

Wheat Profitability

2024 Kansas Wheat Schools

March 7th & 8th, 2024

GREGG IBENDAHL

DANIEL O'BRIEN



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K-State produces both enterprise budgets and

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Farm Budgets

2024 Non-Irrigated Crops

2024 Irrigated Crops

Livestock Budgets

These projected budgets have been developed to latest agricultural research and developments.

Livestock Budgets Coordinated by: Glynn Tonsor, (robinreid@ksu.edu); Department of Agricultural Economics

Crops Budgets Coordinated by: Gregg Ibendahl, Marketing Specialist (dobrien@ksu.edu); Department of Agricultural Economics

Farm Budgets

- 2024 Non-Irrigated Crops
- 2024 Irrigated Crops
- Livestock Budgets

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KFMA Enterprise Reports

Select a Summary Year: 2022

Submit

Livestock

Enterprise	State Profit-Share	Northwest	North Central	North Central	Southwest	South Central	Southeast
Beef Cows Sell Calves	PDF	PDF	PDF	PDF	PDF	PDF	PDF
Beef Cows Sell Calves Spring Calving	PDF	PDF	PDF	PDF	PDF	PDF	PDF
Beef Cows Sell Feeders	PDF	PDF	PDF	PDF	PDF	PDF	PDF
Beef Cows Sell Feeders Spring Calving	PDF	PDF	PDF	PDF	PDF	PDF	PDF
Beef Backgrounding Finishing	PDF	PDF	PDF	PDF	PDF	PDF	PDF
Beef Backgrounding	PDF	PDF	PDF	PDF	PDF	PDF	PDF
Dairy	PDF	PDF	PDF	PDF	PDF	PDF	PDF

Non-Irrigated Crops

Enterprise	State Profit-Share	Northwest	North Central	North Central	Southwest	South Central	Southeast
Corn	PDF	PDF	PDF	PDF	PDF	PDF	PDF
Soybeans	PDF	PDF	PDF	PDF	PDF	PDF	PDF
Wheat	PDF	PDF	PDF	PDF	PDF	PDF	PDF
Grain Sorghum	PDF	PDF	PDF	PDF	PDF	PDF	PDF

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Ways of examining costs

Cash vs non-cash

Fixed vs variable



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Cash and Non-cash Expenses

- Fixed costs can be either cash or noncash.
- Depreciation and opportunity costs are noncash expenses.
- Repairs and property taxes are cash expenses.
- Insurance is usually a cash expense, unless no insurance policy is carried and then it is a noncash cost.
- Interest can be a cash expense (if paid) or an opportunity cost if there is no loan on the asset.



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Fixed vs variable costs

- Fixed costs exist only in the short run. (in long-run, all costs are variable)
- In the short run, fixed costs must be paid regardless of the amount of output produced.
- Fixed costs are not under the control of the manager in the short run.
- Variable costs are under the control of the manager (i.e., seed, fertilizer)



Logic behind fixed and variable costs

- Fixed costs must be paid whether you produce or not in any given year.
- They are therefore irrelevant to the production decision (in a given year).
- Look only at variable costs in the short run.
 - If you can cover those, you should produce.
 - If you can't, you don't produce.
- In the long-run, a producer needs to cover all costs



Wheat (W-S_C-F Rotation) Cost-Return Budget in Southwest KS

November budget

TABLE 1. RETURNS OVER DIRECT COSTS

		Prices					
		\$5.66	\$5.97	\$6.28	\$6.60	\$6.91	
		=====					
Yields	46.0 ll	\$30	\$45	\$59	\$74	\$88	Low yield
	54.0 ll	\$63	\$80	\$97	\$114	\$131	Middle yield
	62.0 ll	\$95	\$114	\$134	\$153	\$173	High yield

March budget

TABLE 1. RETURNS OVER DIRECT COSTS

		Prices					
		\$4.68	\$4.94	\$5.20	\$5.46	\$5.72	
		=====					
Yields	46.0 ll	-\$10	\$2	\$14	\$26	\$38	Low yield
	54.0 ll	\$15	\$29	\$43	\$57	\$71	Middle yield
	62.0 ll	\$40	\$56	\$72	\$88	\$105	High yield



Wheat (W-S_C-F Rotation) Cost-Return Budget in Southwest KS

November budget

TABLE 2. RETURNS OVER TOTAL COSTS

		Prices					
		\$5.66	\$5.97	\$6.28	\$6.60	\$6.91	
		=====					
Yields	46.0 ll	-\$124	-\$109	-\$95	-\$80	-\$66	Low yield
	54.0 ll	-\$91	-\$74	-\$58	-\$41	-\$24	Middle yield
	62.0 ll	-\$59	-\$40	-\$20	-\$1	\$19	High yield

March budget

TABLE 2. RETURNS OVER TOTAL COSTS

		Prices					
		\$4.68	\$4.94	\$5.20	\$5.46	\$5.72	
		=====					
Yields	46.0 ll	-\$164	-\$152	-\$140	-\$128	-\$116	Low yield
	54.0 ll	-\$139	-\$125	-\$111	-\$97	-\$83	Middle yield
	62.0 ll	-\$114	-\$98	-\$82	-\$66	-\$50	High yield



2024 Wheat (W-S_C-F Rotation) Cost-Return Budget in Southwest KS

MIDDLE YIELDS

Gregg Ibendahl, Daniel O'Brien, John Holman, Sarah Lancaster, and Lucas Haag

Budget abstract

Date: Mar-01-2024

item	unit	price	quantity	amount	Sub-total	your farm
INCOME						
Product						
Wheat - Southwest KS	bu	\$5.20	54.00	\$280.80	\$280.80	
--TOTAL INCOME--					\$280.80	
DIRECT EXPENSES						
Additional labor					\$1.52	
Crop insurance					\$26.48	
Diesel					\$14.15	
Fertilizers					\$60.38	
Fungicides					\$4.47	
Herbicides					\$72.16	
Miscellaneous					\$6.65	
Operator labor					\$7.37	
Repair & Maintenance					\$14.50	
Seeds					\$20.80	
Interest on operating capital		8% percent on direct expenses			\$9.14	
--TOTAL DIRECT EXPENSES--					\$237.62	
-----Total direct expenses per bu \$4.4						
FIXED EXPENSES						
Cash rent					\$94.50	
Capital recovery (depreciation + interest)					\$59.61	
--TOTAL FIXED EXPENSES--					\$154.11	
-----Total expenses per bu \$7.25						
RETURNS ABOVE DIRECT EXPENSES					\$43.18	
RETURNS ABOVE TOTAL SPECIFIED EXPENSES					-\$110.93	



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Wheat (Rotation) Cost-Return Budget in South Central KS

November budget

TABLE 1. RETURNS OVER DIRECT COSTS

		Prices					
		\$5.47	\$5.77	\$6.08	\$6.38	\$6.68	
		=====					
Yields	54.0 ll	\$105	\$121	\$138	\$154	\$170	Low yield
	62.0 ll	\$134	\$152	\$171	\$190	\$209	Middle yield
	71.0 ll	\$166	\$188	\$209	\$231	\$252	High yield

March budget

TABLE 1. RETURNS OVER DIRECT COSTS

		Prices					
		\$4.68	\$4.94	\$5.20	\$5.46	\$5.72	
		=====					
Yields	54.0 ll	\$68	\$82	\$96	\$110	\$124	Low yield
	62.0 ll	\$91	\$107	\$123	\$139	\$155	Middle yield
	71.0 ll	\$117	\$135	\$154	\$172	\$191	High yield



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Wheat (Rotation) Cost-Return Budget in South Central KS

November budget

TABLE 2. RETURNS OVER TOTAL COSTS

		Prices					
		\$5.47	\$5.77	\$6.08	\$6.38	\$6.68	
Yields	54.0 ll	-\$4	\$12	\$28	\$45	\$61	Low yield
	62.0 ll	\$24	\$43	\$62	\$81	\$100	Middle yield
	71.0 ll	\$57	\$79	\$100	\$122	\$143	High yield

March budget

TABLE 2. RETURNS OVER TOTAL COSTS

		Prices					
		\$4.68	\$4.94	\$5.20	\$5.46	\$5.72	
Yields	54.0 ll	-\$41	-\$27	-\$13	\$1	\$15	Low yield
	62.0 ll	-\$18	-\$2	\$14	\$30	\$46	Middle yield
	71.0 ll	\$8	\$26	\$45	\$63	\$82	High yield



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2024 Wheat (Rotation) Cost-Return Budget in South Central KS

