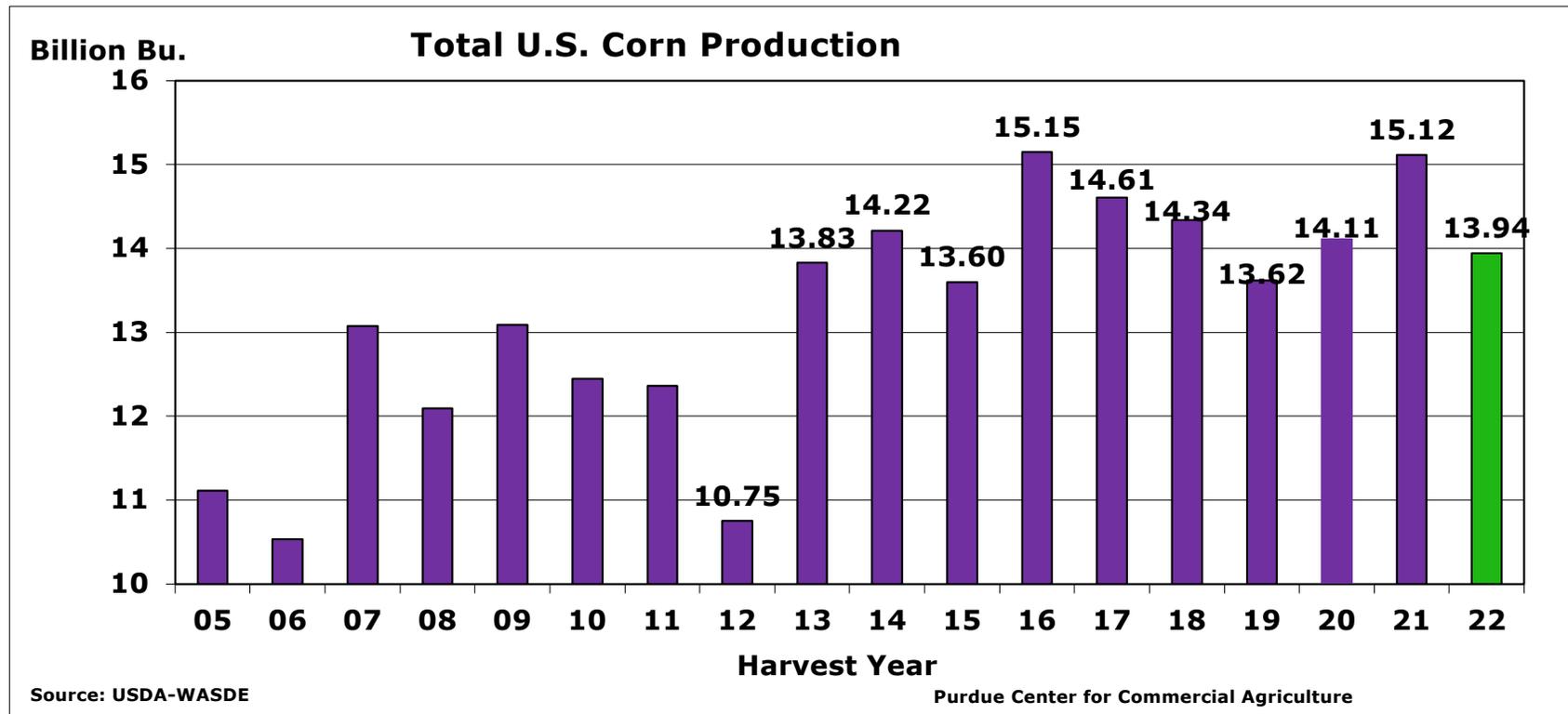


# September 2022 Corn Yield

## Bushels and Percent Change from Previous Year

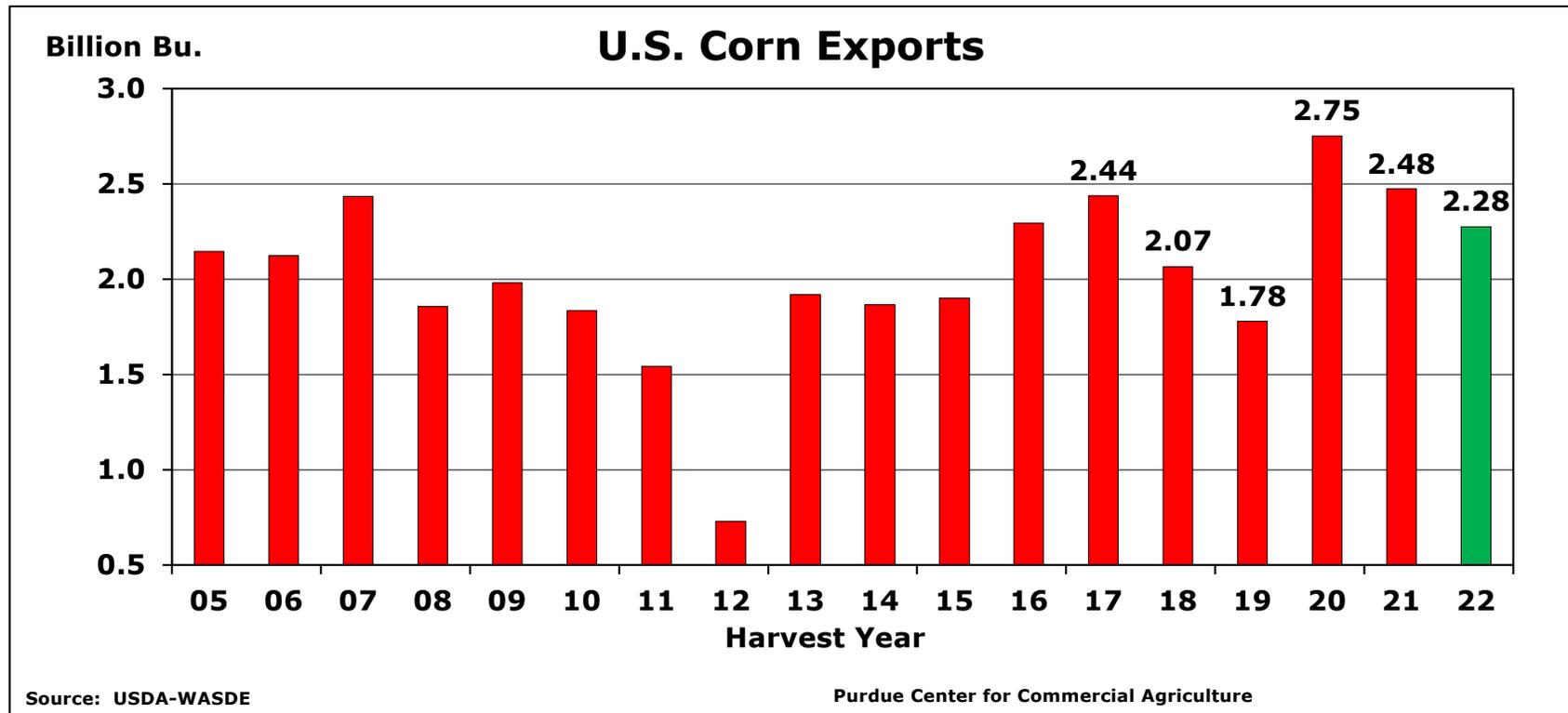


*3<sup>rd</sup> Smallest Crop of Last 10 Years... Early Harvest Reports Could Set Tone for Future Changes*



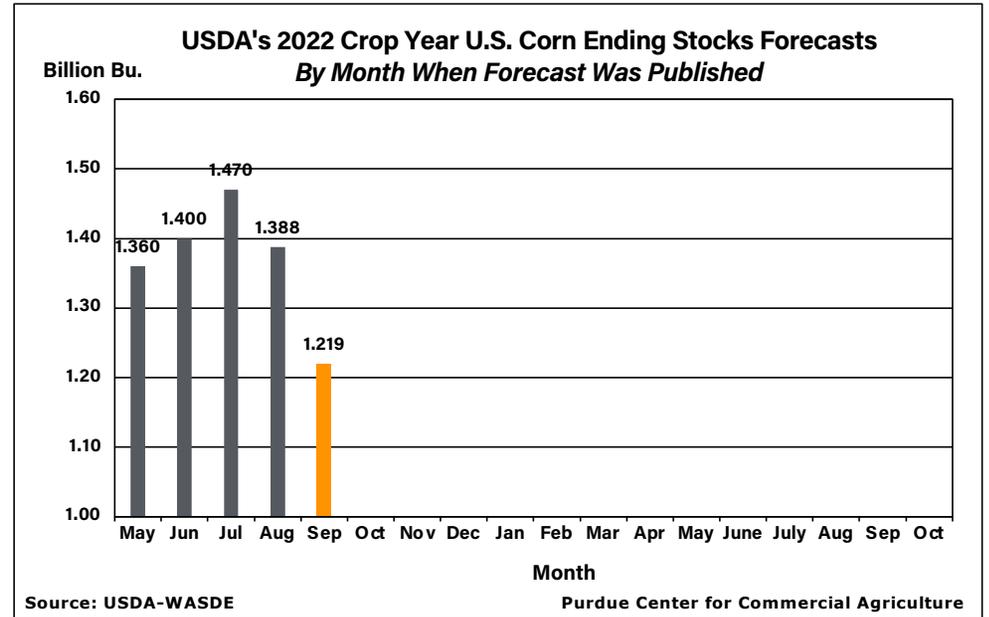
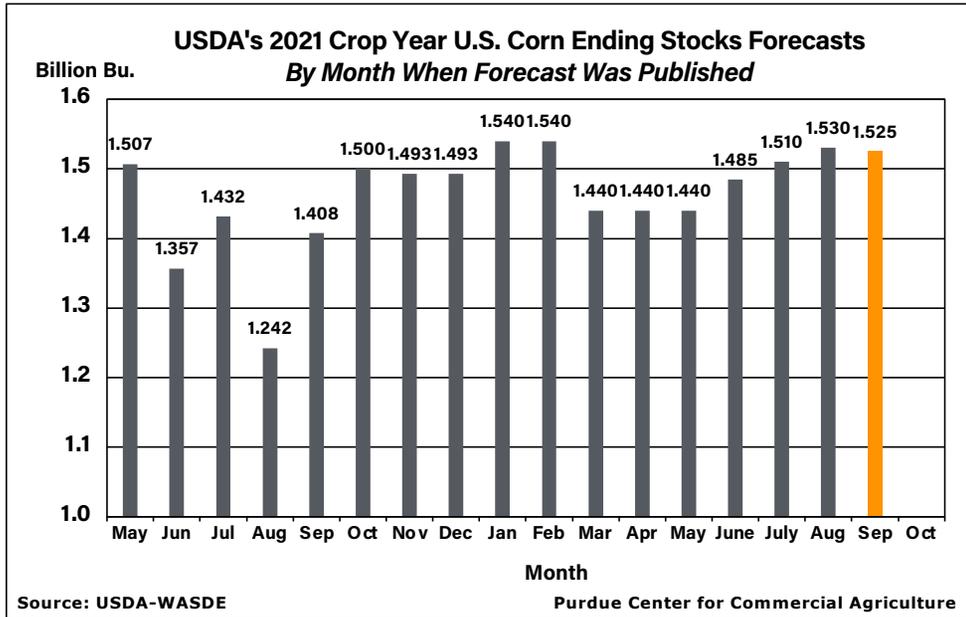
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*USDA Reduced '22 Crop Export Forecast by 100 m. bu. Vs. August Estimate  
Concerns About Weak World Demand*



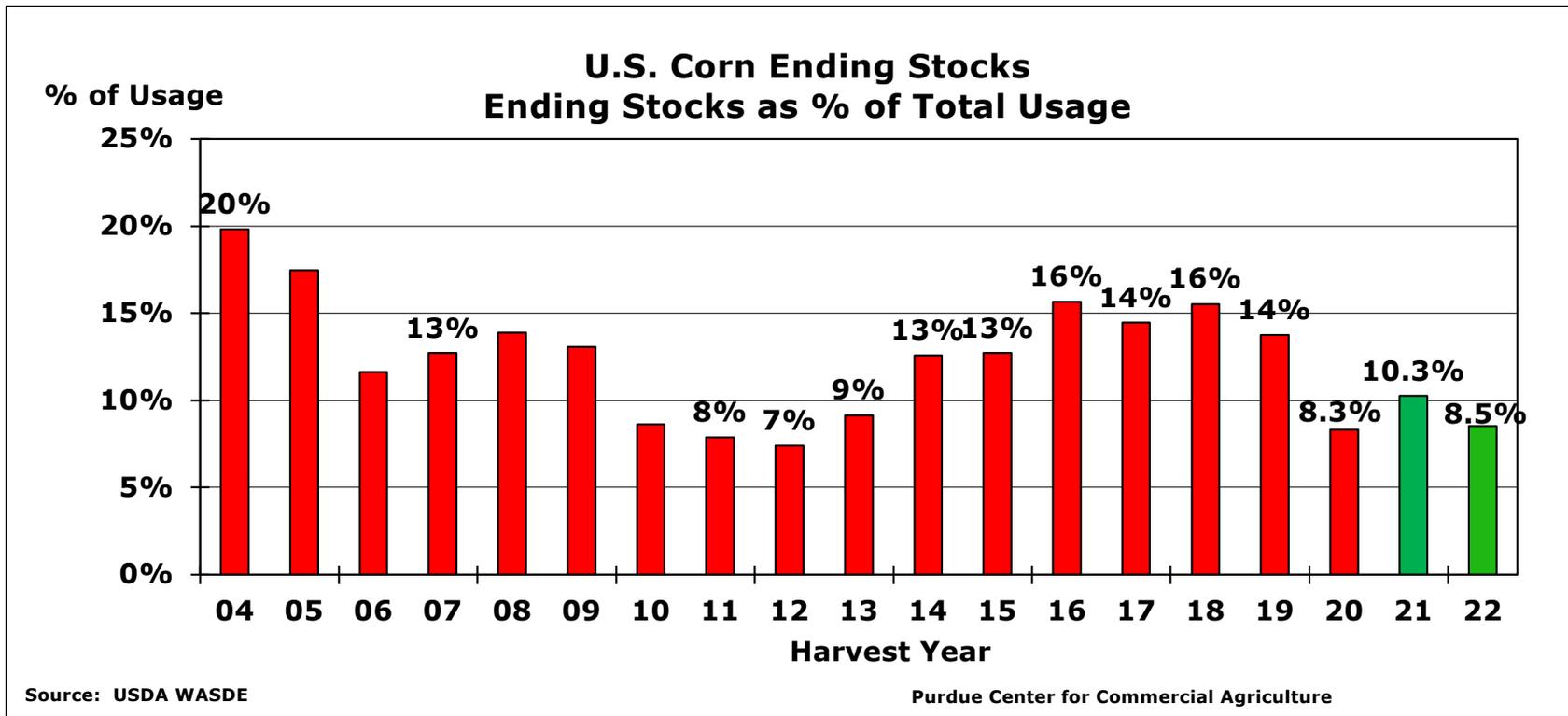
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**'22 Crop Ending Stocks Down Sharply Over the Last 2 Months**  
**USDA's September Estimate 12% Below August Forecast**

