



The Dynamic Geopolitical World

Wild Swinging Financial, Feed and Livestock Markets

Uncharted Times For World Ag Markets

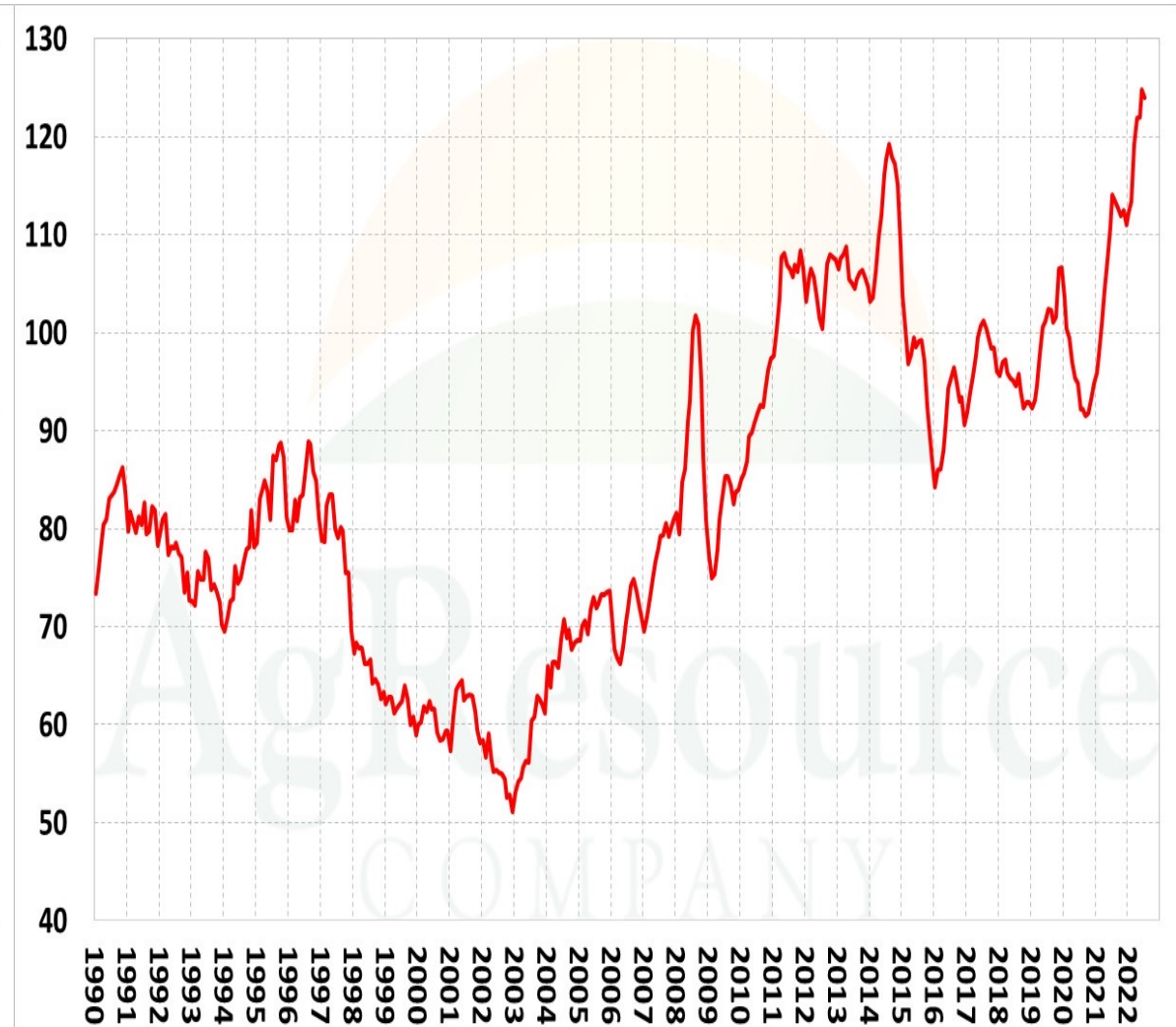
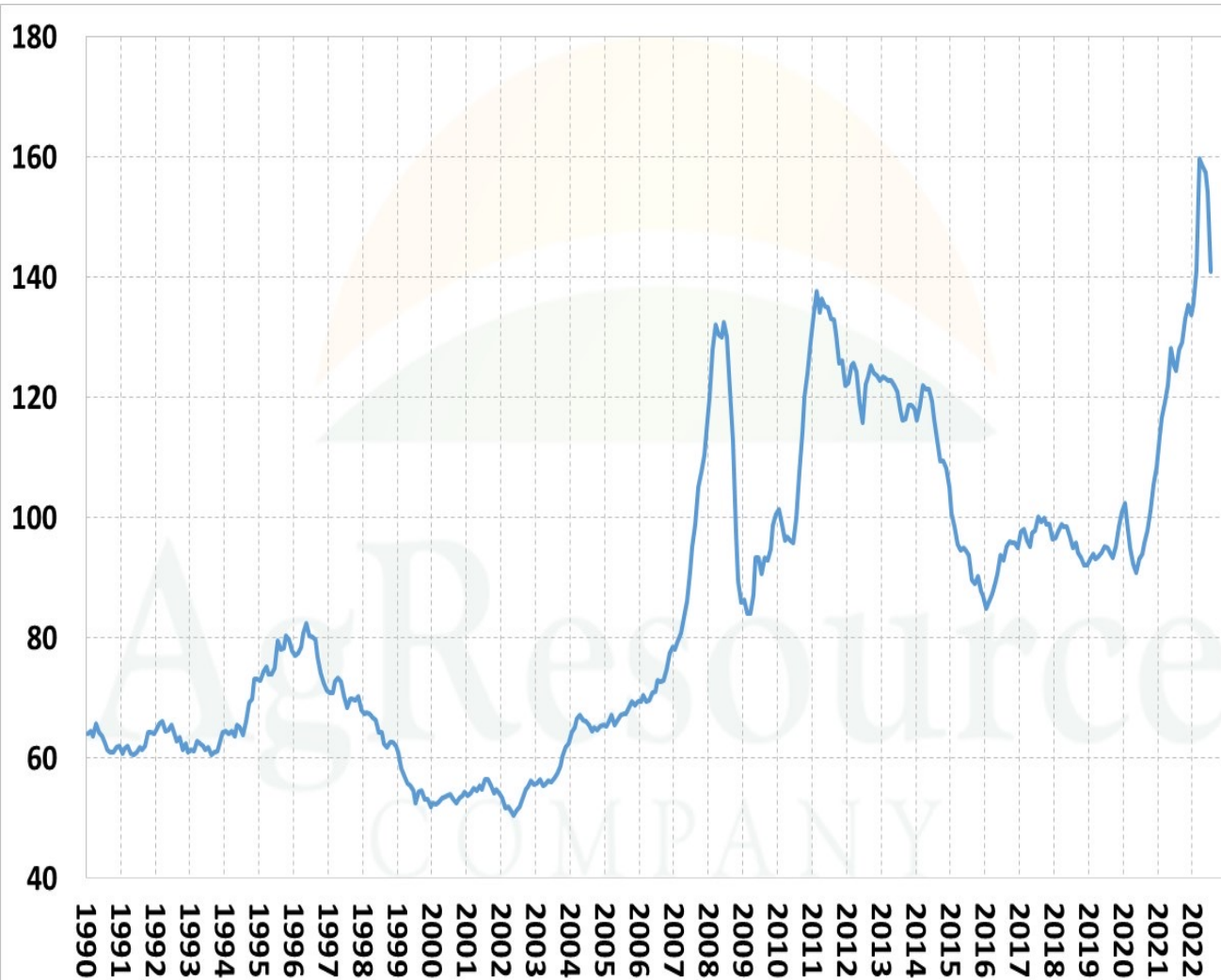
- **Russian War/Regional Droughts Produce Biggest Global Grain Supply Shock since 1914 – World War 1 – 108 Years ago.** On a caloric basis, the Black Sea accounts for 12% of the world's annual intake. NATO members have placed biting economic sanctions on Russia including a ban on the SWIFT banking system. Yet, Russian grain is making into the world marketplace, but banking/freight insurance woes imply future trade difficulty. **ARC skeptical that a Ukraine Grain Corridor can be sustained!**
- **South America, EU, India, and China have endured dire droughts.** The wrath of Mother Nature has caught a world extremely short of grain. “Heat-flation” is a new adjective. This is an unusual 3rd year of La Nina – a concern for South America in 2023.
- **US Renewable Diesel Underpins US soybean demand.** There are 19 new crush facilities being built with extra 20 Mil US soybean acres needed in the years ahead. The new demand drivers of renewable diesel and China's corn imports will underpin CBOT breaks. ARC sees the need for CBOT soybean futures to trade in an elevated price of \$12.00-18.00 for years to come.
- **China and the US are at Political Loggerheads!** Leadership in both countries are bashing each other which longer term produces ag trade anxiety. This is a growing worry for US farmers. China will source its ag import needs from Russia, South America and Eastern Europe. China is the biggest US ag importer.

Uncharted Times For World Ag Markets

- **US fed and feeder cattle supplies** in decline due to the ongoing Western US drought and high feed/forage costs. Record high US fed cattle prices forecast for 2023. How high depends when the US cattle industry will shift to expansion and curtail the “she” slaughter rate?
- **The Wars that Produce CBOT/CME Volatility;** 1/ The Russian war against Ukraine, 2/ The war of world Central Banks against inflation, and 3/ the war of Mother Nature against world crop production due to climate change. This mix of war variables will produce extreme ag market volatility. The world grain export cupboard is barren, consumers are short. A lasting ag bear market is not foreseen until consecutive North and South American crops are harvested. 2022 Northern Hemisphere crop are in decline. When grain prices decline and pasture conditions improve, the ultra bull cattle/beef market will unfold. Will it be in 2023 or 2024?

FAO World Food/Meat Price Index

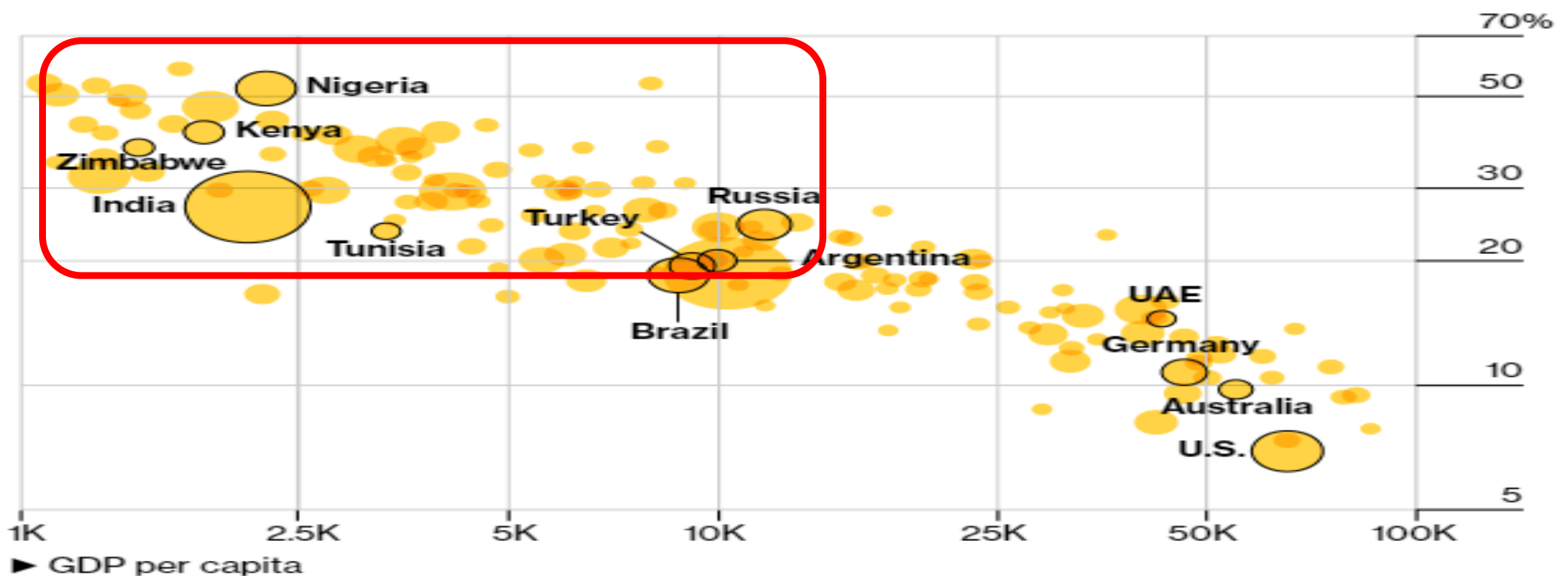
(2014-2016 = 100) (Meat on the Right)



Rising Food Prices Threatens Policy Change from Political Leaders in half of the World

Circle size = population

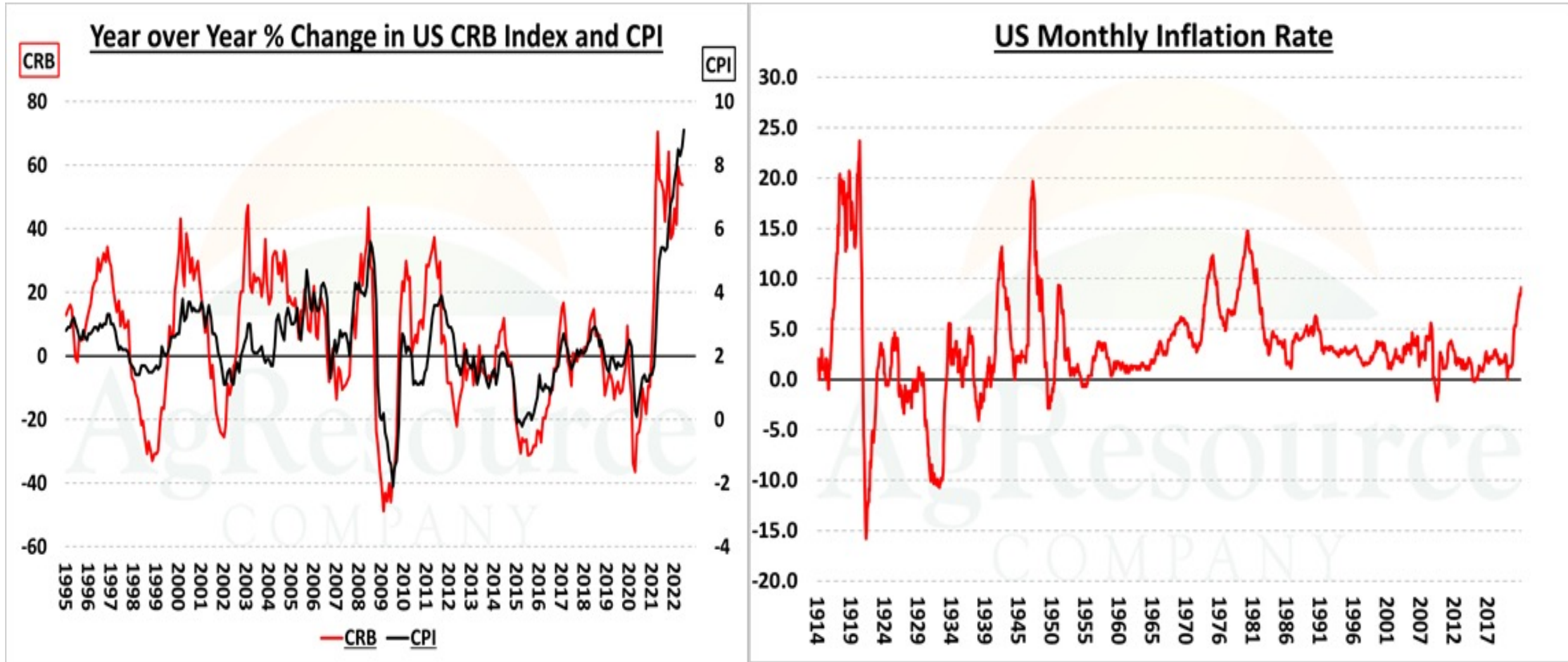
Share of consumer expenditure spent on food ▼



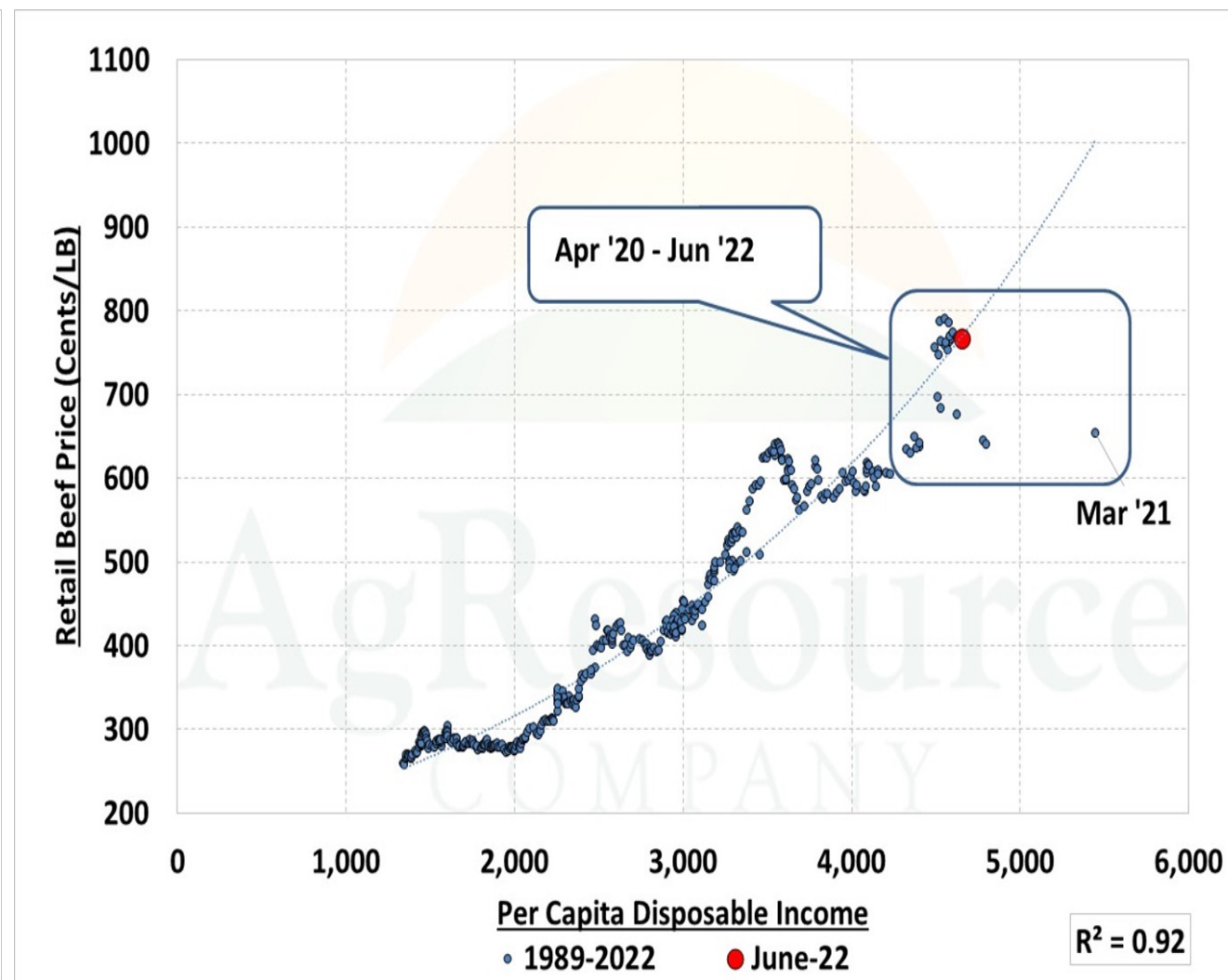
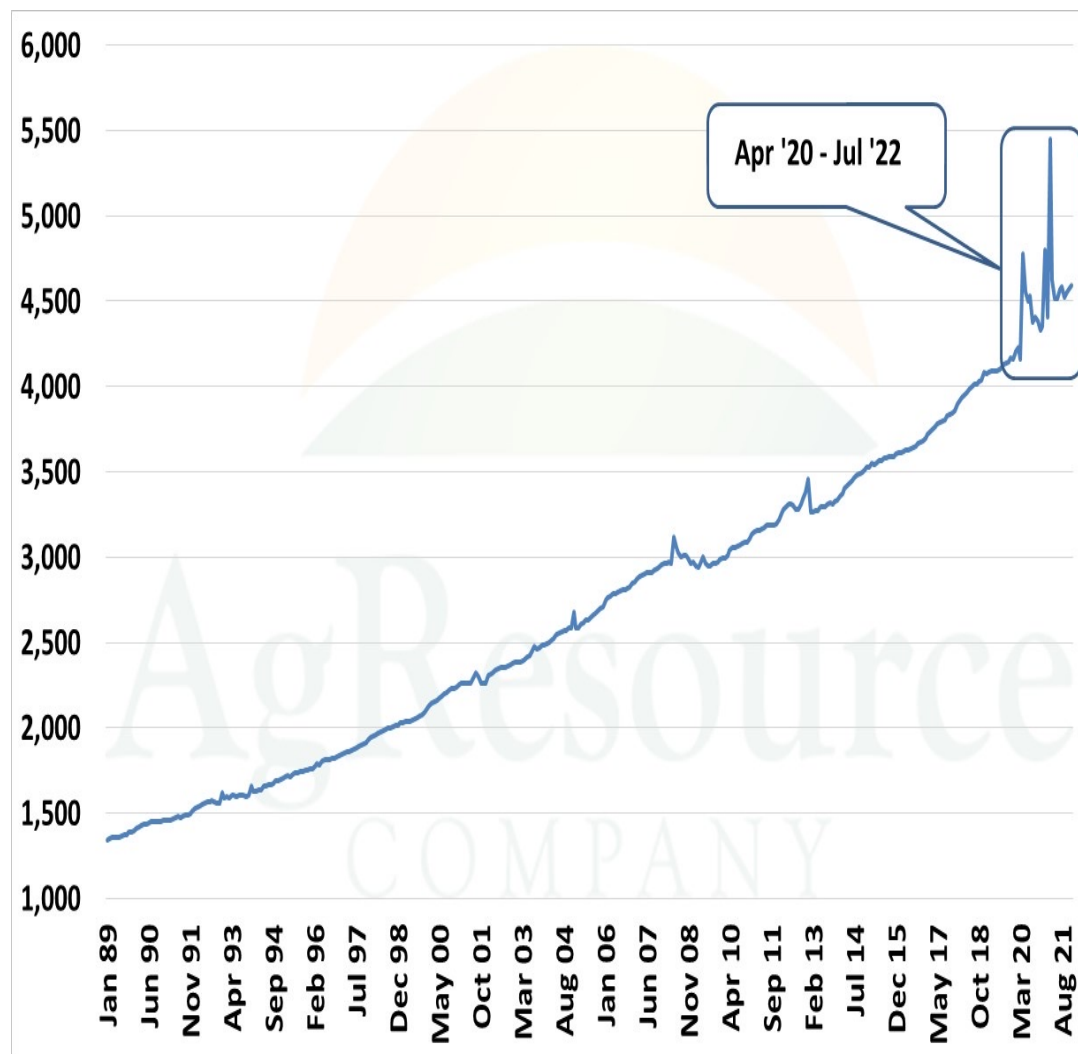
Source: World Bank

Note: Expenditure figures are from 2017. Population and GDP per capita figures are from 2019 or the most recent year available from World Bank. A log10 scale is used on both axes.

CRB Index has been Solid Forecaster of CPI – US Inflation has Peaked on Rising Interest Rates

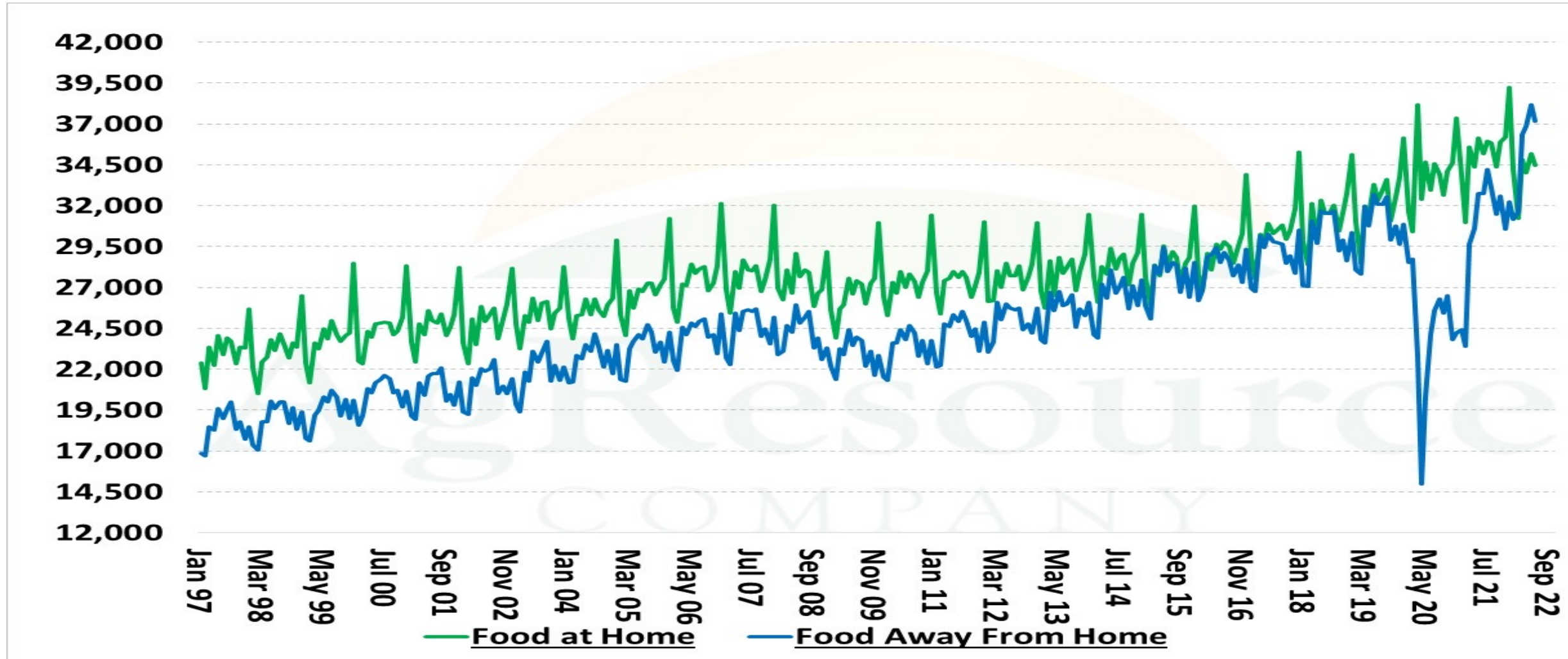


US Monthly Disposable Per Capita Income and Retail Beef Prices



US Food Expenditure (Nominal \$)

US Consumers Eat Out at Record Clip!



Sharpest Rise in US Food Prices Since 1977; The Biden Administration Pledges Action

US Monthly Food Inflation Rate



Recessions Usually Follow Fuel/Food Price Rises

RECESSIONS TYPICALLY FOLLOW A FUEL & FOOD SQUEEZE LIKE THIS ONE!

United States: PCE: Food & Energy
(year-over-year percent change)

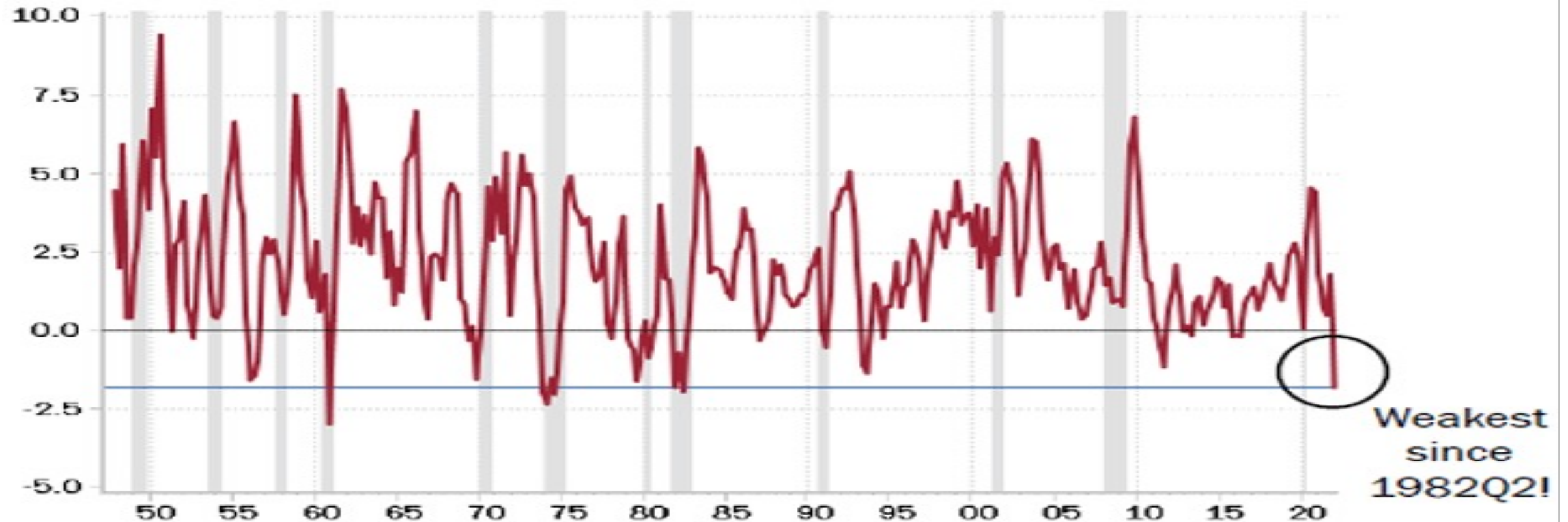


Shading indicates recession
Source: Haver Analytics, Rosenberg Research

US Real Output Per Hour Annualized!