----- MIDDLE YIELDS

Gregg Ibendahl, Daniel O'Brien, Sarah Lancaster, and Douglas Shoup

Budget abstract

Date: Mar-01-2024

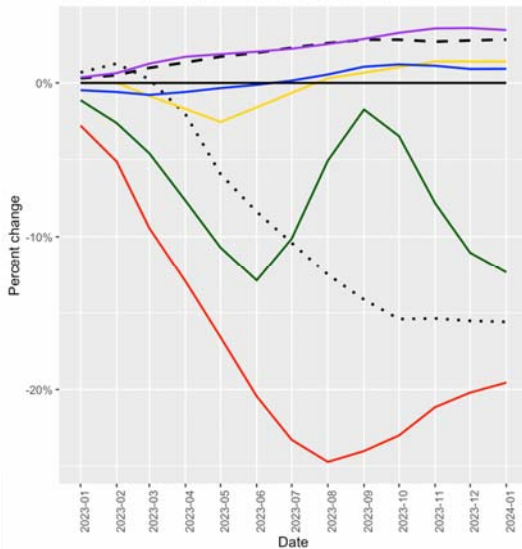
item	unit	price	quantity	amount	Sub-total	your farm
INCOME						
Product						
Wheat - South Central KS	bu	\$5.20	62.00	\$322.40	\$322.40	_____
--TOTAL INCOME--					\$322.40	_____
DIRECT EXPENSES						
Additional labor					\$1.10	_____
Crop insurance					\$17.48	_____
Diesel					\$13.18	_____
Fertilizers					\$92.92	_____
Fungicides					\$5.21	_____
Herbicides					\$4.75	_____
Miscellaneous					\$7.26	_____
Operator labor					\$7.04	_____
Repair & Maintenance					\$13.79	_____
Seeds					\$28.80	_____
Interest on operating capital	8% percent on direct expenses				\$7.66	_____
--TOTAL DIRECT EXPENSES--					\$199.19	_____
-----Total direct expenses per bu \$3.21						
FIXED EXPENSES						
Cash rent					\$53.00	_____
Capital recovery (depreciation + interest)					\$56.06	_____
--TOTAL FIXED EXPENSES--					\$109.06	_____
-----Total expenses per bu \$4.97						
RETURNS ABOVE DIRECT EXPENSES					\$123.21	=====
RETURNS ABOVE TOTAL SPECIFIED EXPENSES					\$14.15	



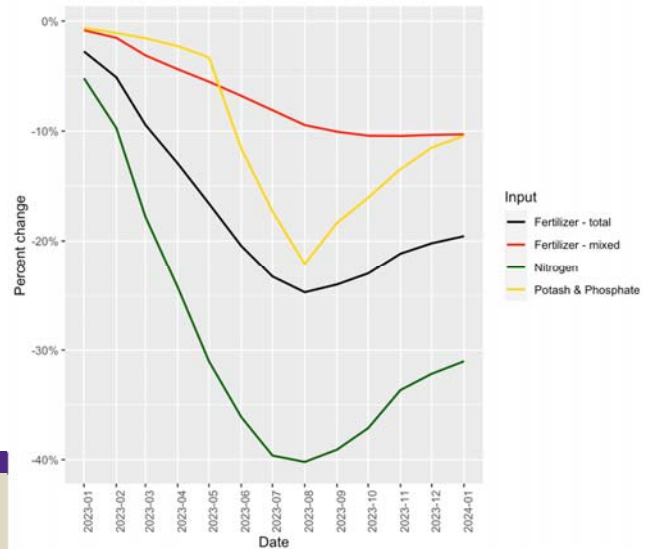
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How have expenses changed in the last year?

USDA Price Indexes Relative to 2023-01-01

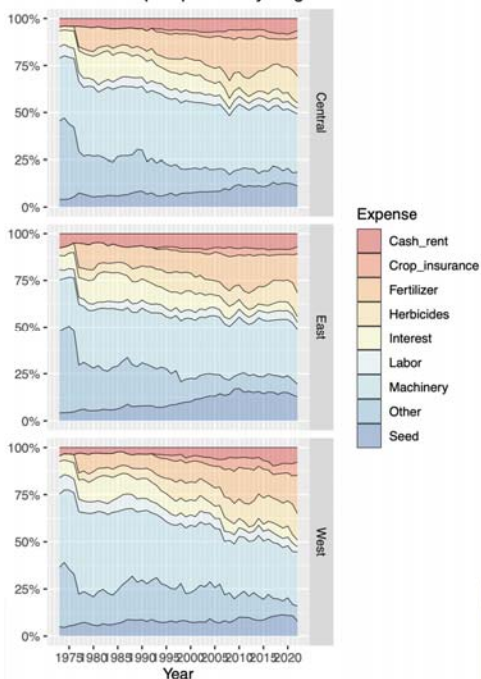


USDA Fertilizer Indexes Relative to 2023-01-01



What is the allocation of farm expenses?

Percent Crop Expenses by Region



Comparison of Major Crop Expenses by Area

Percent of Total Expenses - 1978 and 2020

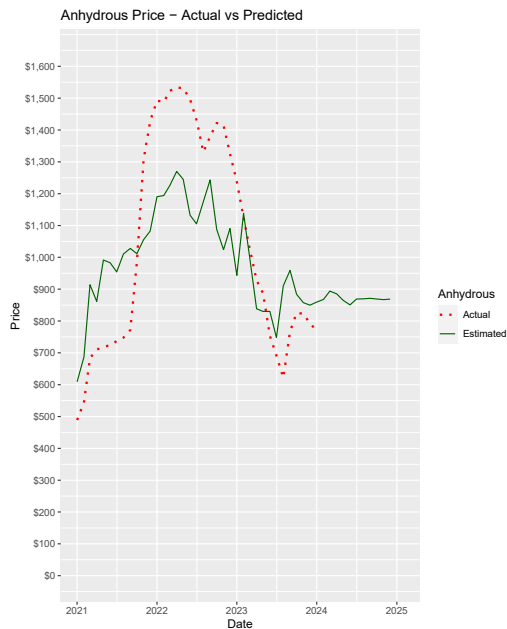
	Year	Machinery	Fertilizer	Seed	Labor	Herbicide	Interest	Cash rent	Crop insurance
Central									
	1978	36.5%	11.8%	6.8%	4.9%	2.4%	13.2%	4.4%	0.0%
	2022	30.7%	20.6%	11.2%	2.9%	14.1%	2.9%	6.5%	3.6%
East									
	1978	30.2%	13.3%	6.2%	3.8%	5.7%	10.6%	5.4%	0.0%
	2022	29.3%	20.8%	12.7%	3.8%	12.9%	2.9%	7.0%	3.8%
West									
	1978	41.8%	9.2%	7.3%	6.2%	4.4%	11.5%	3.2%	0.0%
	2022	28.7%	20.2%	8.0%	2.7%	14.2%	3.4%	7.7%	7.0%

Machinery is still the biggest expense category but getting smaller
Fertilizer expenses have increased greatly (2nd biggest category)
Interest expense is relative small now but has been much higher in the past – One of the issues from the 1980's farm crisis

Where are input prices headed?



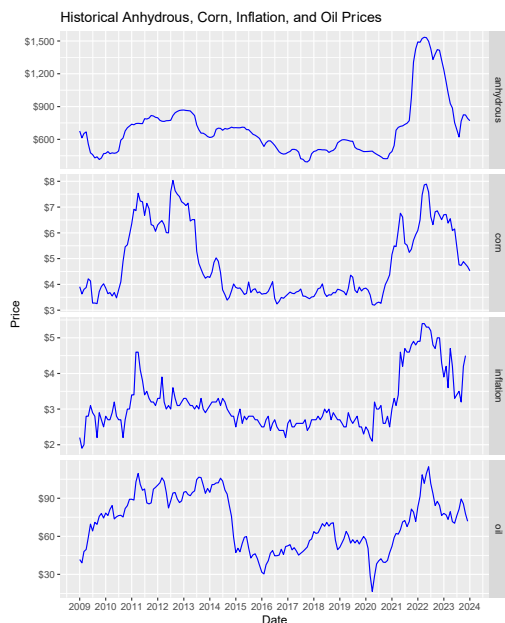
Fertilizer



Fertilizer prices could be in the the \$800 to \$900 range for AA

- This assumes no disruption in oil and fertilizer exports from Russia
- Oil future markets may not have adequately priced in the war risk

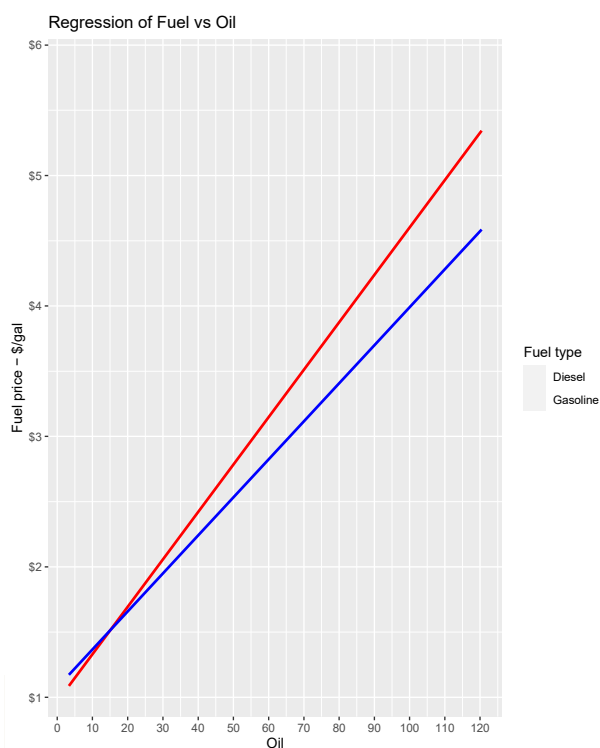
Fertilizer price is a function of oil, corn, and inflation



Oil prices are predicted to stay in the \$70 range (based on future markets)

Lower corn prices lead to lower fertilizer prices

Inflation may be cooling, maybe.