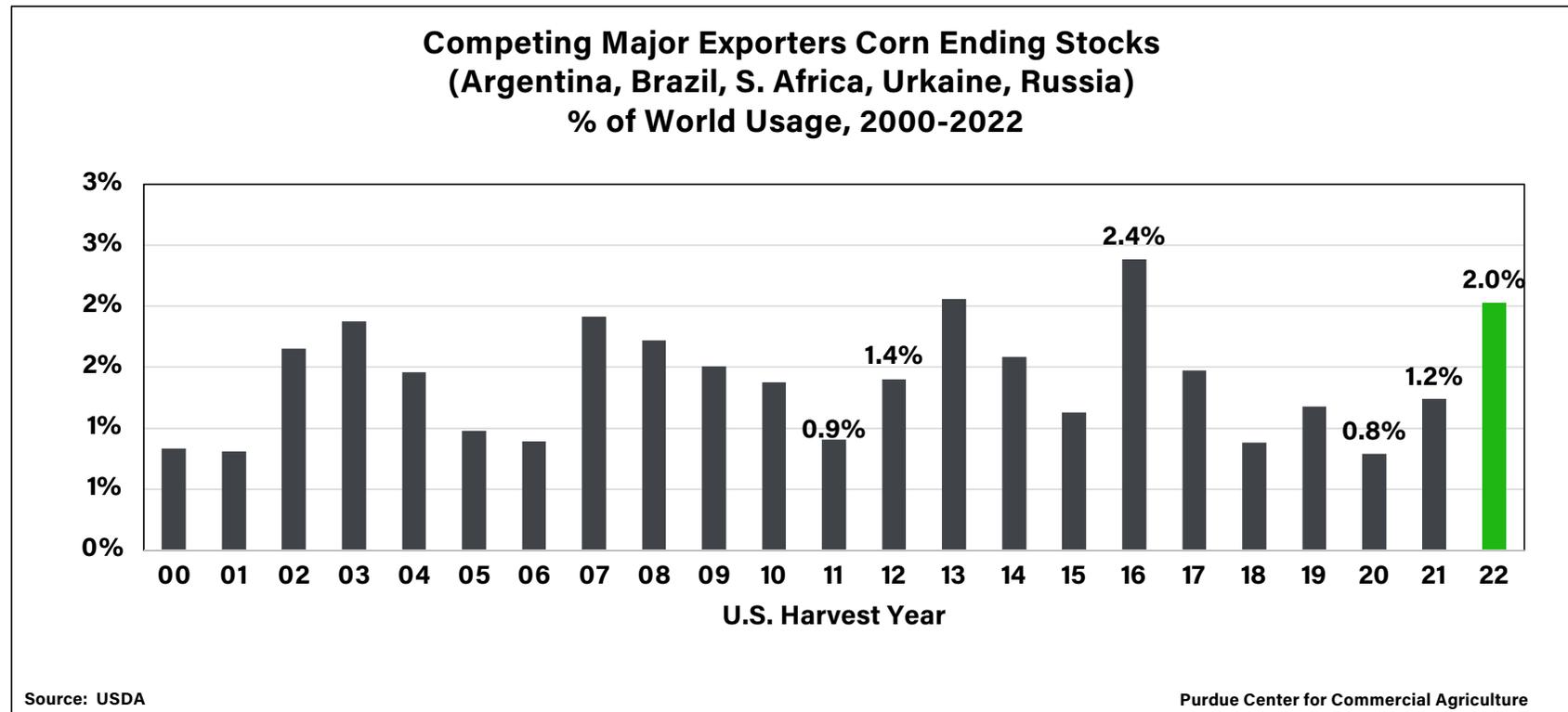


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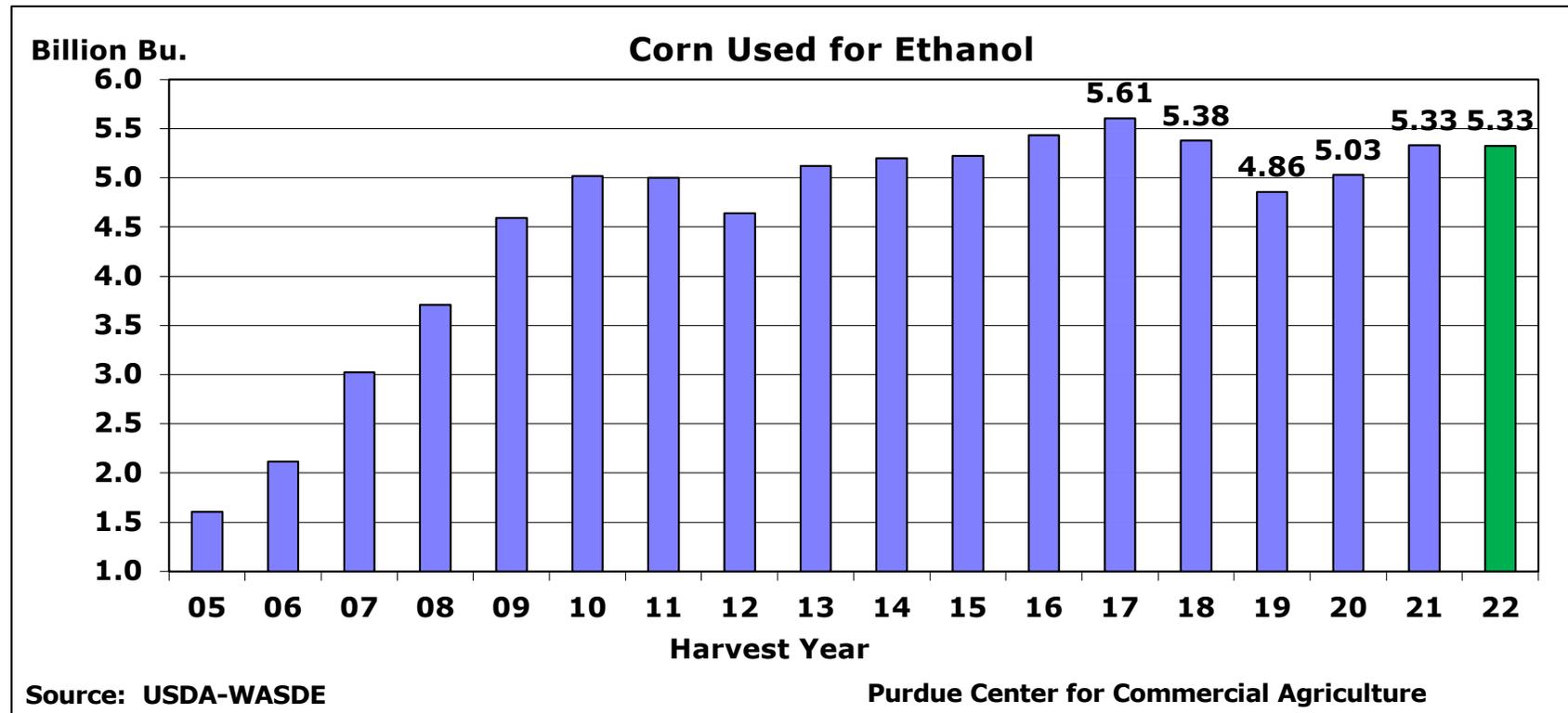
# Balance Sheet Changes Leave Projected '22 Ending Stocks Below 9% of Usage



## Competing Major Exporters Ending Stocks Up vs. Last Year, But Over 60% of Increase Is In Ukraine

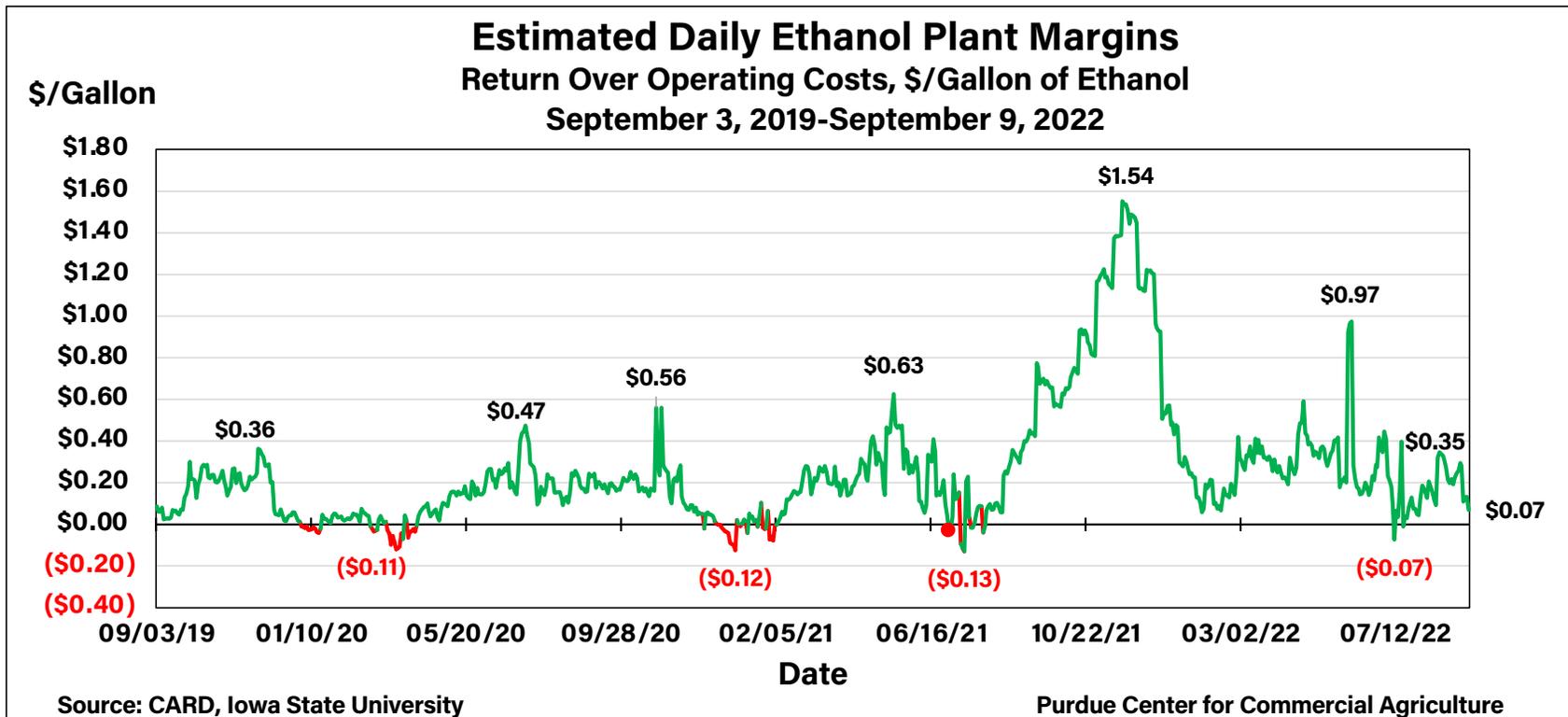


*'22 Crop Corn Used for Ethanol Flat With Prior Year...But 50 m. bu. Below August Forecast*



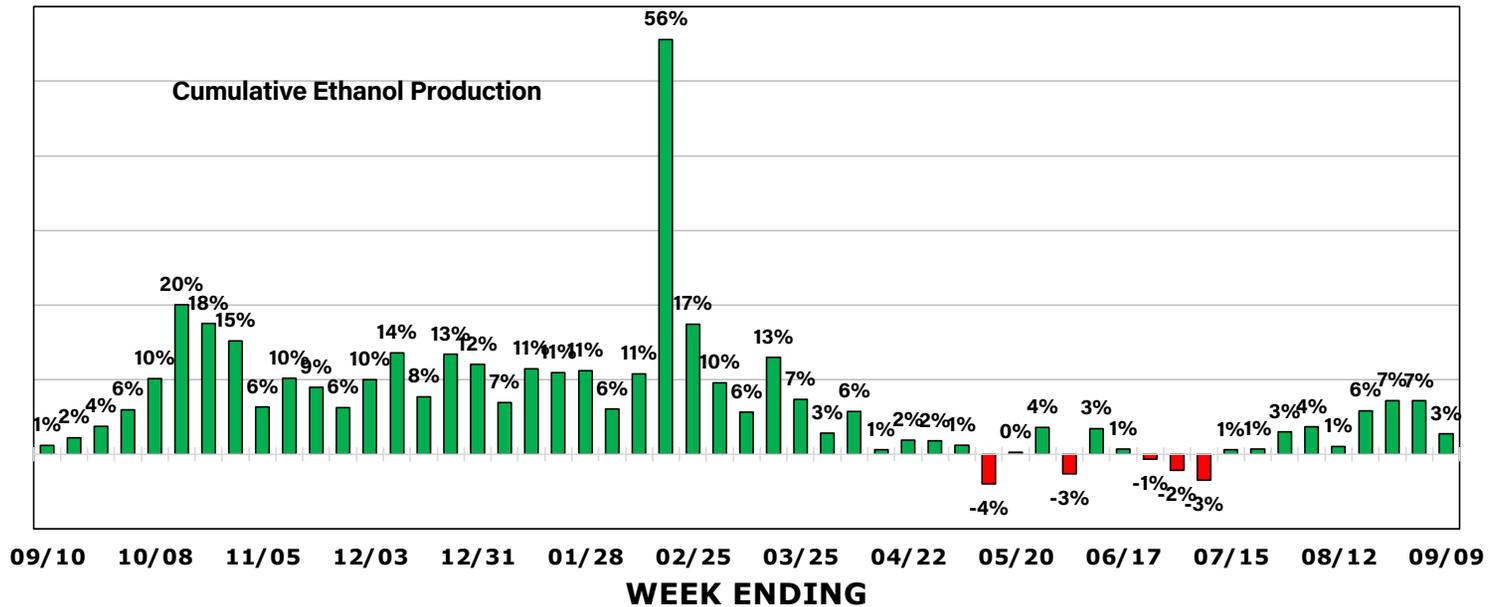
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# Ethanol Margins Have Been Declining In Recent Weeks