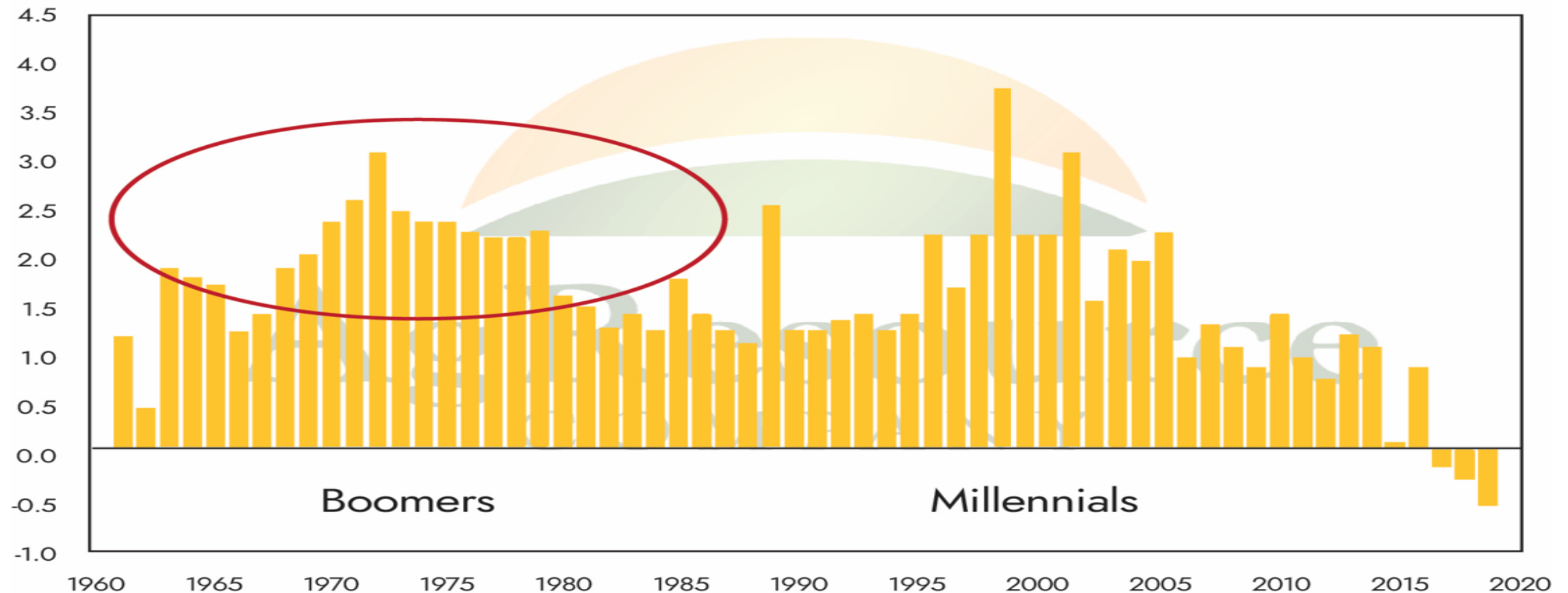
Productivity needs to rise to fight Inflation

Real Output per Hour
(3-quarter percent change; annualized)



US Wage Inflation is Here to Stay into 2030; Forces Investment in Technology On Cost

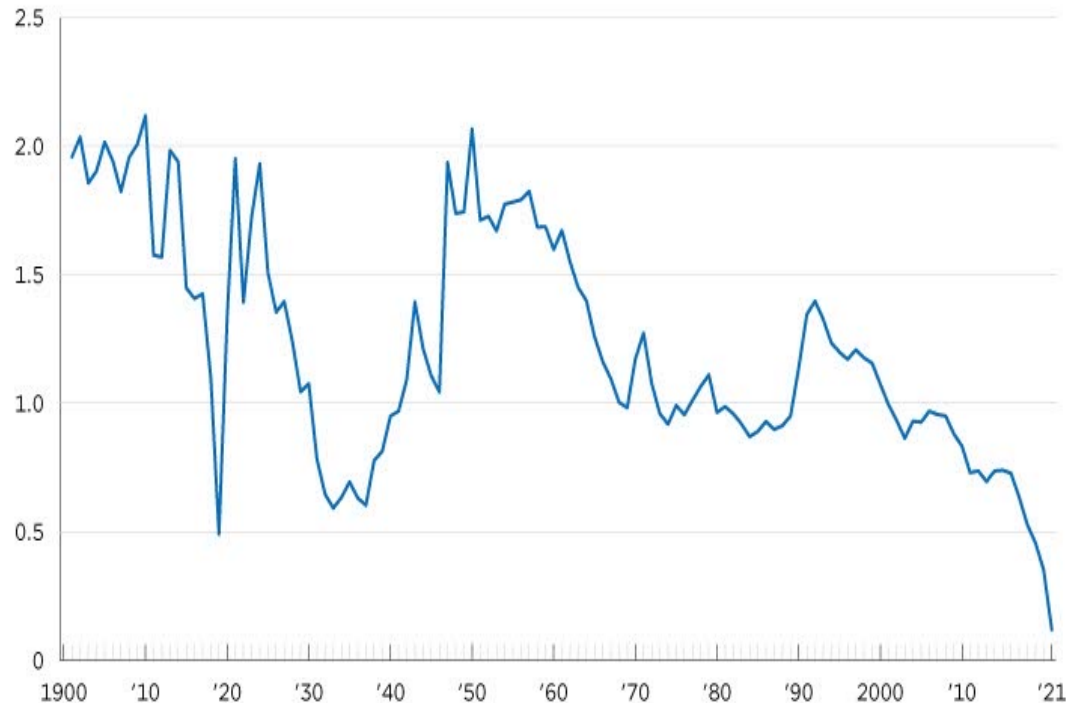
U.S. Working Age Population, 15-64 years of Age
(Change from the previous year millions of people)



Slowest Growth in US Population in History!

Labor Cost Surge to 4.5-5.0%

Figure 1.
Annual Percent Change in the U.S. Population: 1900-2021

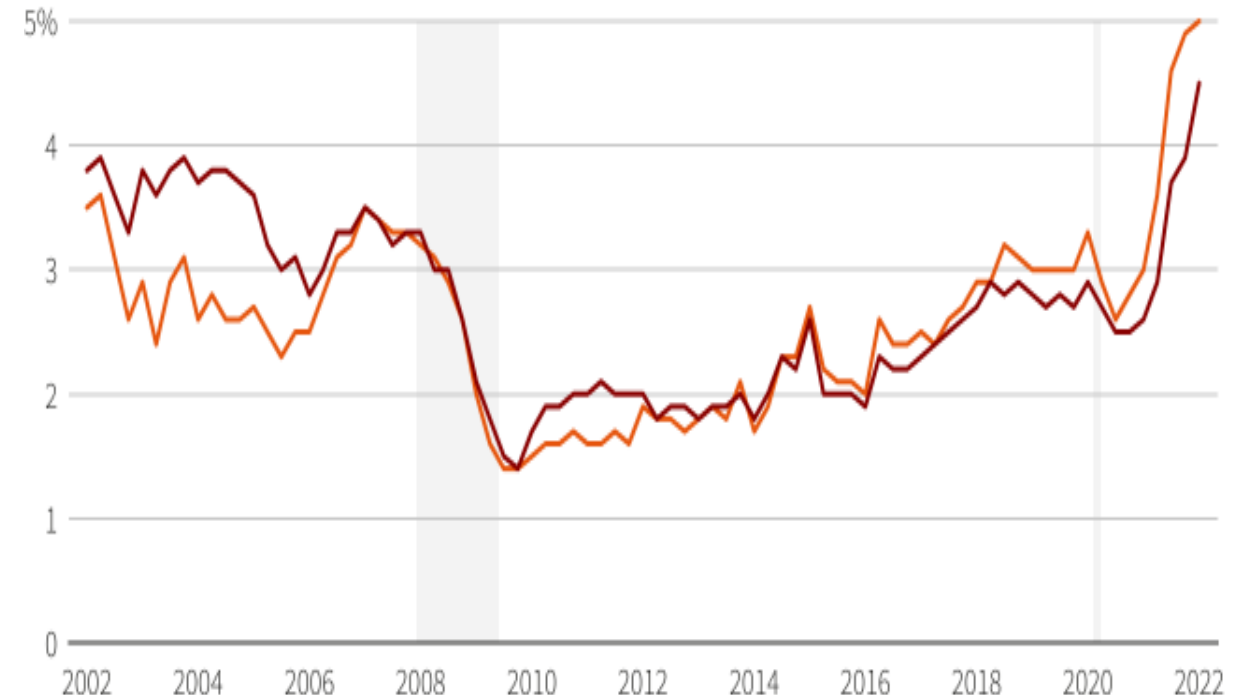


Note: 1917-1919 includes U.S. Armed Forces overseas.

Source: U.S. Census Bureau, Vintage 2020 Estimates; Vintage 2021 Estimates; 1900-1990, 1990-2000 & 2000-2010 Intercensal Estimates.

Labor costs surge, but wages may be cresting

— private industry wages & salaries — overall compensation

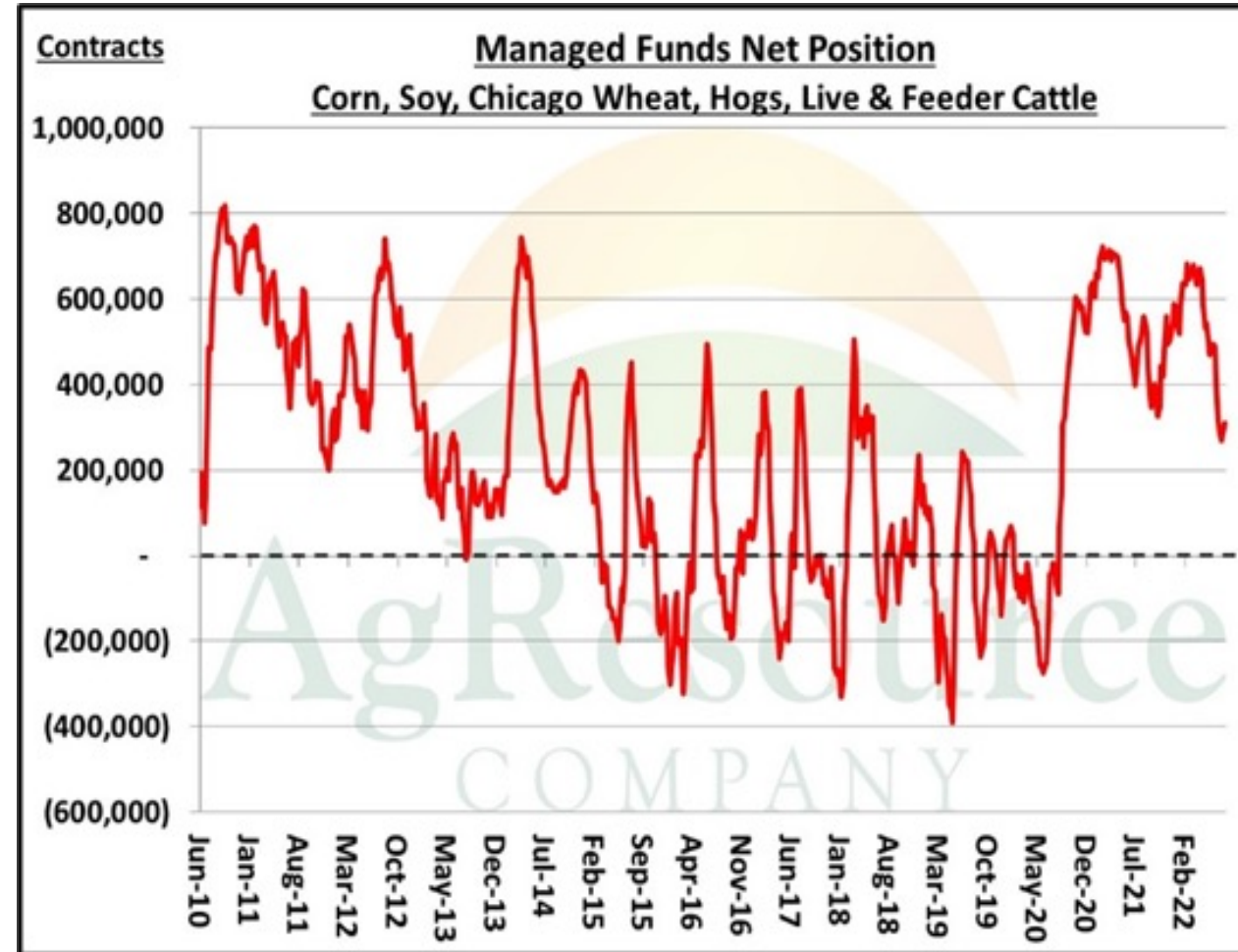
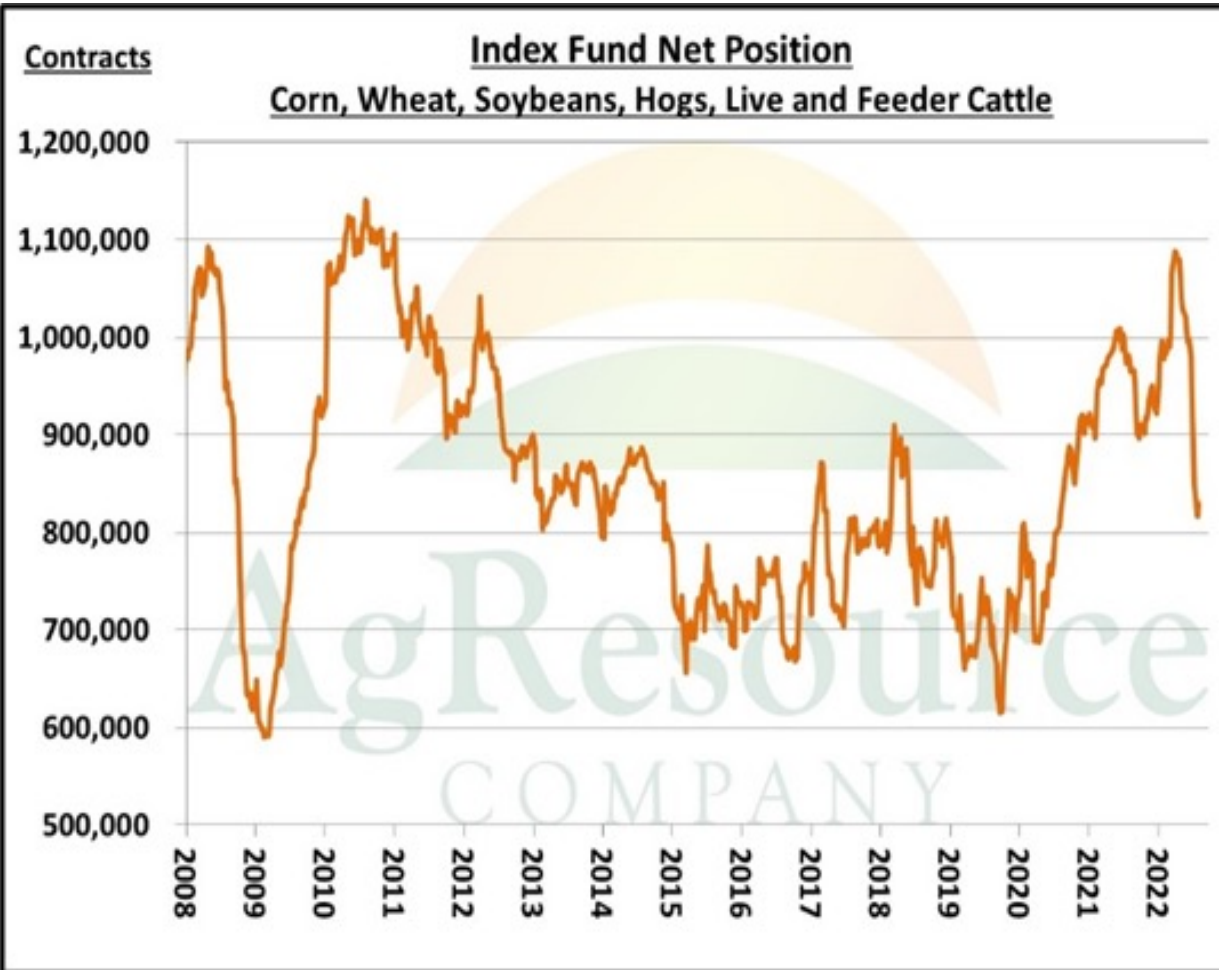


Note: Change shown is versus year-ago quarter

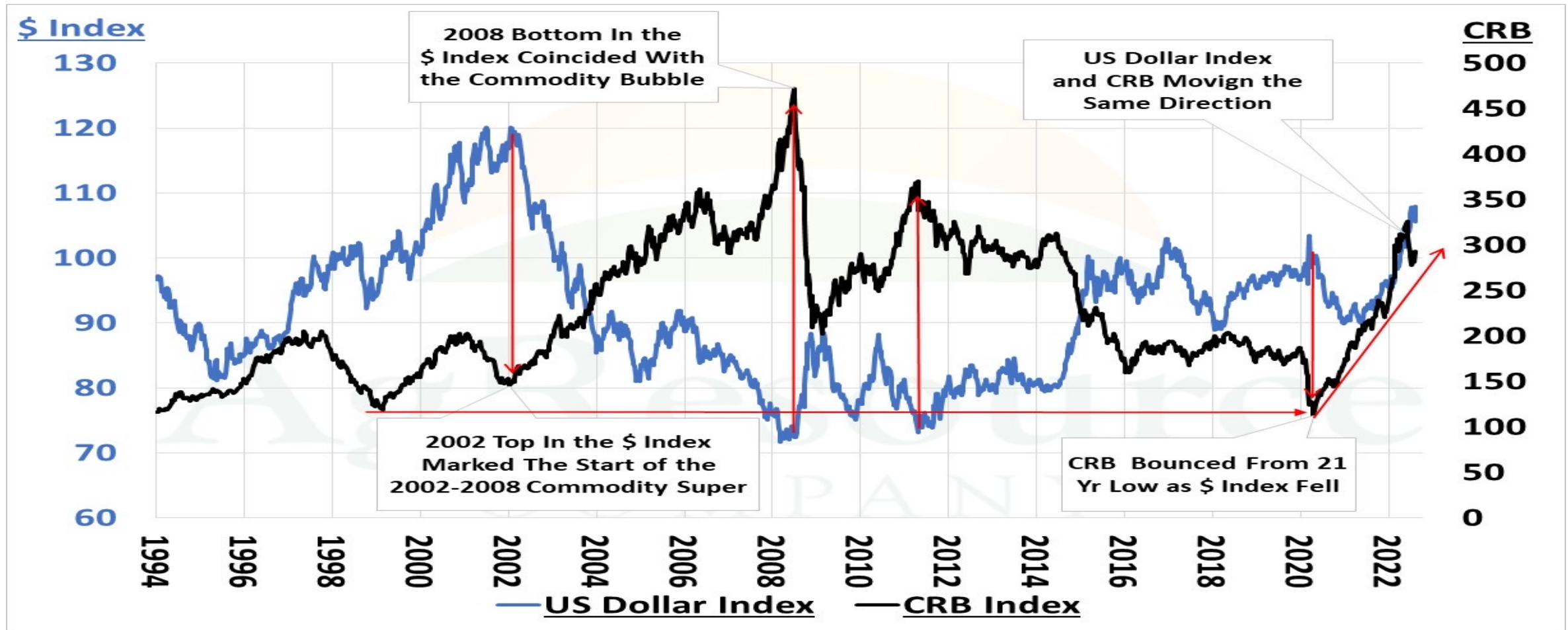
Source: Bureau of Labor Statistics, employment cost index

Central Bank War has Driven Recession

Worry! Fund Managers Liquidate Length

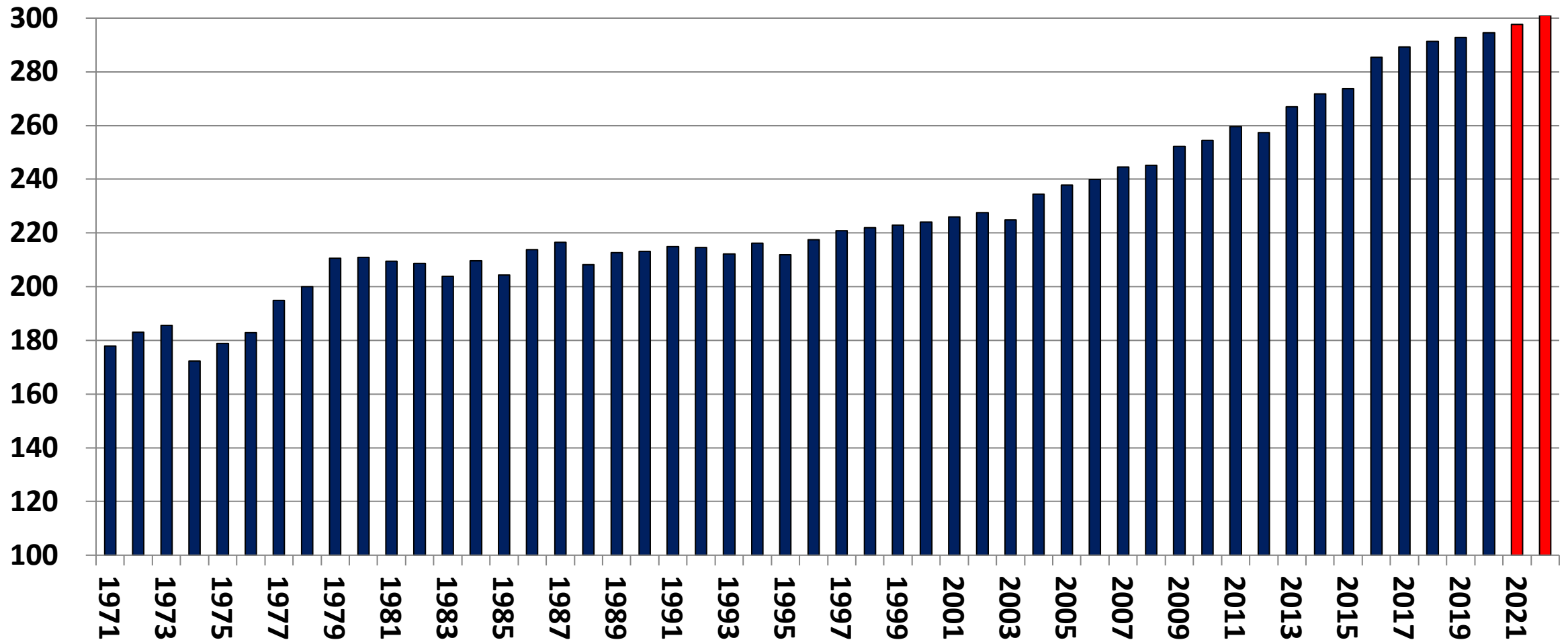


Only Time Looking Back to 1985 that Commodities and the US Dollar have Both Rallied?



Global per Capita Major Grain/Oilseed Consumption; No evidence of demand destruction!

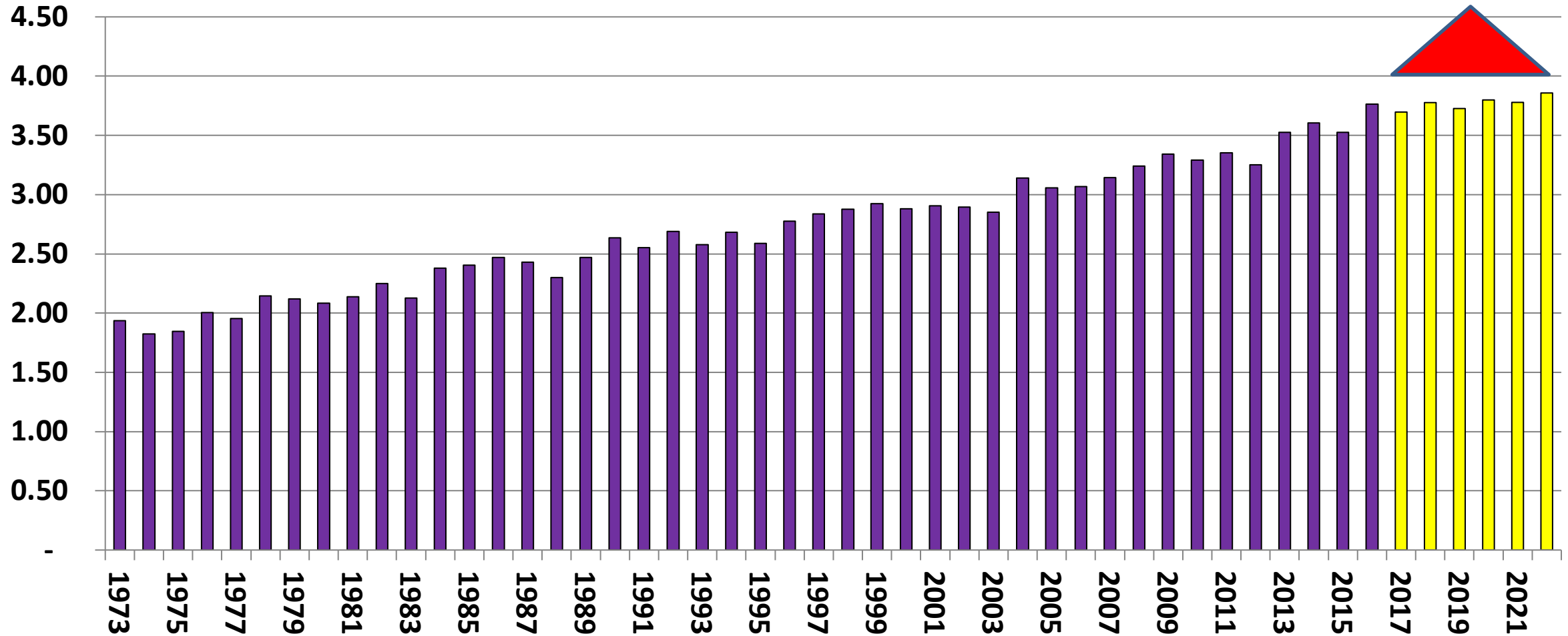
Kgs



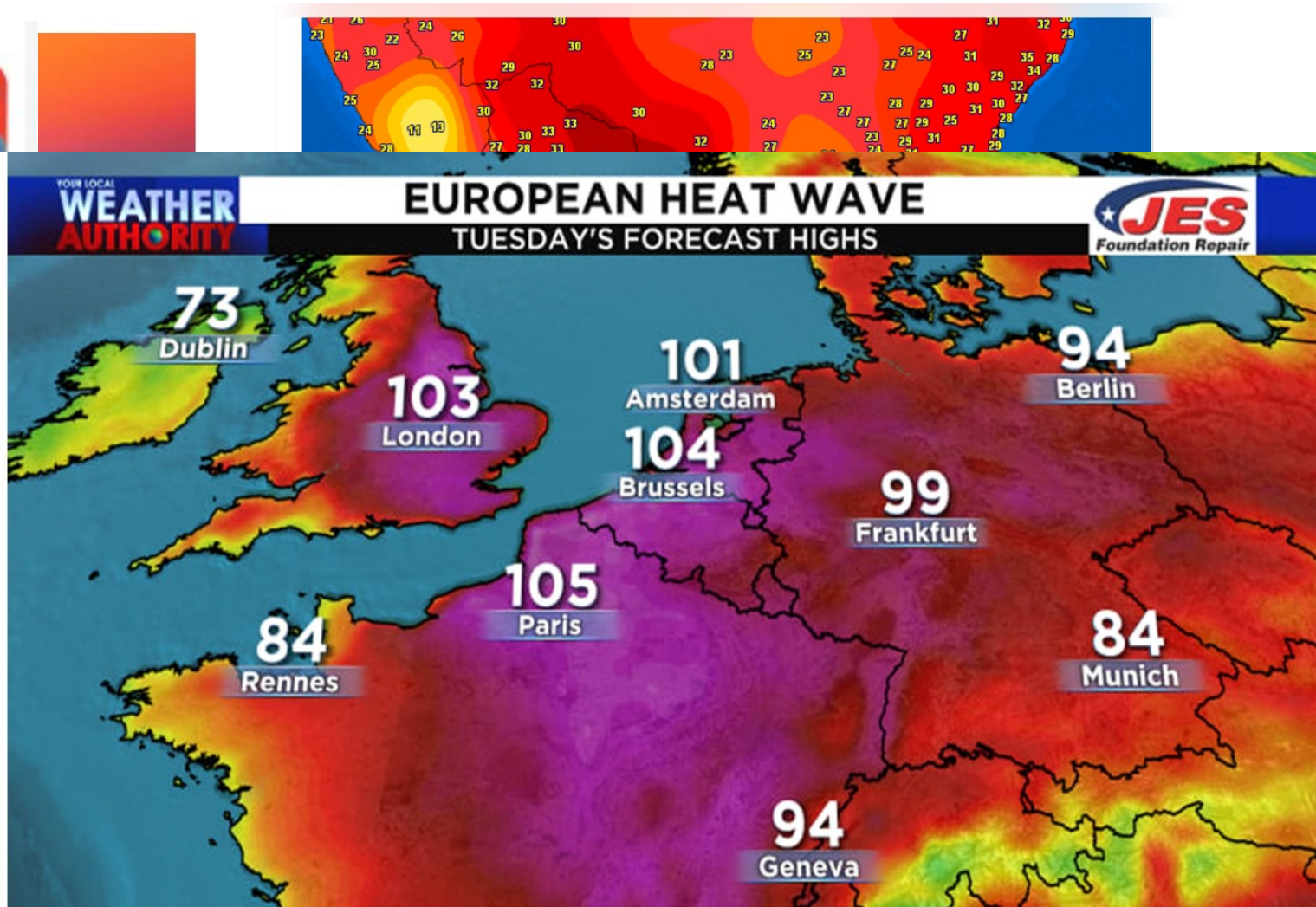
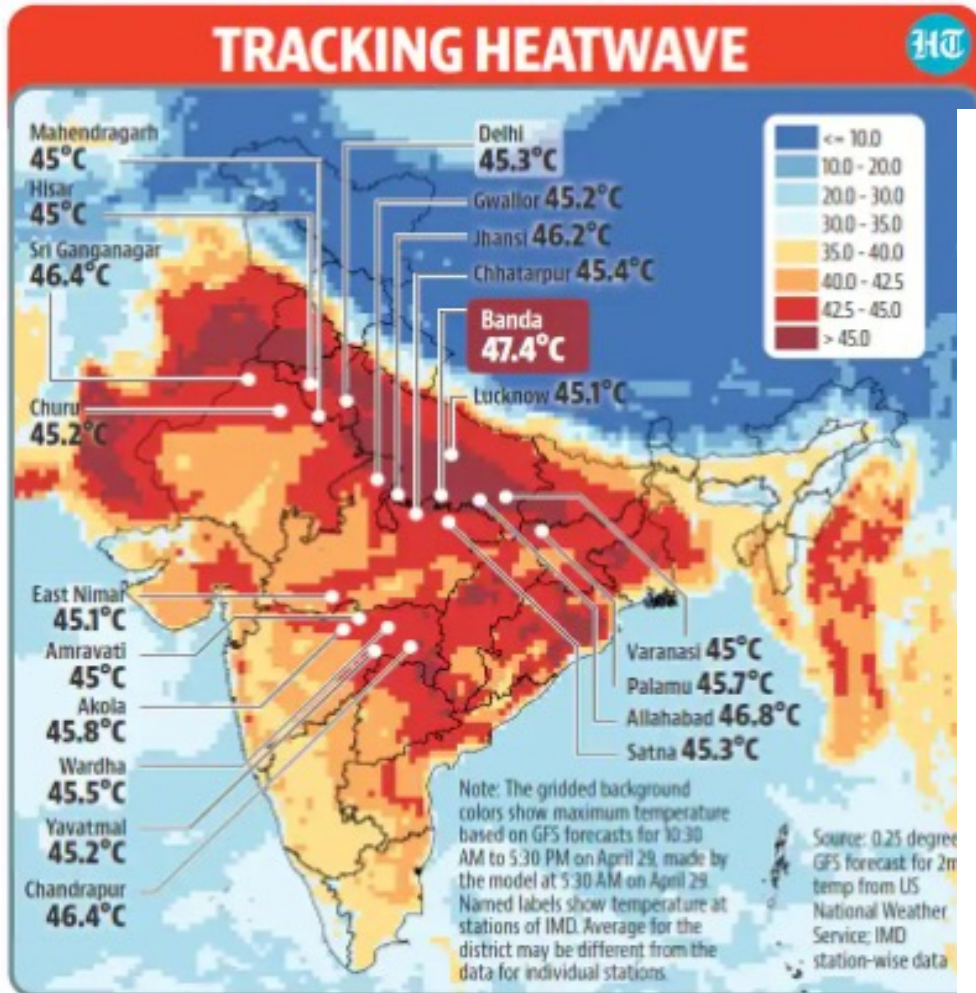
Global Coarse Grain, Wheat & Oilseed Yields Rise