Diesel and gas prices are a function of oil prices

Where fuel prices should be

- \$80 dollar oil

- \$3.40 gas

- \$3.85 diesel

- Are the regression curves now different?

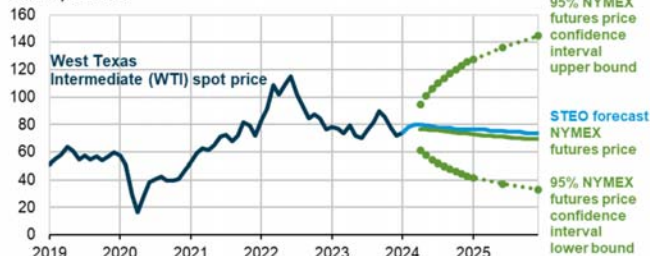
- without more refinery capacity - Yes

- the diesel line has shifted more vertical

- notice the red points above the red line

EIA predictions of oil prices

West Texas Intermediate (WTI) crude oil price and NYMEX confidence intervals
dollars per barrel



Data source: U.S. Energy Information Administration, Short-Term Energy Outlook, February 2024, CME Group, Bloomberg, L.P., and Refinitiv an LSEG Business
Note: Confidence interval derived from options market information for the five trading days ending February 1, 2024. Intervals not calculated for months with sparse trading in near-the-money options contracts.



EIA is predicting prices in the \$70 range

- Futures market says the same thing

There is a wide confidence interval on their estimate though

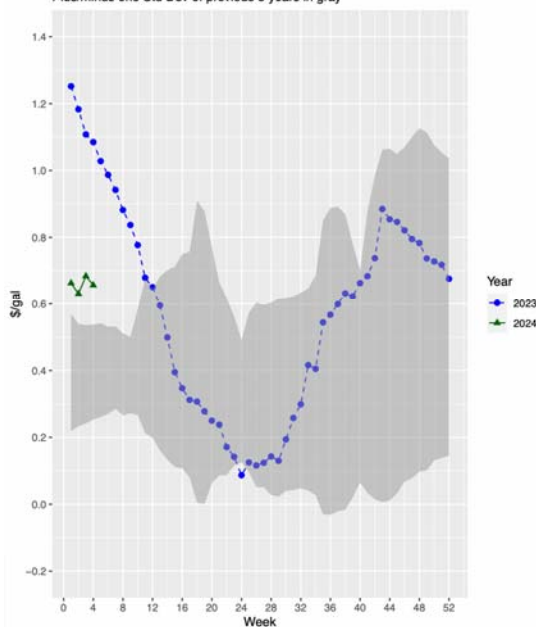
Is the Russia/Ukraine war adequately priced into this estimate?



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The diesel to gas premium remains a concern

U.S. Diesel Price Premium by Week for 2023 and 2024
Plus/minus one Std Dev of previous 5 years in gray

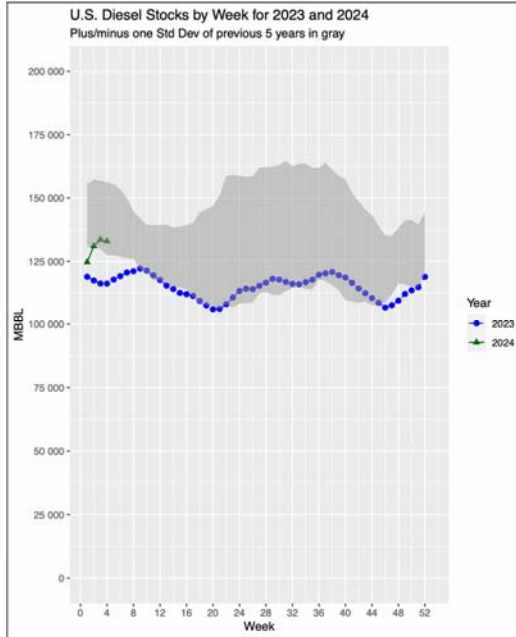


The premium is still well above historical norms

- Going back further in time, the premium used to be in the \$0.30 range

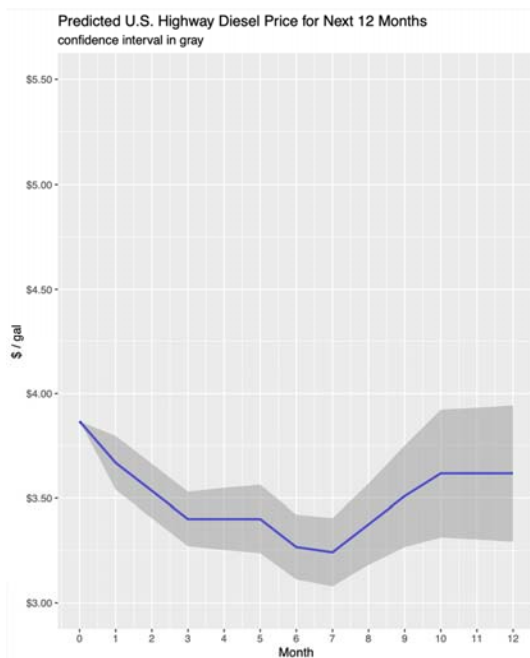
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Diesel stocks are better but still low



Refinery capacity is constrained and will likely remain tight for the future

Predictions for diesel fuel prices



Using the futures price and what happened to the diesel premium last year

- i.e. premium got smaller but then increased

The futures market has likely not properly incorporated the risk of the Russian/Ukraine war into futures prices

- The current futures price says that traders don't think Russian oil will be reduced
- Russia is the world's second largest exporter of oil

Wheat Markets



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Monthly Commodity Futures Price Chart Wheat (Kansas) (Electronic) (KCBT)