# Ethanol Production Still Above Last Year in Early September, But Showing Signs of Weakening

**% Change in U.S. Weekly Ethanol Production from Prior Year  
September 10, 2021-September 9, 2022**



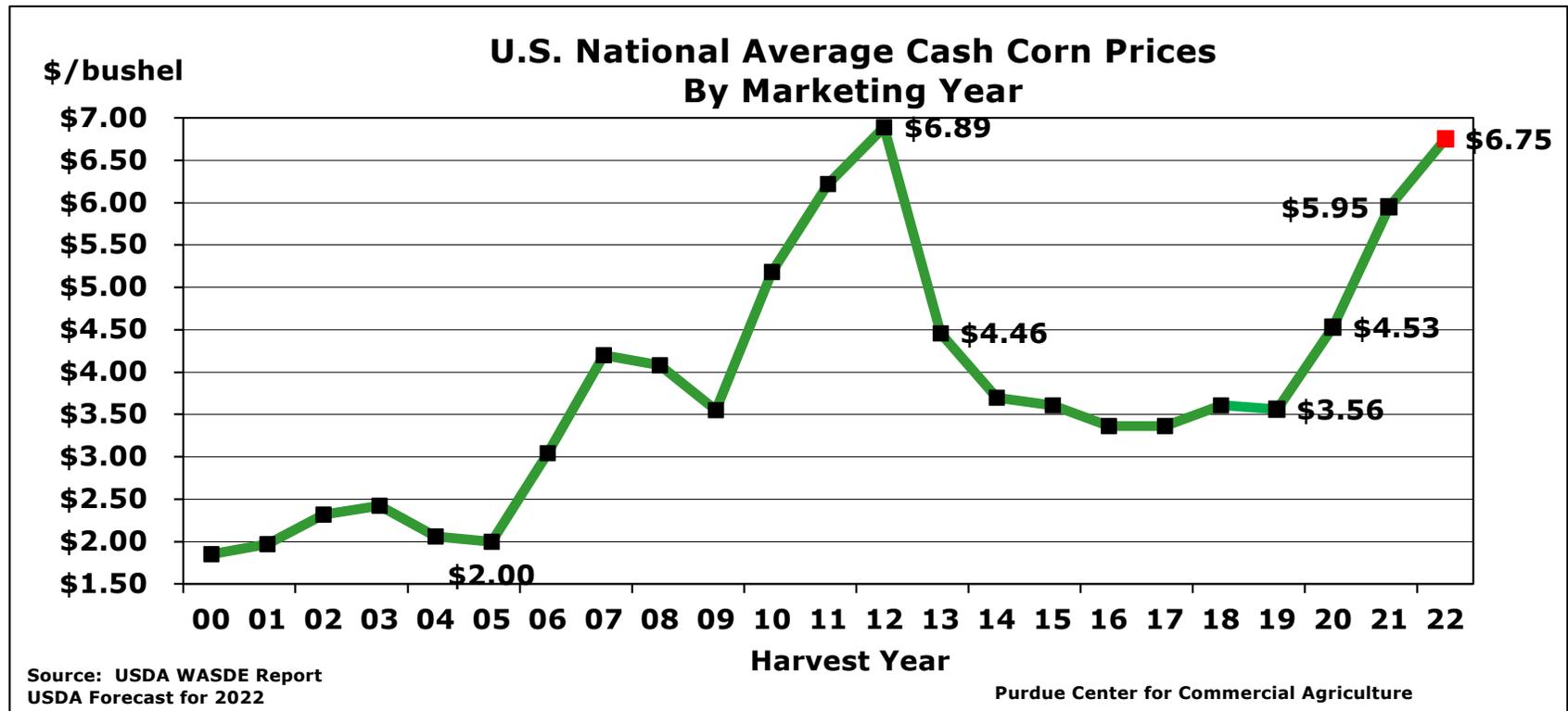
Source: U.S. Energy Information Agency

Purdue Center for Commercial Agriculture



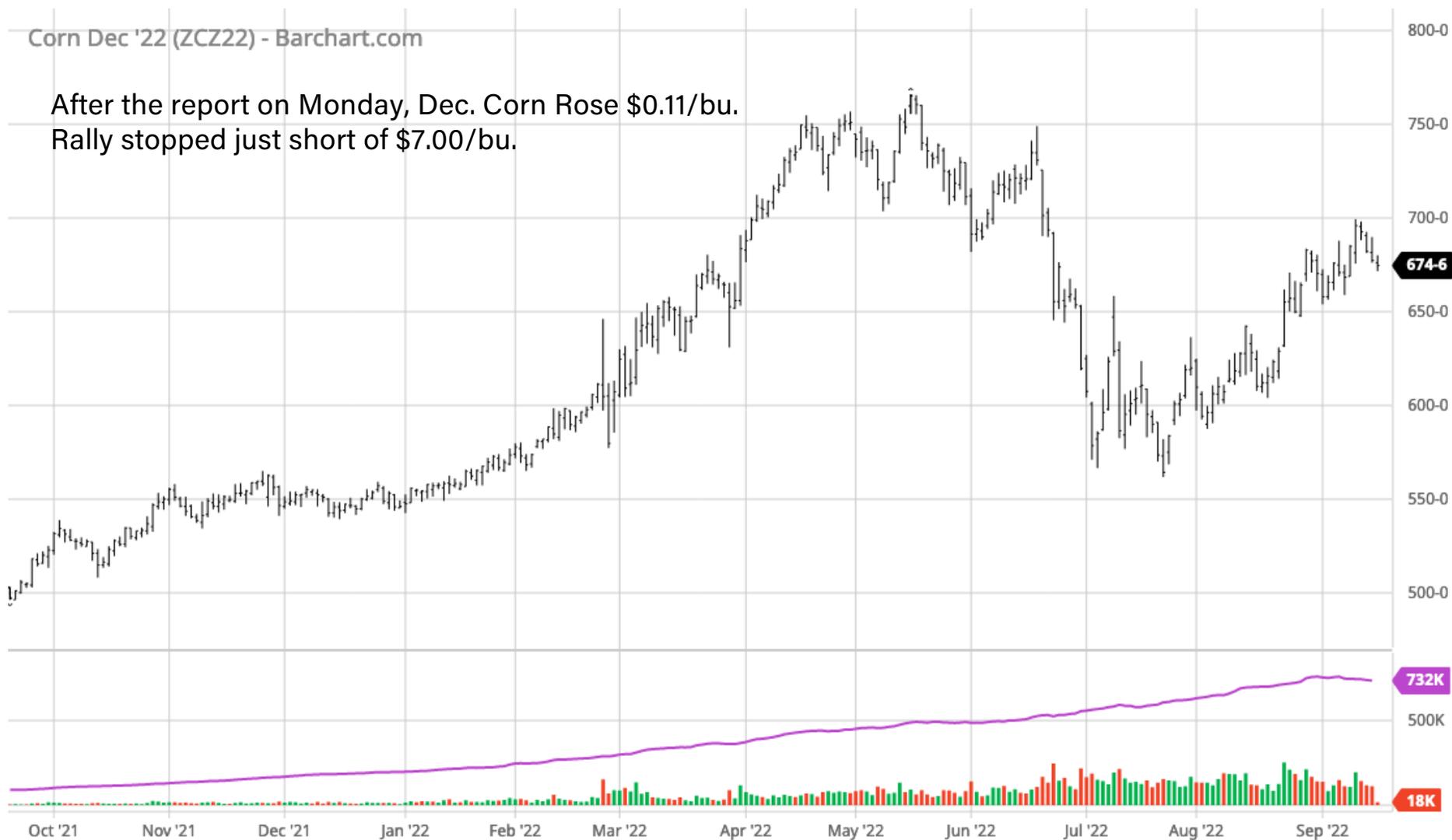
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# USDA Raised Marketing Year Average Price Forecast By \$0.10/bushel



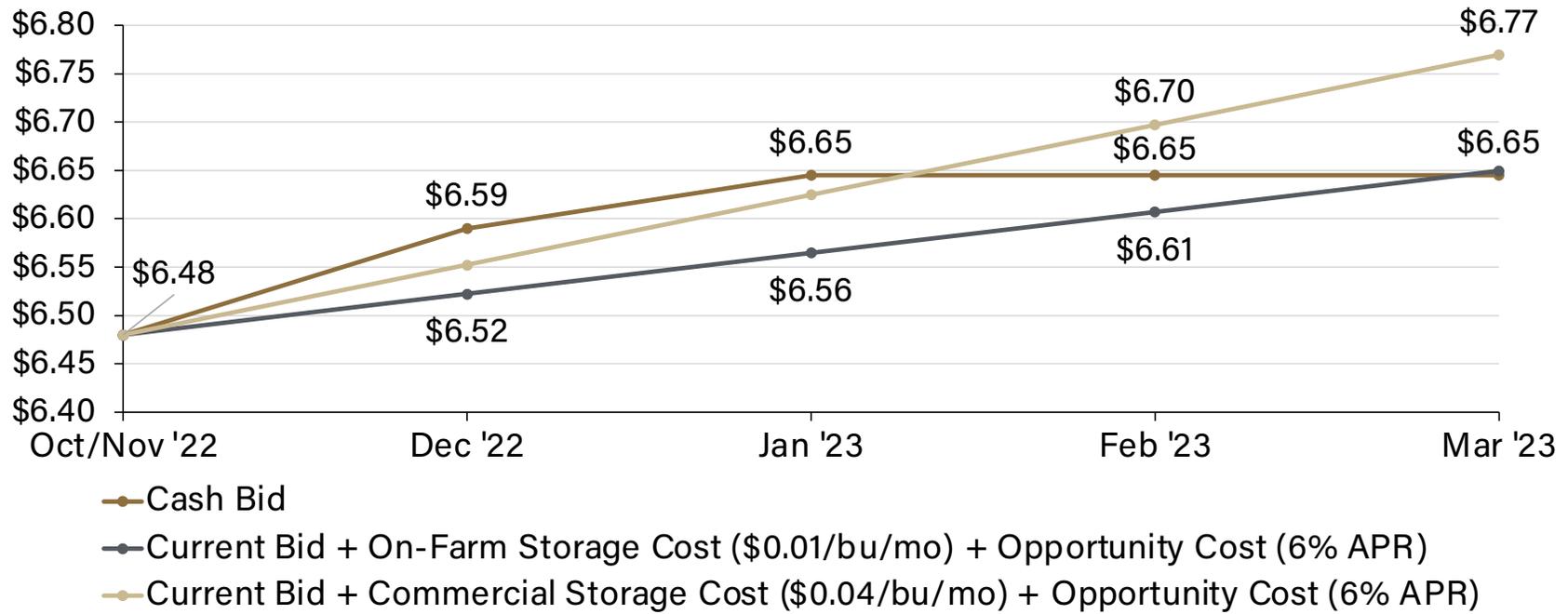
Corn Dec '22 (ZCZ22) - Barchart.com

After the report on Monday, Dec. Corn Rose \$0.11/bu.  
Rally stopped just short of \$7.00/bu.



# Storage opportunities for corn?

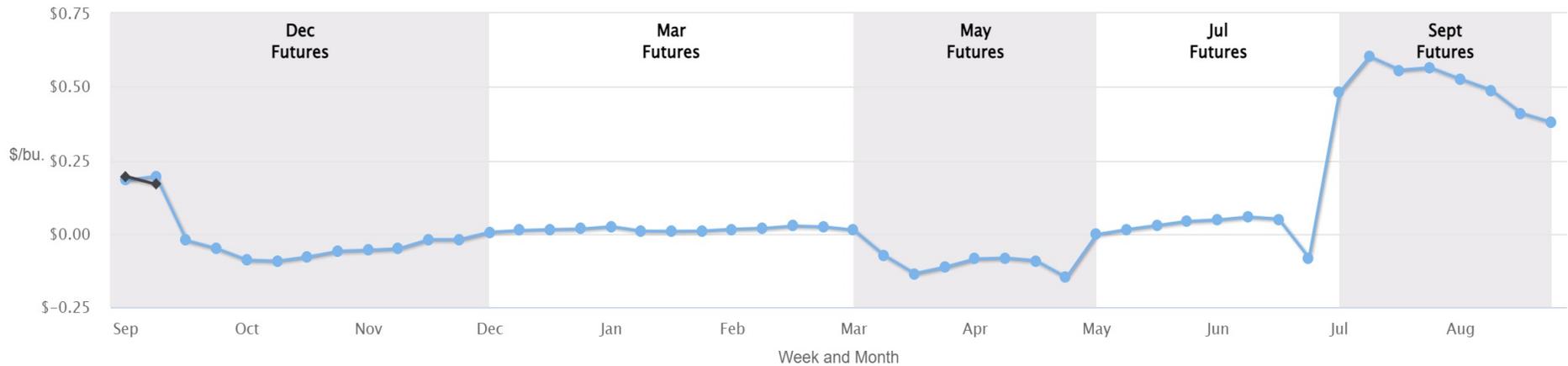
## Cash Forward Contract Corn Bids Central Indiana



# Corn basis - Central Indiana - 3 year average

## Purdue Center for Commercial Agriculture Crop Basis Tool

Corn: IN CENTRAL Region, Nearby Basis, Weekly  
 Avg. of Selected Historical Crop Years [2019-2020,2020-2021,2021-2022]  
 vs. Current Crop Year



● Historical Nearby Basis, Avg of Selected Crop Years   
 ◆ 2022-2023 Regional Nearby Basis  
<https://www.purdue.edu/commercialag>



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# Corn basis - Southwest Indiana - 3 year average

## Purdue Center for Commercial Agriculture Crop Basis Tool

Corn: IN SW Region, Nearby Basis, Weekly  
 Avg. of Selected Historical Crop Years [2019-2020, 2020-2021, 2021-2022]  
 vs. Current Crop Year



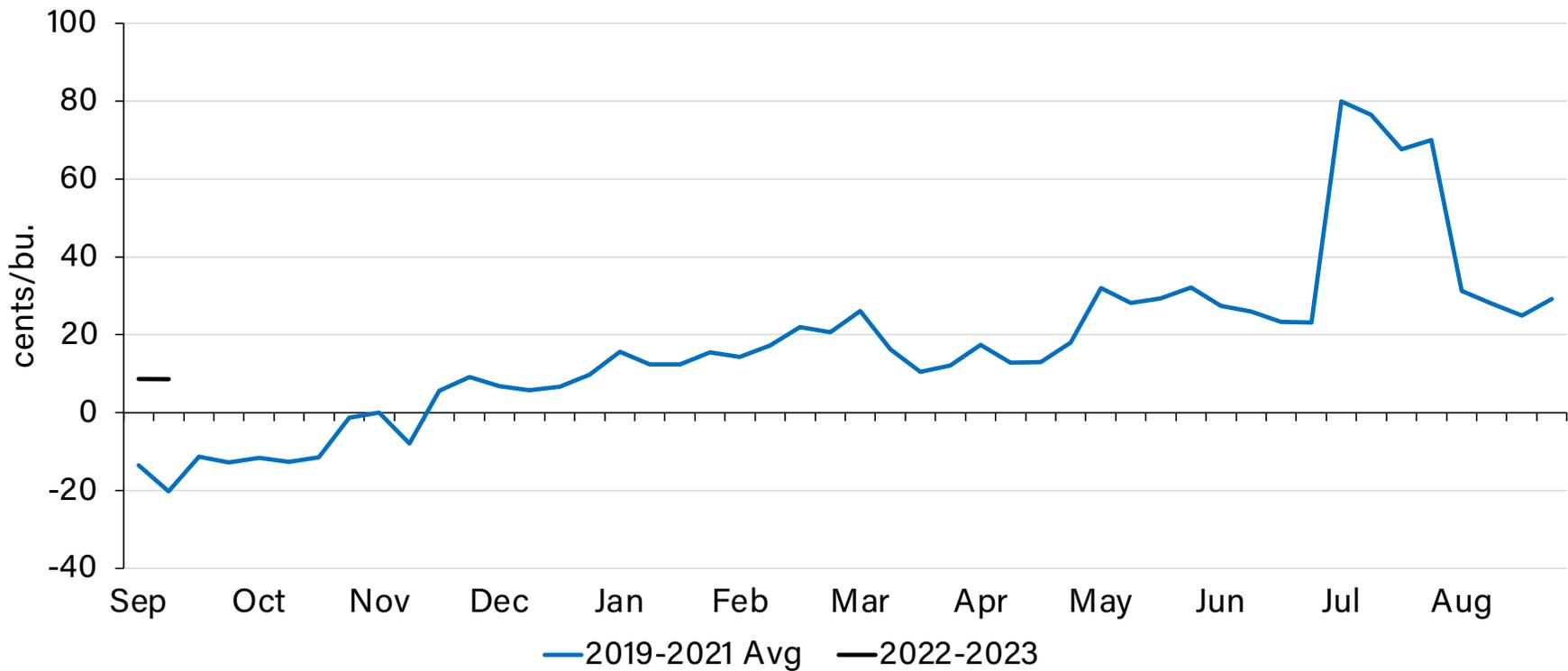
● Historical Nearby Basis, Avg of Selected Crop Years    ◆ 2022-2023 Regional Nearby Basis

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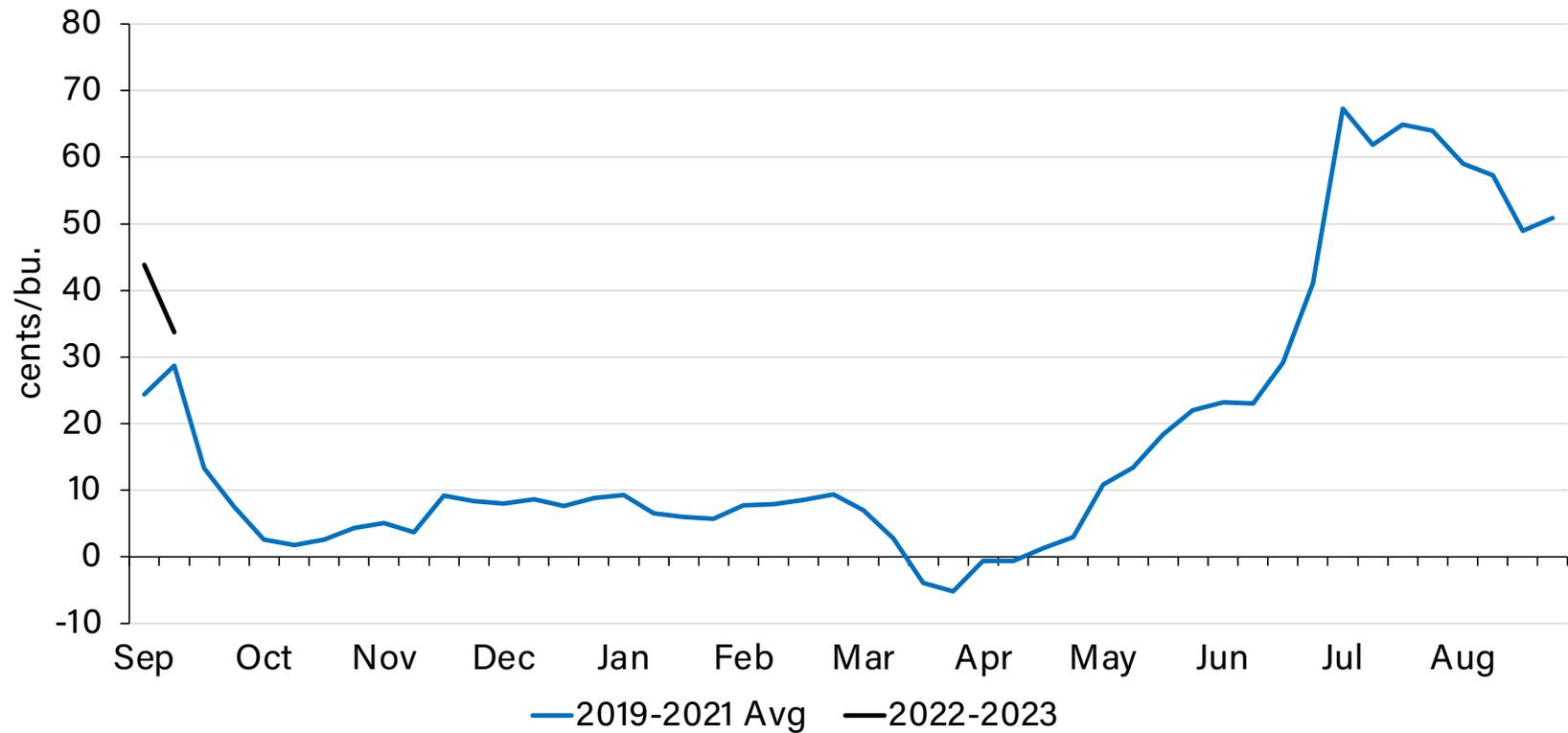