Corn, Wheat, Barley, Sorghum, Soy, Canola Combined

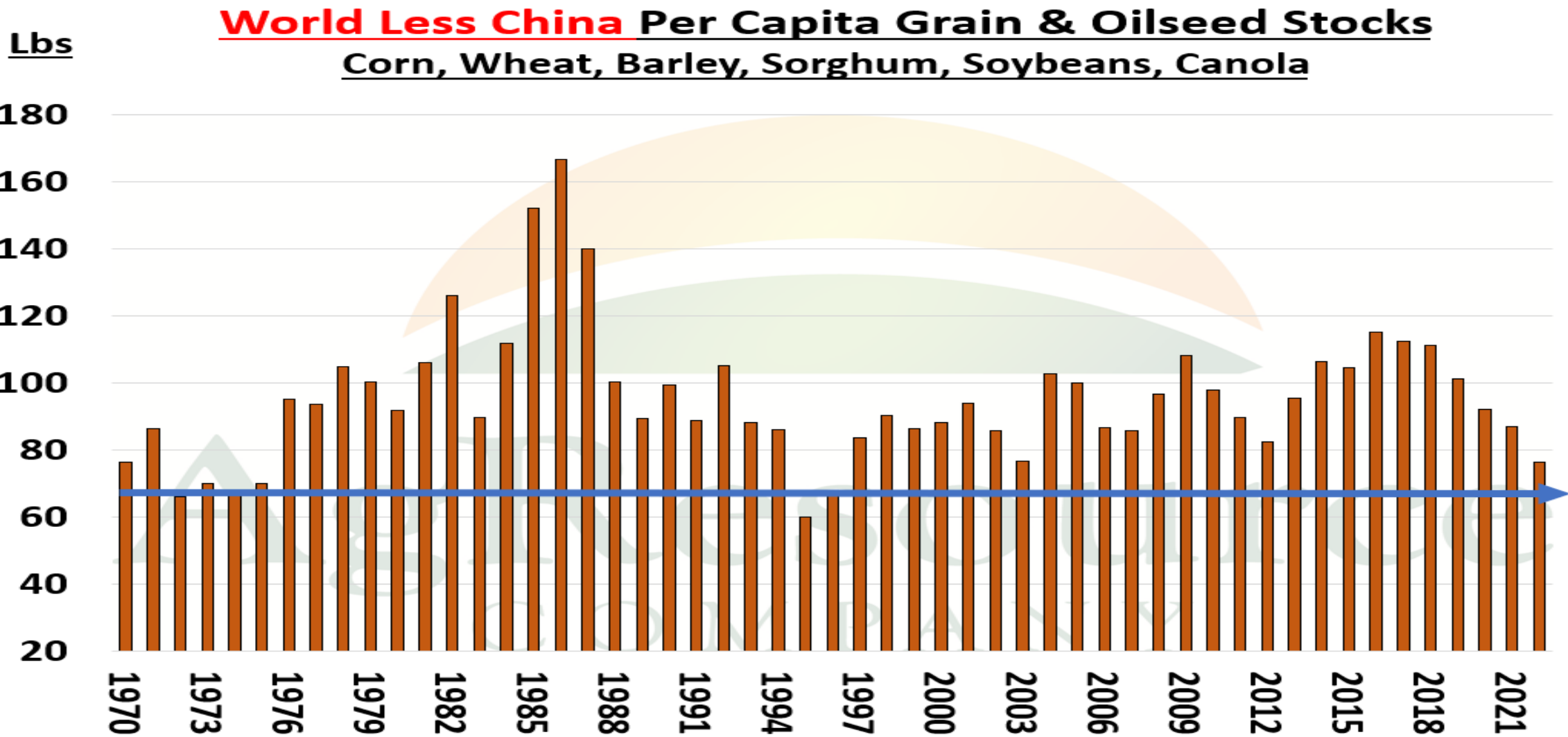
MT/HA



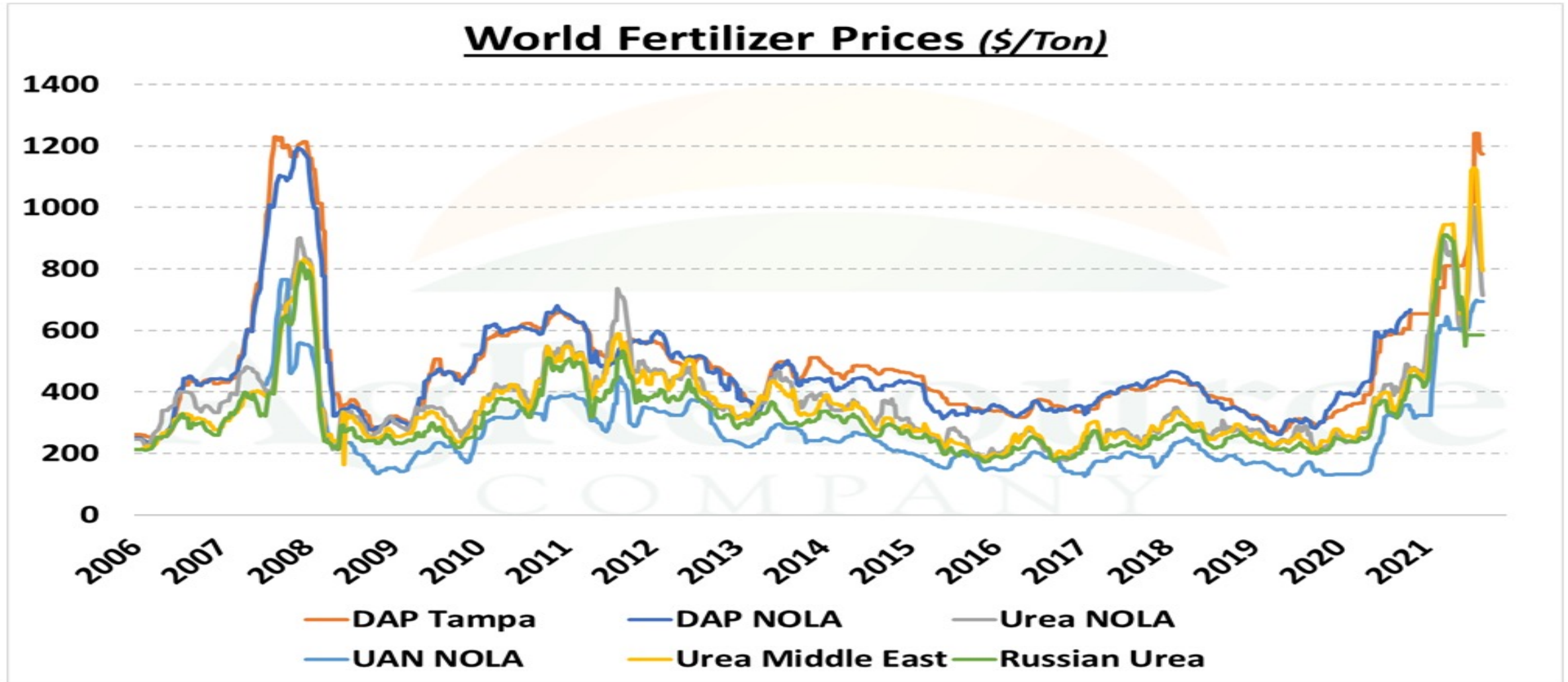
Heatflation – the New Normal and its Drag on World Crop Yields



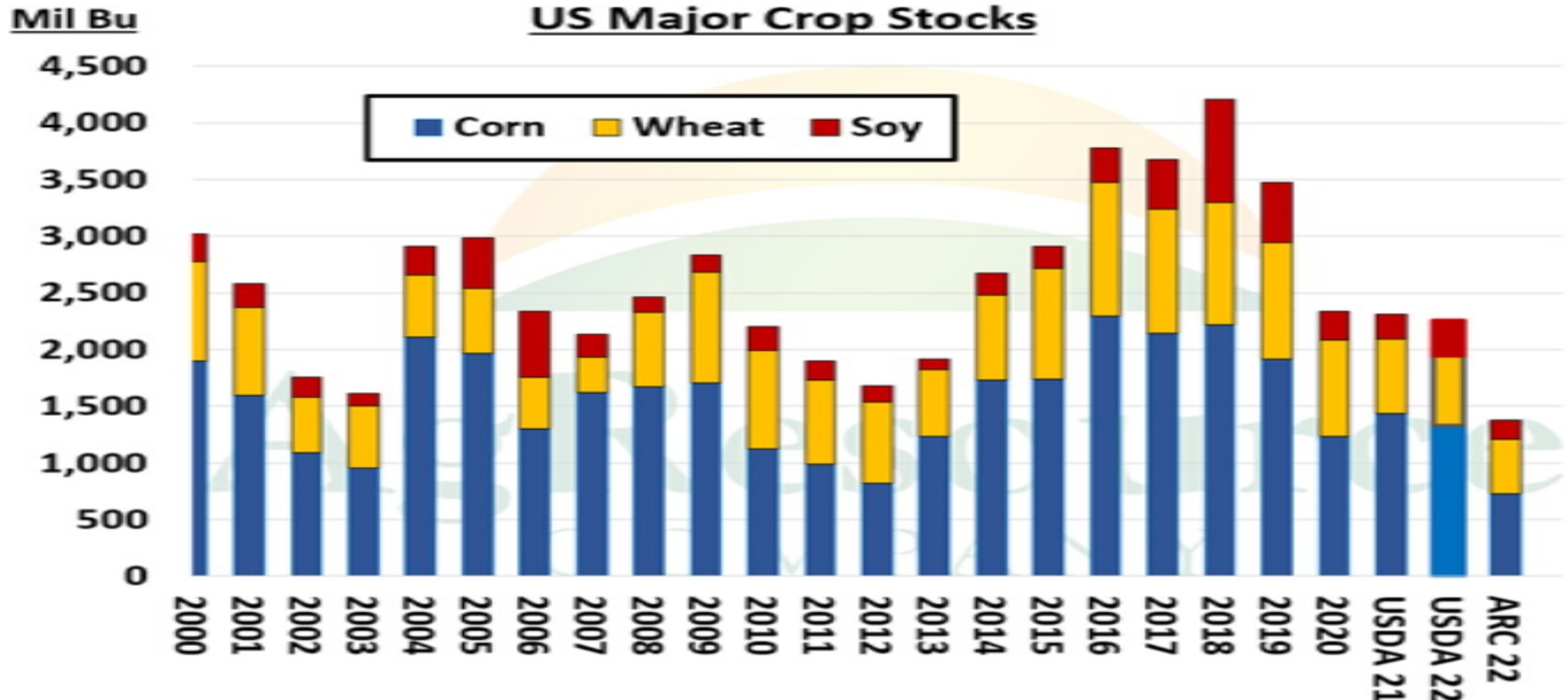
On the Doorstep of a World Food Crisis



Fertilizer Prices Test 2008 High; Ongoing War Will Cause Fertilizer Shortages in 2023



It will Take Years to Rebuild US Grain Stocks

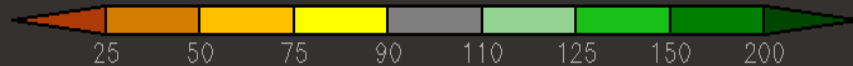
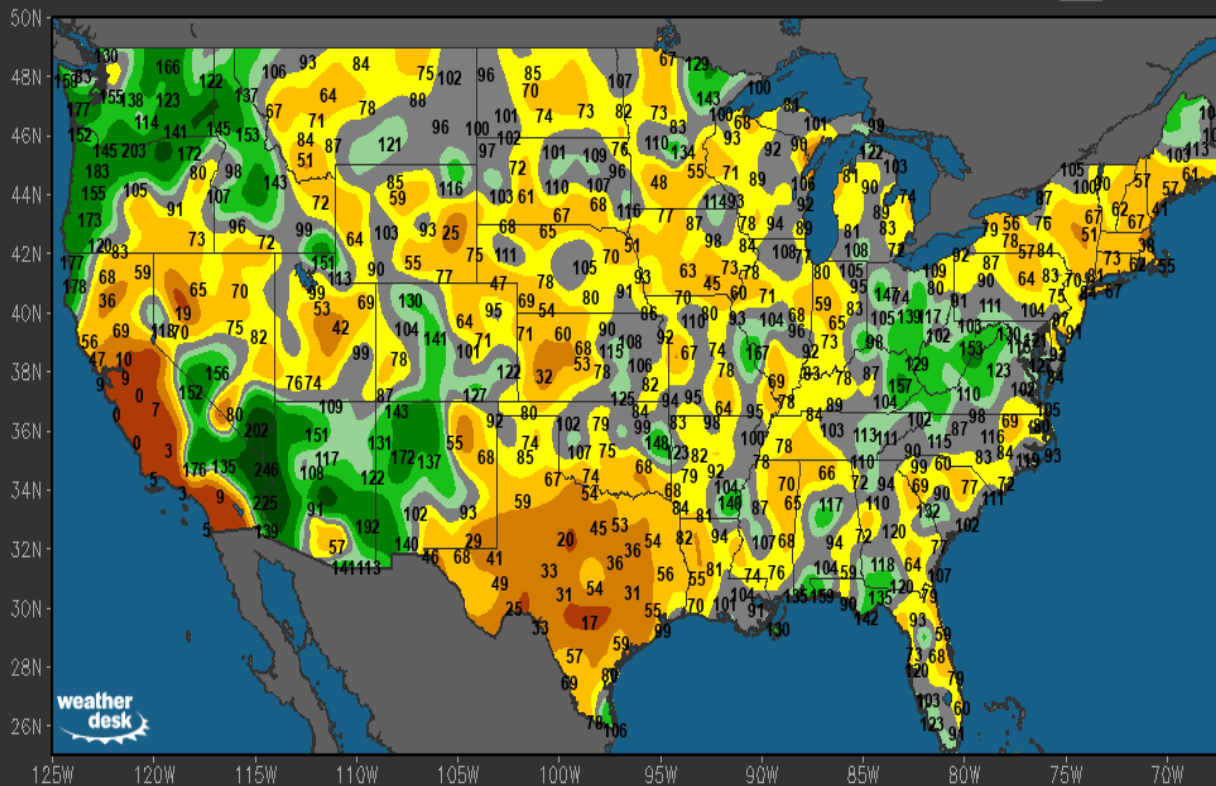
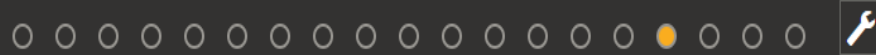


The 2022 Central US Growing Season; The Have's and the Have Not's.

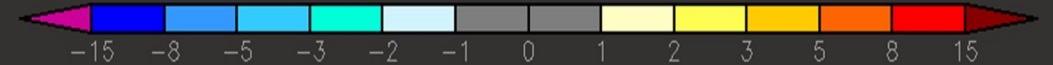
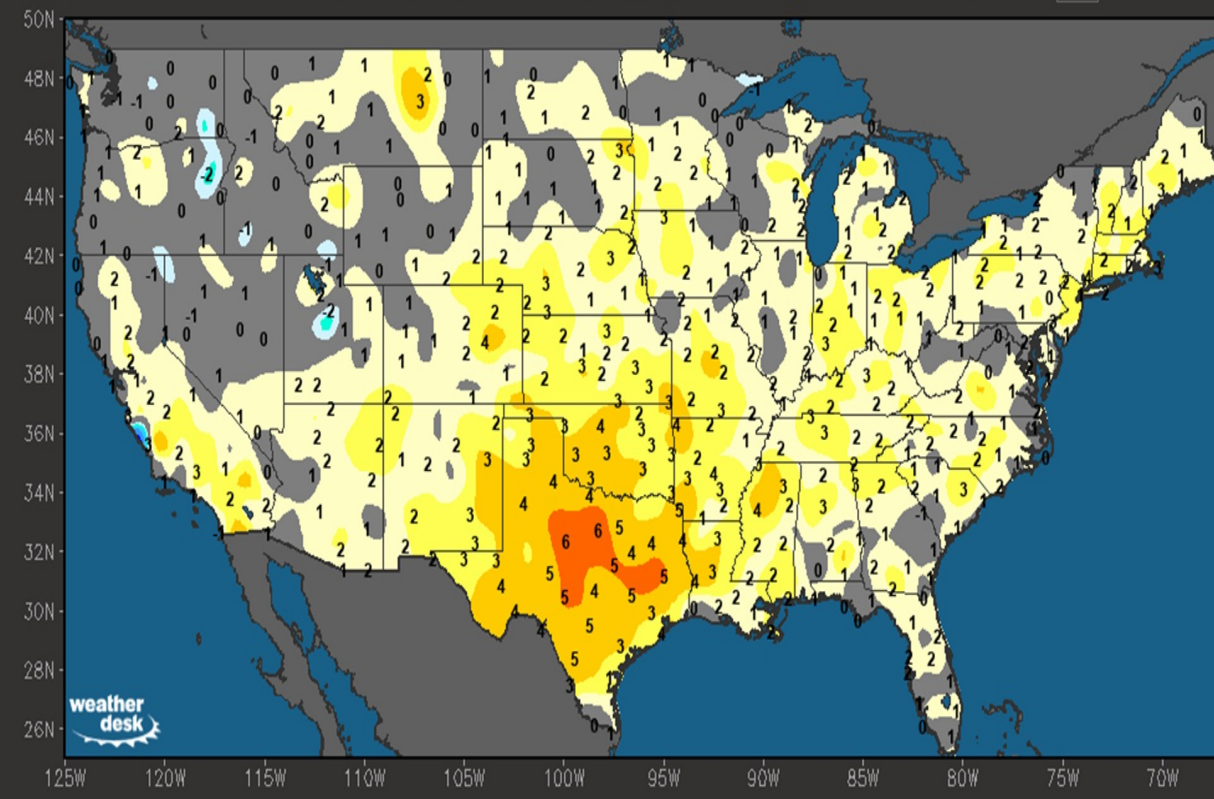


Not an Ideal Growing Season in 2022! Too Much Patchy Dryness/ Too Hot May to August 15th

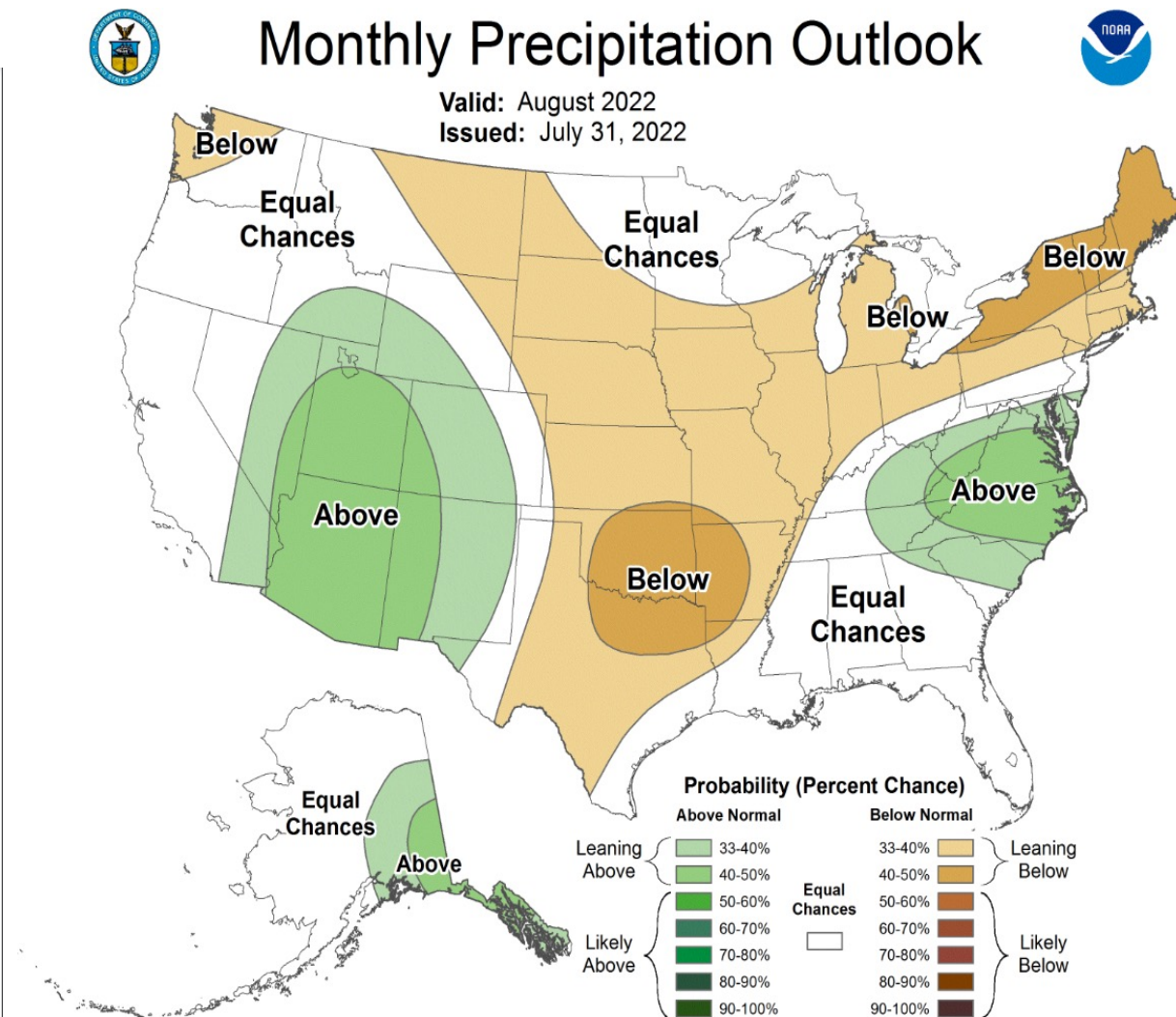
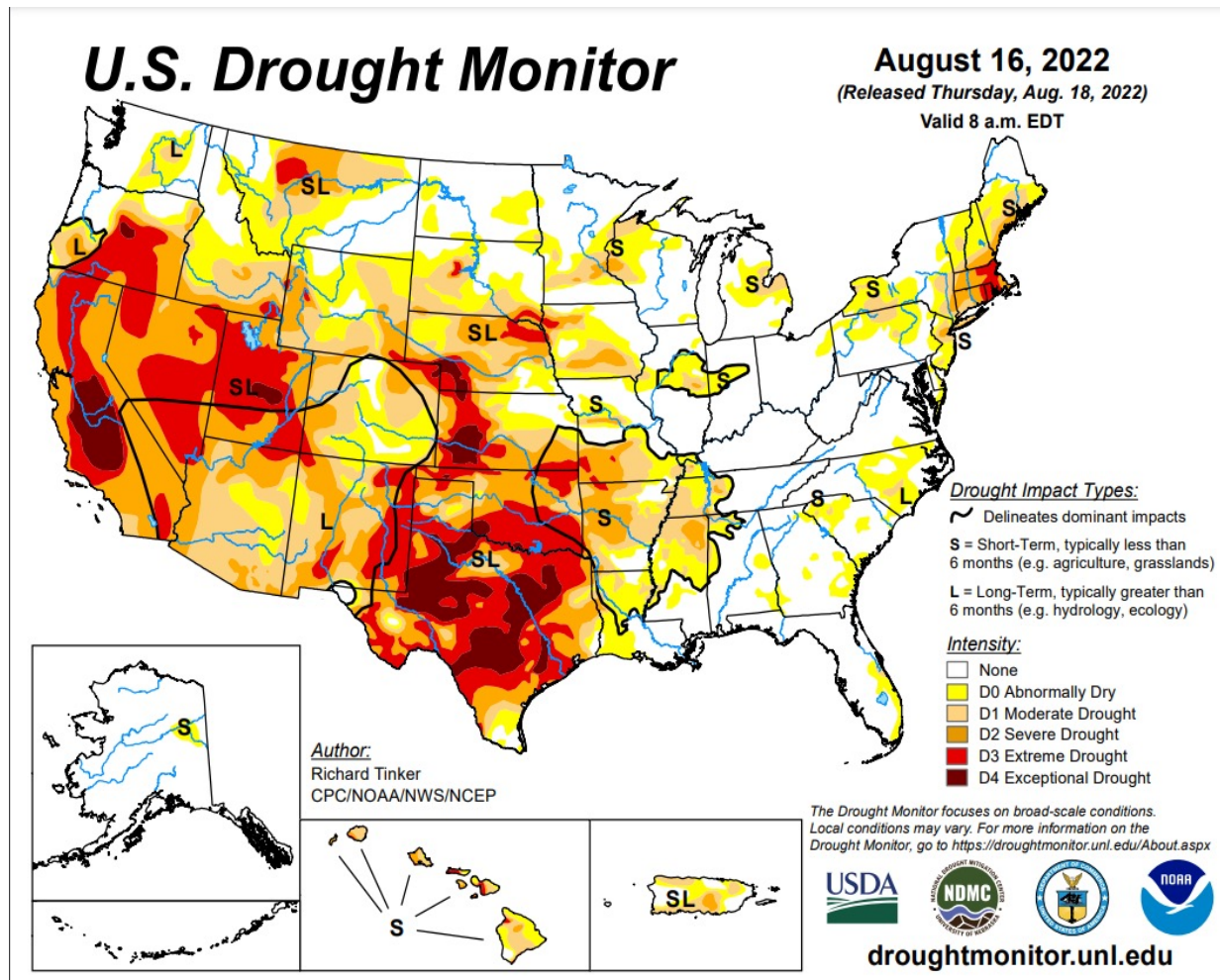
United States - % Normal Precipitation for May 1st, 2022 through August 15th, 2022