TFC Commodity Charts

24

KE - Wheat (Kansas) (Electronic) - Monthly Chart

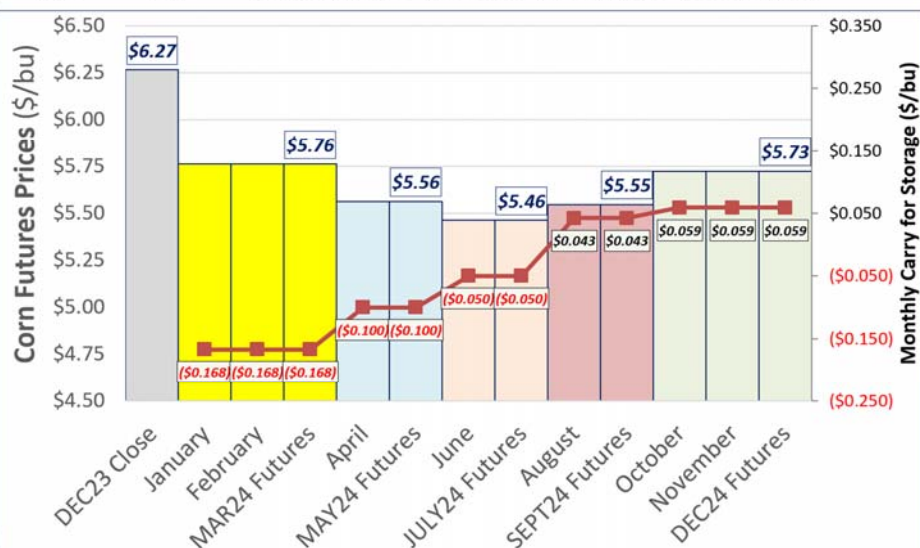
Change: -30.500

03/06/2024 O: 586.750 H: 586.750 L: 551.500 C: 556.250 Vol: 65330 OI: 25548



CME KS Hard Red Winter Wheat Futures

DEC²⁰²³ – DEC²⁰²⁴ Closing Prices as of Wednesday, March 6, 2024



Calendar Months & CMC Contract Periods

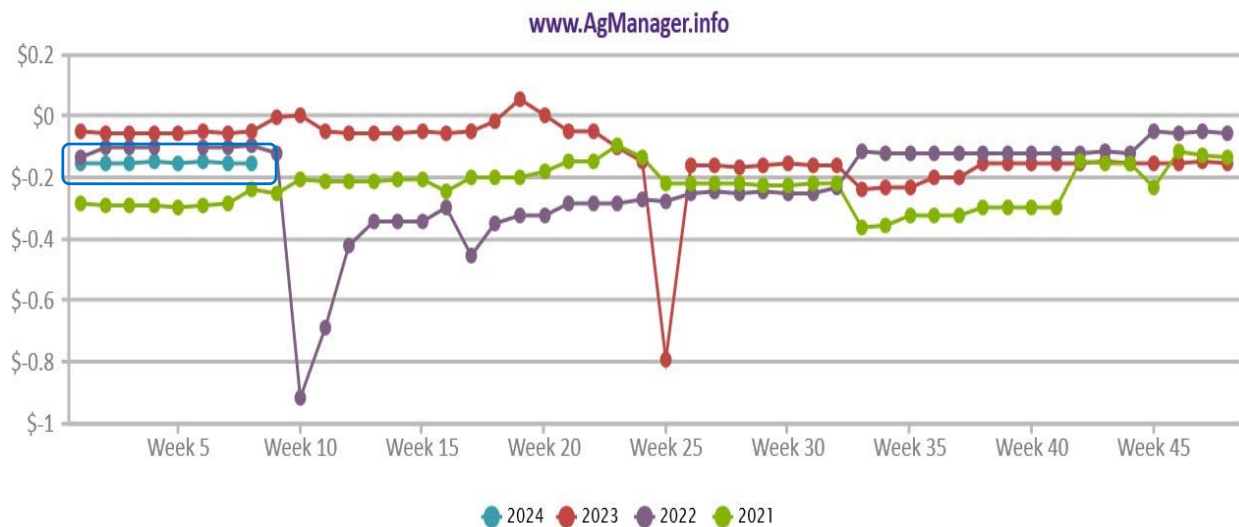
Kansas Cash & Futures Prices							
Date							
3/6/2024 Closes							
Grain Futures Contracts		Closing \$					
MAY 2024 KC HRW Wheat (2023/24 Lead Contract)		\$5.5625					
SEPT 2024 KC HRW Wheat (2024 Harvest Forward Contract)		\$5.5475					
3/6/2024 Closes		Cash Grain & Harvest Contract Prices @ Kansas Grain Elevators					
		Representing the highest bids available at each location					
Cash Market Spot & FC Bids	Colby ^{Area}	Salina ^{Area}	Topeka ^{Area}	Dodge City ^{Area}	Hutchinson ^{Area}	Wichita ^{Area}	
	NW KS	NC KS	EC-NE KS	SW KS	SC KS	SE KS	
KC HRW Wheat Harvest Spot Cash\$		\$4.86	\$5.36	\$5.31	\$5.16	\$5.36	\$5.51
HRW Wheat Pre-Harvest Spot Cash Basis		(\$0.70)	(\$0.20)	(\$0.25)	(\$0.40)	(\$0.20)	(\$0.05)
KC HRW Wheat FC\$ - Next Harvest ²⁰²⁴		\$4.86	\$5.11	\$5.06	\$5.01	\$5.21	\$5.33
HRW Wheat 2024 Harvest FC\$ Basis		(\$0.69)	(\$0.44)	(\$0.49)	(\$0.54)	(\$0.34)	(\$0.22)
"Spot Cash" HRW Wheat vs Corn \$ Ratio		1.15	1.28	1.26	1.18	1.24	1.37
"New Crop" HRW Wheat vs Corn \$ Ratio		1.11	1.17	1.17	1.08	1.16	1.21

DODGE CITY, KS: Hard Red Winter Wheat Basis - ALLIANCE AG AND GRAIN LLC



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WICHITA, KS: Hard Red Winter Wheat Basis - MID KANSAS COOP



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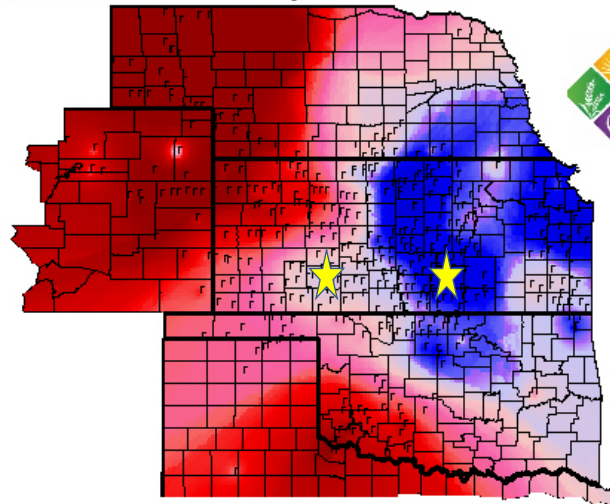
Wheat Basis, 02-28-2024

Basis = Cash Price - Nearby Futures Price

KCBT Mar
Futures
Price: \$5.96

\$/Bushel

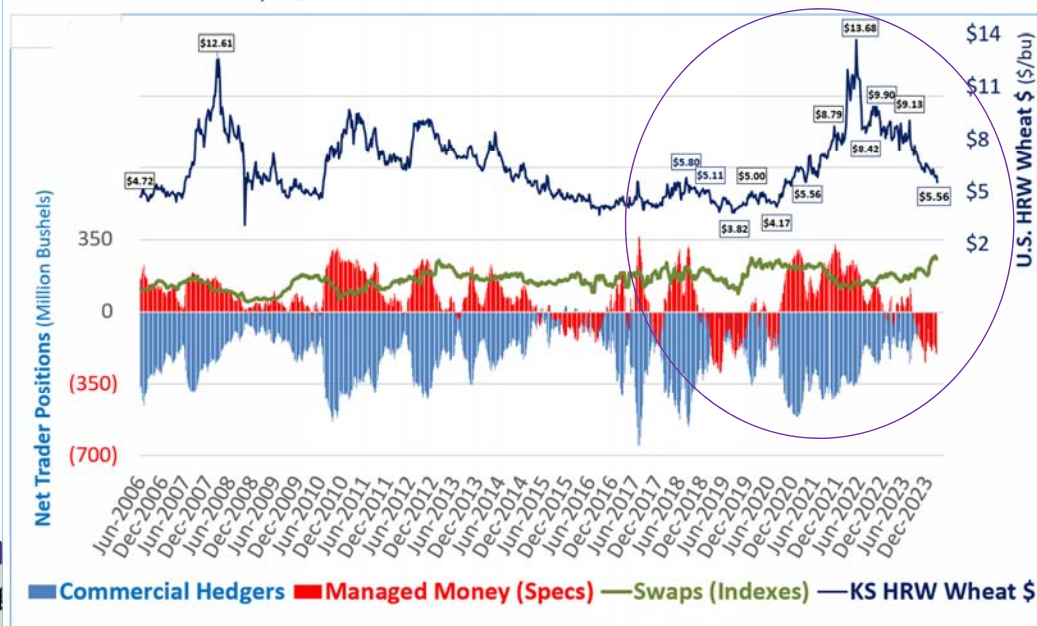
-09
 -47
 -51
 -52
 -53
 -61
 -72
 -78
 -83
 -95



conomics

CME KS HRW Wheat Net Position of Traders

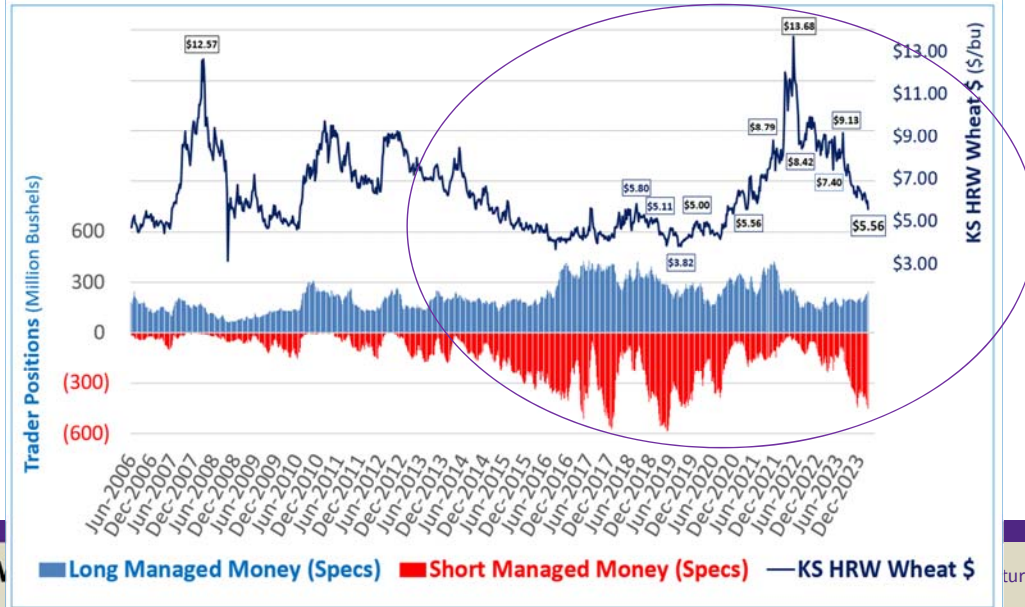
June 2006 thru February 27, 2024 (Weekly CFTC Data) with 3/6/2024 Futures Market Closes for MAY 2024 Kansas HRW Wheat



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CME KS HRW Wheat Managed Money Traders Specs

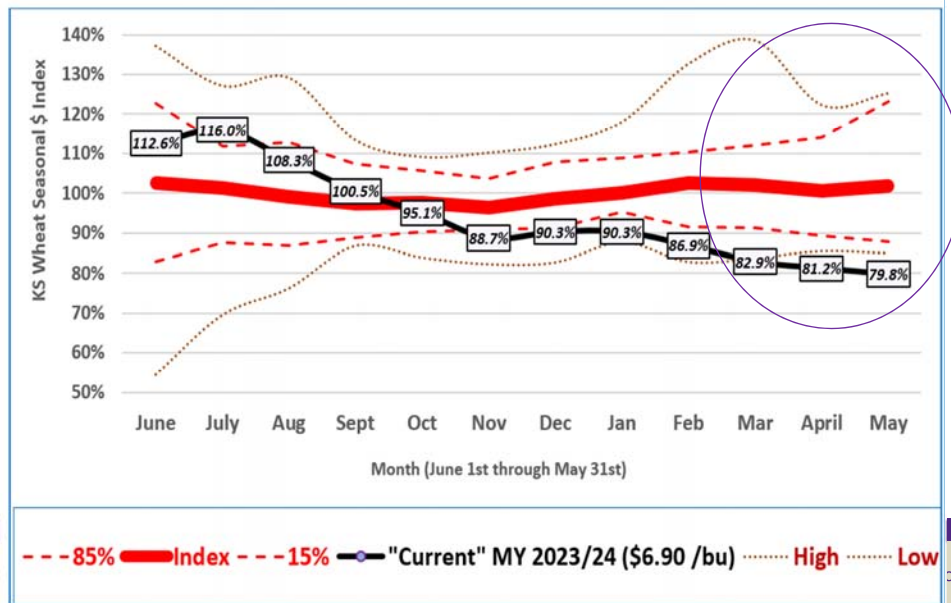
Long/Short Positions + Futures \$'s: June 2006 – 2/27/2024 CFTC Data with 3/6/2024 Futures for MAY 2024 KS HRW Wheat