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## Nearby Corn River Basis-Southern Indiana and Southern Illinois River Terminals



## Nearby Indiana ethanol plant basis

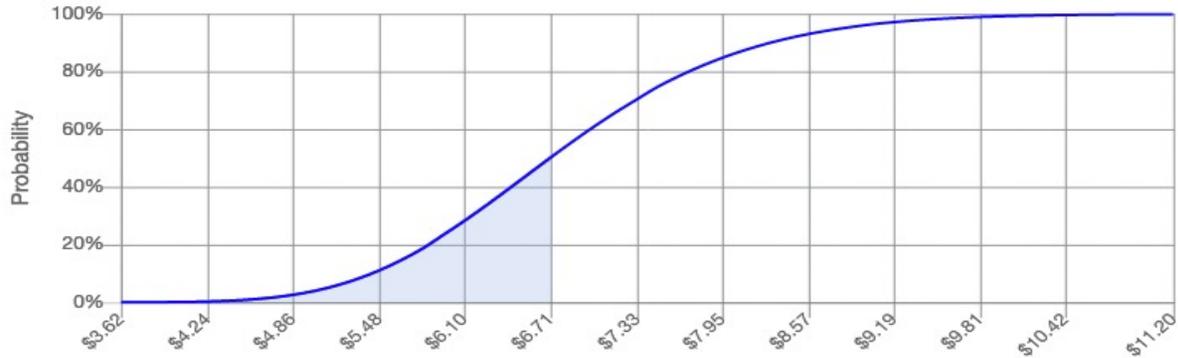


## *New crop corn opportunities?*

|  |                |
|--|----------------|
| CBOT Mar. '23 Corn futures                           | \$6.79         |
| <u>Expected corn basis January '23 in Central IN</u> | <u>+\$0.01</u> |
| Expected January cash price                          | \$6.80/bu.     |

- Think in terms of risk management
- How can you protect favorable price opportunities while leaving open upside potential?

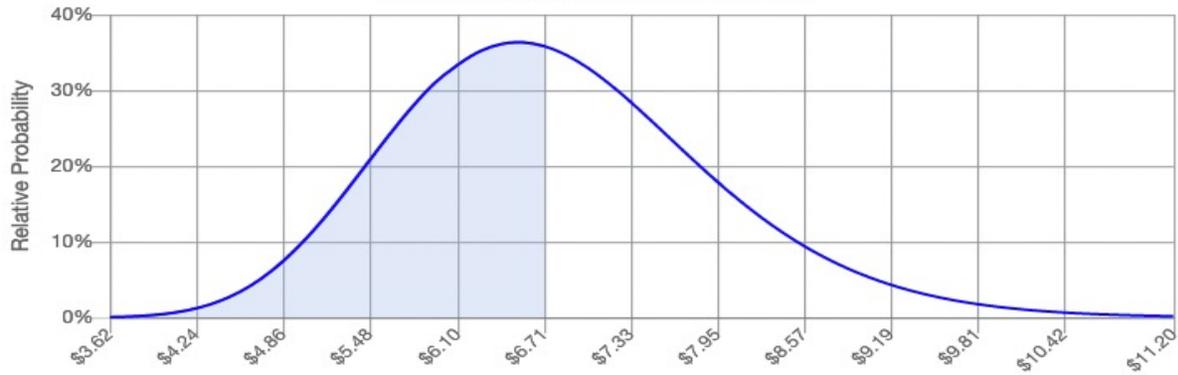
**Cumulative Probability of Prices at Expiration**



**March 2023 CBT Corn Futures**

| Price at Expiration ▲ | Probability Below ▲ |
|-----------------------|---------------------|
| \$5.75                | 17.58%              |
| \$6.00                | 24.99%              |
| \$6.25                | 33.42%              |
| \$6.50                | 42.40%              |
| \$6.75                | 51.43%              |
| \$7.00                | 60.08%              |
| \$7.25                | 67.98%              |
| \$7.50                | 74.91%              |
| \$7.75                | 80.77%              |

**Probability of Prices at Expiration**



Enter Price to Evaluate: \$ 6.79

The implied distribution indicates that there is a 52.85% probability that the price will be below \$6.79 at expiration.

| Probability Below ▲ | Price at Expiration ▲ |
|---------------------|-----------------------|
| 5%                  | \$5.11                |
| 15%                 | \$5.65                |
| 25%                 | \$6.00                |
| 35%                 | \$6.29                |
| 45%                 | \$6.57                |
| <b>50%</b>          | <b>\$6.71</b>         |
| 55%                 | \$6.85                |
| 65%                 | \$7.15                |
| 75%                 | \$7.50                |
| 85%                 | \$7.97                |
| 95%                 | \$8.81                |

## ***Key Changes to Soybean Balance Sheet in USDA's June WASDE***

### **Changes to 2021/2022 Soybean Balance Sheet**

- ✓ **Reduced '21/22 export estimate by 15 million bushels... new total = 2.145 billion bushels**
- ✓ **21/22 Ending stocks estimate rose by 15 million bushels ... to 240 million bushels**

### **Changes to 2022/2023 Soybean Balance Sheet**

- ✓ **Reduced Harvested Acreage to 86.6 m. acres, down from 87.2 in August**
- ✓ **Reduced Yield Estimate to 50.5 vs. 51.9 bushels/acre**
- ✓ **Production Down to 4.378 billion bu. Vs. 4.531 estimate in August**
- ✓ **Reduced both Crush & Exports, Total Usage Down to 4.433 billion bu. from 4.526 in August**

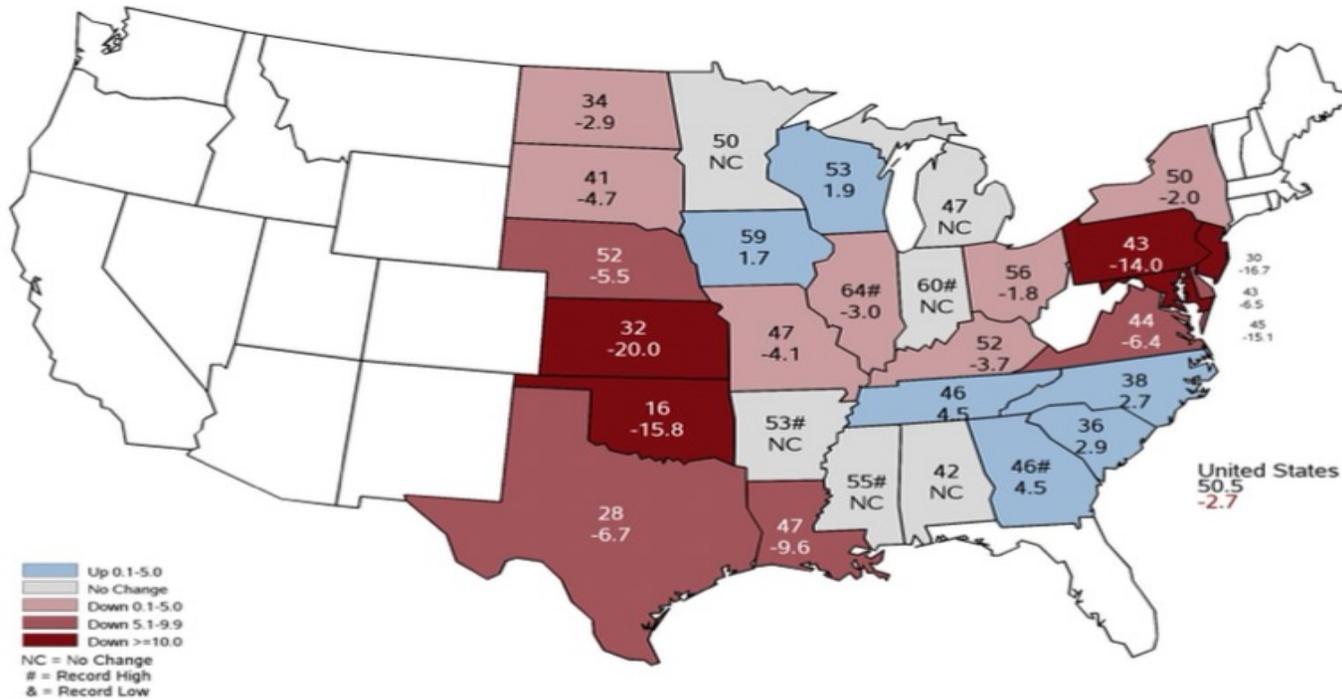


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# Reduction in Soybean Yields & Acreage Were The Big Surprise on Monday



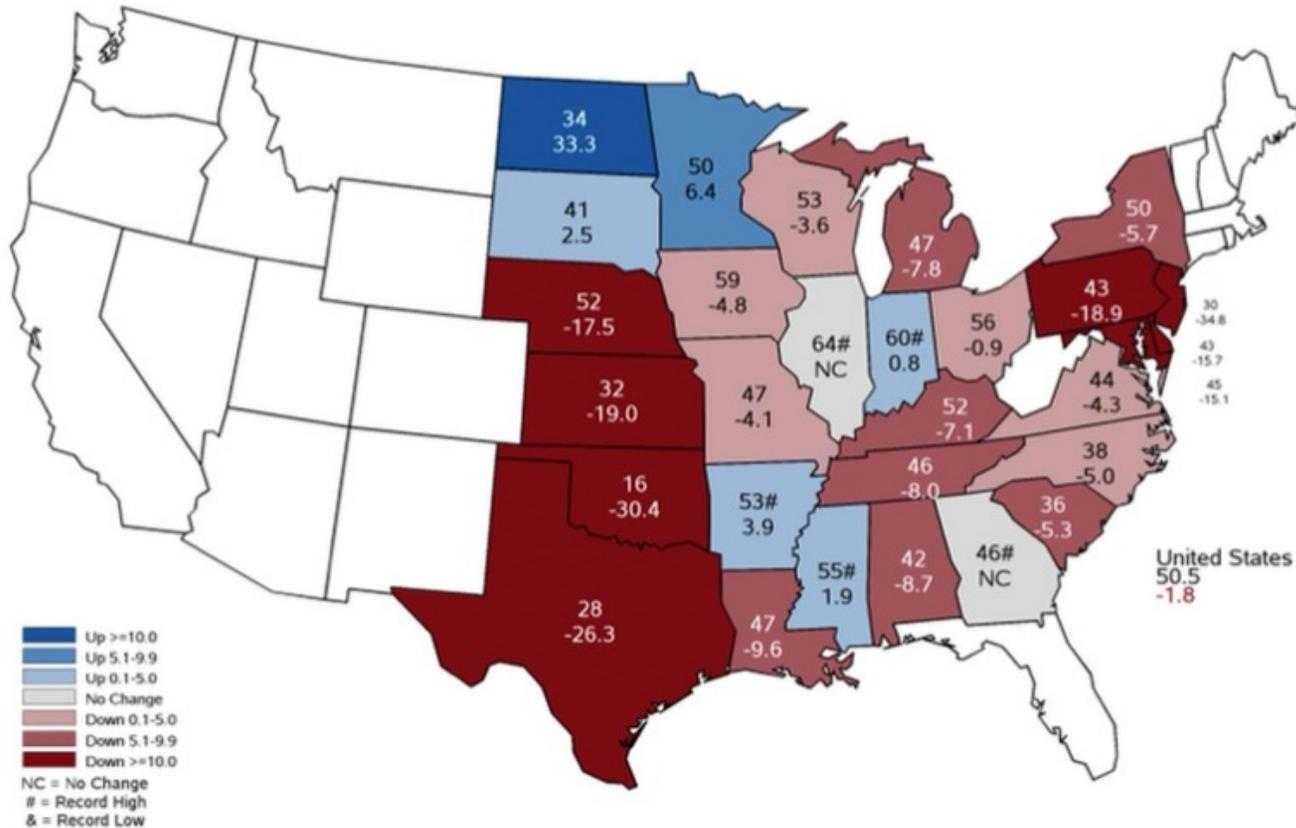
## September 2022 Soybean Yield Bushels and Percent Change from Previous Month