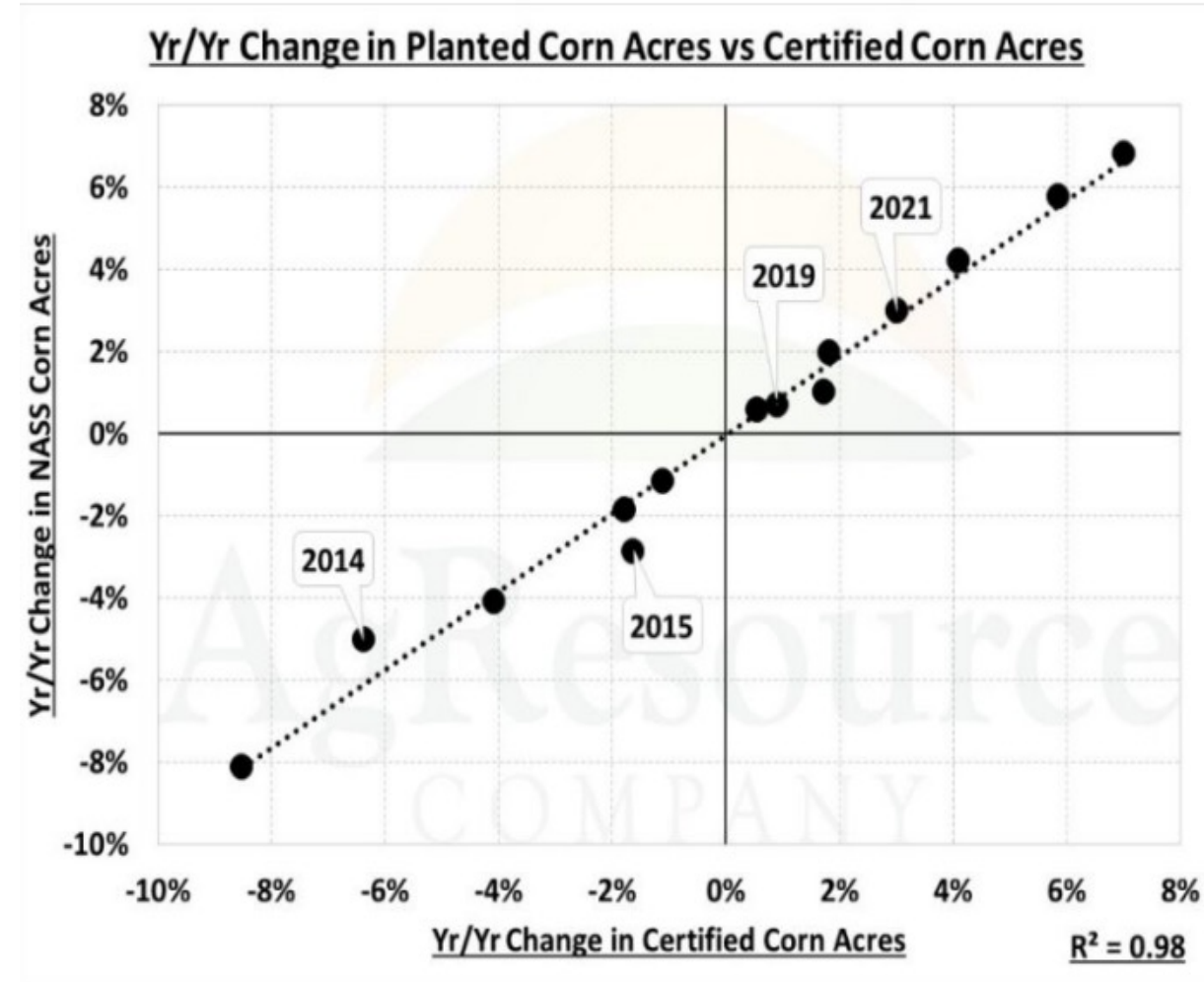
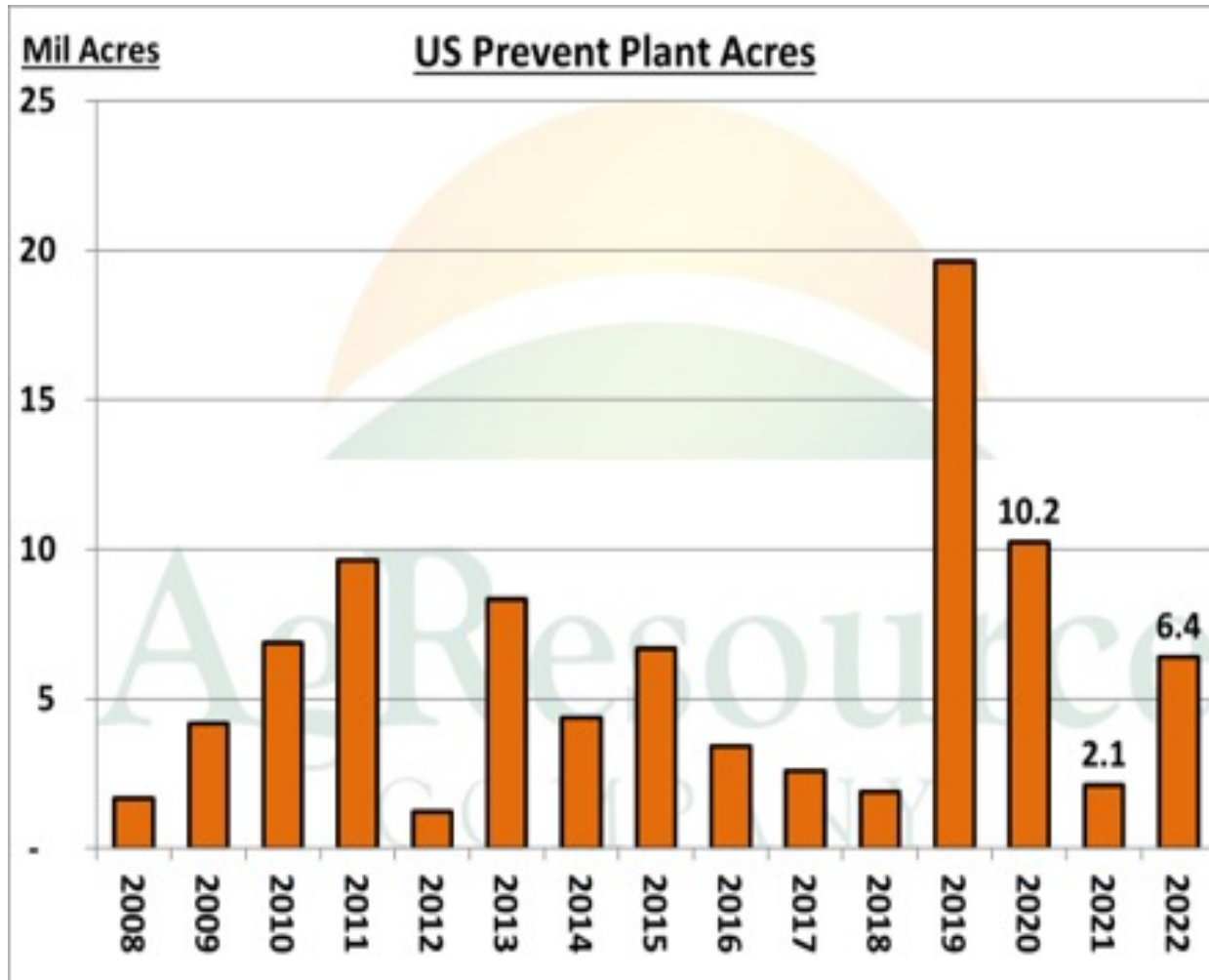
United States - Average Departure (°F) for May 1st, 2022 through August 15th, 2022



US Weather Risks Increasing Amid Expanding Central US Heat/Drought



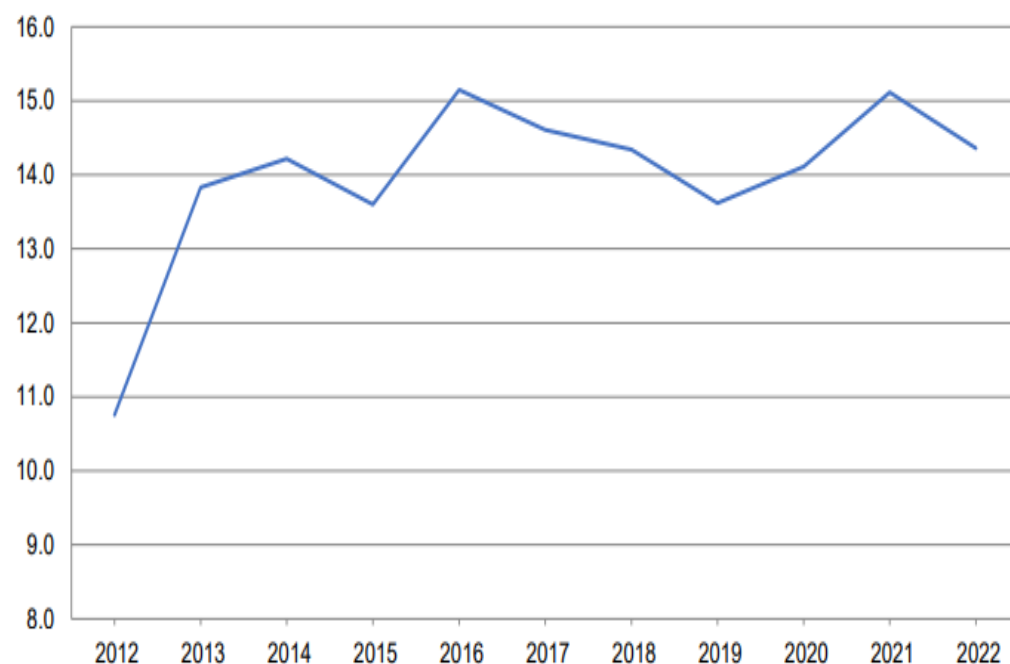
FSA to Report US Prevent Plant Acres; Impact Important for September Seedings



US 2022 Soybean Production Record Large; US End Stocks Remain Exceptionally Tight

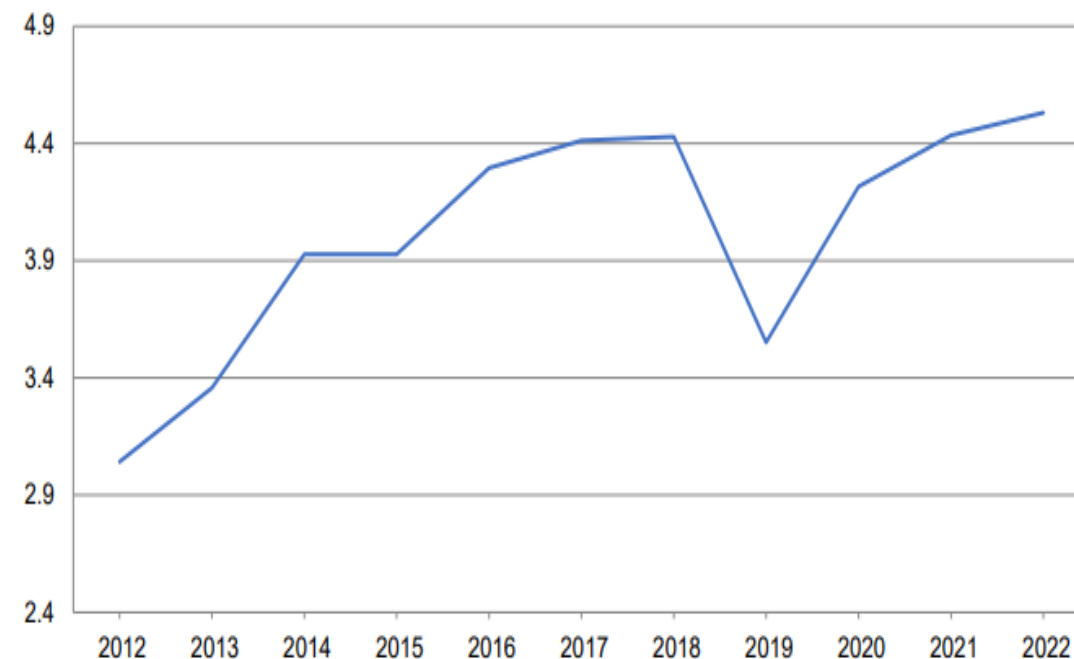
Corn Production – United States

Billion bushels

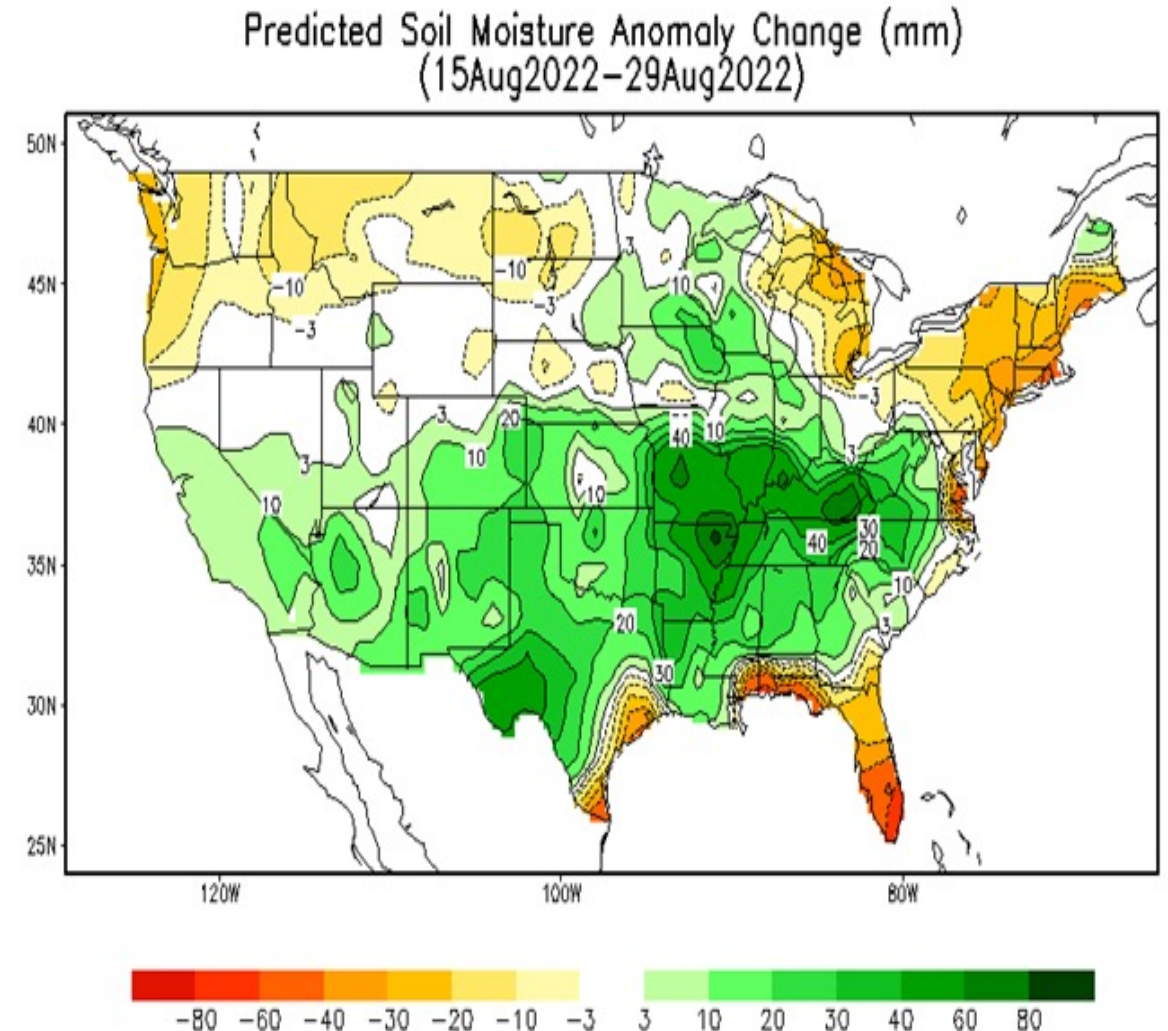
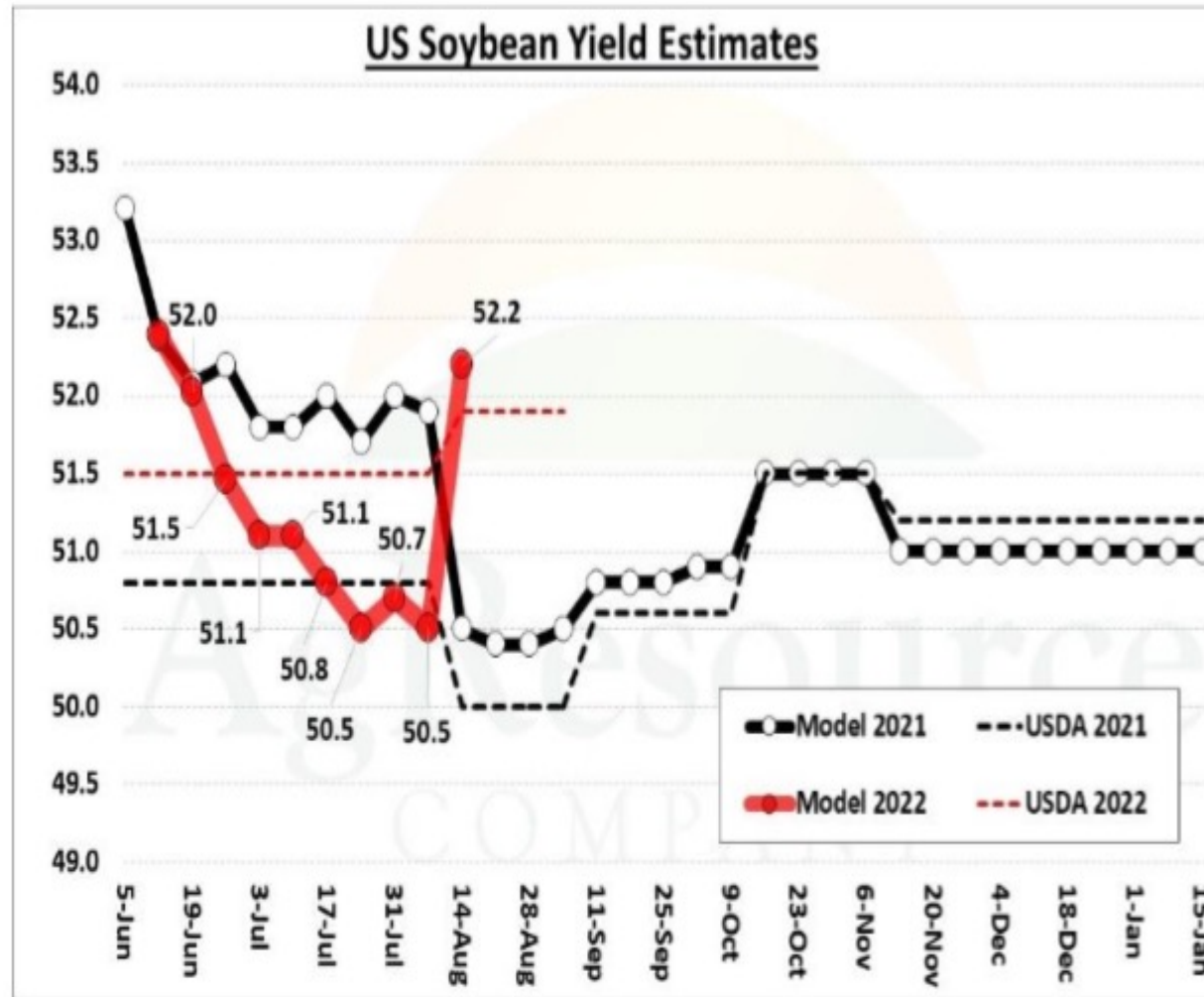


Soybean Production – United States

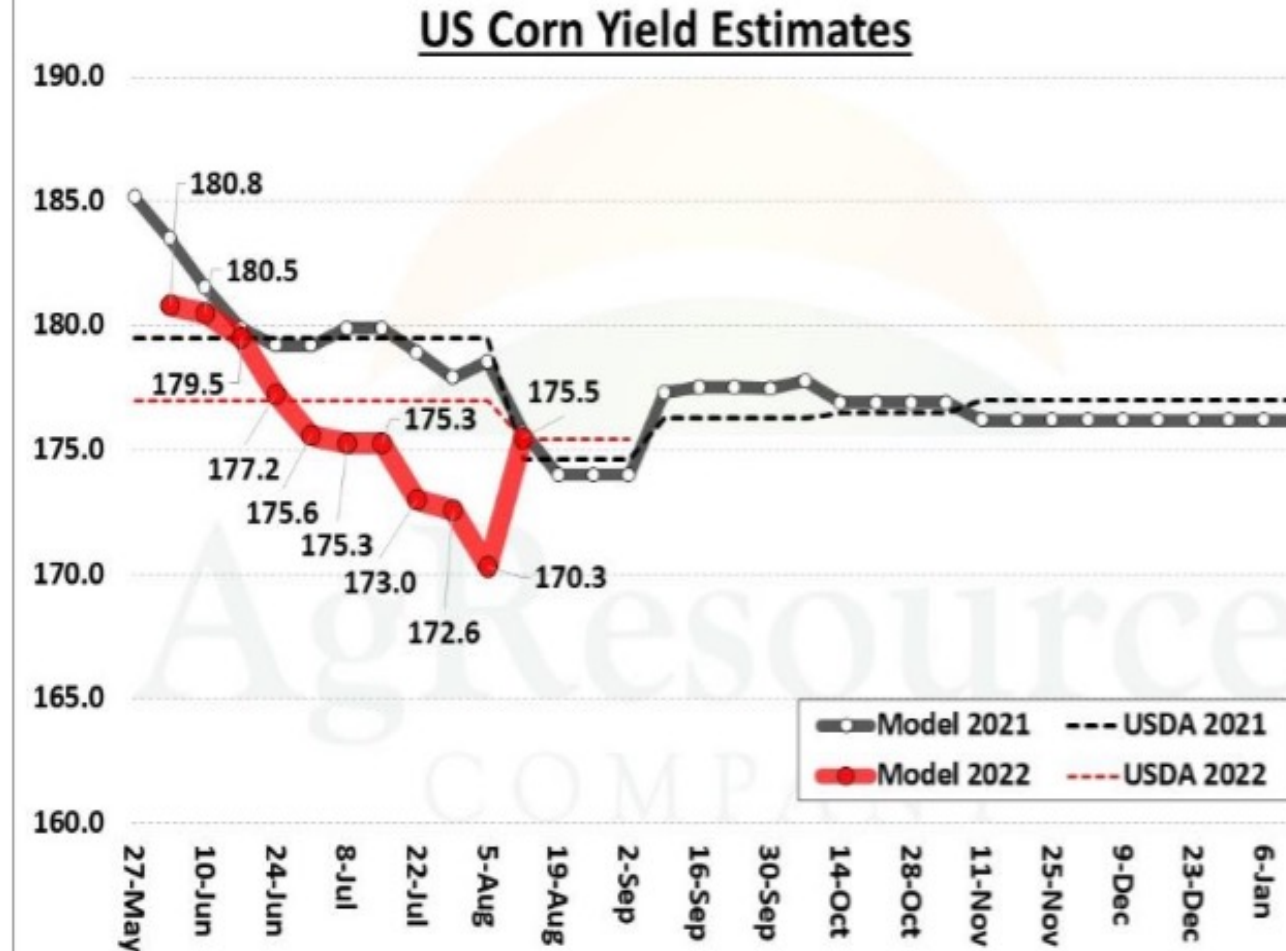
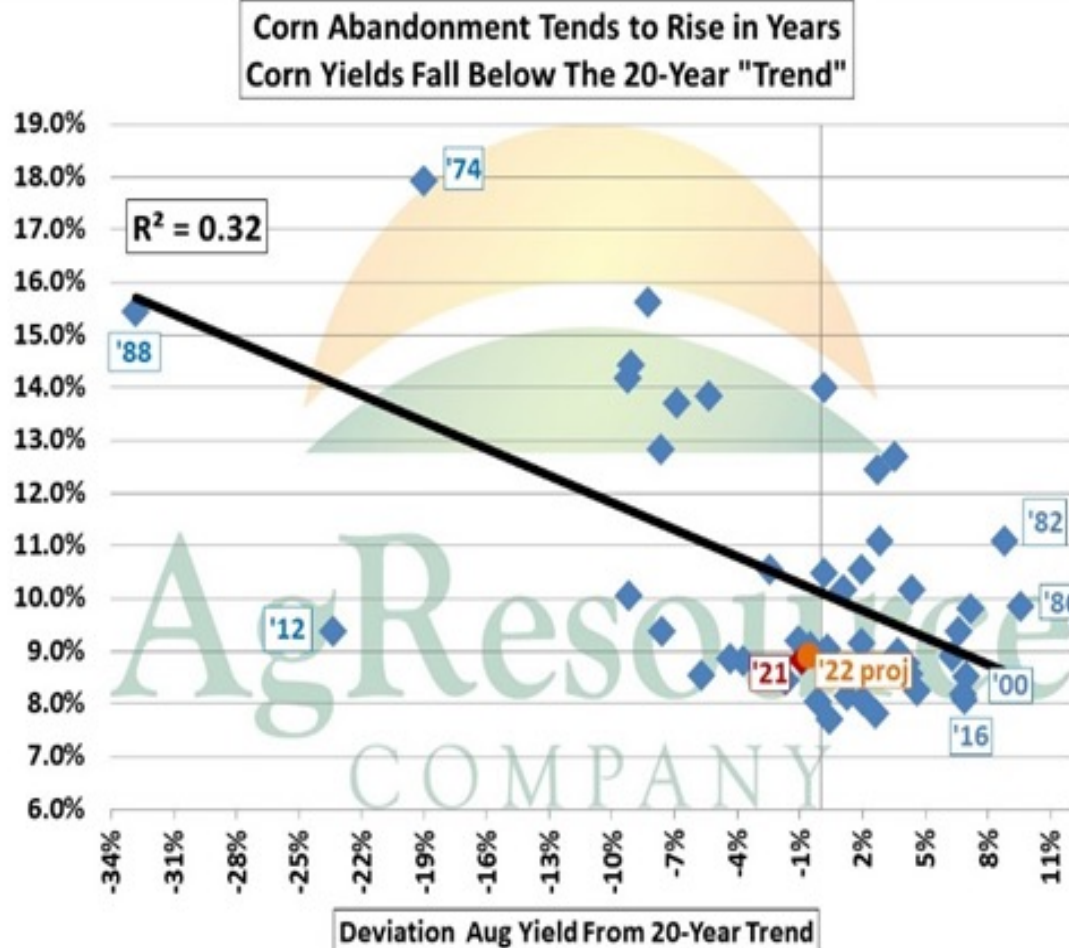
Billion bushels



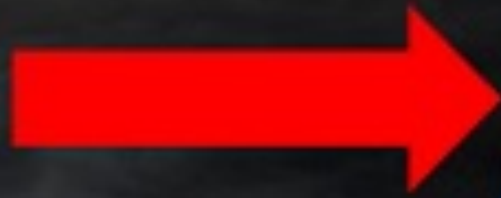
US Soybean Yield in Retreat on Adverse Central US Weather



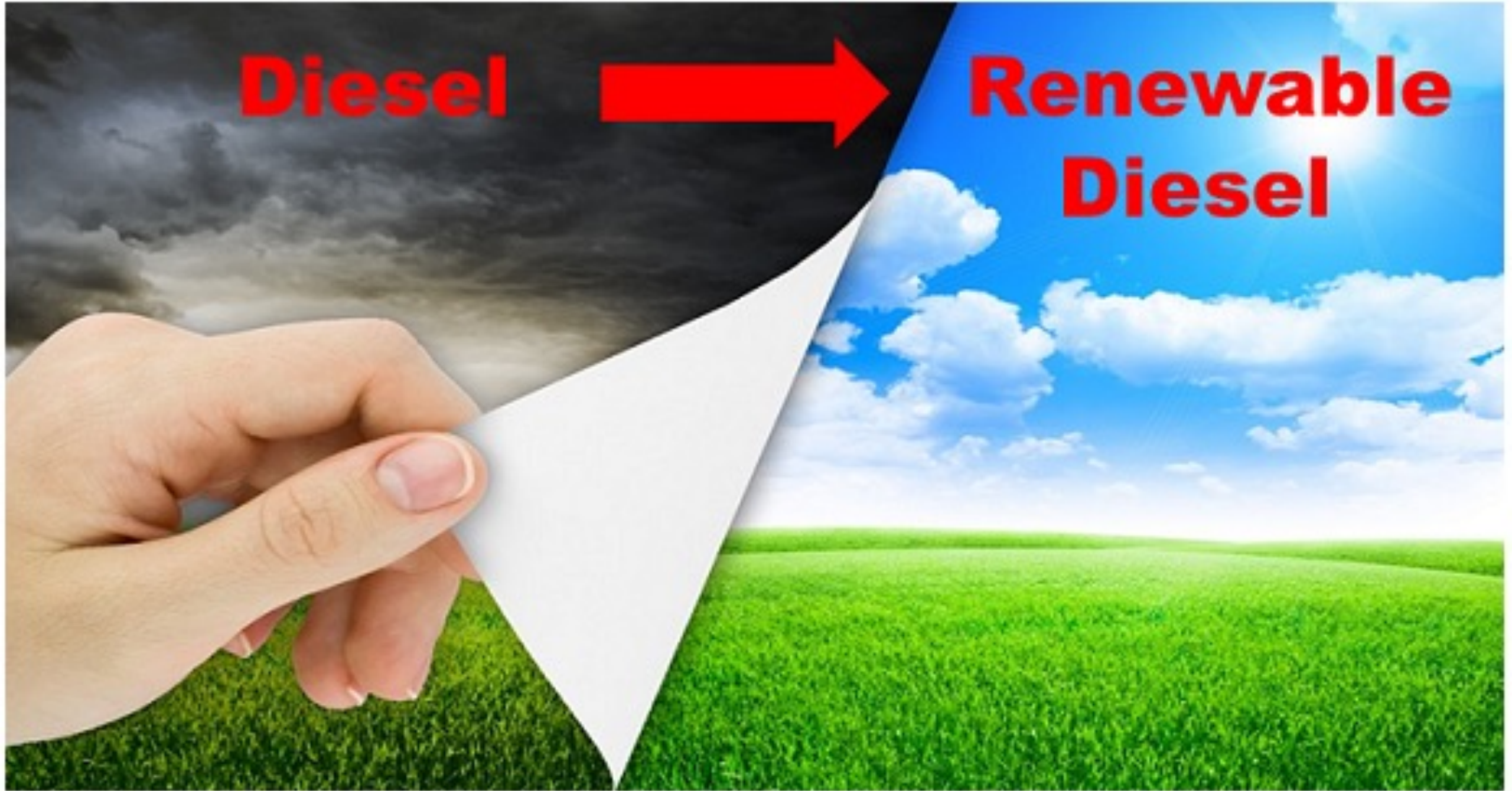
US Corn Yield and Harvested Acres To Decline; 173-177 BPA Range