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Hard Red Winter ^{HRW} Wheat Seasonal \$'s

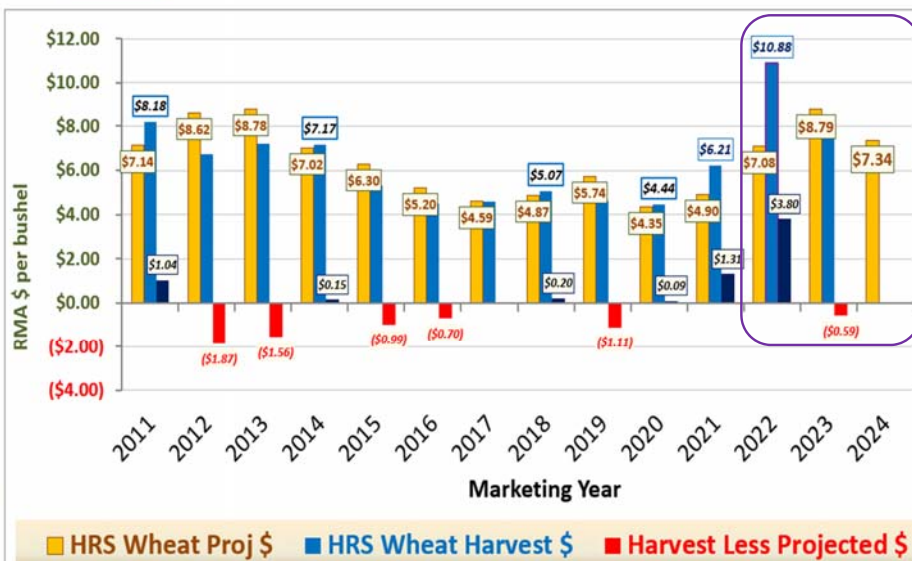
MY 2006/07 – 2022/23 KSU Seasonal Index + "Current" MY 2023/24 Futures as of 3/6/2024



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HRW Wheat Projected & Harvest \$'s ^{RMA}

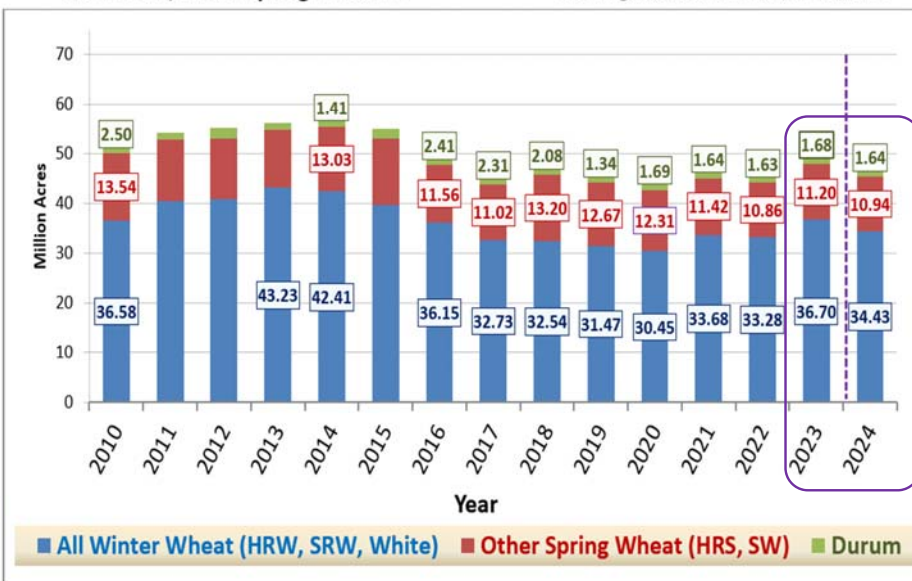
Kansas \$'s, Years 2011-2024 (Price increases in 6 of 13 years)



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U.S. Wheat Planted Acreage 2010-2024

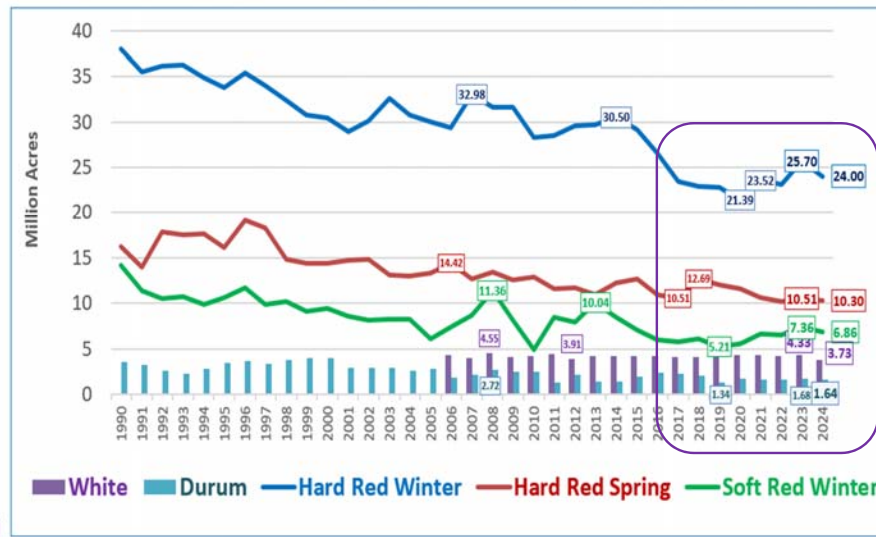
All Winter, Other Spring & Durum ^(since MY 2000/01) – 2024 Ag Outlook Forum, 2/15-16/2024



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U.S. Wheat Planted Acres by Class

Since Year 1990 as of the USDA Agricultural Outlook Forum, February 15-16, 2024



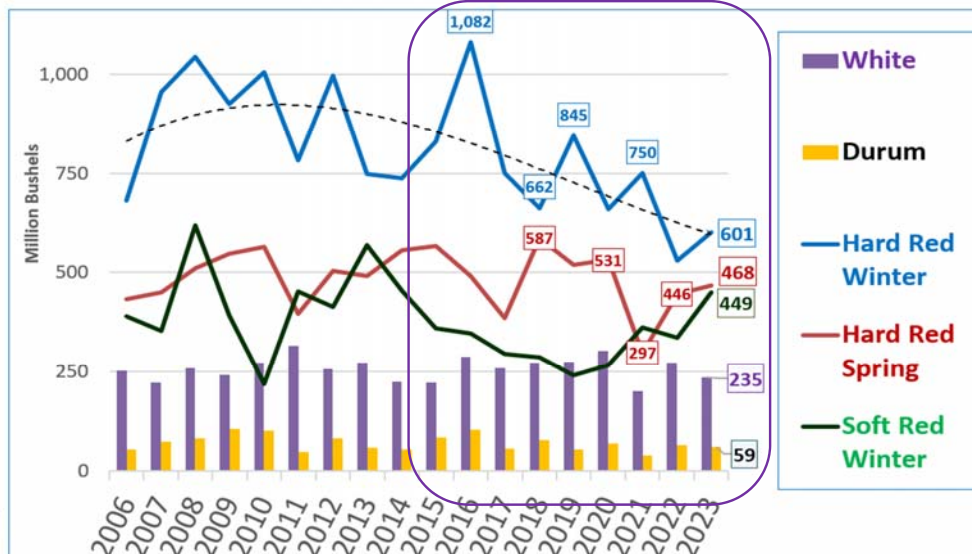
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U.S. Wheat Production by Class