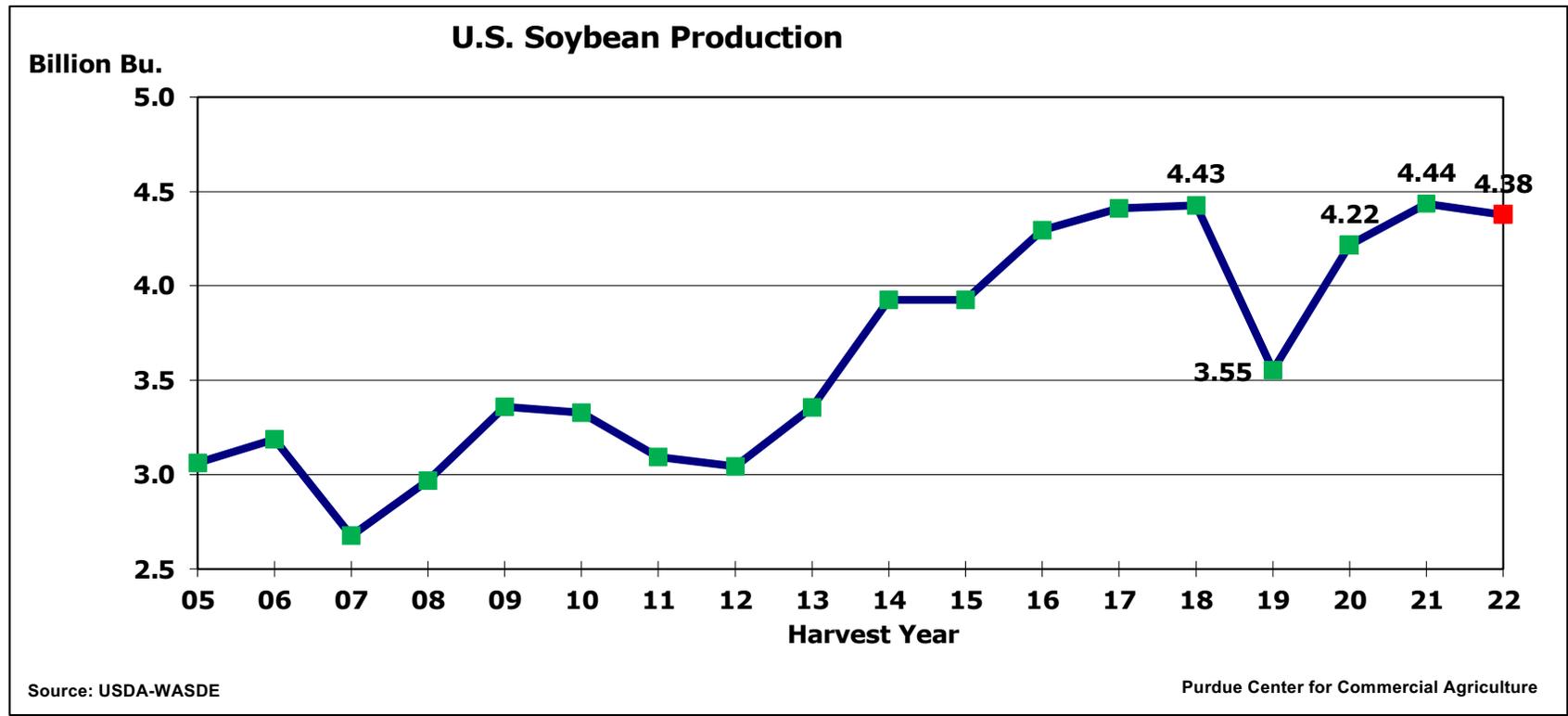


# September 2022 Soybean Yield

## Bushels and Percent Change from Previous Year



# Smaller Acreage & Yield Reduction Pushes Production Down Below Last Year



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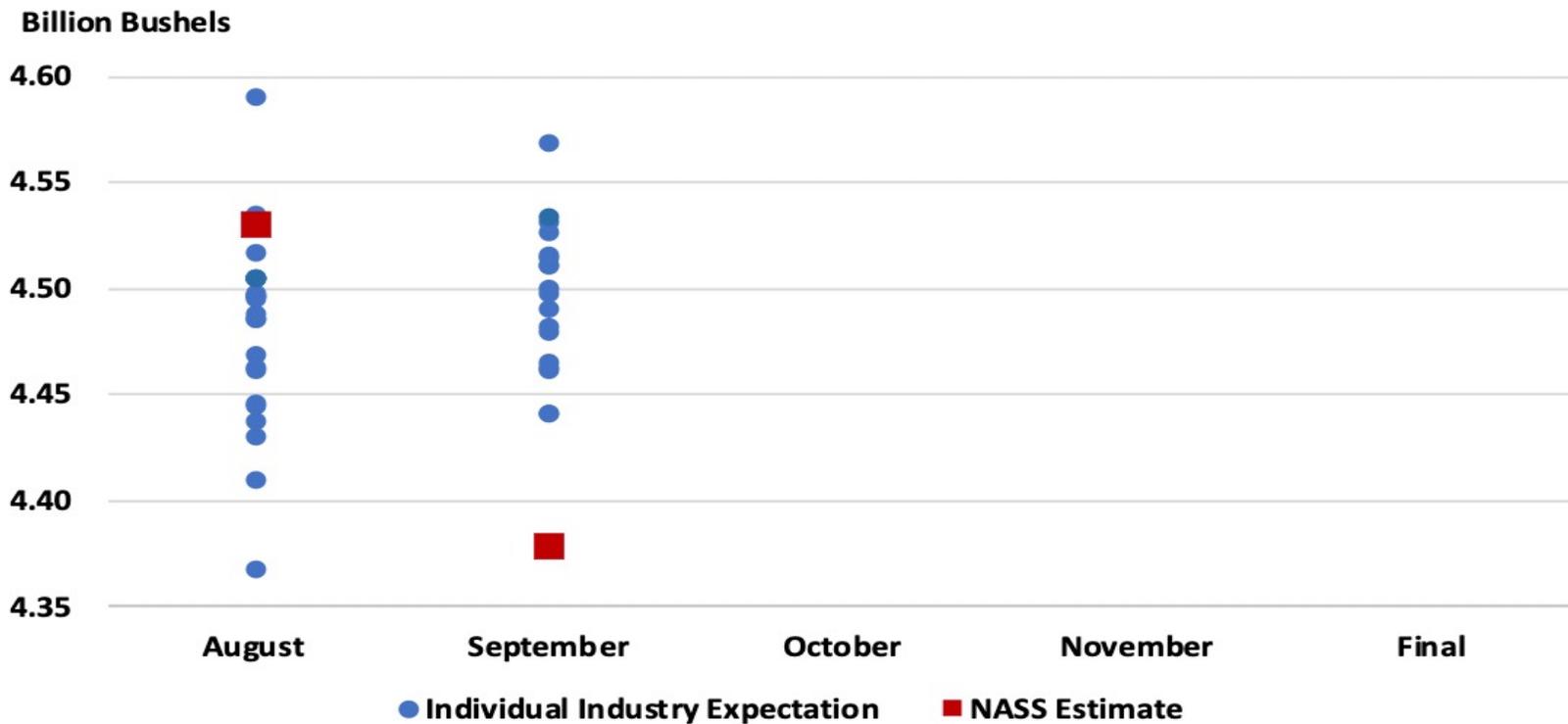
1/14/22

9/16/22

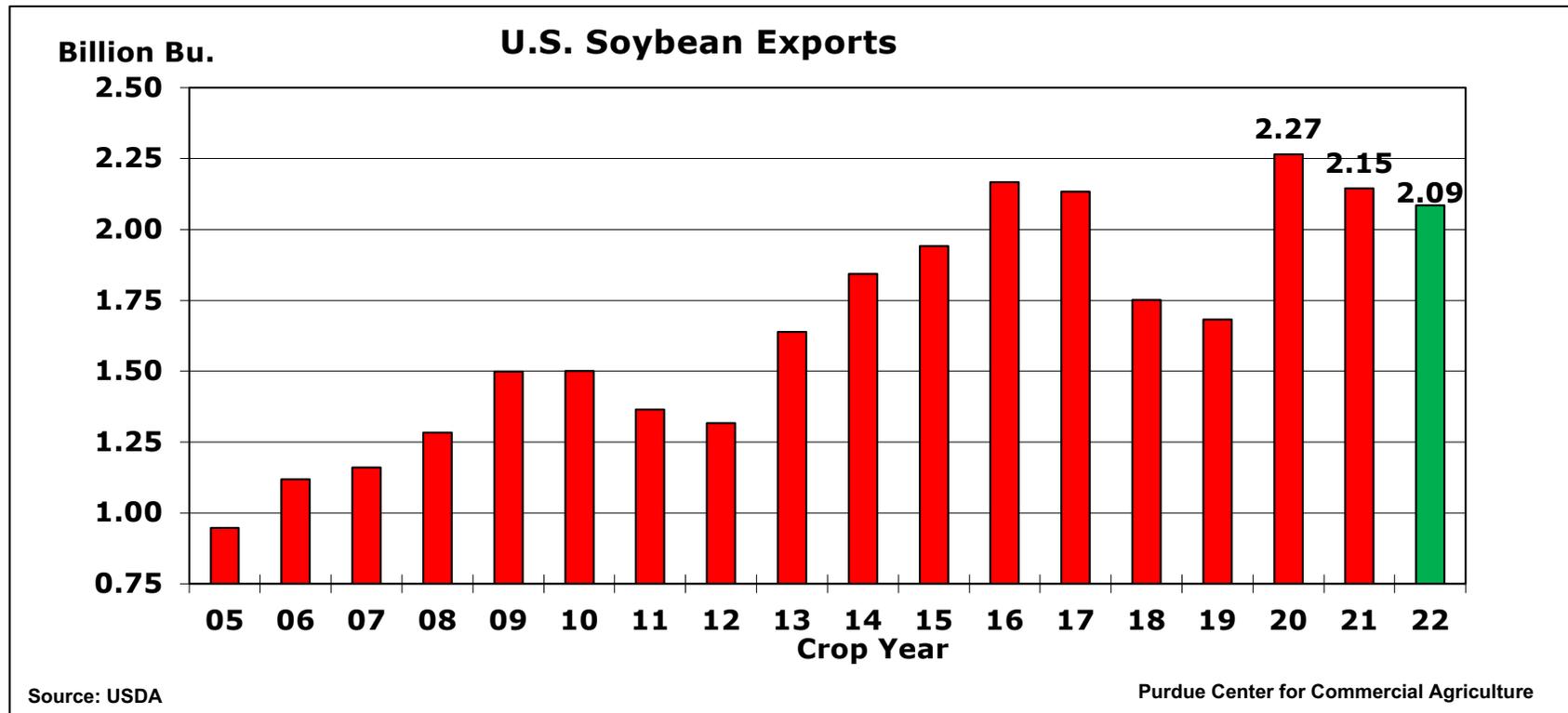


# 2022 U.S. Soybean Production

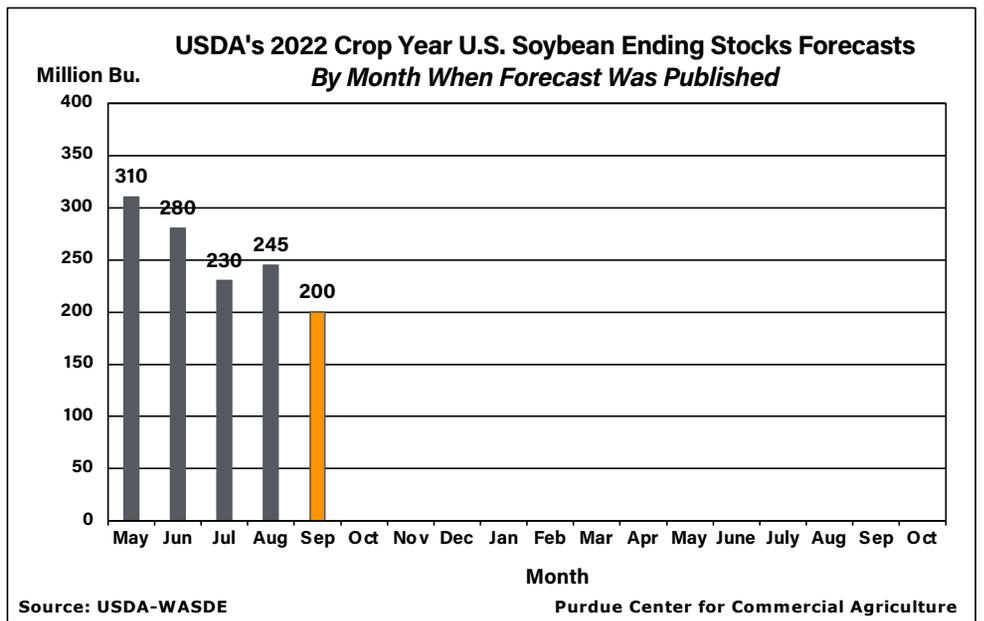
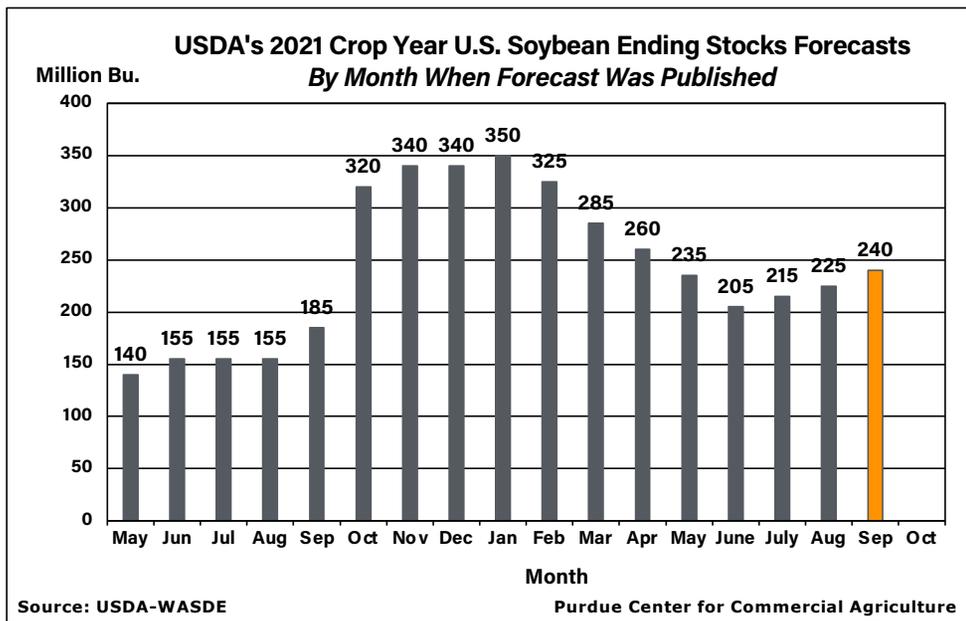
## Industry Expectations vs NASS



## USDA Reduced '22 Crop Export Forecast By 70 Million Bushels

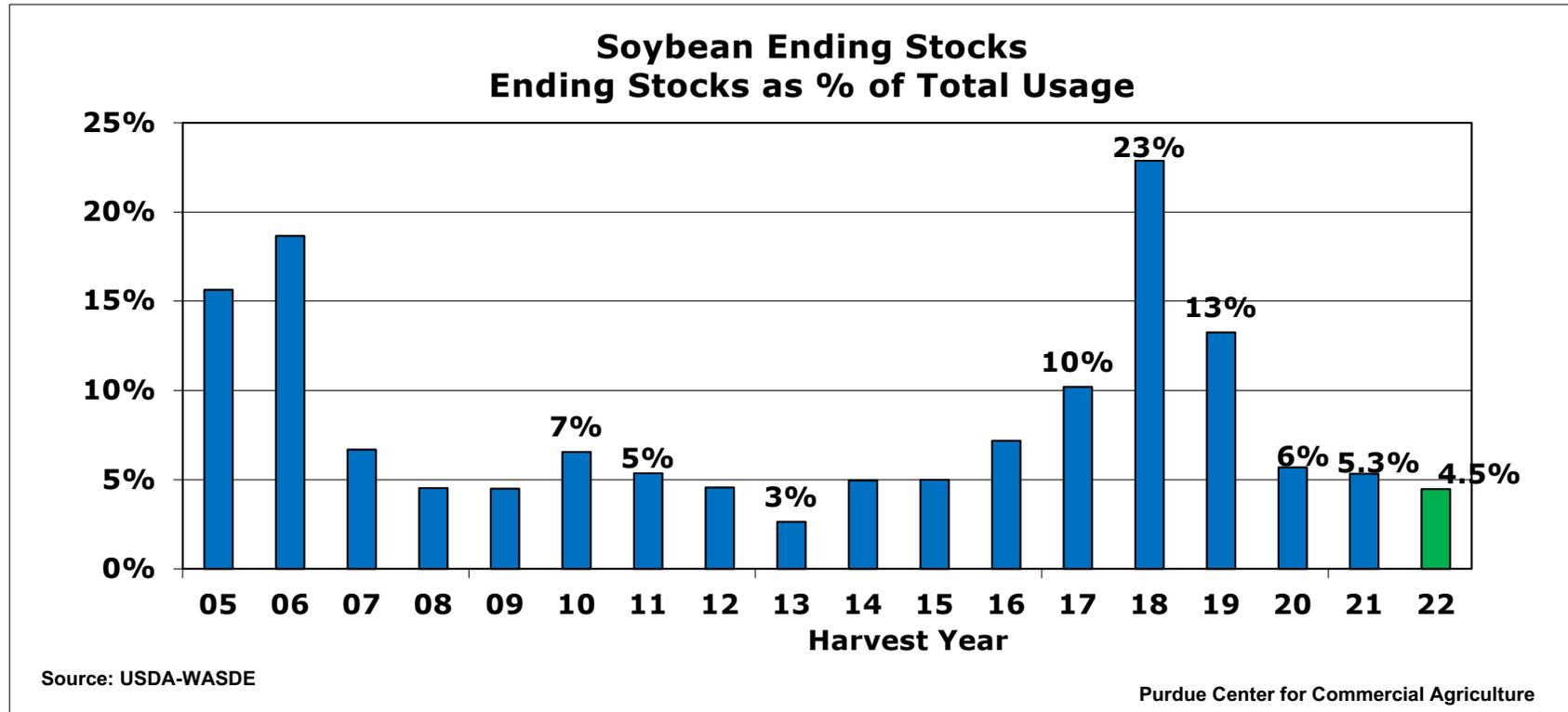


# '21 Crop Carryover Bumped Up 15 m. bushels & '22 Crop Carryover Now @ 200 m. bushels



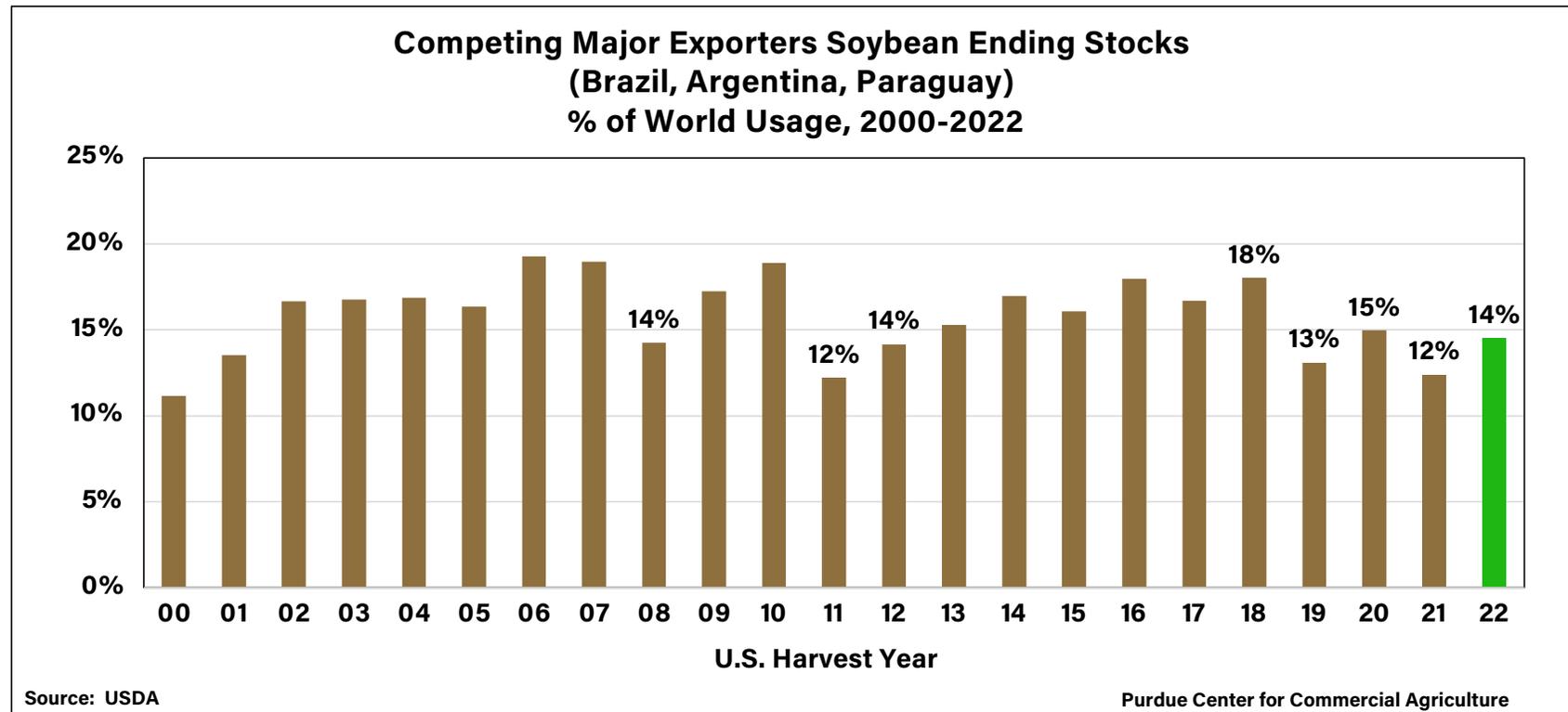
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*Changes Push Projected '22 Crop Carryover Below 5% of Estimated Usage*