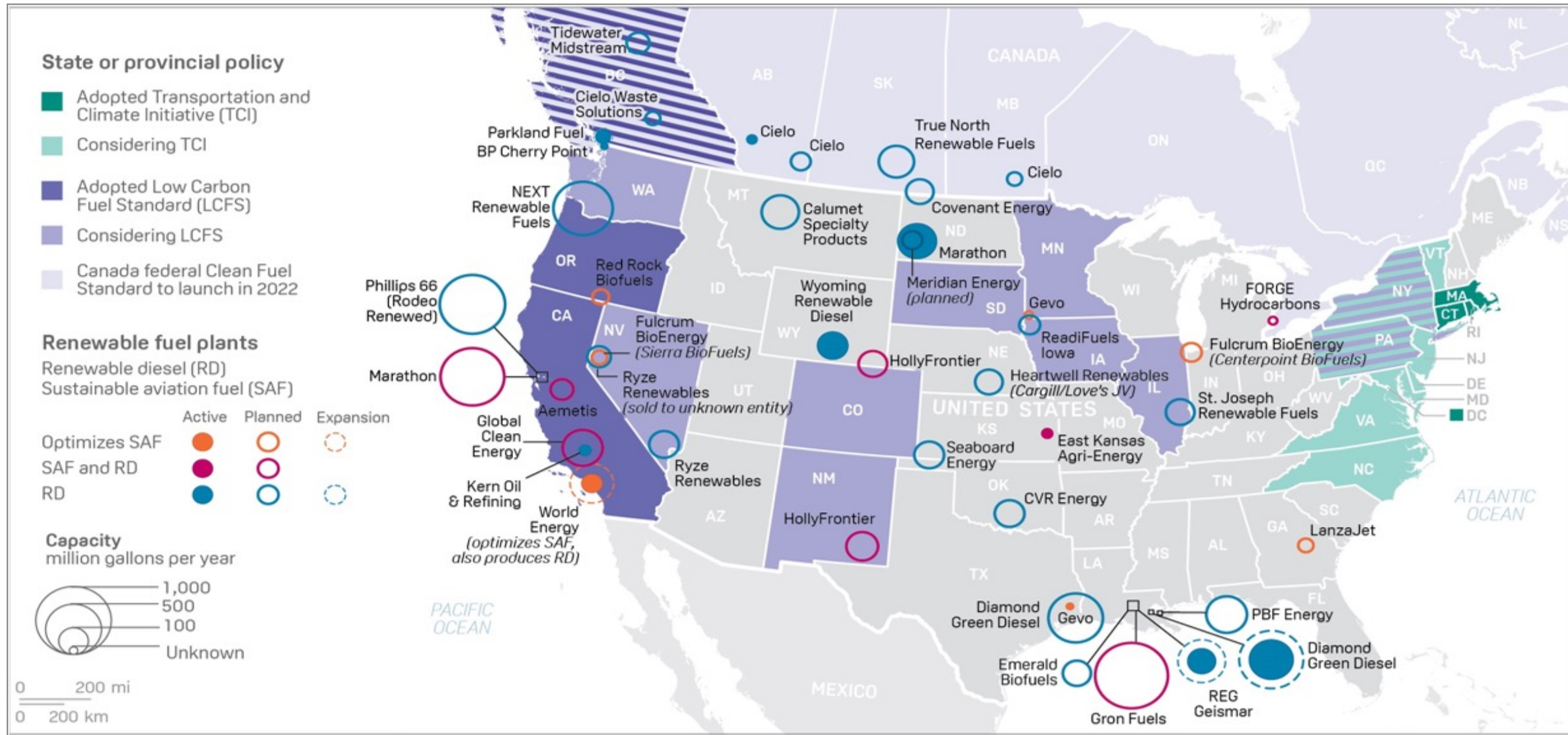
Diesel



**Renewable
Diesel**

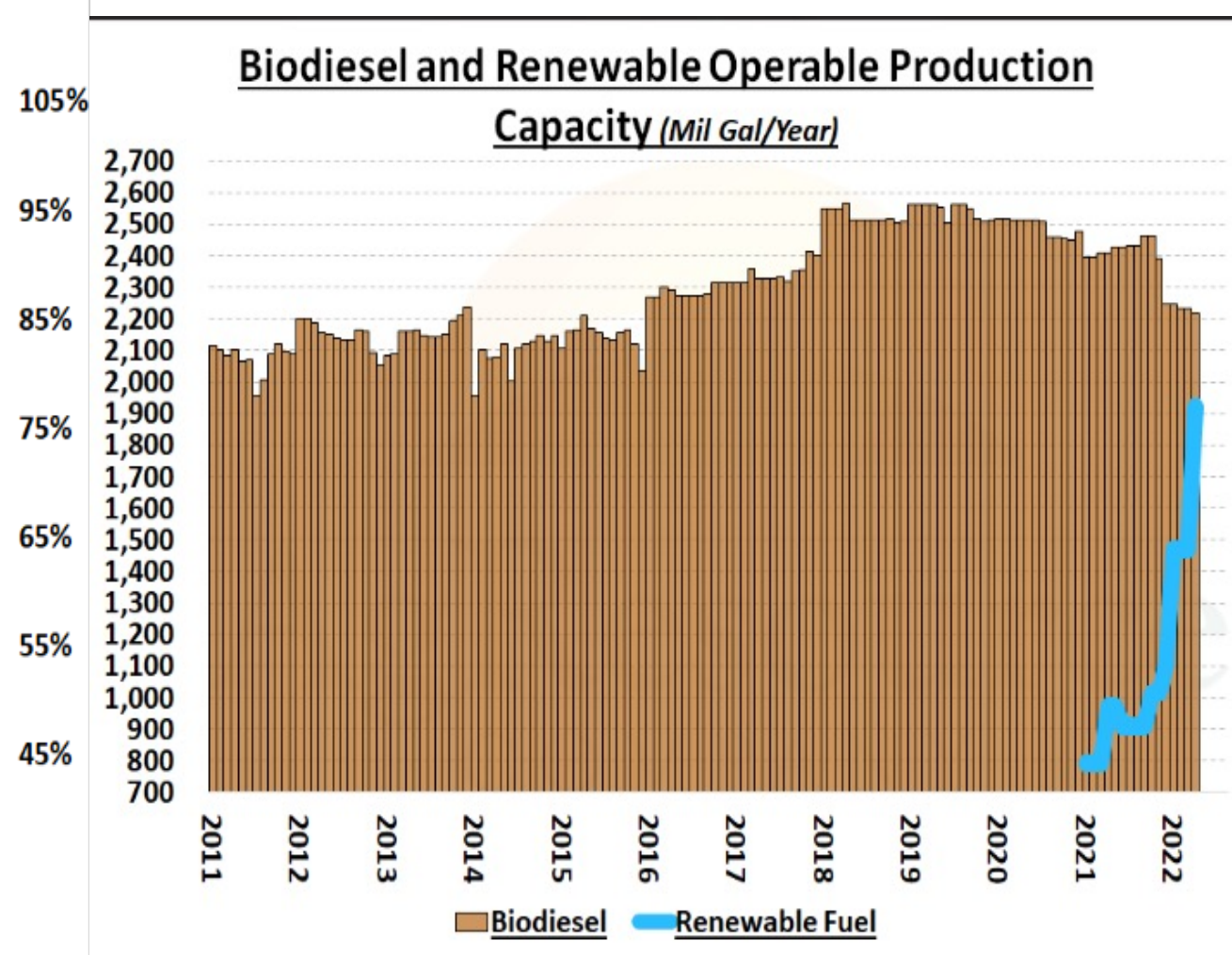
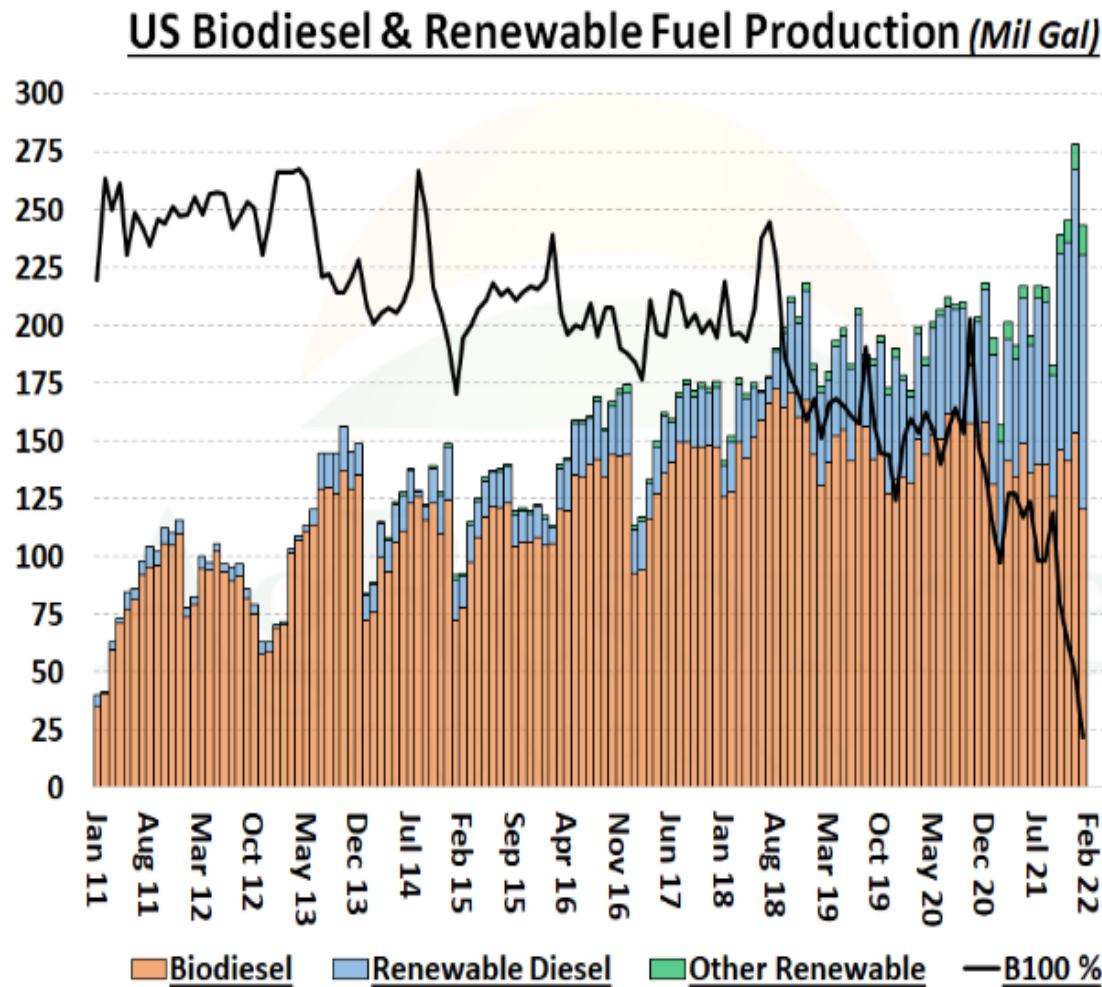


Renewable “Green” Fuel; Producing/Proposed Plants

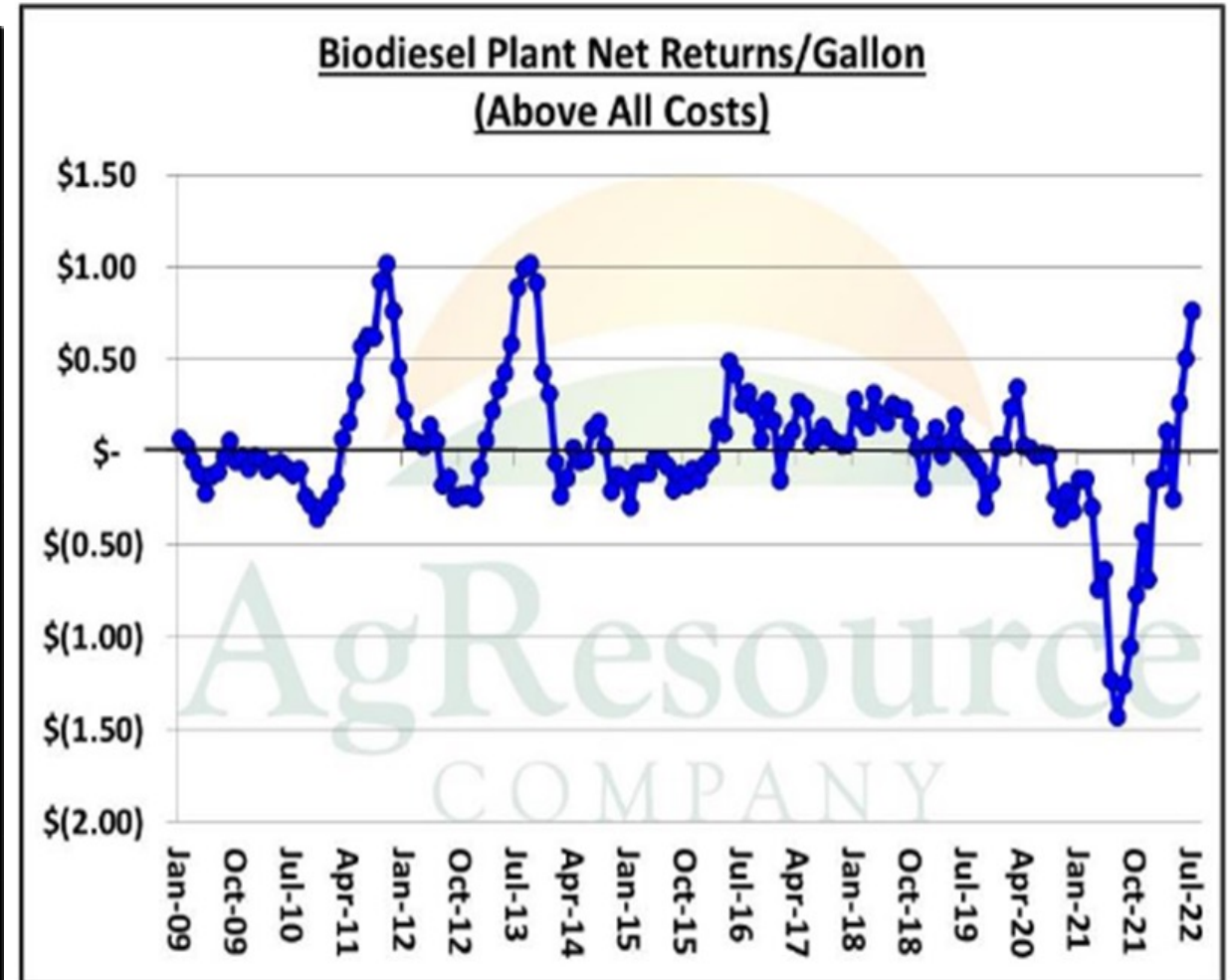
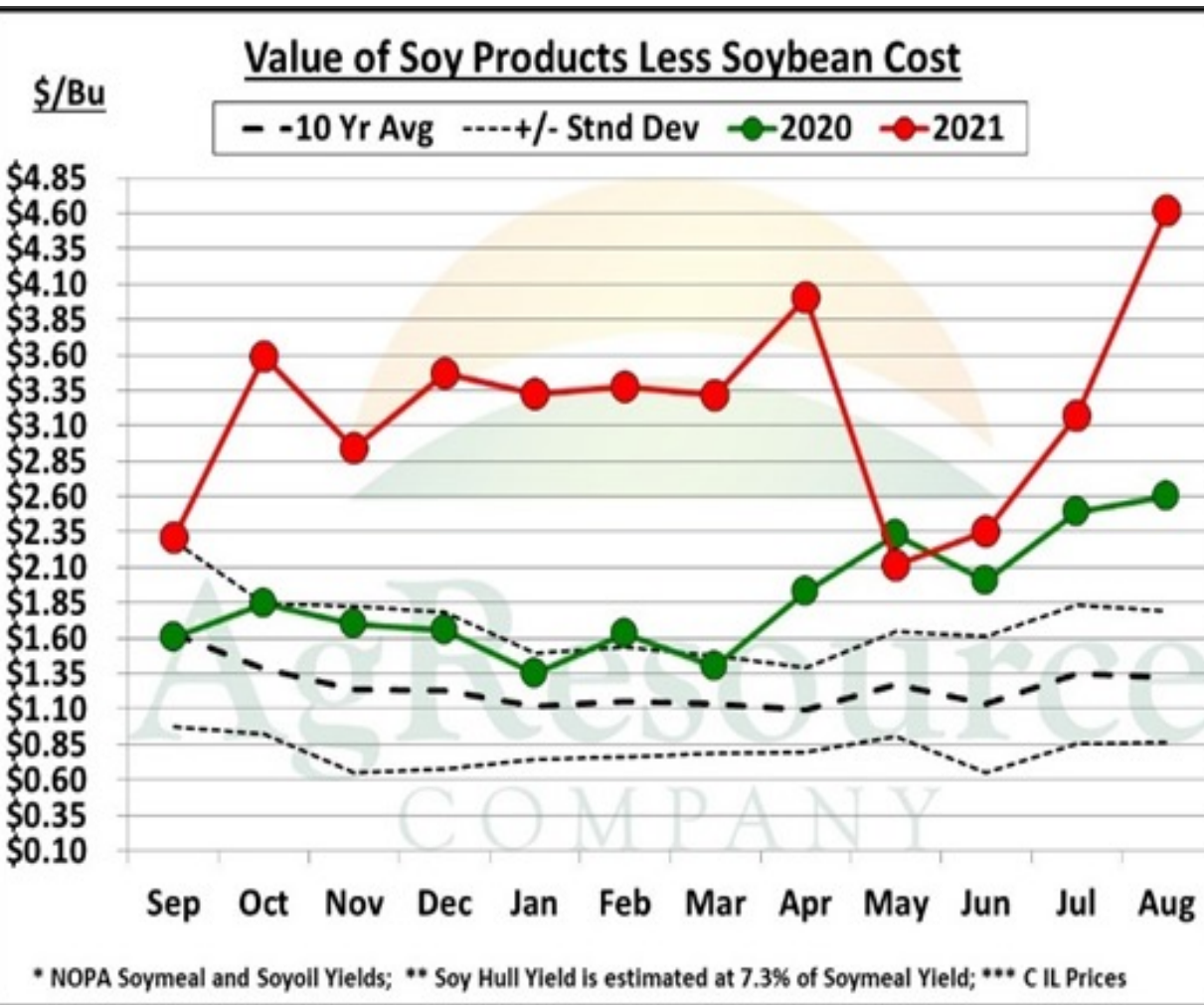


Renewable Diesel Demand Ramps Up in June/July

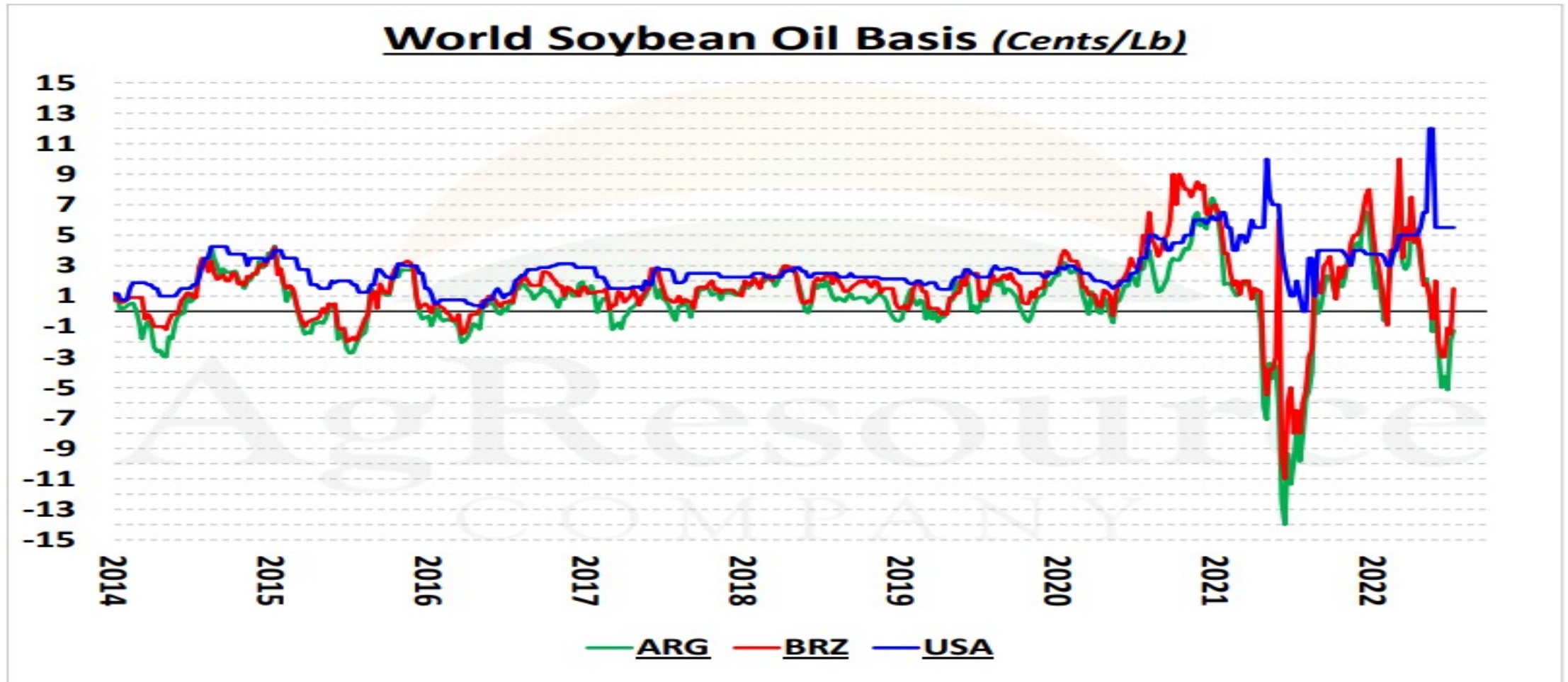
- An Important Demand Trend into 2023



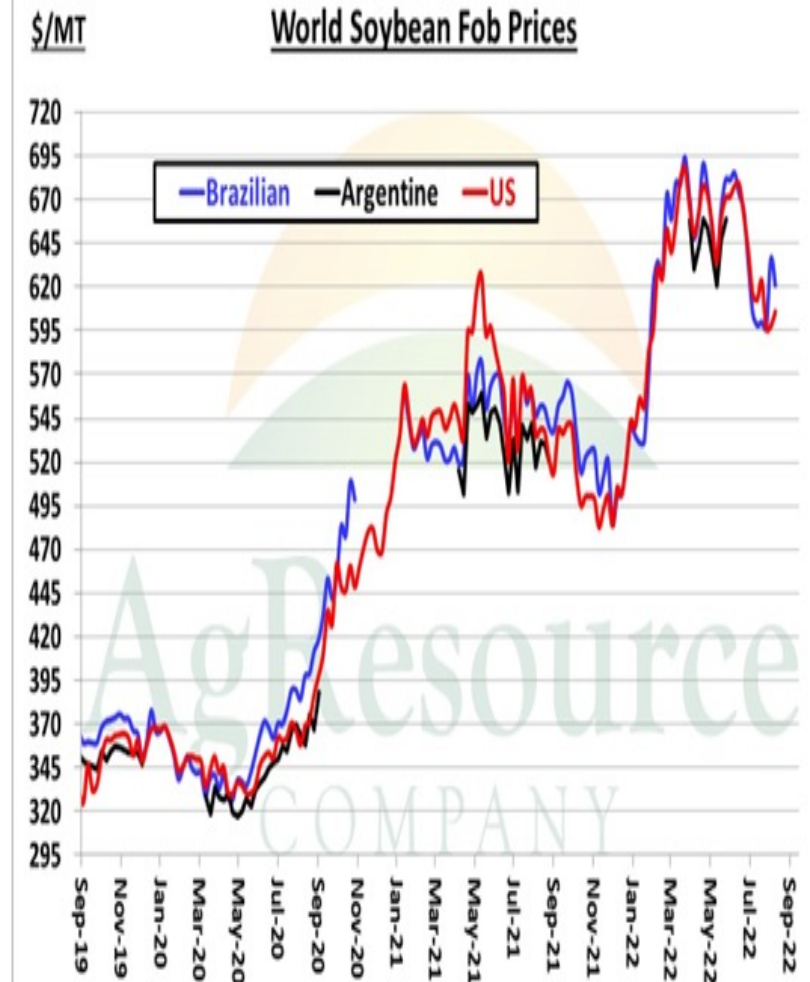
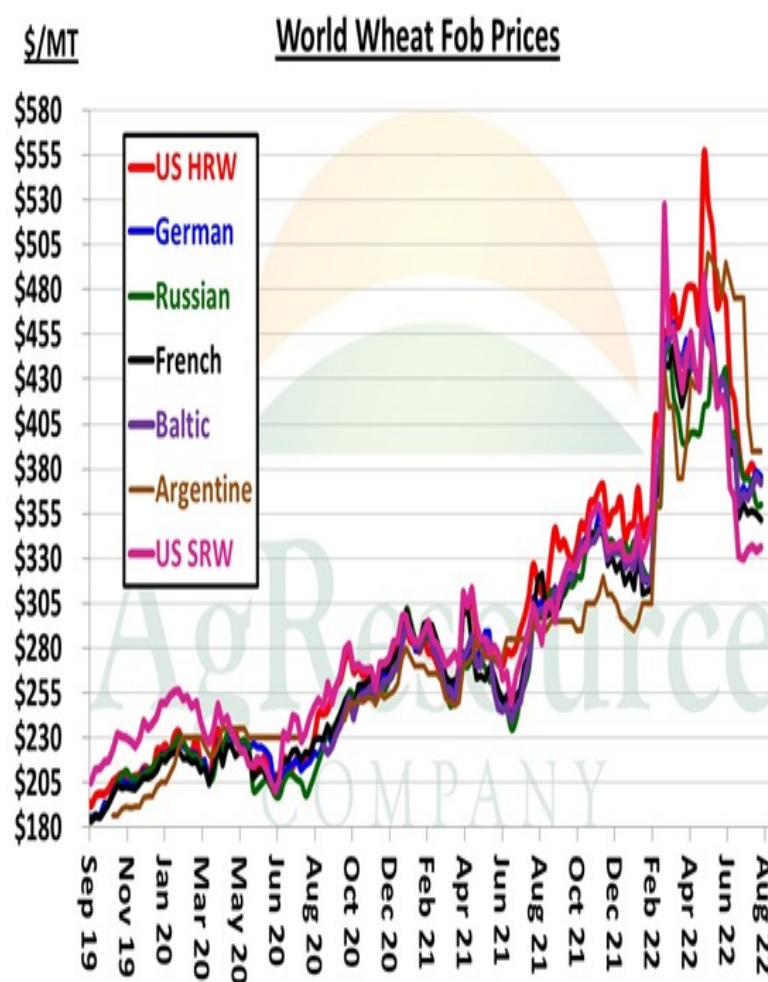
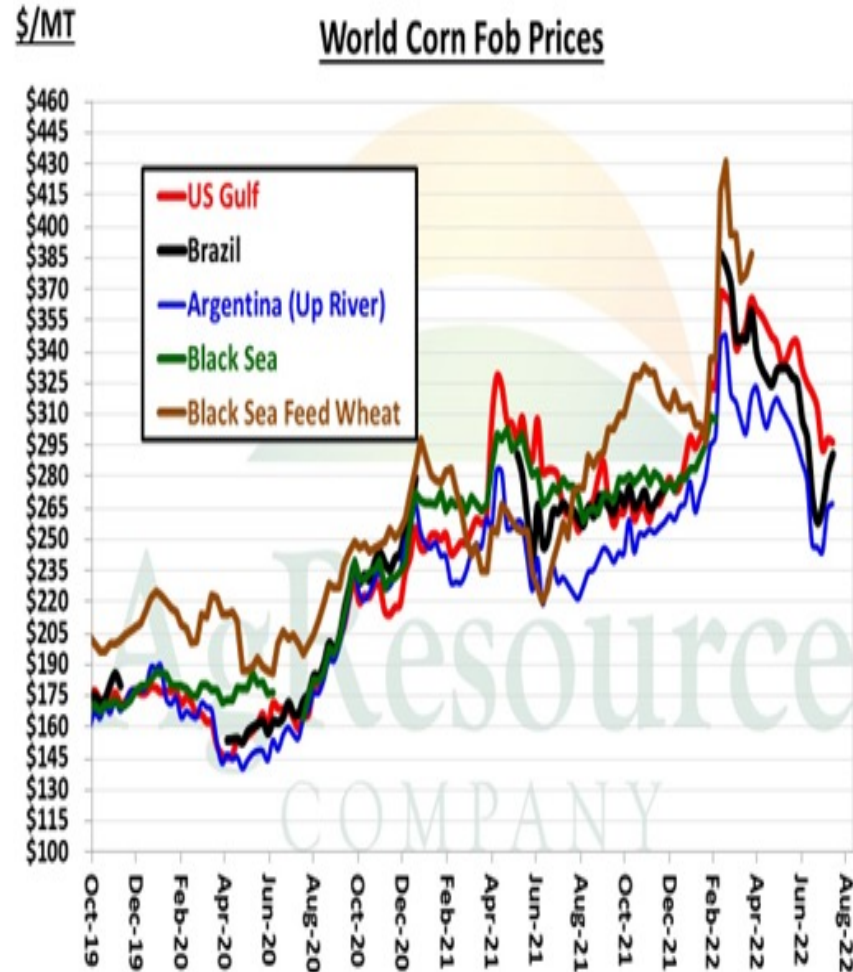
US Biofuel Margins To Stay Elevated on Demand- The need for Biofuels Stays High