As of the USDA NASS February 8, 2024 Crop Production Report & Wheat Yearbook

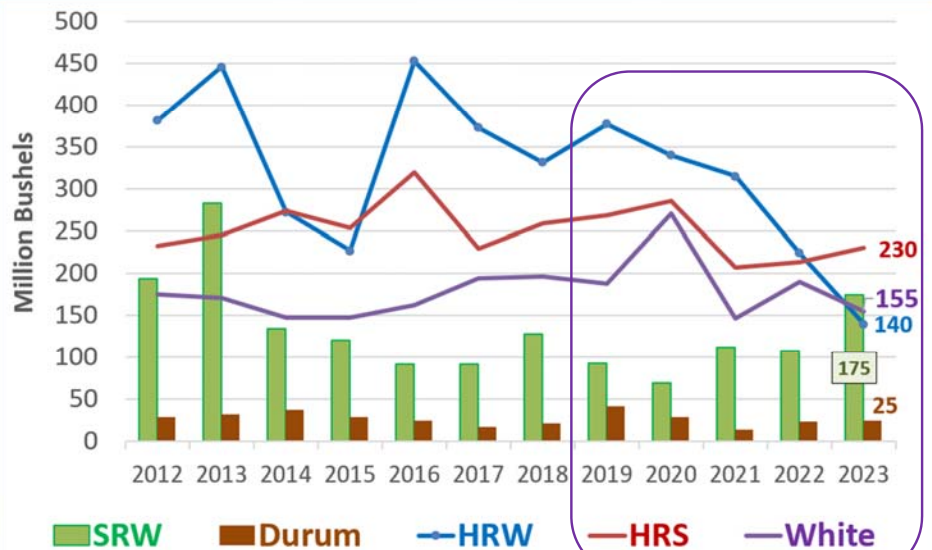


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U.S. Wheat Exports by Class

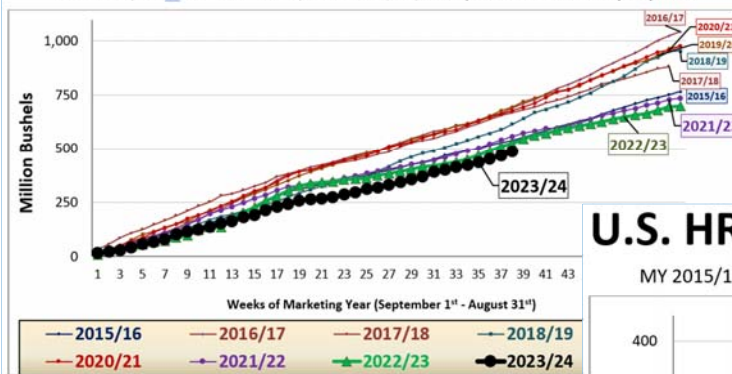
Since Year 1990 as of the February 8, 2024 USDA WASDE Report



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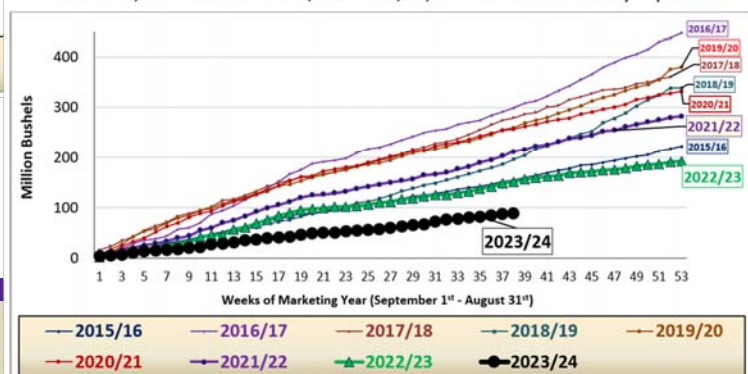
U.S. All Wheat Exports

MY 2015/16 - "Current" 2023/24 as of 2/22/2024, USDA FAS Weekly Exports



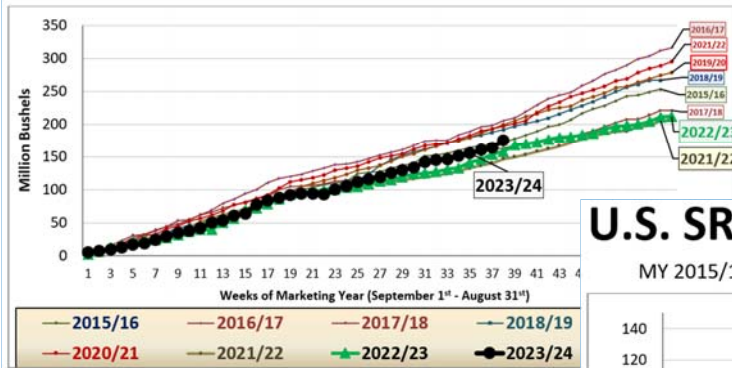
U.S. HRW Wheat Exports

MY 2015/16 - "Current" 2023/24 as of 2/22/2024 USDA FAS Weekly Exports



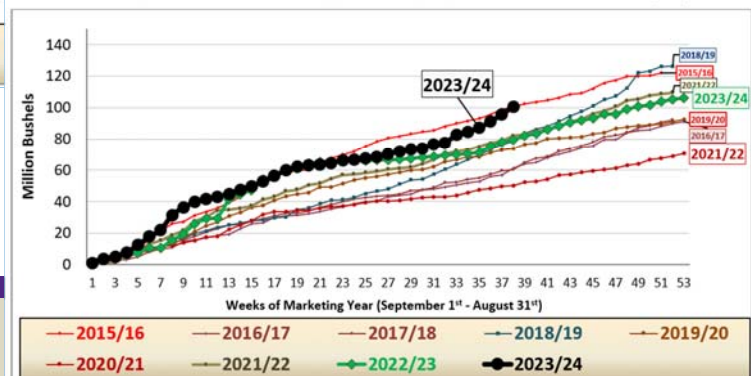
U.S. HRS Wheat Exports

MY 2015/16 - "Current" 2023/24 as of 2/22/2024 USDA FAS Weekly Exports



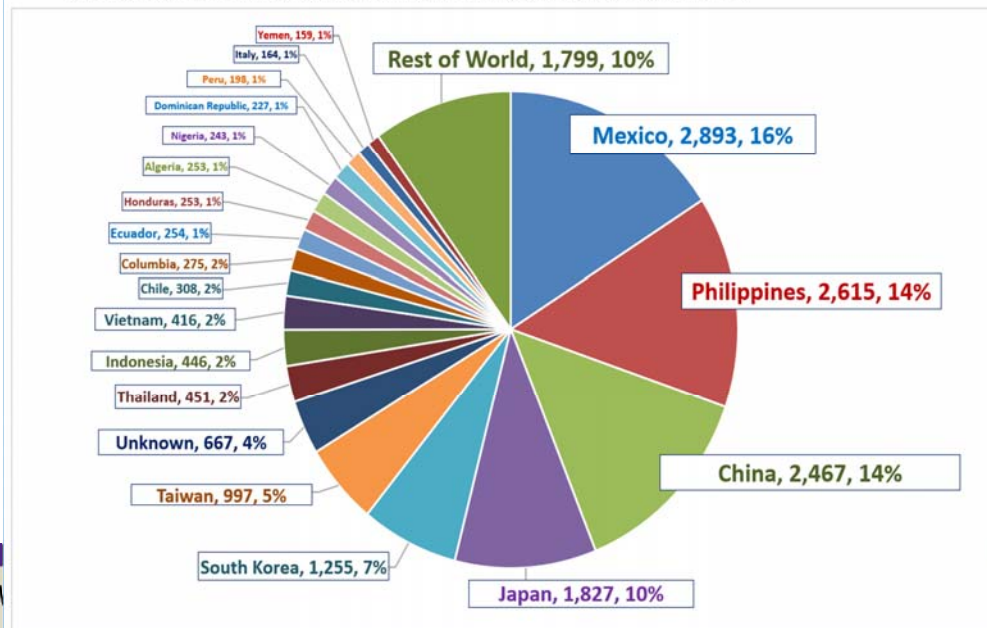
U.S. SRW Wheat Exports

MY 2015/16 - "Current" 2023/24 as of 2/22/2024 USDA FAS Weekly Exports



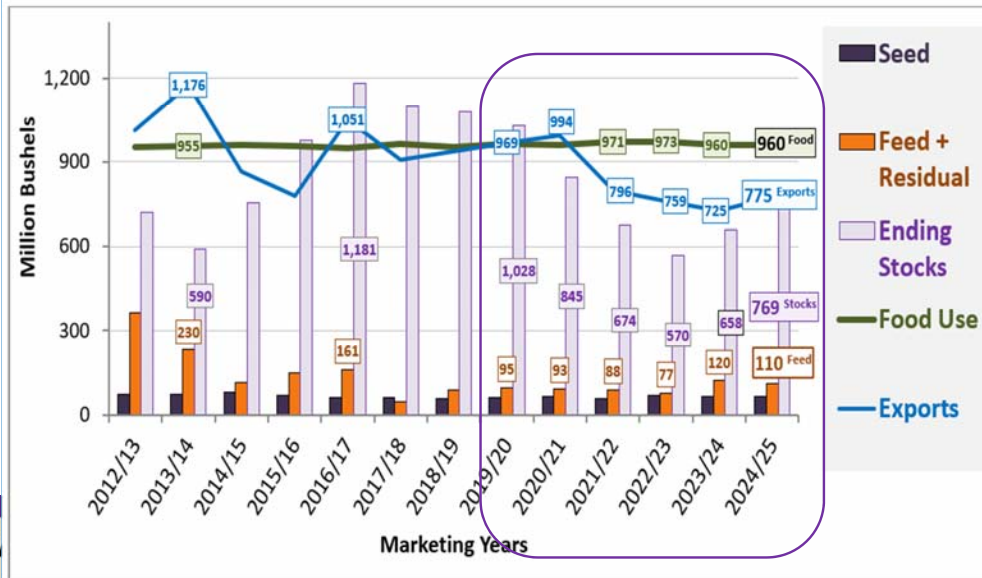
U.S. Wheat Export Buyers "Current" MY 2023/24