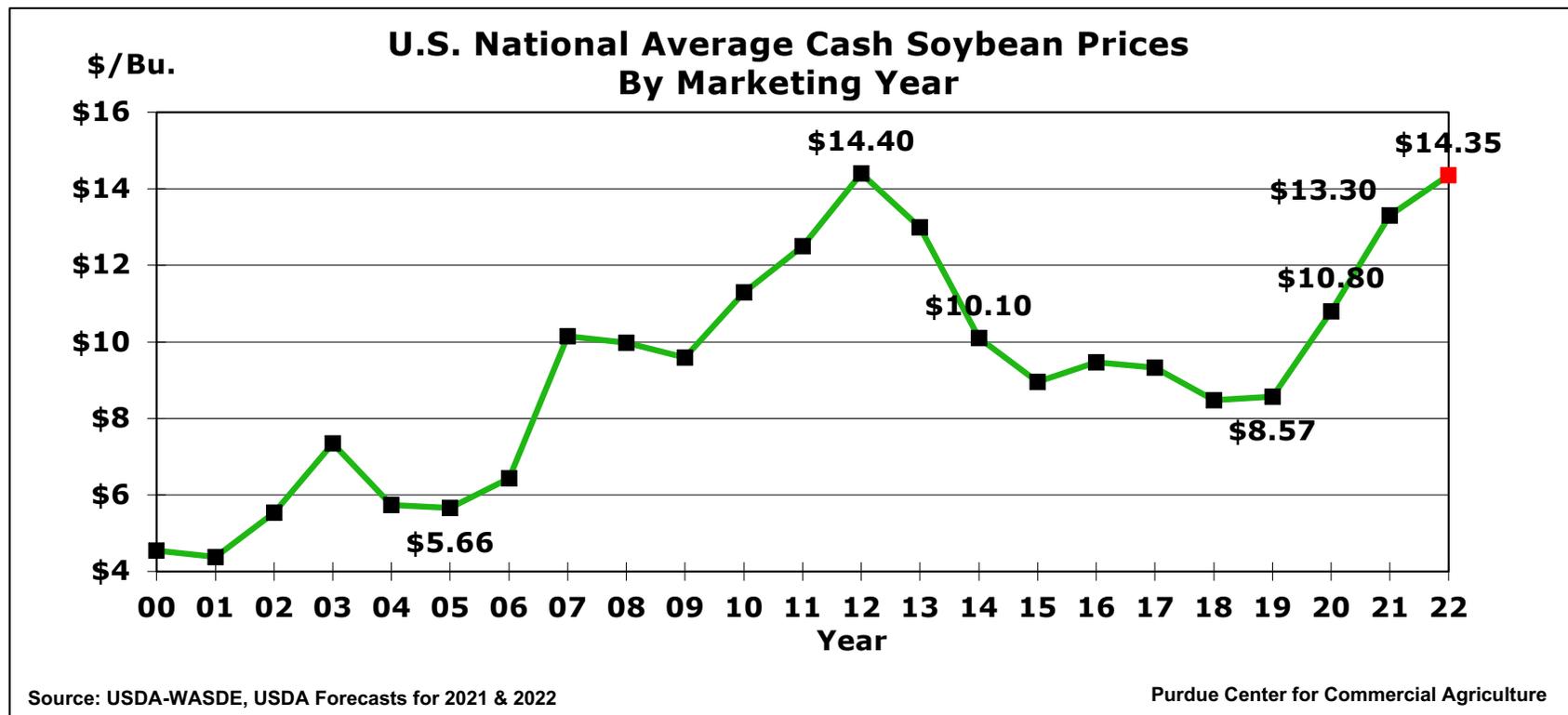


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*Competition in Export Channels Will Be Key Going Forward...*



## No Change in USDA's Marketing Year Average Price Forecast



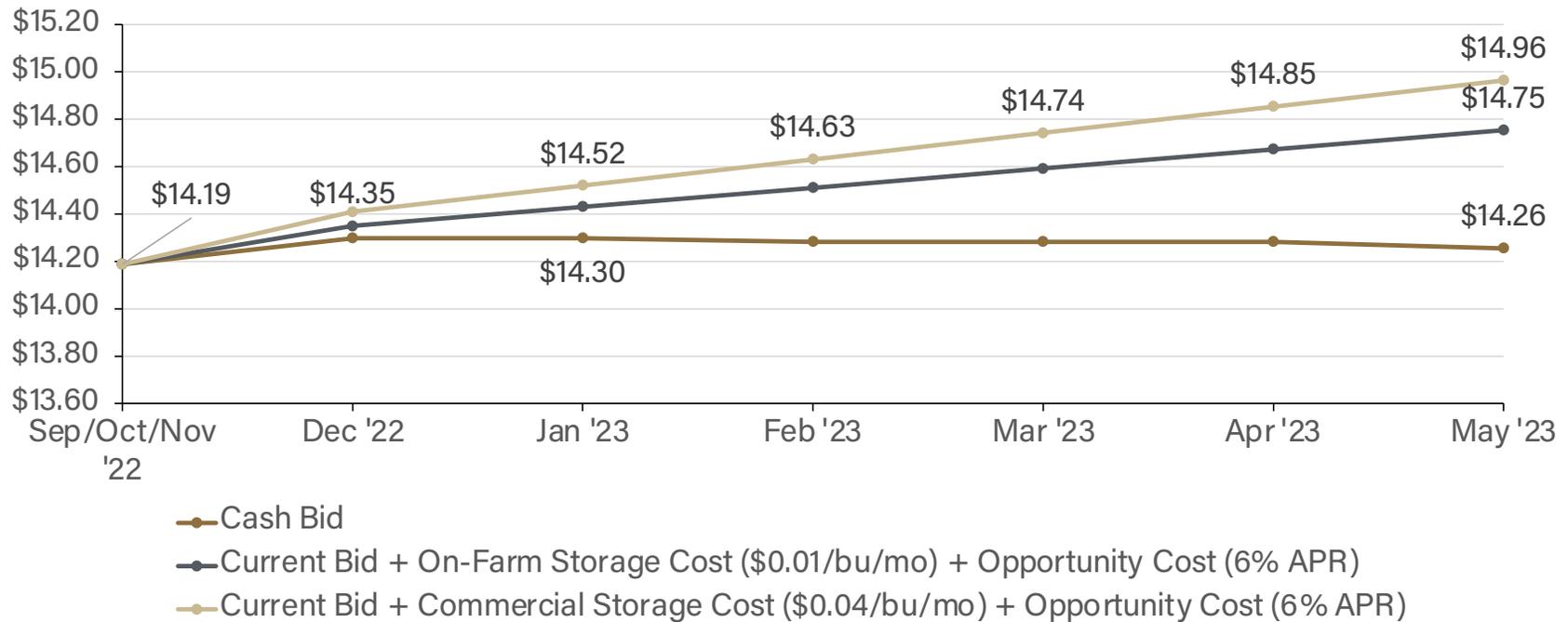
Soybean Nov '22 (ZSX22) - Barchart.com

Soybeans Rallied \$0.76 Following Report's Release, But Retreated Later in the Week, Giving Up Over Half of Monday's Increase



# Storage opportunities for soybeans?

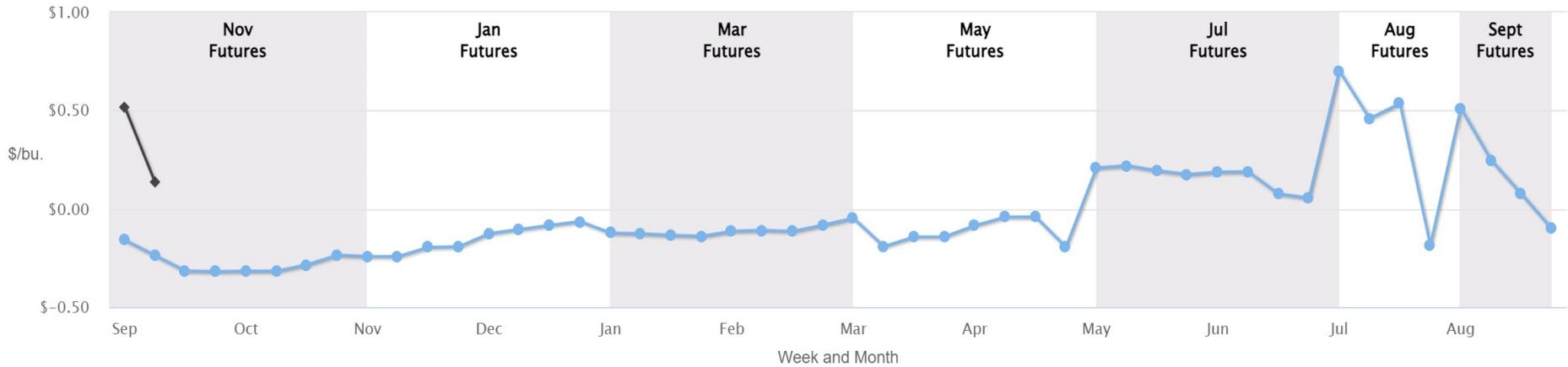
Cash Forward Contract Soybean Bids  
Central Indiana



# Soybean basis - Central Indiana - 2 year average

## Purdue Center for Commercial Agriculture Crop Basis Tool

Soybeans: IN CENTRAL Region, Nearby Basis, Weekly  
 Avg. of Selected Historical Crop Years [2020-2021, 2021-2022]  
 vs. Current Crop Year



● Historical Nearby Basis, Avg of Selected Crop Years    ◆ 2022-2023 Regional Nearby Basis

<https://www.purdue.edu/commercialag>



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# Soybean basis - Southwest Indiana - 2 year average

## Purdue Center for Commercial Agriculture Crop Basis Tool

Soybeans: IN SW Region, Nearby Basis, Weekly  
 Avg. of Selected Historical Crop Years [2020-2021, 2021-2022]  
 vs. Current Crop Year



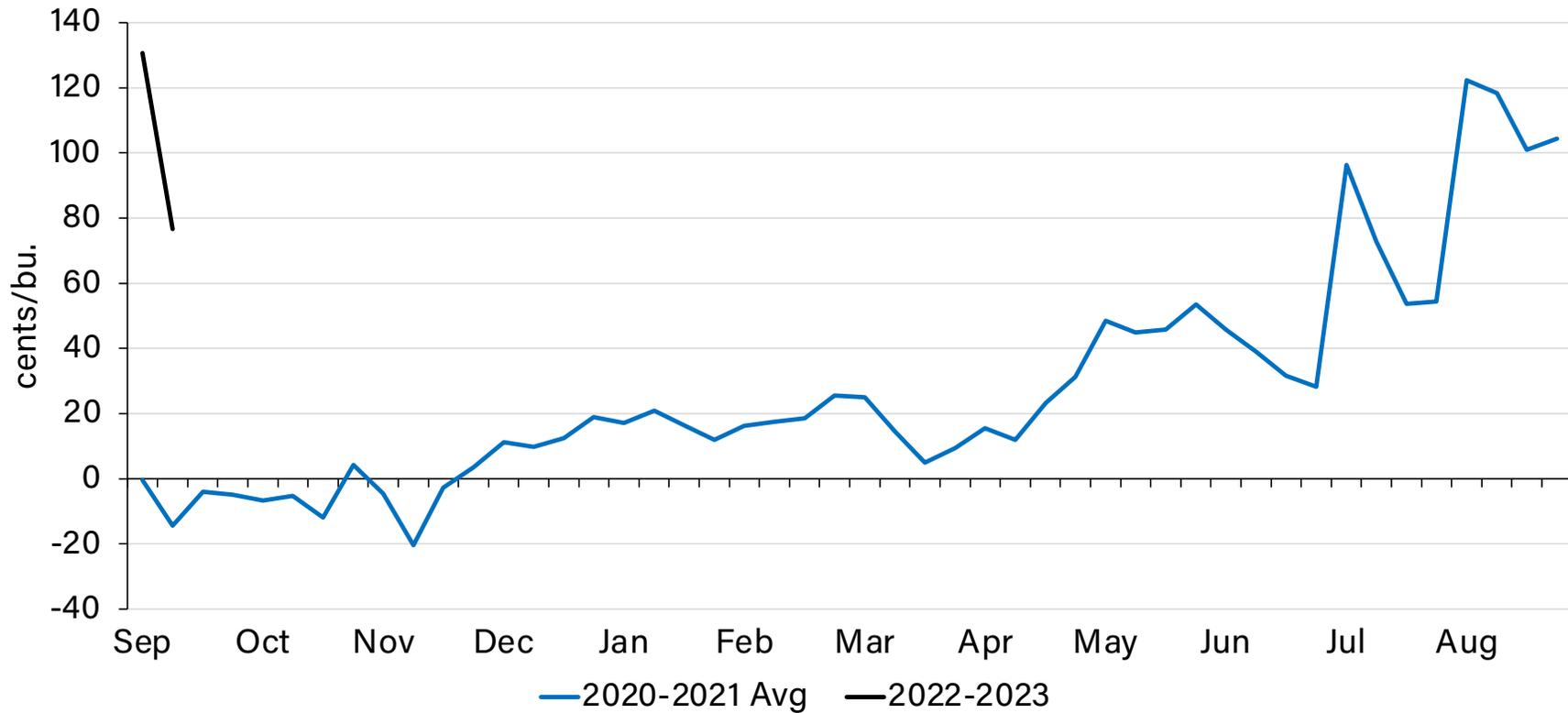
● Historical Nearby Basis, Avg of Selected Crop Years    ◆ 2022-2023 Regional Nearby Basis