By 2024-2025, the US needs to Dramatically Slow US Soyoil Exports; Or work Out World Cash Swaps

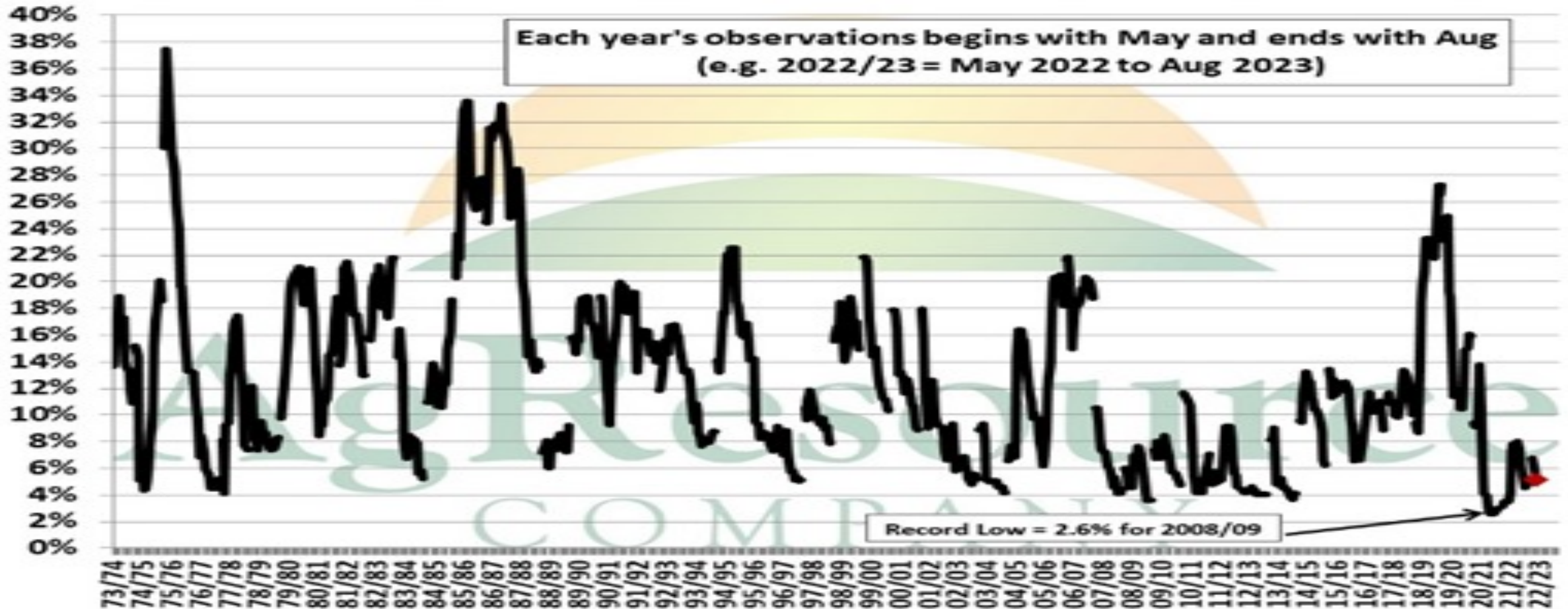


Seasonal Lows form in World Grains and Soy values in the past 3 weeks



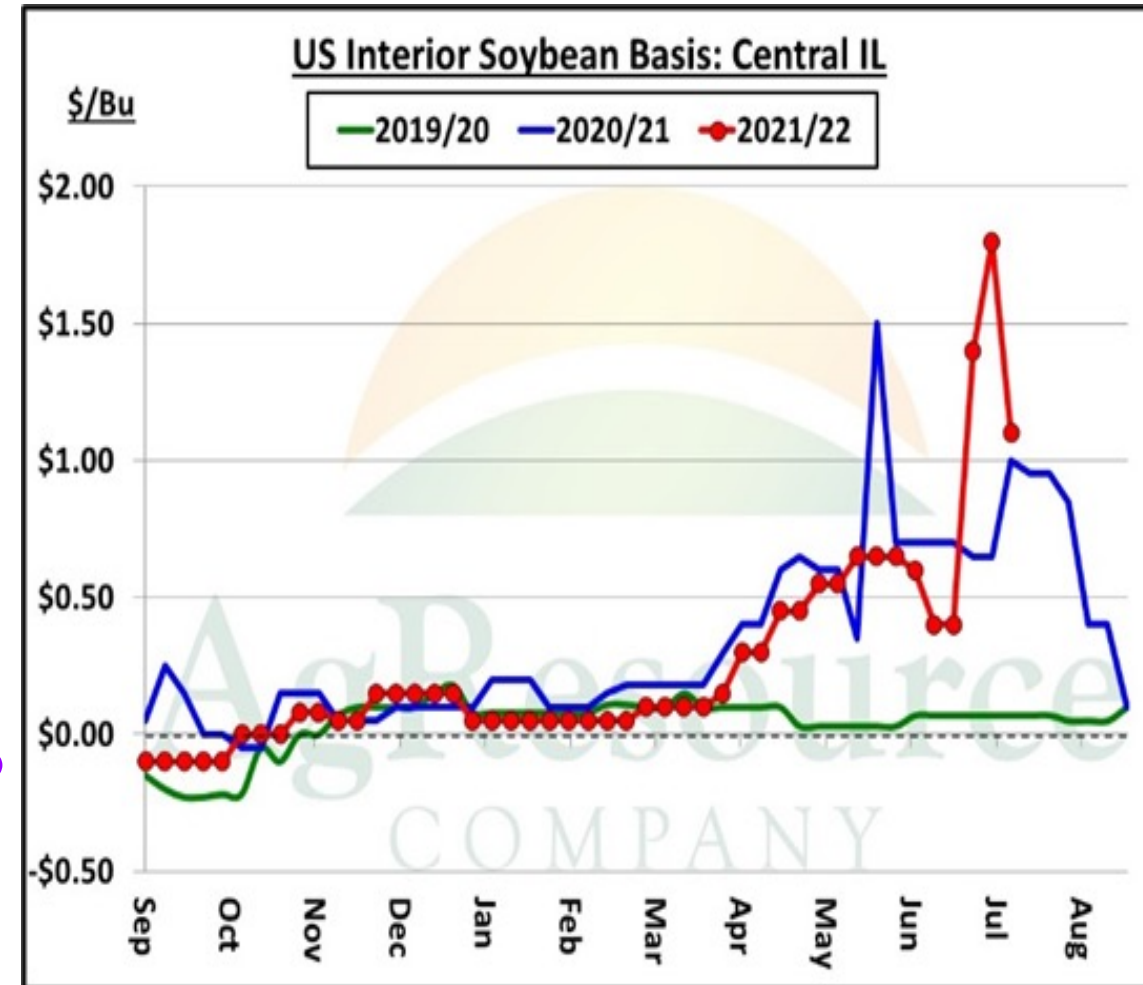
WASDE Stock/Use Ratio Historically Low, Means that Bearish Trend will be Limited

USDA Monthly WASDE Soybean Stocks/Use Projections (1973-2022)

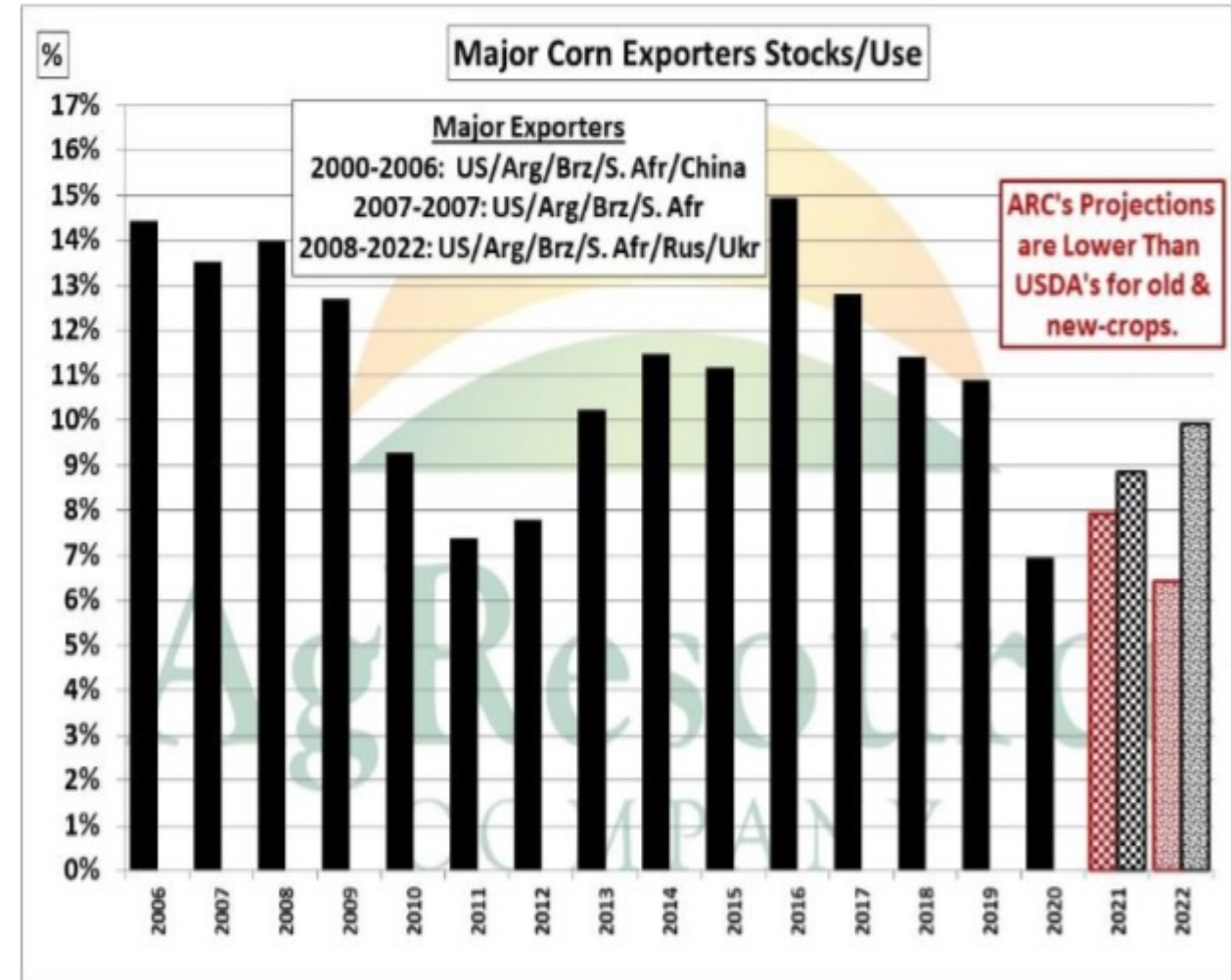
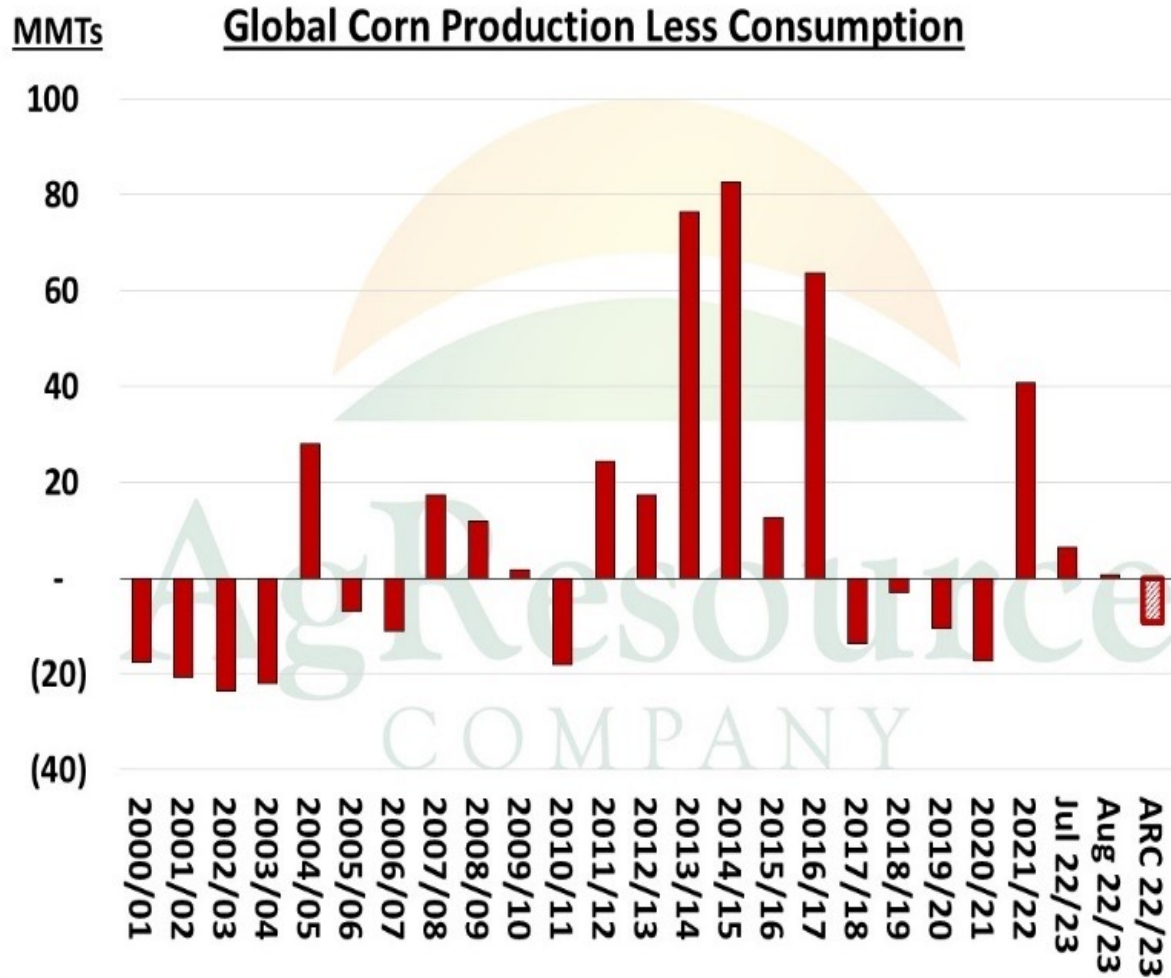


US 2022/23 Soybean Stocks below the Bare Minimum of 1125-165 Mil Bu – Rationing Required

SOYBEANS	2021/22	2021/22	2021/22	2022/23	2022/23	2022/23
	USDA	USDA	ARC	USDA	USDA	ARC
	Jul	Aug	Aug	Jul	Aug	Aug
Mln Acres or Bushels						
Area Planted	87.2	87.2	87.2	88.3	88.0	88.0
Abandonment (%)	1.0%	1.0%	1.0%	0.9%	0.9%	1.3%
Area Harvested	86.3	86.3	86.3	87.5	87.2	87.0
Yield	51.4	51.4	51.4	51.5	51.9	51.5
Production	4,435	4,435	4,435	4,505	4,531	4,480
Beginning Stocks	257	257	257	215	225	225
Imports	15	15	15	15	15	15
Supply, Total	4,707	4,707	4,707	4,735	4,771	4,720
Crushings	2,205	2,205	2,205	2,245	2,245	2,250
Exports	2,170	2,160	2,160	2,135	2,155	2,150
Seed	103	102	102	102	102	102
Residual	15	15	15	23	24	23
Use, Total	4,492	4,482	4,482	4,505	4,526	4,525
Ending Stocks	215	225	225	230	245	195
Ending Stocks/Use (%)	4.8%	5.0%	5.0%	5.1%	5.4%	4.3%
Crop Insurance Initial Price (\$/Bu)	11.87	11.87	11.87	14.01	14.32	14.32
Avg. Farm Price (\$/Bu) 1/	13.35	13.30	13.30	14.40	14.35	17.25
Futures-Based Forecast (\$/Bu) 2/	---	---	13.80	---	---	14.05
Price Ratio: Sov/Corn (%)	224%	224%	226%	217%	216%	227%

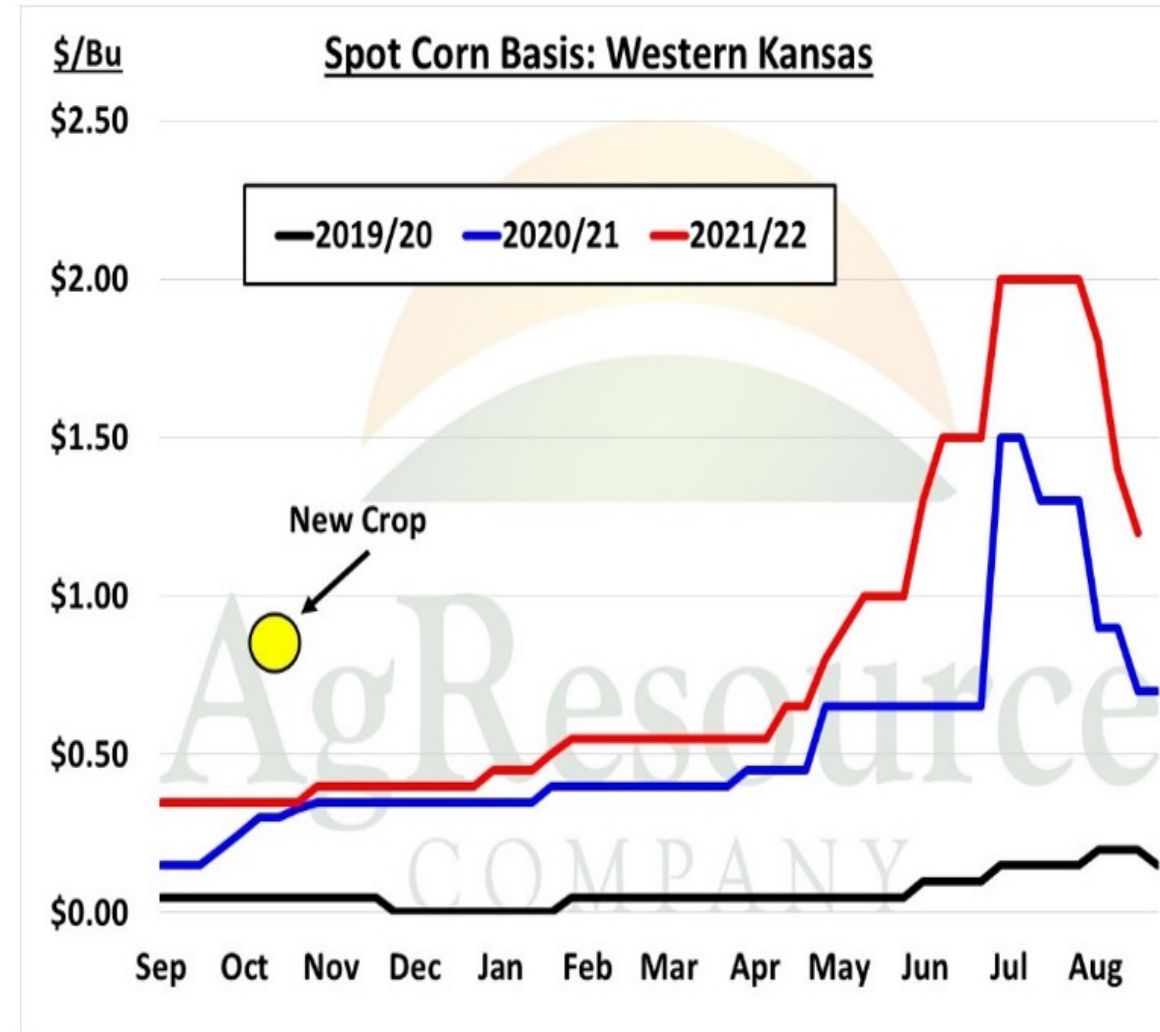


Global Corn Supply Tightness to Worsen into 2023. Buy the September Seasonal Break

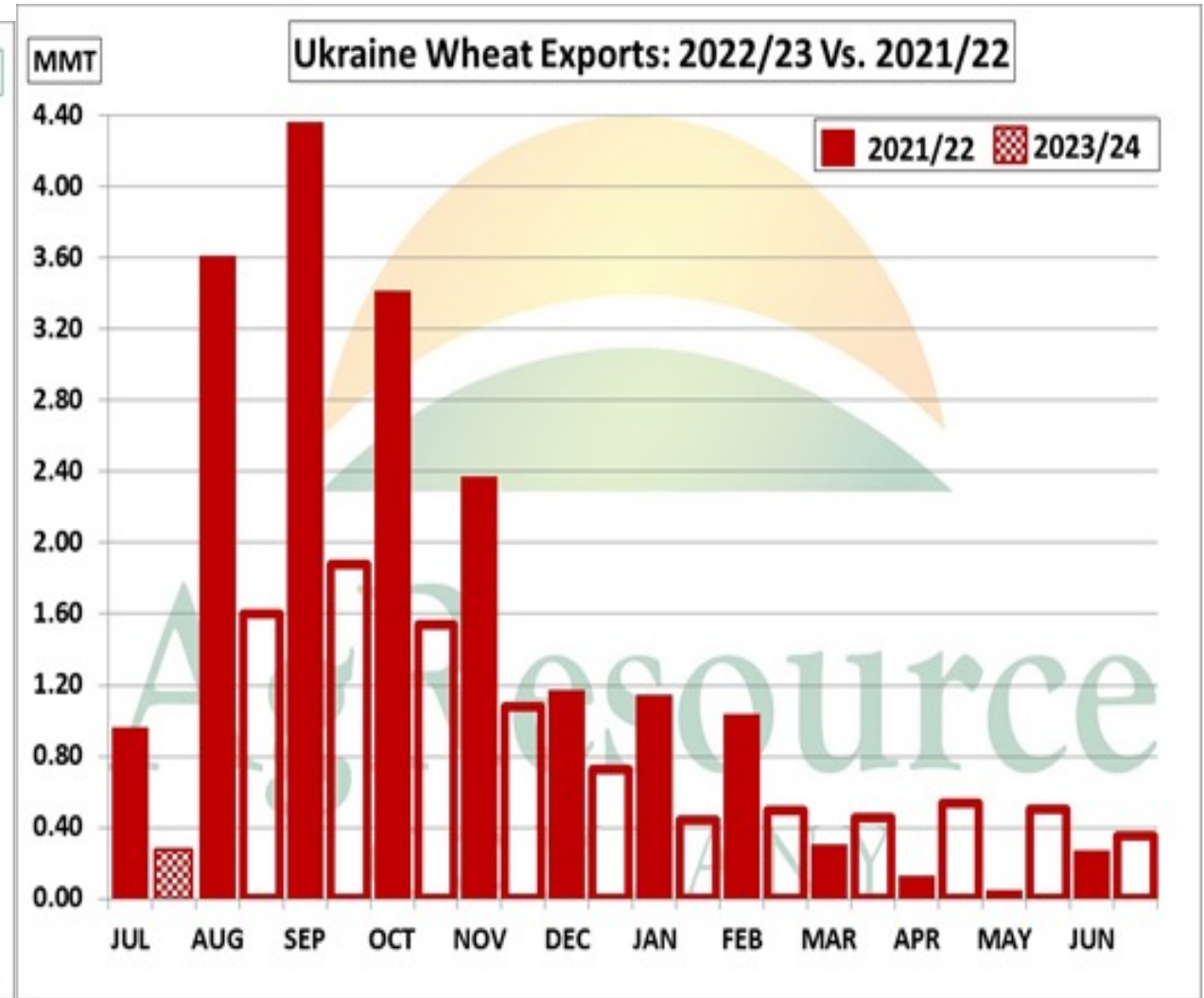
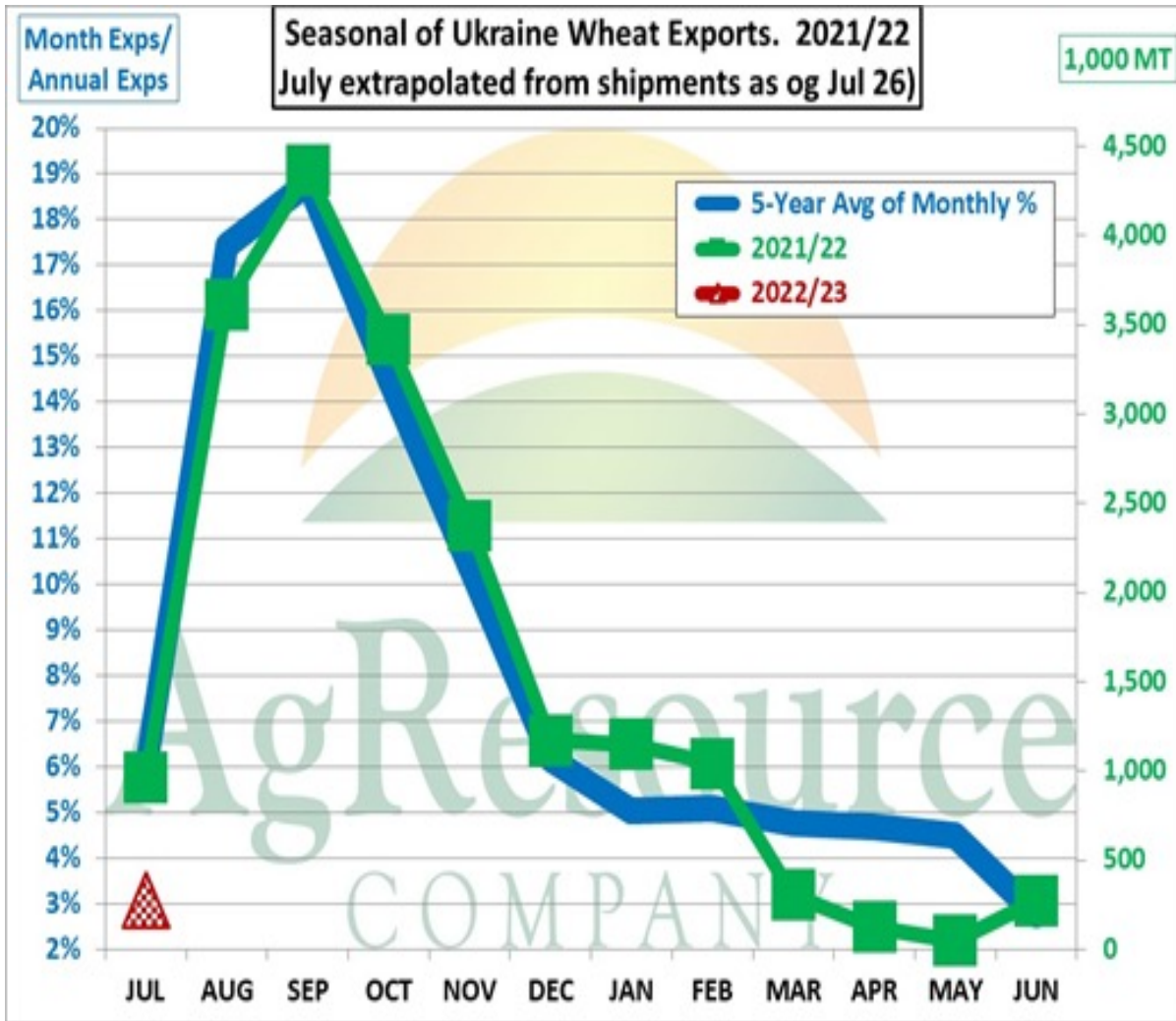


US 2022/23 Corn End Stocks Near 1,100 Mil Bu – The Bare Minimum!