USDA U.S. Export Sales report (1,000 mt), with Marketing Year from February 22, 2024



U.S. Wheat Use & Ending Stocks

MY 2012/13 – “New” 2024/25 as of the February 15-16, 2024 USDA Ag Outlook Forum



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U.S. Wheat Ending Stocks & % S/U

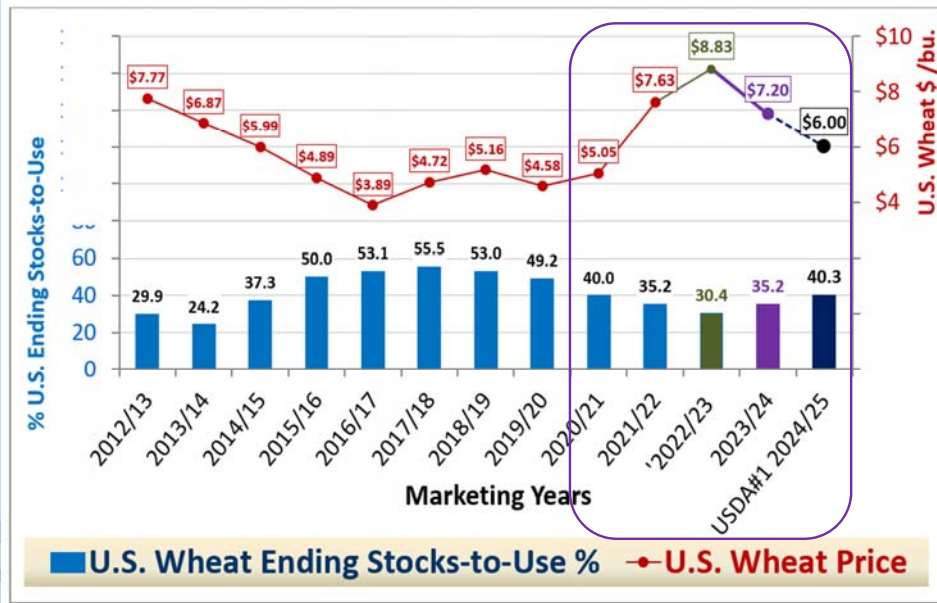
MY 2006/07 - “New” MY 2024/25 – USDA Ag Outlook Forum, February 15-16, 2024



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U.S. Wheat % Stocks/Use vs Cash \$'s

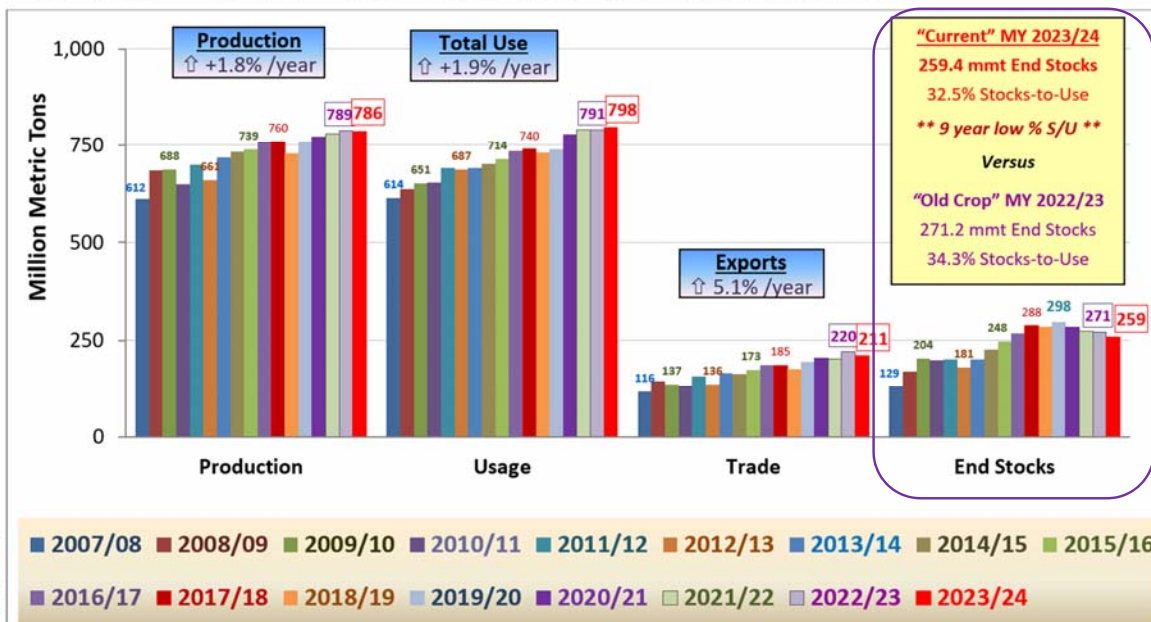
MY 2012/13 thru "New" MY 2024/25 – USDA Ag Outlook Forum, February 15-16, 2024



Cultural Economics

World Wheat Usage & Ending Stocks

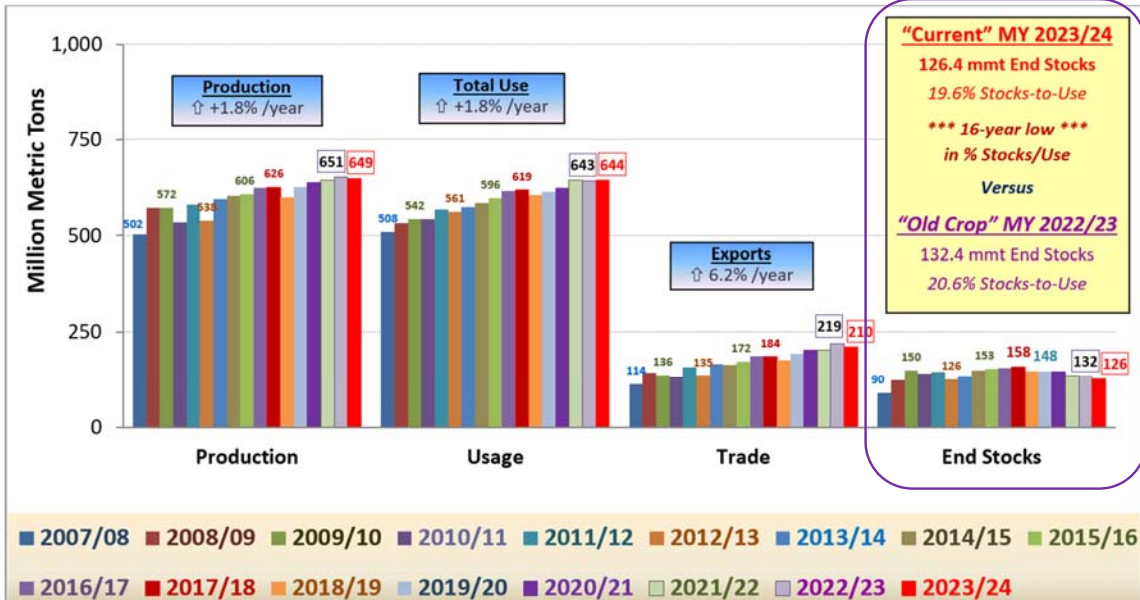
MY 2007/08 - "Current" 2023/24 as of the February 8, 2024 USDA WASDE Report



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"World Less-China" Wheat Usage & Ending Stocks

MY 2007/08 - "Current" MY 2023/24 as of the February 8, 2024 USDA WASDE Report



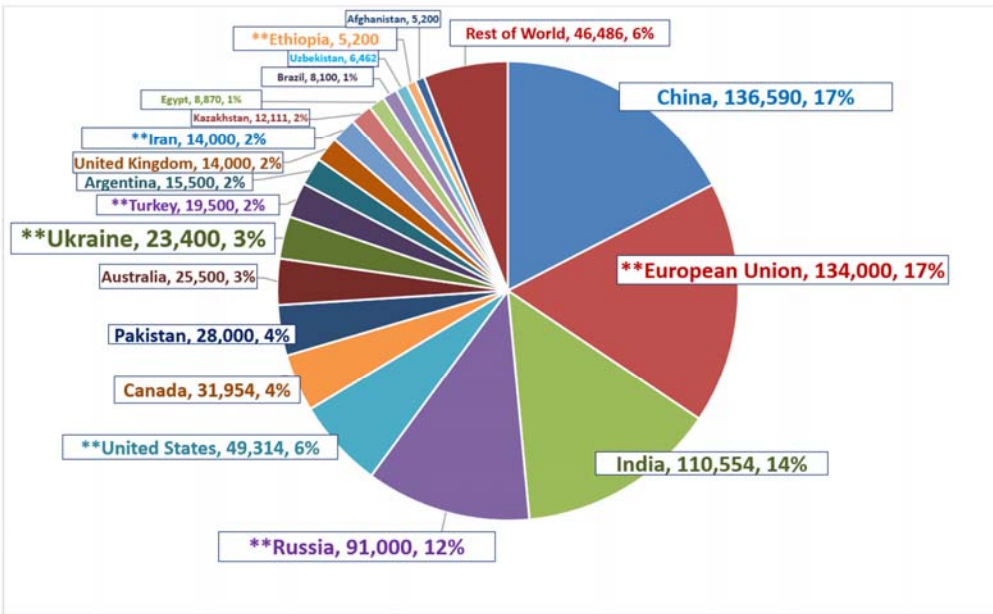
World vs "World Less-China" Wheat Stocks & % S/U