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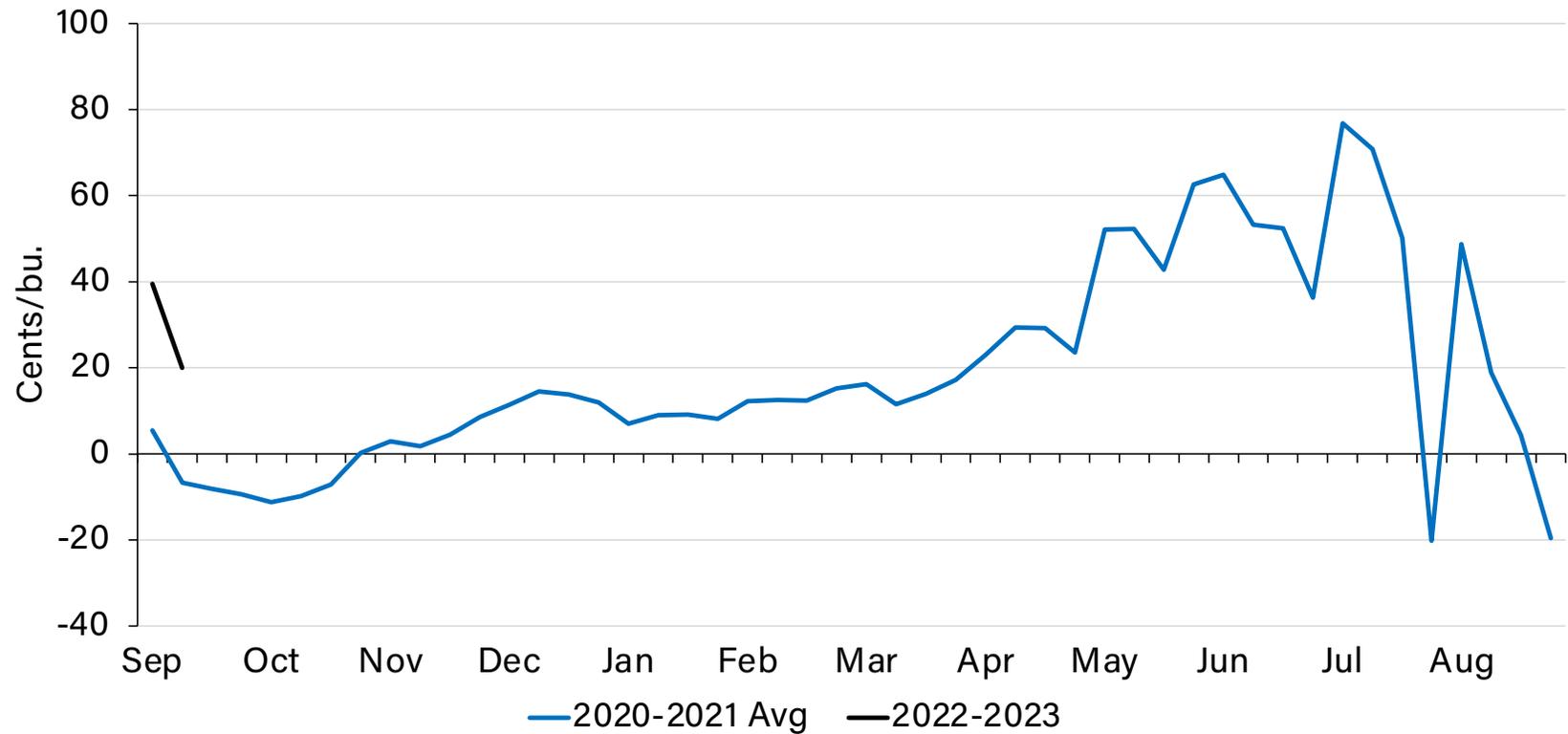


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## Nearby Soybean River Basis-Southern Indiana and Southern Illinois River Terminals



## Nearby Indiana soybean processor basis



## *New crop soybean opportunities?*

|   |                |
|---|----------------|
| CBOT Mar. '23 Soybean futures                           | \$14.56        |
| <u>Expected soybean basis January '22 in Central IN</u> | <u>-\$0.13</u> |
| Expected January cash price                             | \$14.43/bu.    |

- Think in terms of risk management
- How can you protect favorable price opportunities while leaving open upside potential?

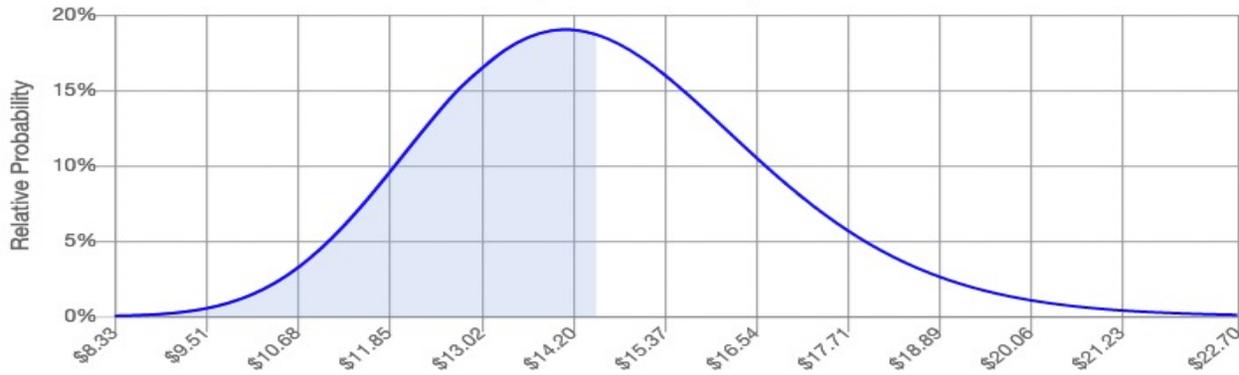
**Cumulative Probability of Prices at Expiration**



**March 2023 CBT Soybean Futures**

| Price at Expiration | Probability Below |
|---------------------|-------------------|
| \$13.50             | 32.97%            |
| \$13.75             | 37.60%            |
| \$14.00             | 42.33%            |
| \$14.25             | 47.08%            |
| \$14.50             | 51.79%            |
| \$14.75             | 56.40%            |
| \$15.00             | 60.85%            |
| \$15.25             | 65.09%            |
| \$15.50             | 69.09%            |

**Probability of Prices at Expiration**



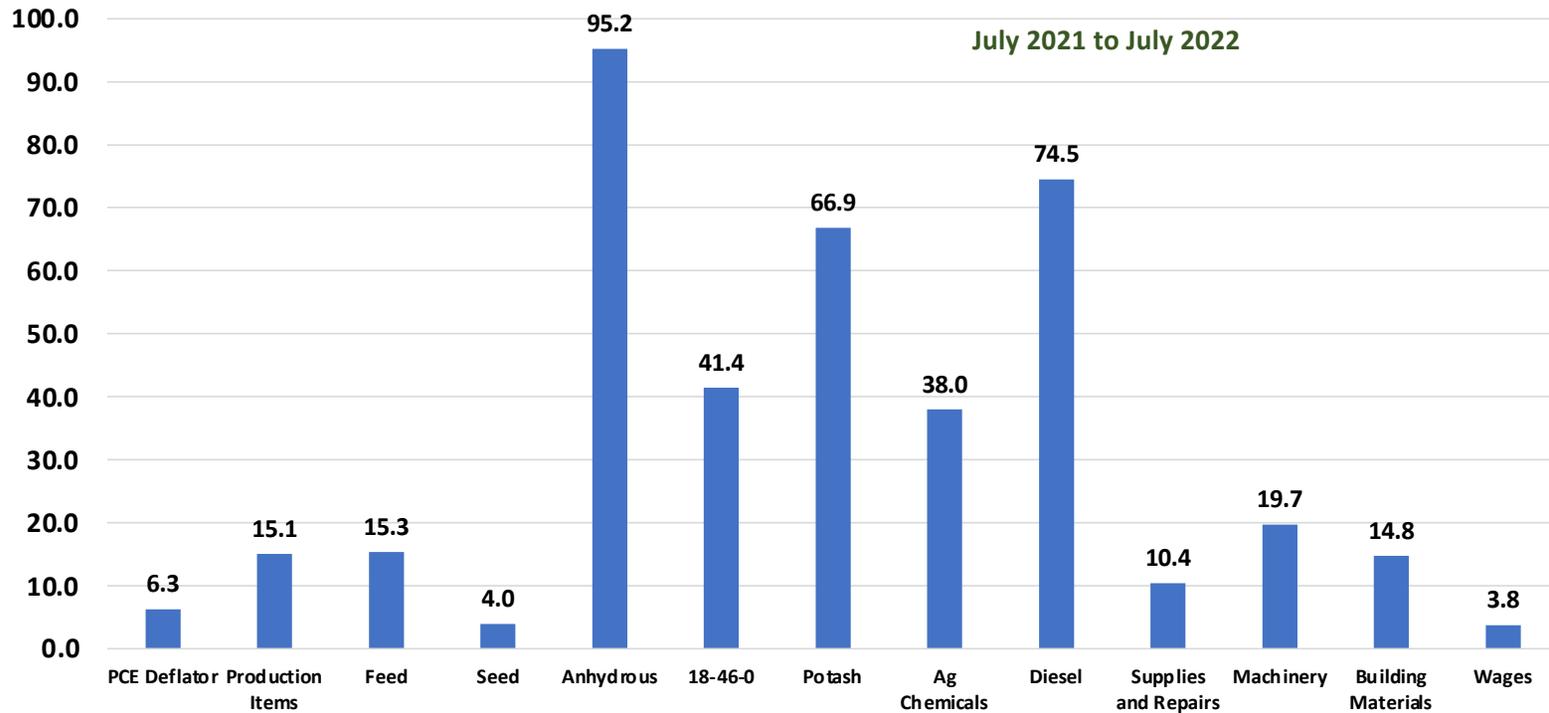
Enter Price to Evaluate: \$ 14.50

| Probability Below | Price at Expiration |
|-------------------|---------------------|
| 5%                | \$11.31             |
| 15%               | \$12.37             |
| 25%               | \$13.04             |
| 35%               | \$13.61             |
| 45%               | \$14.14             |
| <b>50%</b>        | <b>\$14.40</b>      |
| 55%               | \$14.67             |
| 65%               | \$15.24             |
| 75%               | \$15.91             |
| 85%               | \$16.78             |
| 95%               | \$18.35             |

**The implied distribution indicates that there is a 51.79% probability that the price will be below \$14.50 at expiration.**

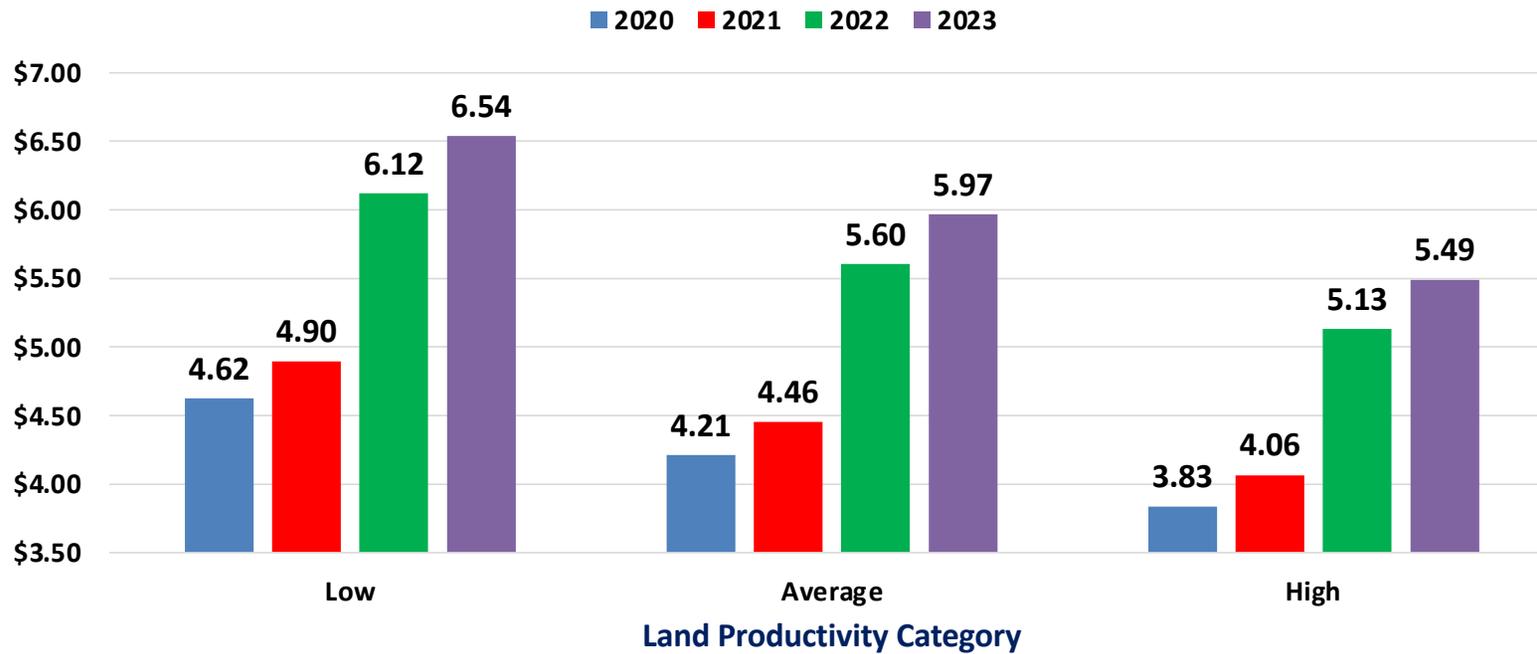
# Surge in Farm Input Prices

Percentage Change in Inflation and Farm Input Prices in the Last 12 Months



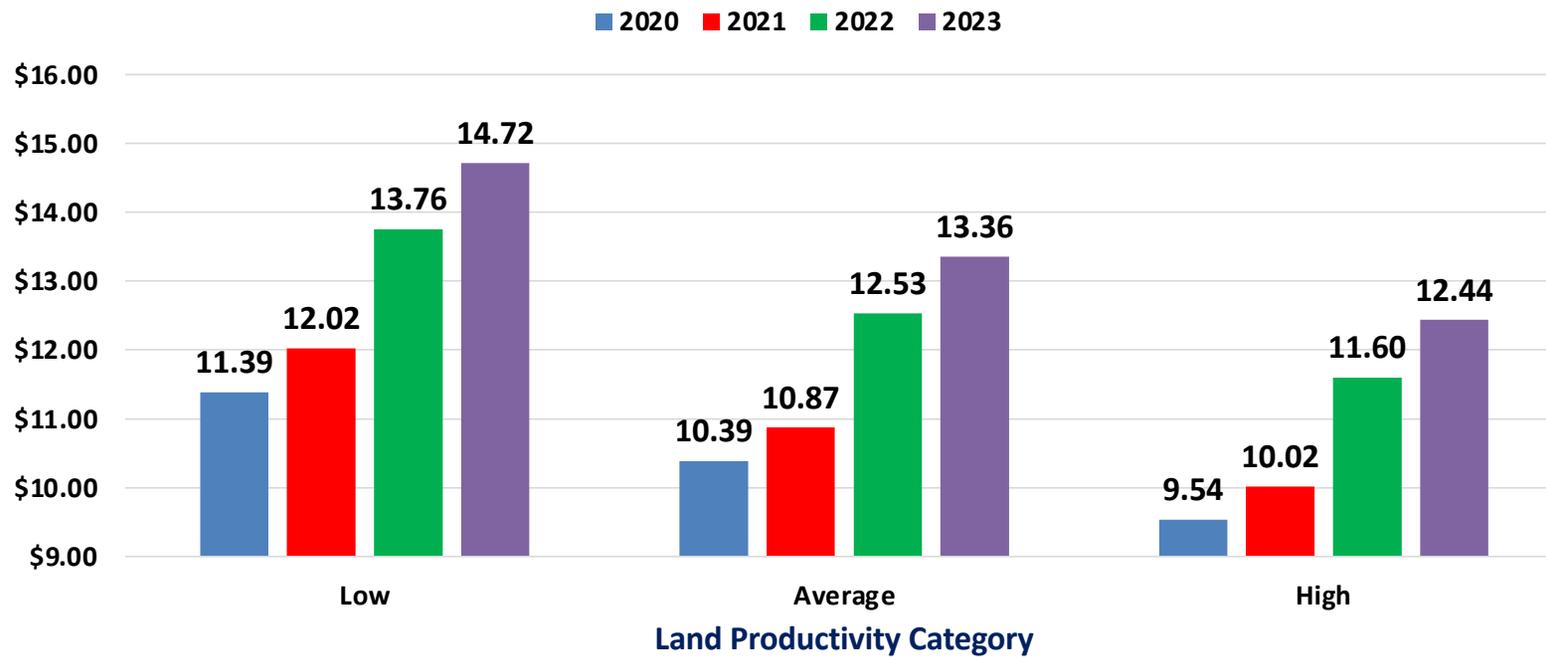
# Change in Breakeven Prices for Corn since 2020