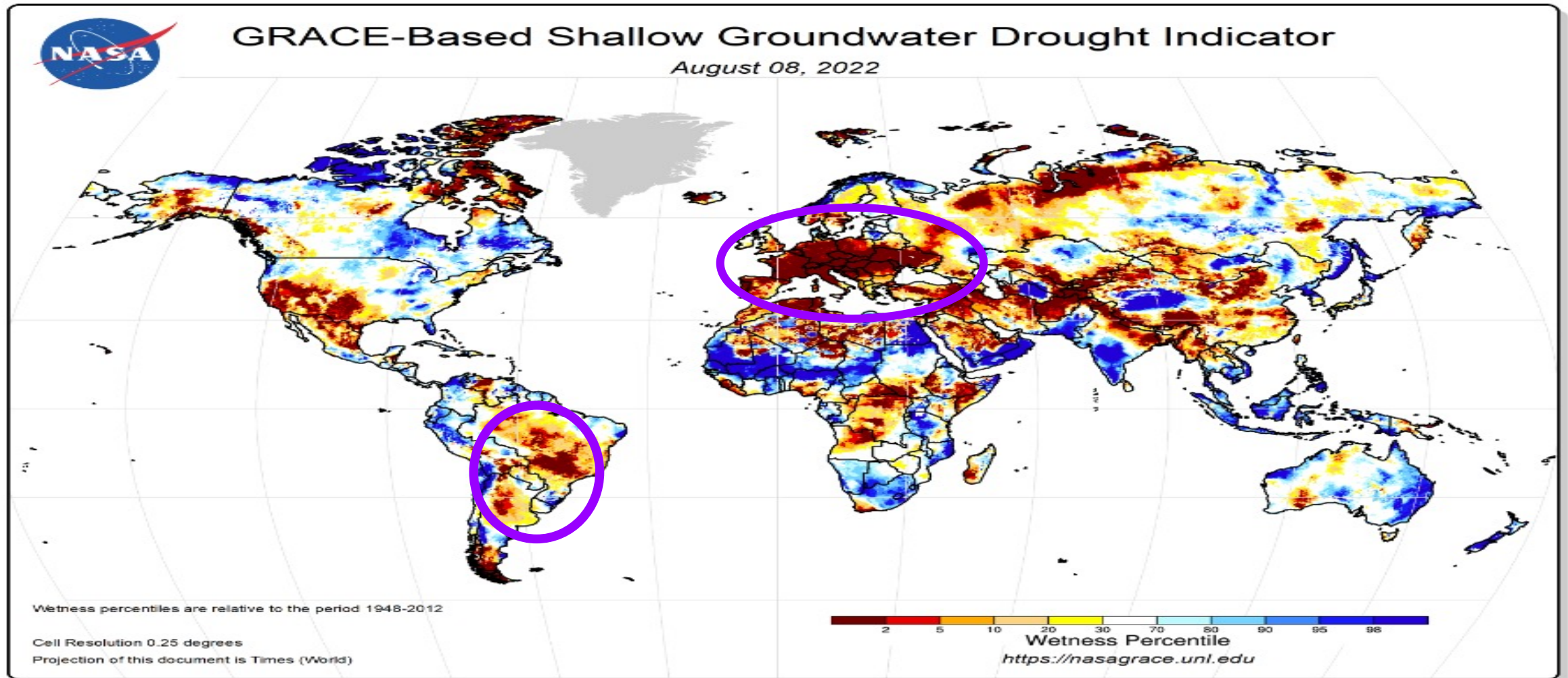
CORN	2021/22	2021/22	2021/22	2022/23	2022/23	2022/23
	USDA Jul	USDA Aug	ARC Aug	USDA Jul	USDA Aug	ARC Aug
Mln Acres or Bushels						
Area Planted	93.4	93.4	93.4	89.9	89.9	89.9
Abandonment	8.6%	8.6%	8.6%	8.9%	9.0%	9.4%
Area Harvested	85.4	85.4	85.4	81.9	81.8	81.5
Yield	177.0	177.0	177.0	177.0	175.4	174.0
Production	15,115	15,115	15,115	14,505	14,359	14,181
Beginning Stocks	1,235	1,235	1,235	1,510	1,530	1,520
Imports	25	25	25	24	25	25
Supply, Total	16,375	16,375	16,375	16,039	15,913	15,726
Feed and Residual	5,600	5,600	5,625	5,350	5,325	5,325
Food, Seed, Industrial	6,815	6,795	6,780	6,820	6,825	6,740
Ethanol and by-products 1/	5,375	5,350	5,350	5,375	5,375	5,325
Food, Other Industrial 2/	1,410	1,415	1,400	1,415	1,415	1,415
Seed	30	30	30	30	30	30
Domestic, Total	12,415	12,395	12,405	12,170	12,150	12,095
Exports	2,450	2,450	2,450	2,400	2,375	2,450
Use, Total	14,865	14,845	14,855	14,570	14,525	14,465
Ending Stocks	1,510	1,530	1,520	1,469	1,388	1,181
Ending Stocks/Use (%)	10.2%	10.3%	10.2%	10.1%	9.6%	8.2%
Crop Insurance Price (\$/Bu)	4.58	4.58	4.58	5.83	5.89	5.89
Avg. Farm Price (\$/Bu) 3/	5.95	5.95	5.95	6.65	6.65	7.60
Fut-Based Forecast (\$/Bu) 4/	---	---	6.25	---	---	6.00
Price Ratio: Corn/Soy (%)	45%	45%	45%	50%	50%	44%



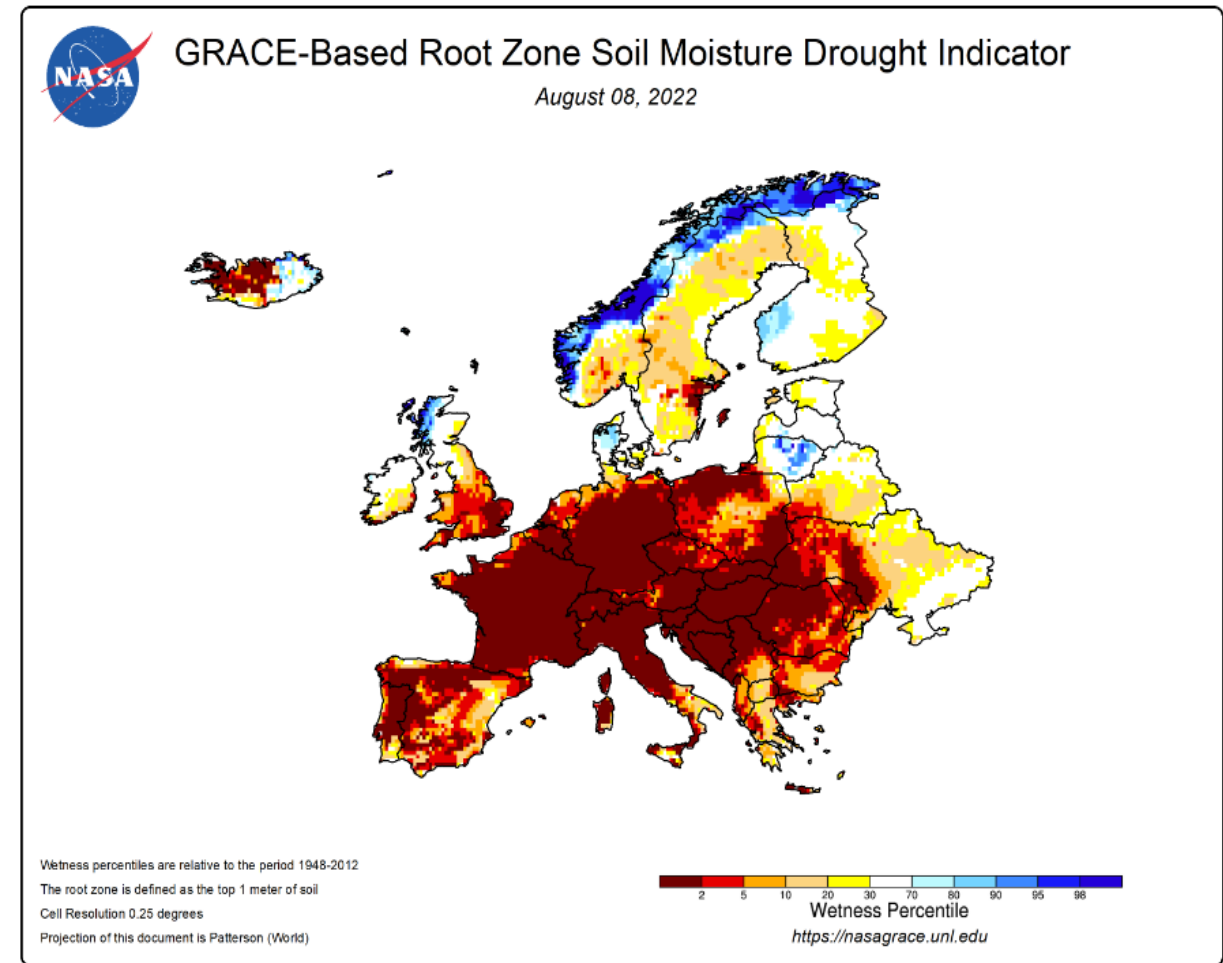
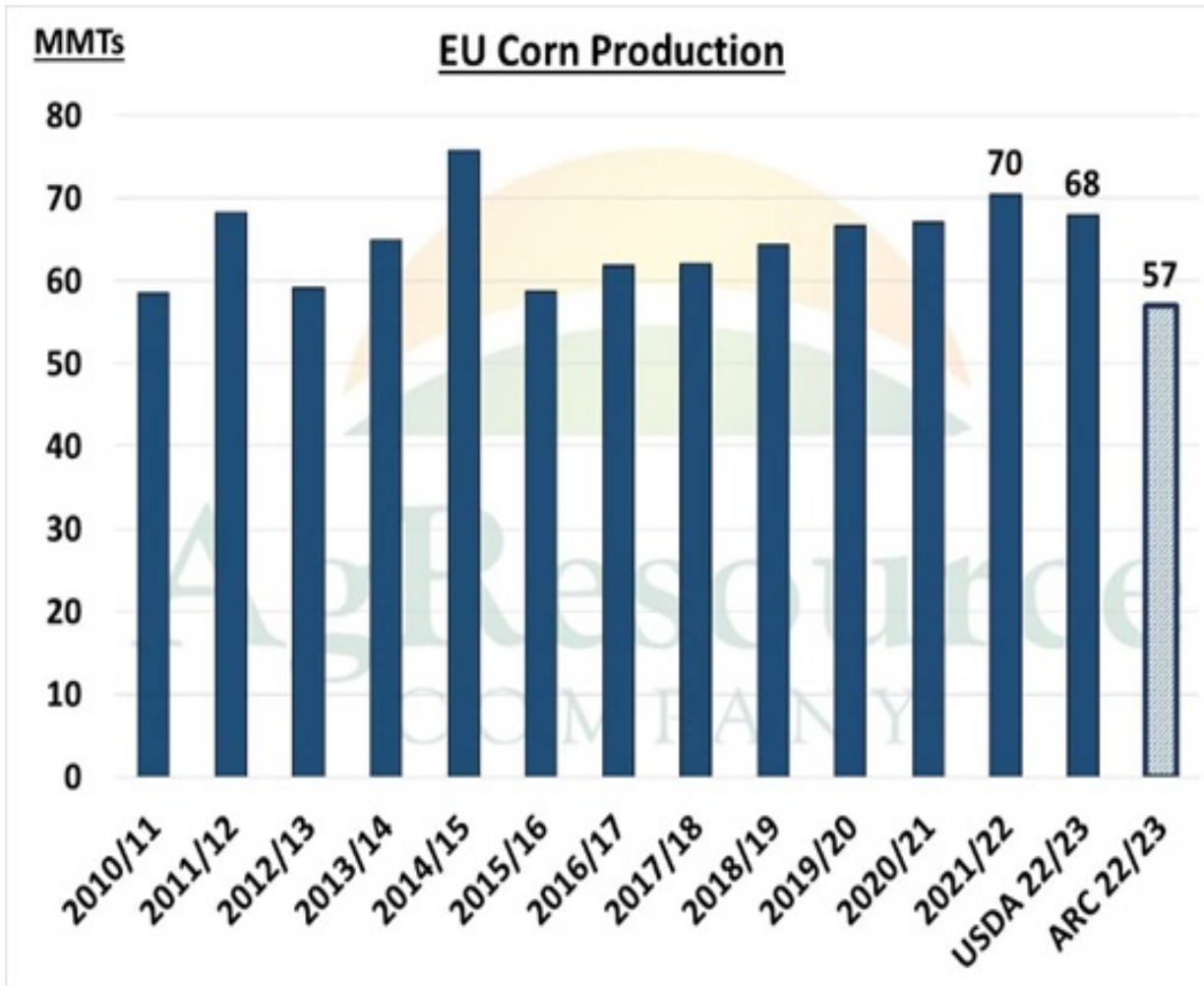
Export Corridor Offers No Big Increase in World Supplies; Price to rise back to \$440-460



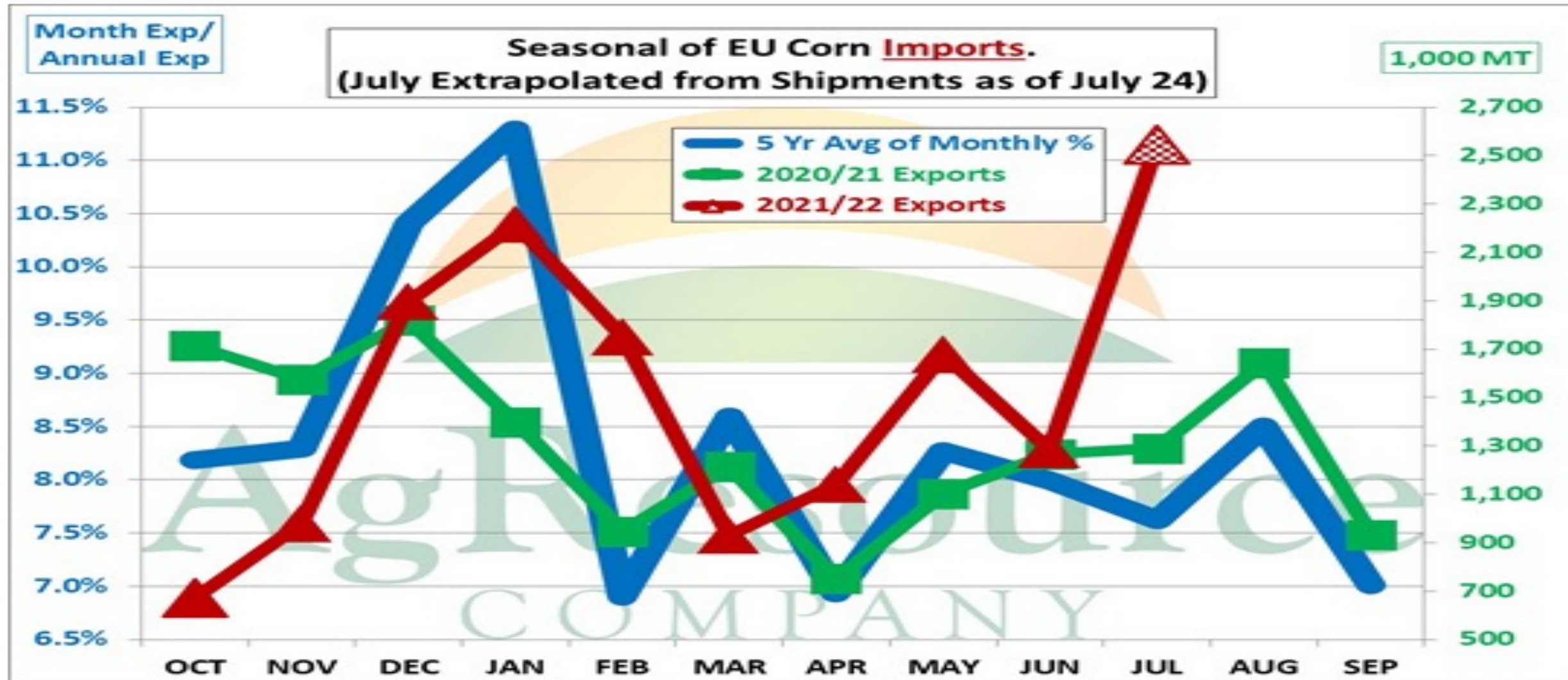
Root Zone Moisture; Big Problem Growing Across Europe/Ukraine – And Maybe Argentina



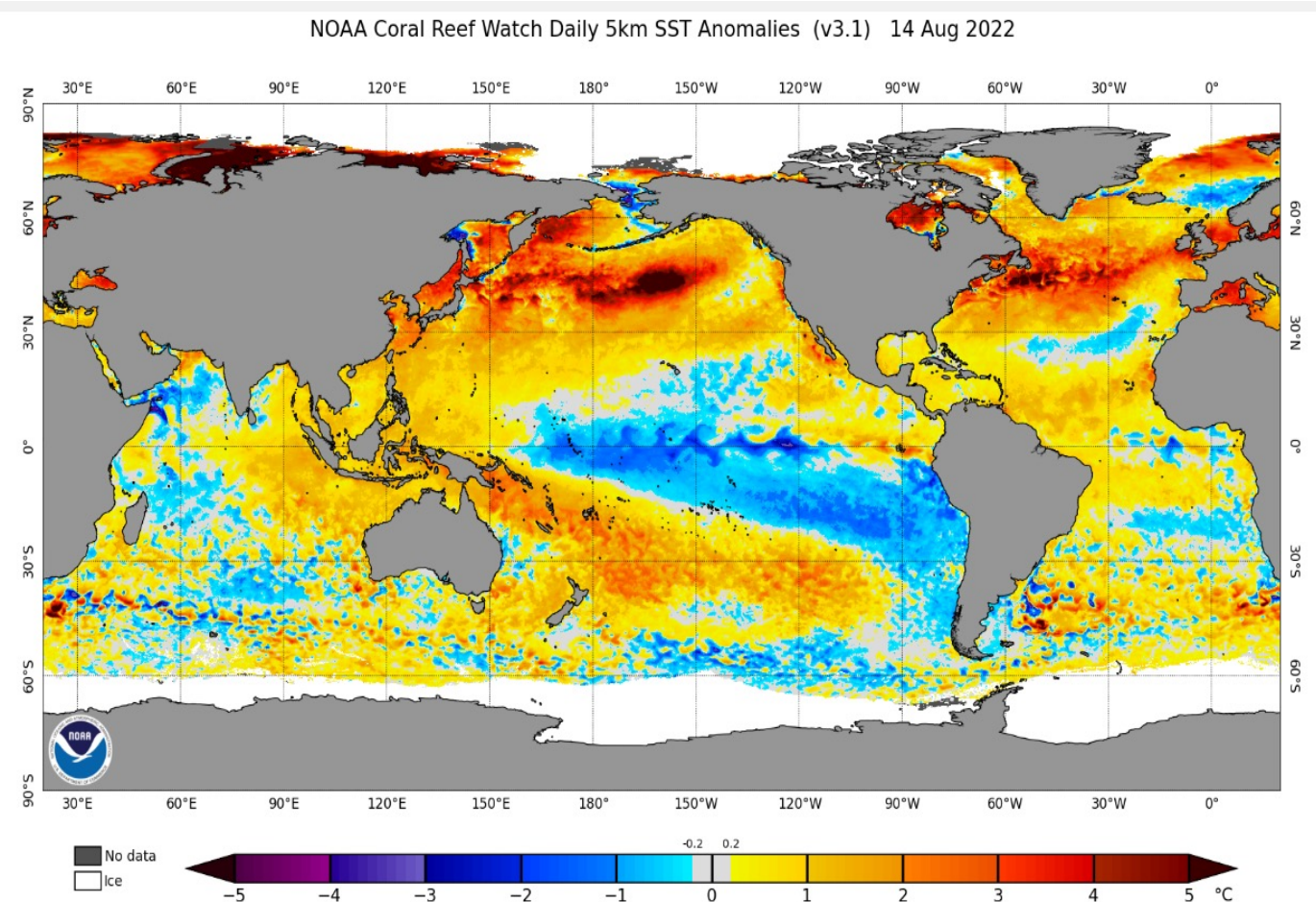
Acute EU Drought to Lower EU Corn Production to 50-53 MMTs with another Dry 2 Weeks



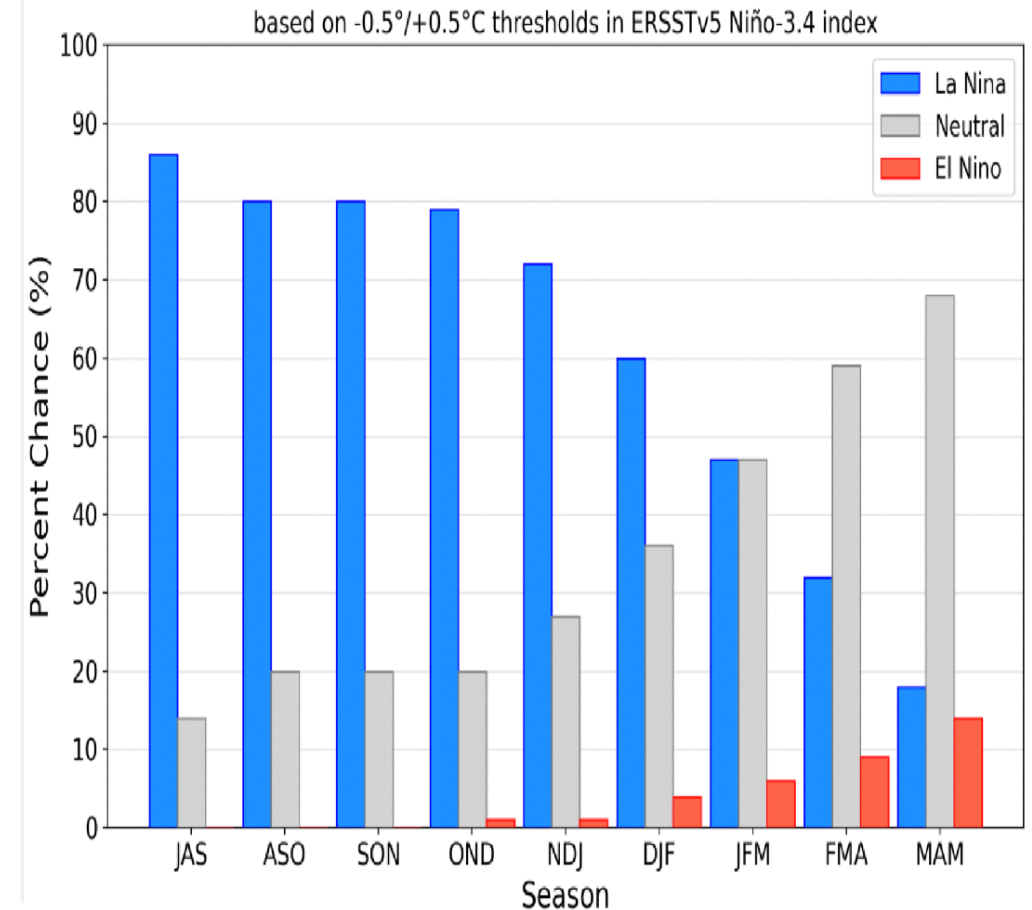
The EU will become the Largest Importer in the World at 22-24 MMTs in 2022/23



La Nina Strengthens and Hangs On for 3rd Year of Impact on South American Weather

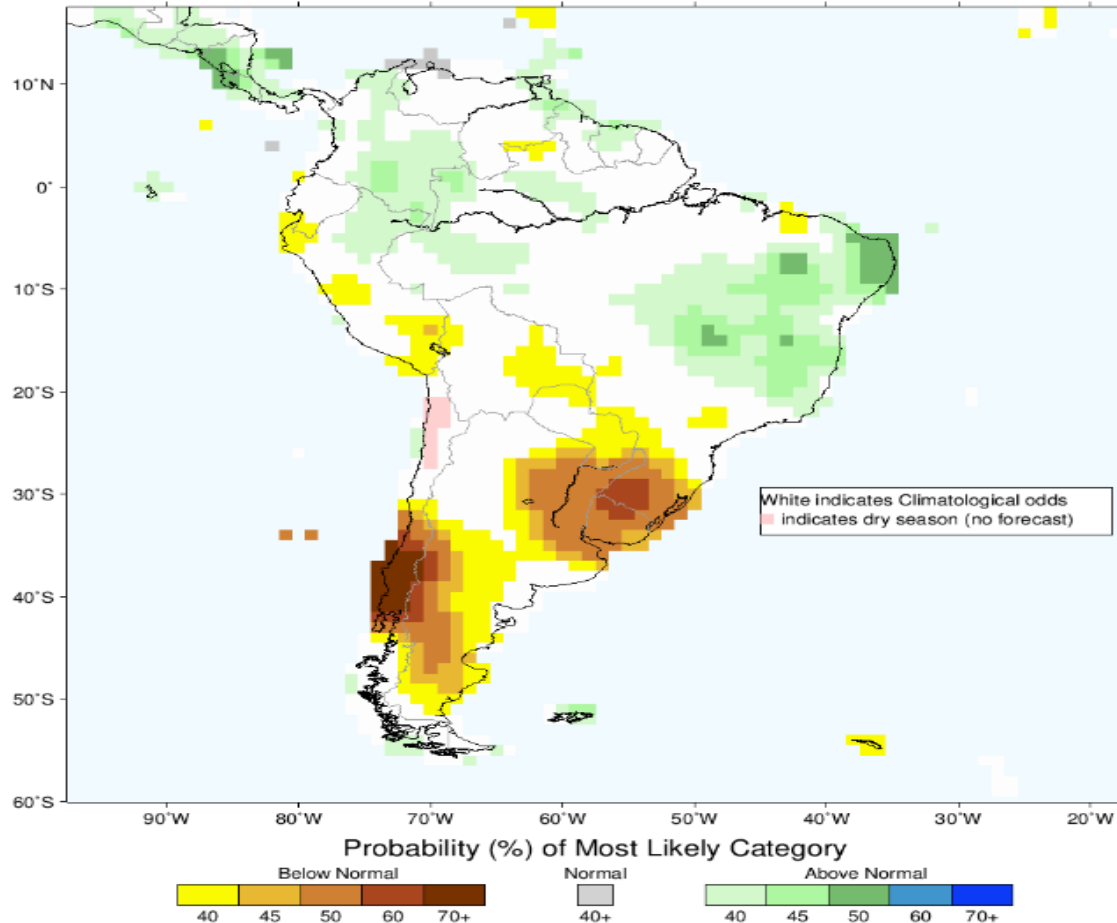


Official NOAA CPC ENSO Probabilities (issued Aug. 2022)

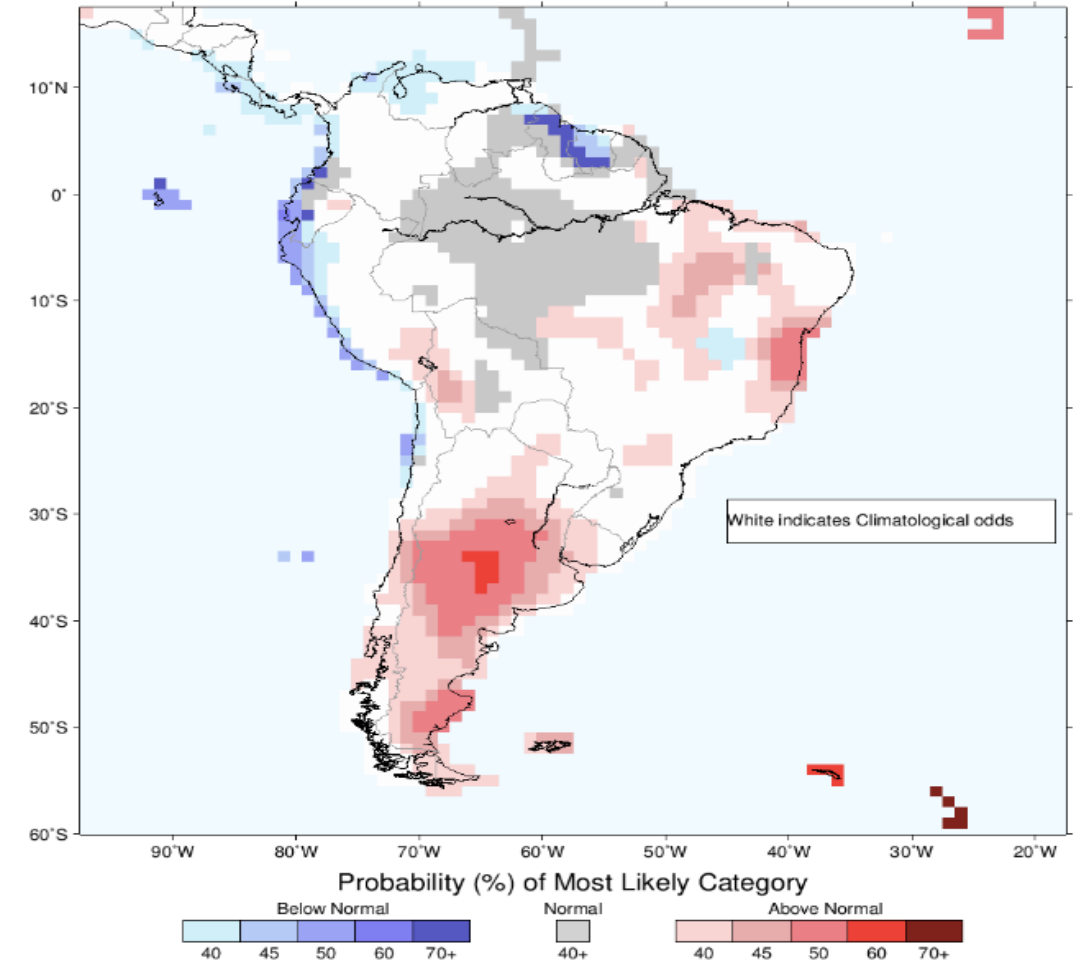


In 3rd Year of La Nina; Argentina/S Brazil Appear to be the Target for Heat/Dryness