MY 2007/08 - "Current" MY 2023/24 as of the February 8, 2024 USDA WASDE report



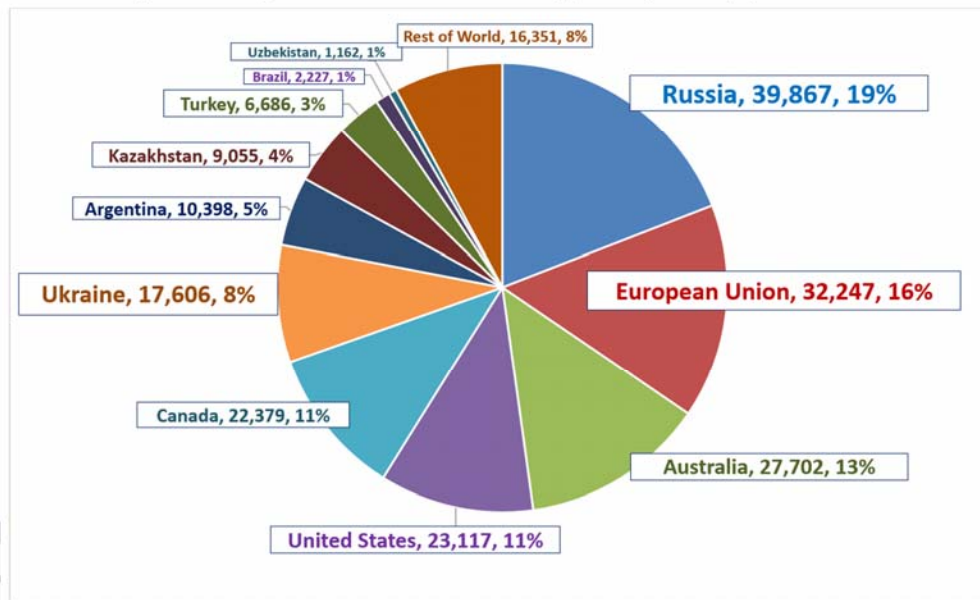
Wheat Producing Countries "Current" MY 2023/24

Source: USDA FAS PSD-Online, (1,000 mt); as of February 8, 2024



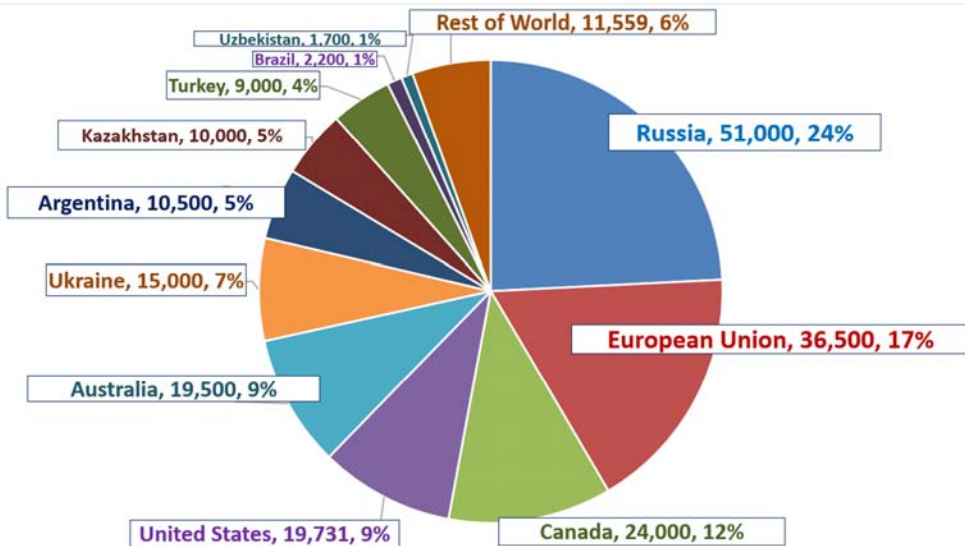
World Wheat Exporting Countries 3 Year Average

MY 2020/21 - 2022/23 Source: USDA FAS PSD-Online, (1,000 mt); February 8, 2024 USDA WASDE



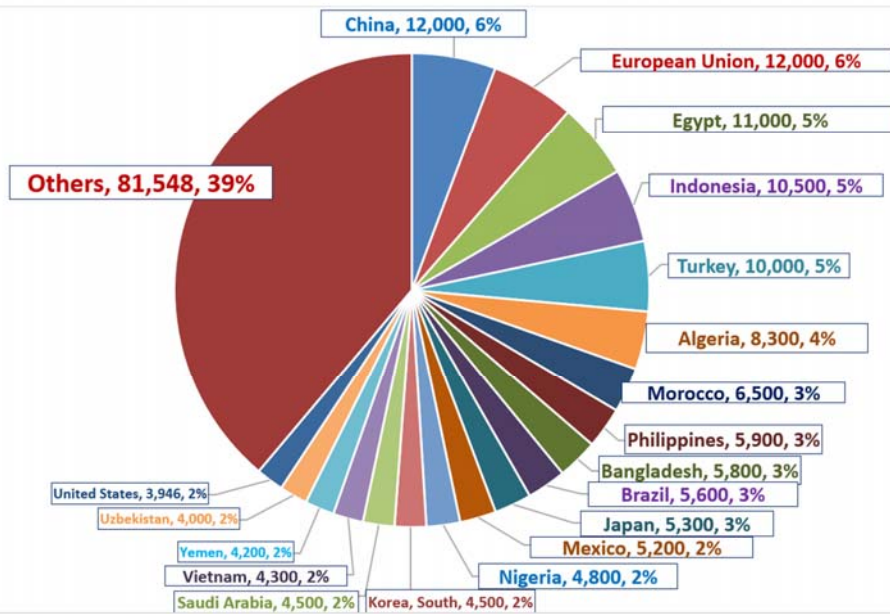
World Wheat Exporting Countries "Current" 2023/24

Source: USDA FAS PSD-Online, (1,000 mt); as of February 8, 2024



World Wheat Importers "Current" MY 2023/24

Source: USDA FAS PSD-Online, (1,000 mt); as of February 8, 2024



Russia Wheat Supply-Demand

MY 2013/14 – "Current" 2023/24 as of the February 8, 2024 USDA WASDE report



Ukraine Wheat Supply-Demand

MY 2013/14 – "Current" MY 2023/24 as of the February 8, 2024 USDA WASDE report



Canada Wheat S-D Trends

MY 2013/14 – "Current" MY 2023/24 as of the February 8, 2024 USDA WASDE report



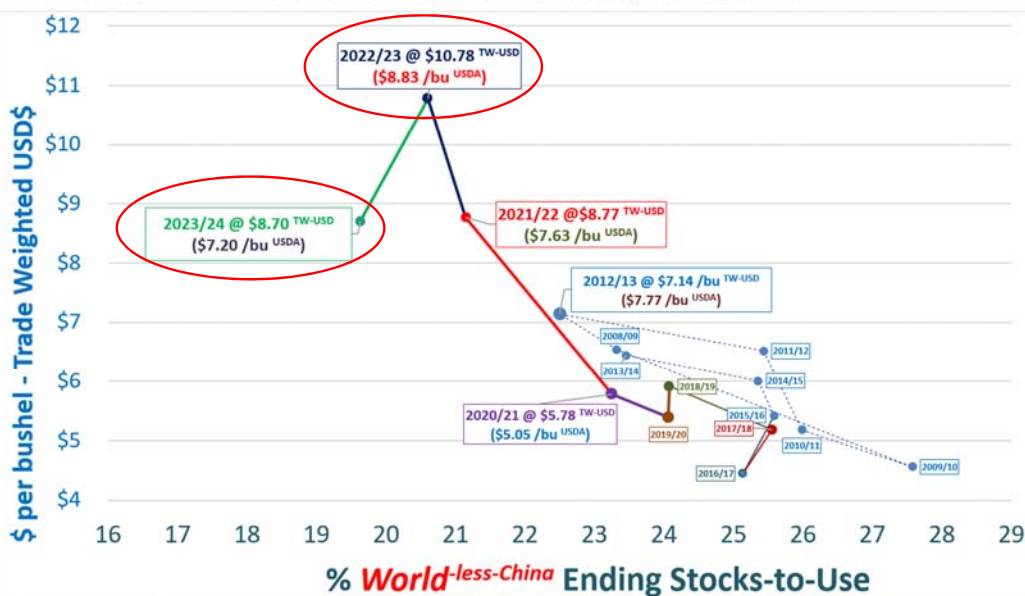
Australia Wheat S-D Trends

MY 2013/14 – "Current" MY 2023/24 as of the February 8, 2024 USDA WASDE report



U.S. Wheat \$ Trade-Wtd USD\$ vs World Less-China % S/U

MY 2008/09 - "Current" 2023/24 as of the February 8, 2024 USDA WASDE



Closing Perspectives



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Thank you!

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