## Breakeven Prices for Rotation Corn in Indiana



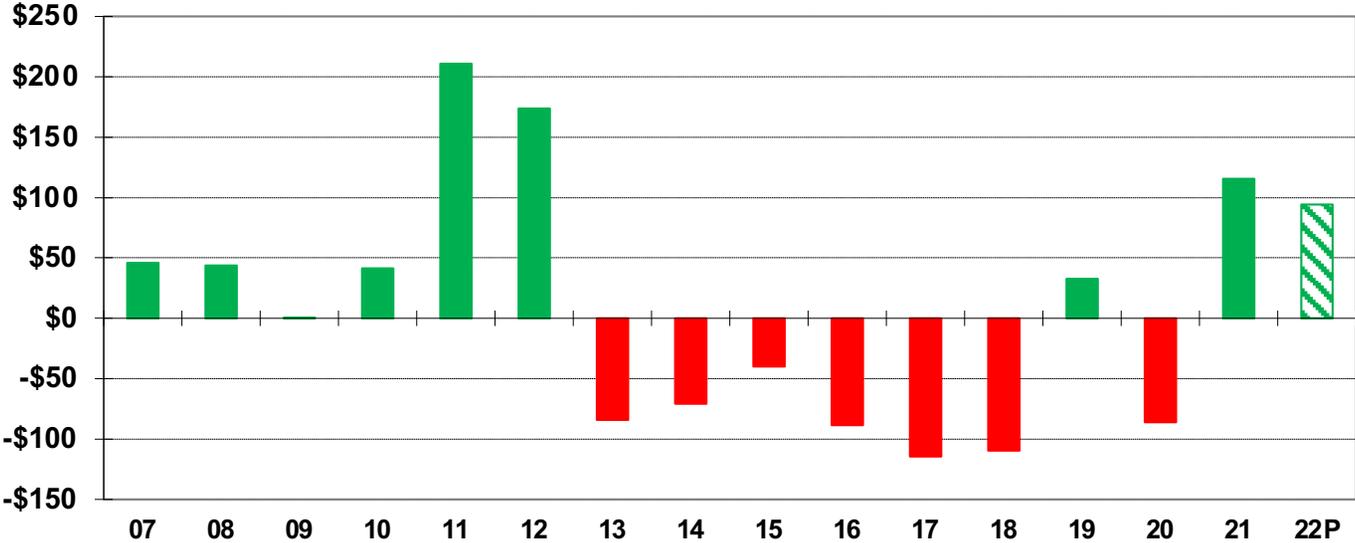
# Change in Breakeven Prices for Soybeans since 2020

## Breakeven Prices for Rotation Soybeans in Indiana



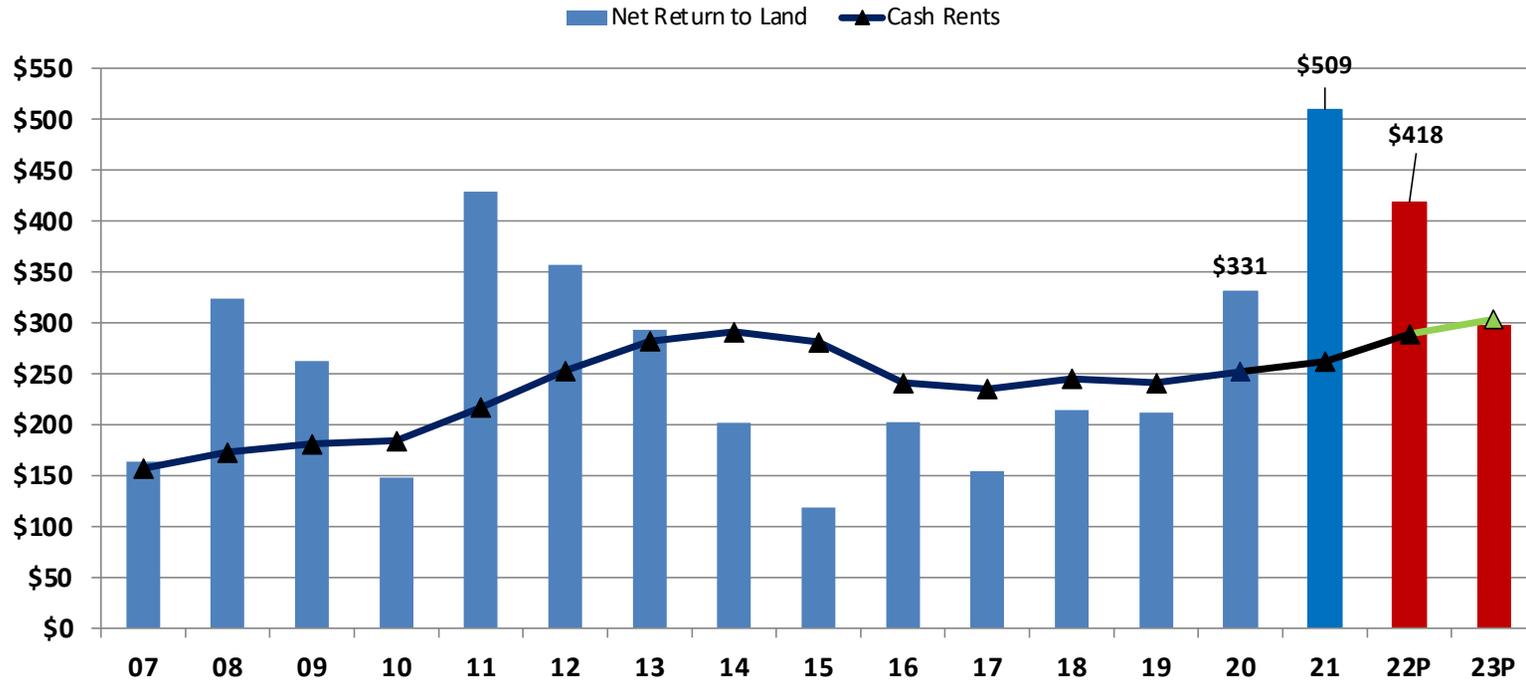
# *Profit Prospects for Corn have Improved*

## Difference in Earnings per Acre West Central Indiana (Corn Minus Soybeans)



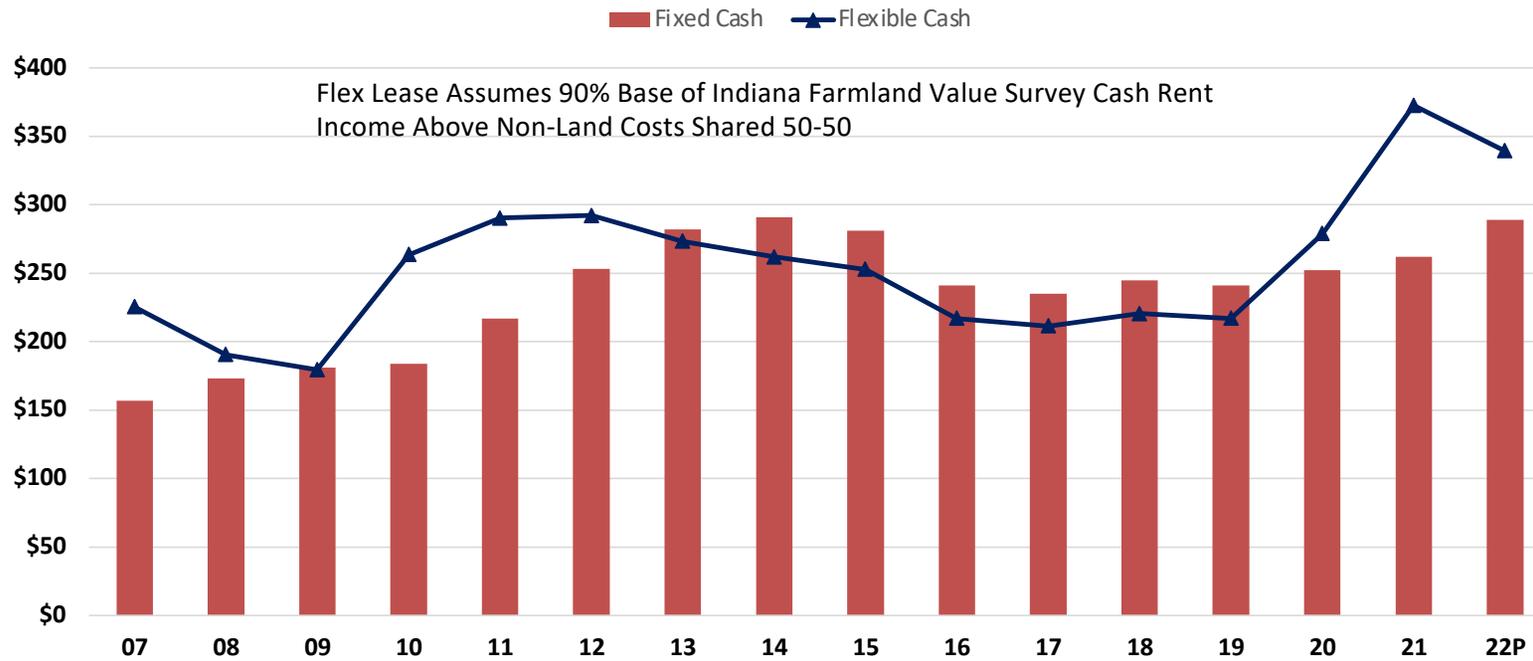
# Upward Pressure on Cash Rent in 2023?

## Cash Rent and Net Return to Land, West Central Indiana



# Should I Use a Flex Rent Lease in 2023?

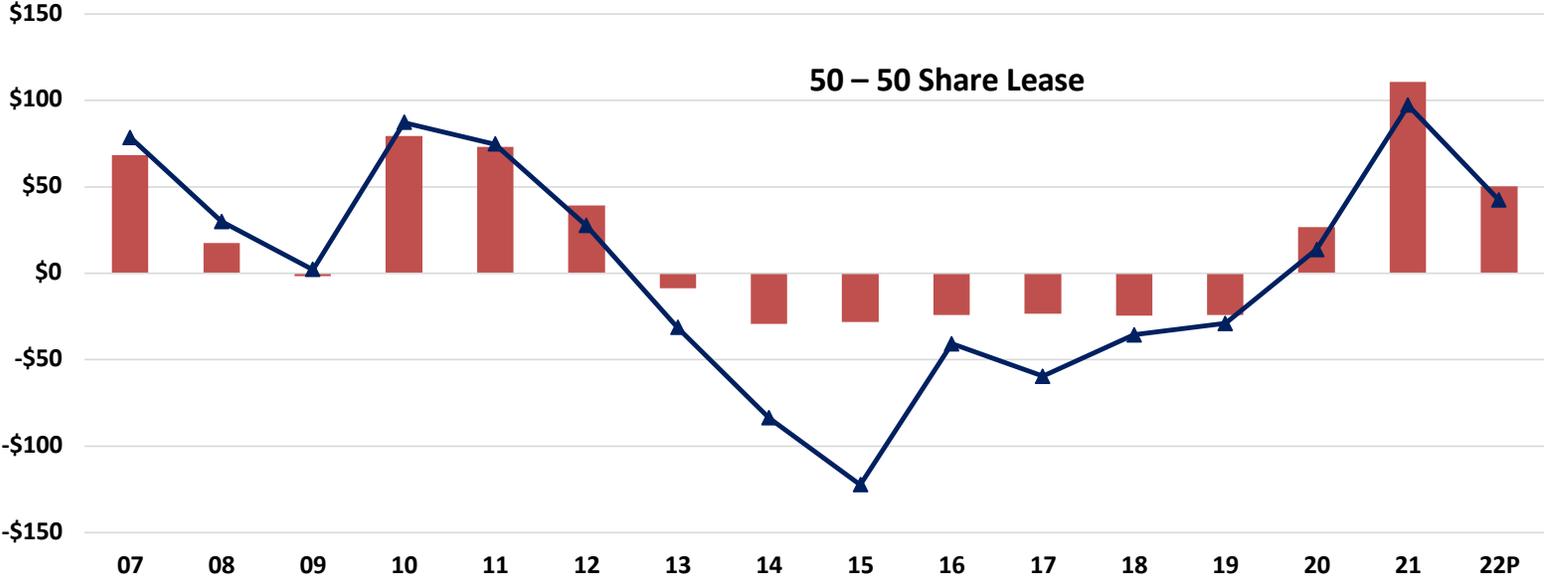
Comparison of Net Returns for Flexible Cash Lease and Fixed Cash Rent Lease  
(Per Acre Net Returns for Landowner)



# Flex Rent Compared to Share Rent

Differences Between Fixed Cash Rent Lease and Other Lease Arrangements  
(Per Acre Net Returns for Landowner)

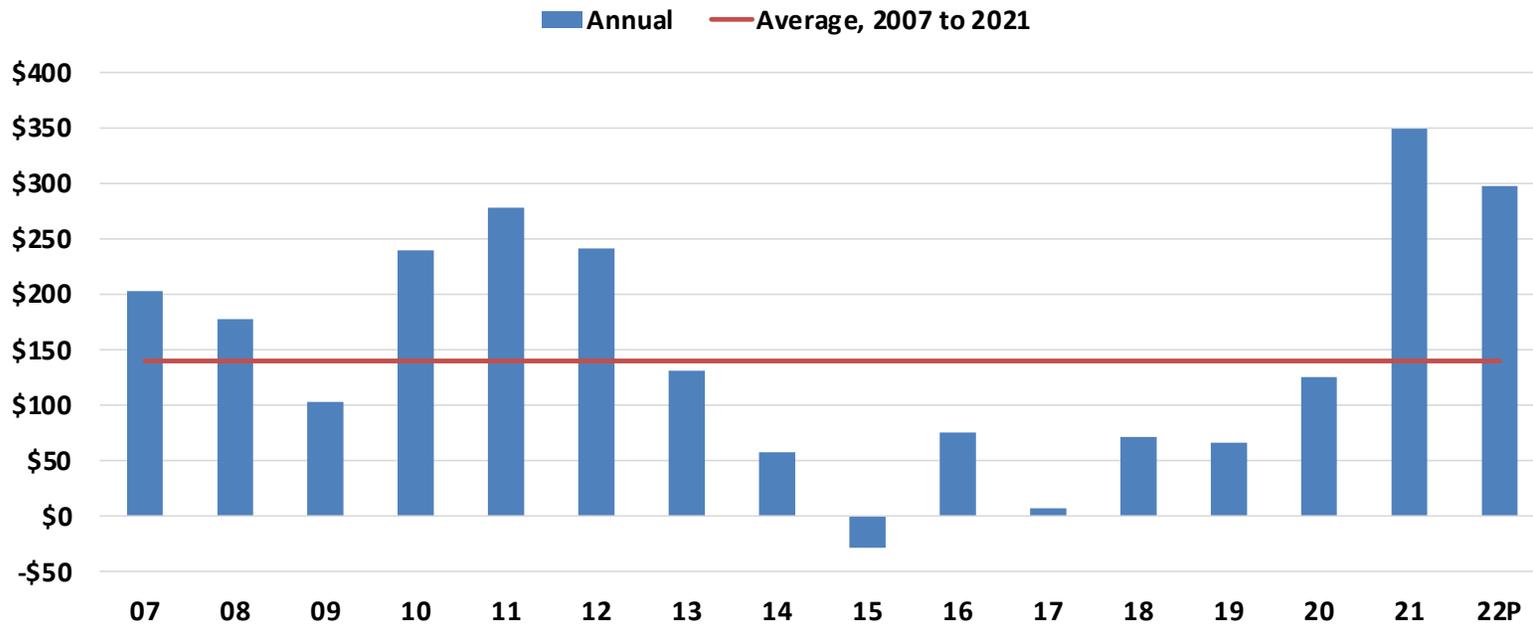
Flexible - Fixed    Share - Fixed



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## Comparison of Projections for 2022 to Long-Run NFI Average

Net Farm Income, Corn/Soybean Rotation (\$ per Acre)  
West Central Indiana Case Farm





## MONTHLY OUTLOOK

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