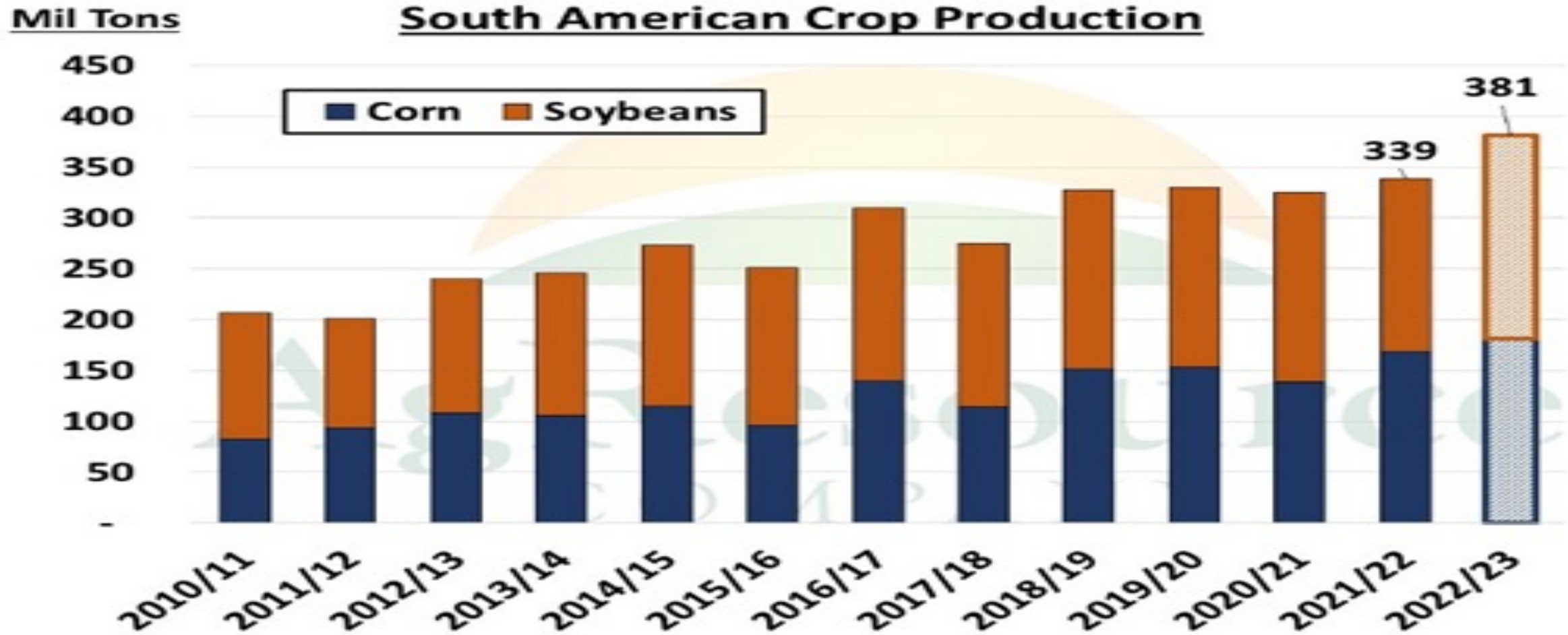
IRI Multi-Model Probability Forecast for Precipitation for September–October–November 2022, Issued August 2022



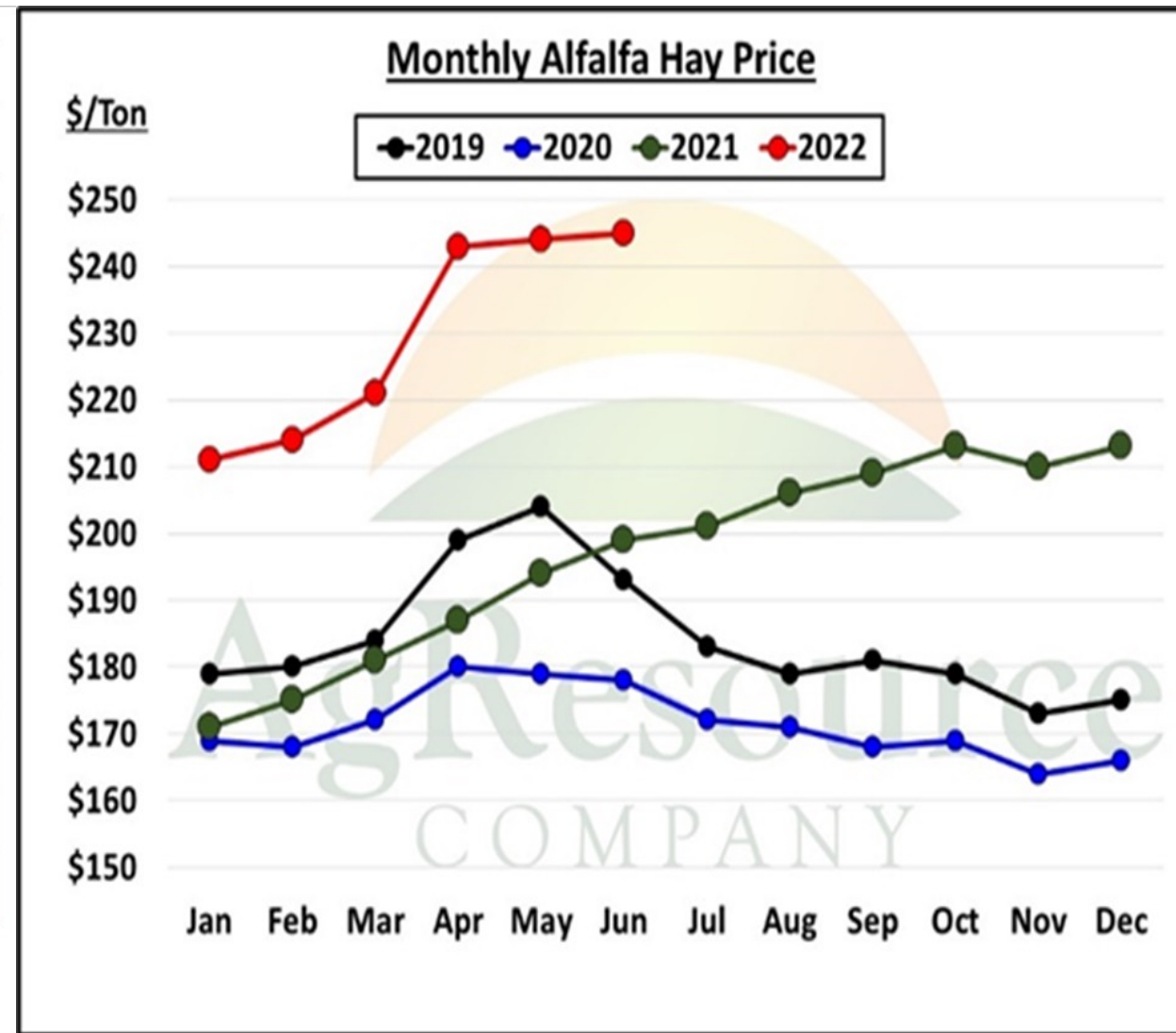
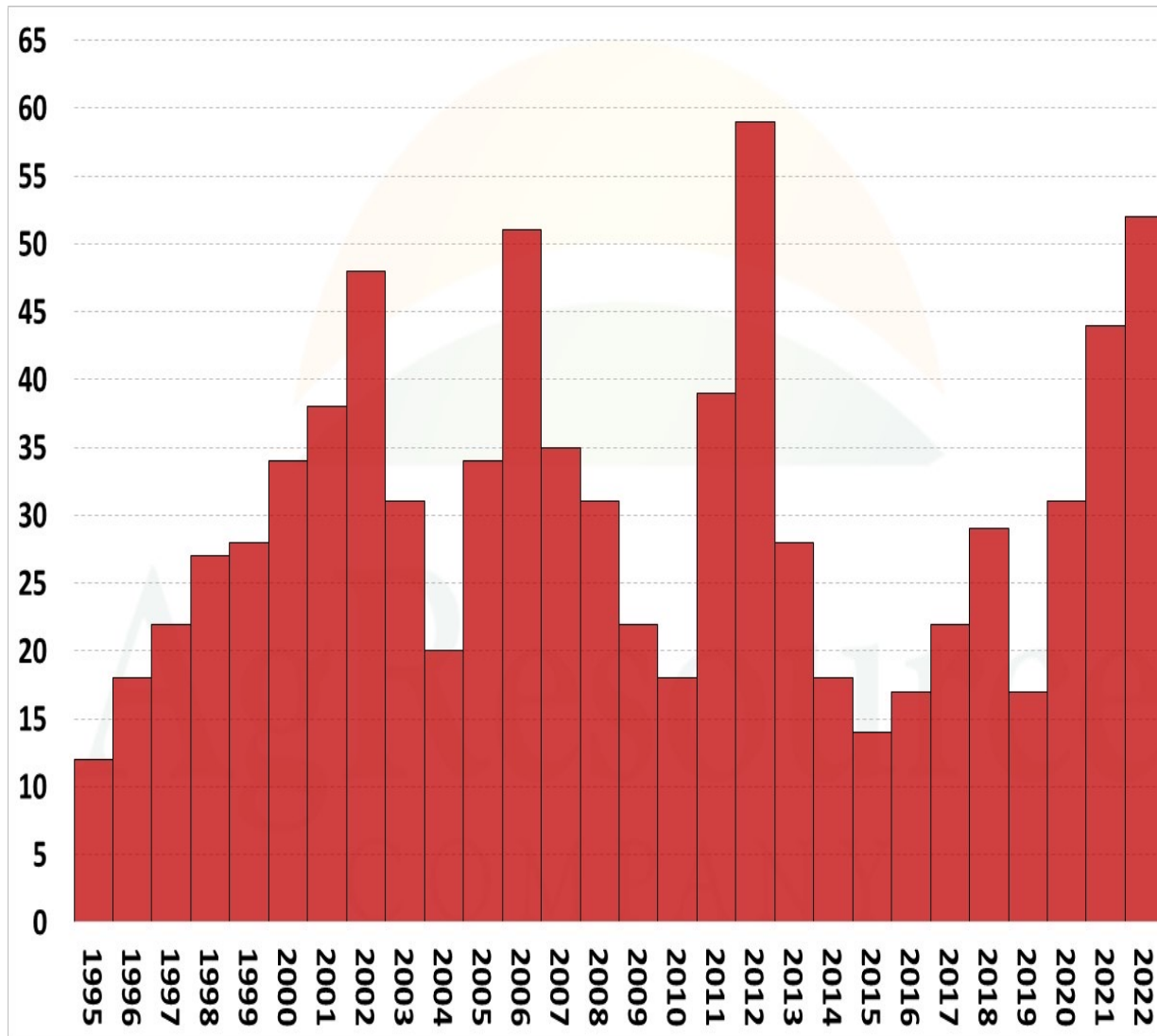
IRI Multi-Model Probability Forecast for Temperature for September–October–November 2022, Issued August 2022



Record Increase in South American Crops; Right or Wrong!



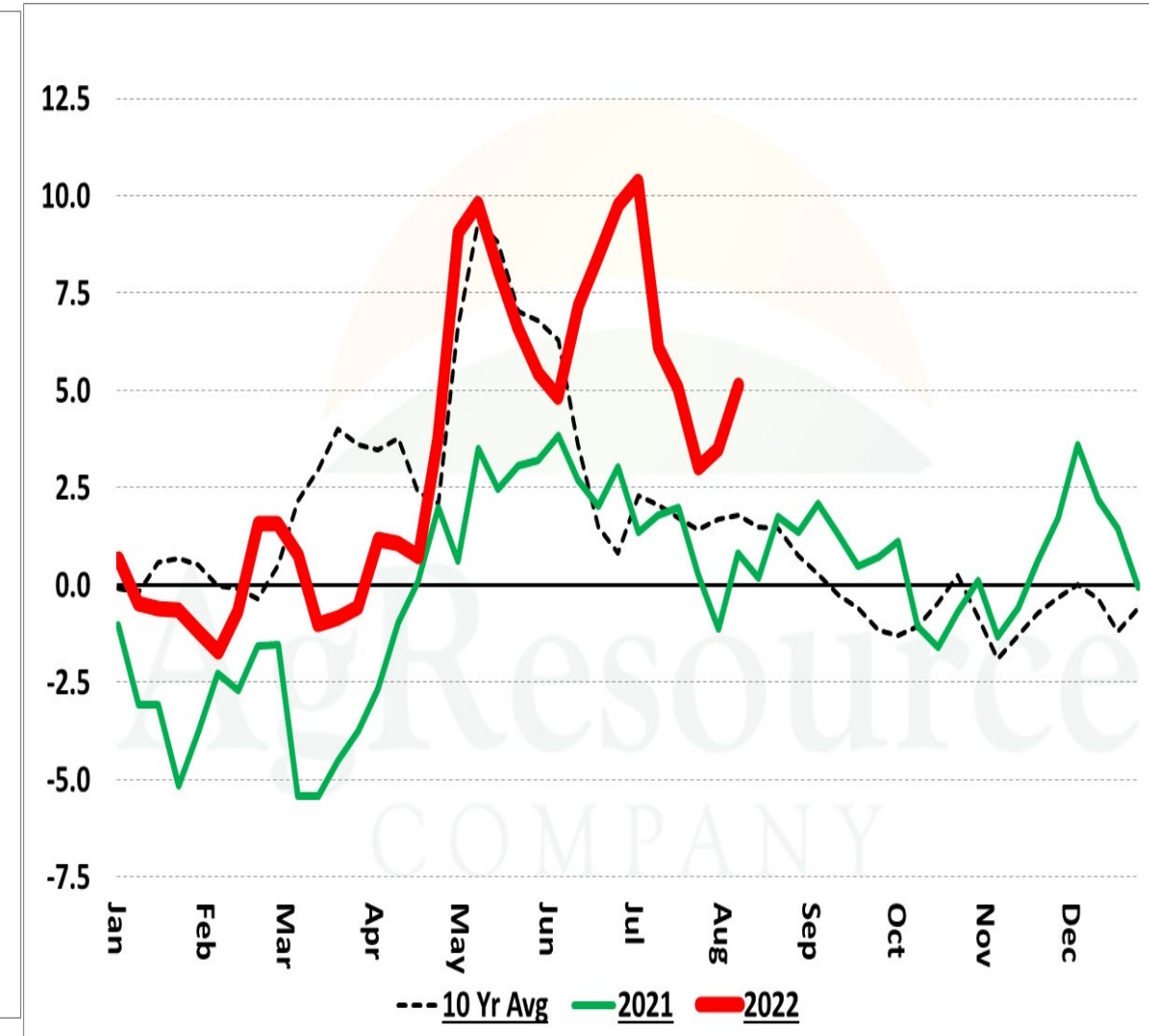
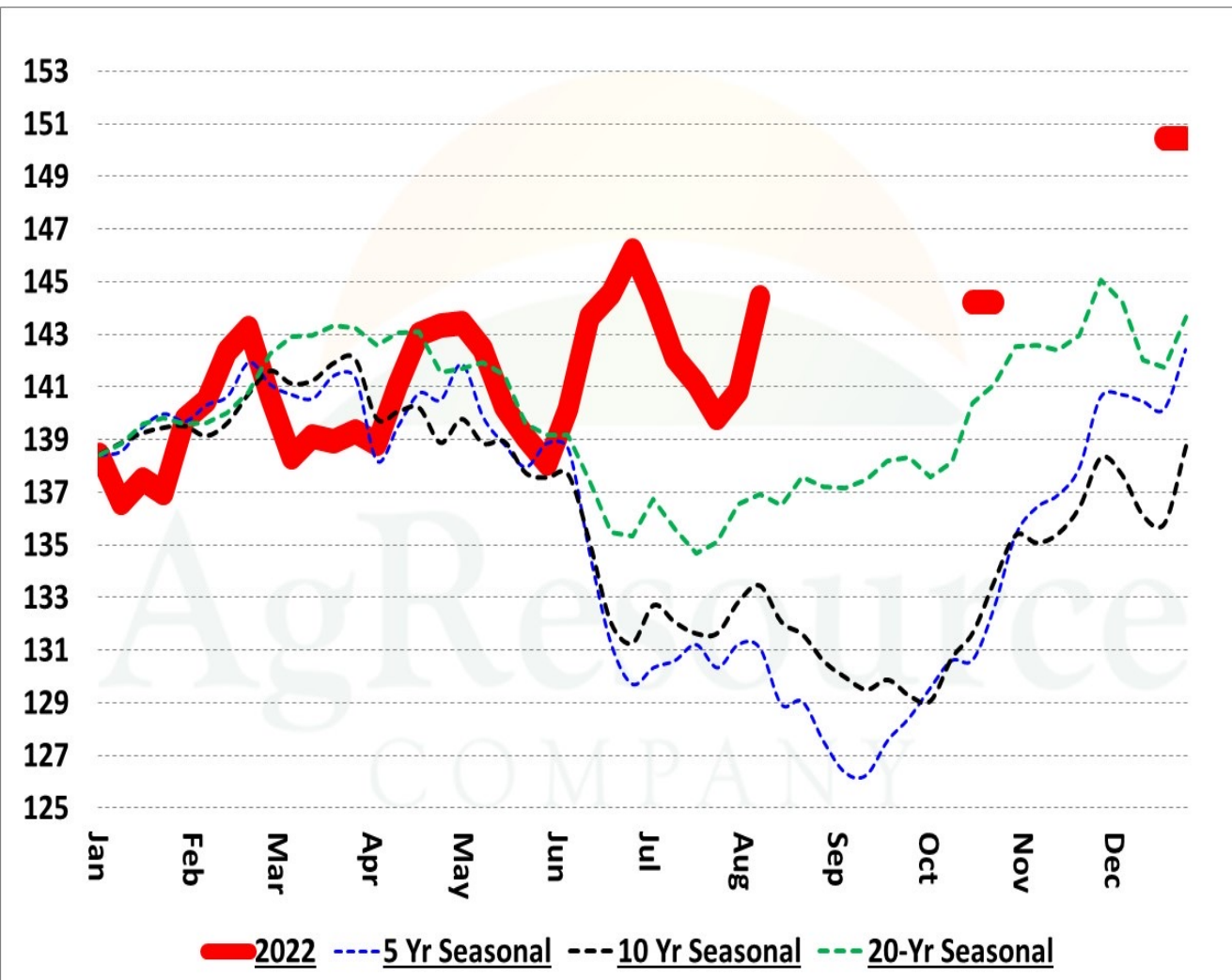
US/TX/NE Poor/Very Poor Pasture Conditions



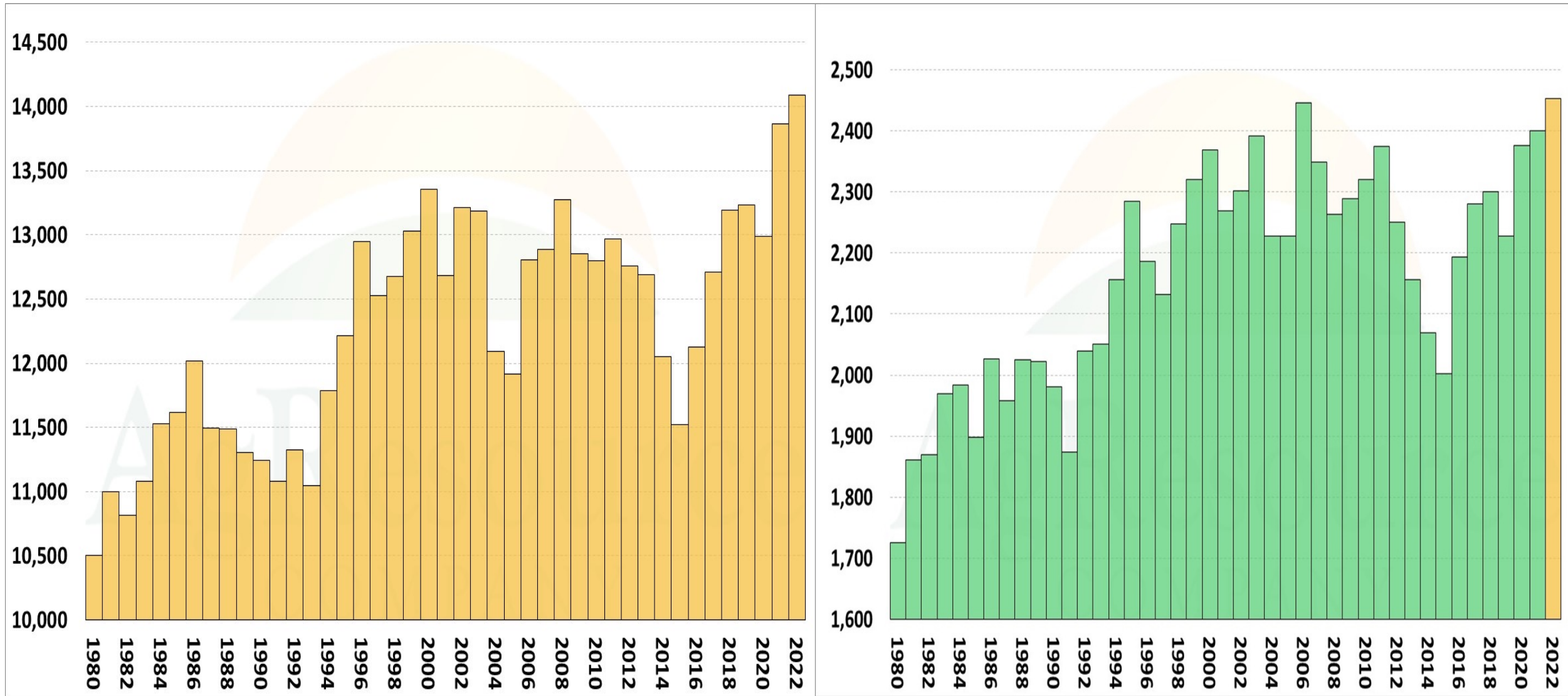
US Cattle and Beef Analysis/Comment



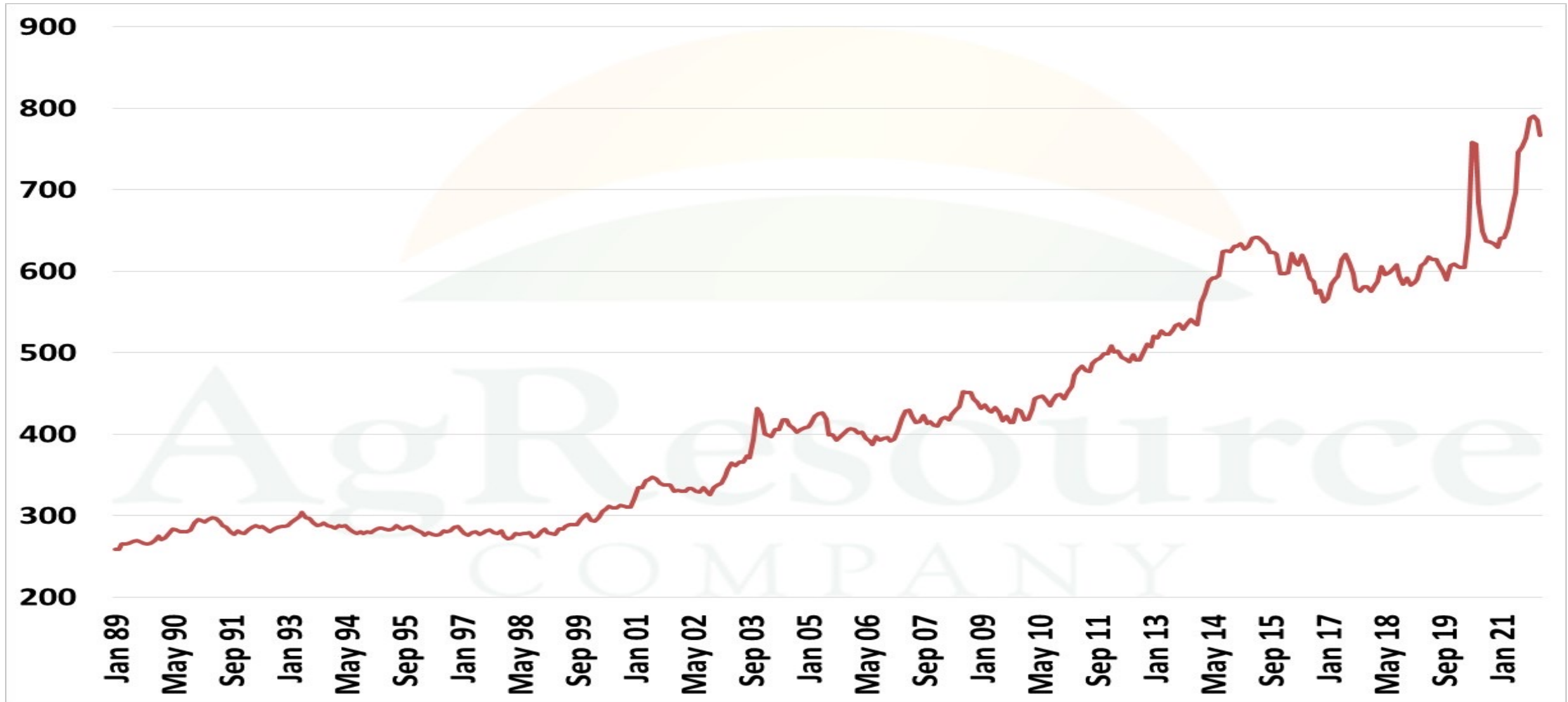
5-Area Steer Seasonal Price and Cash Basis



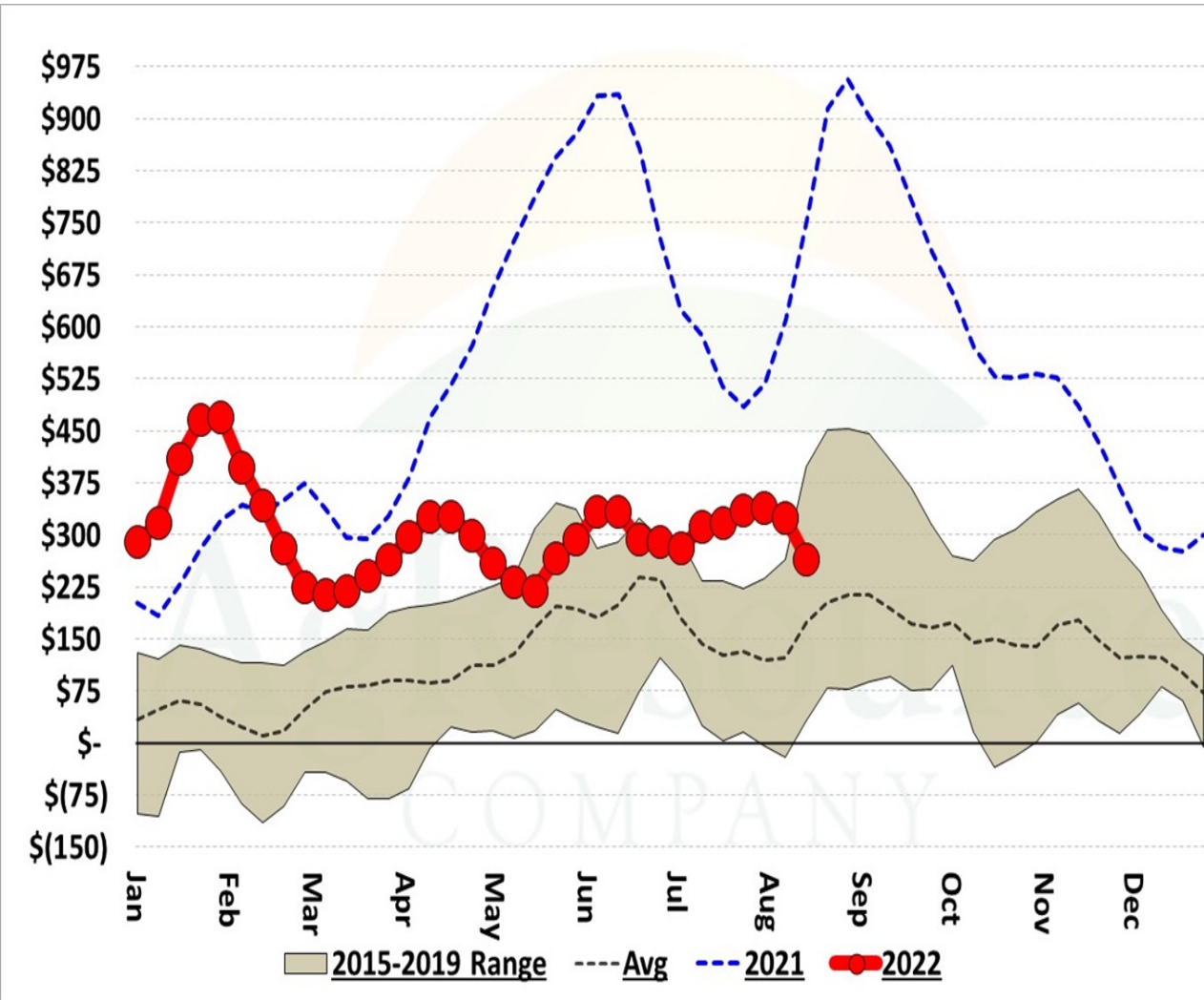
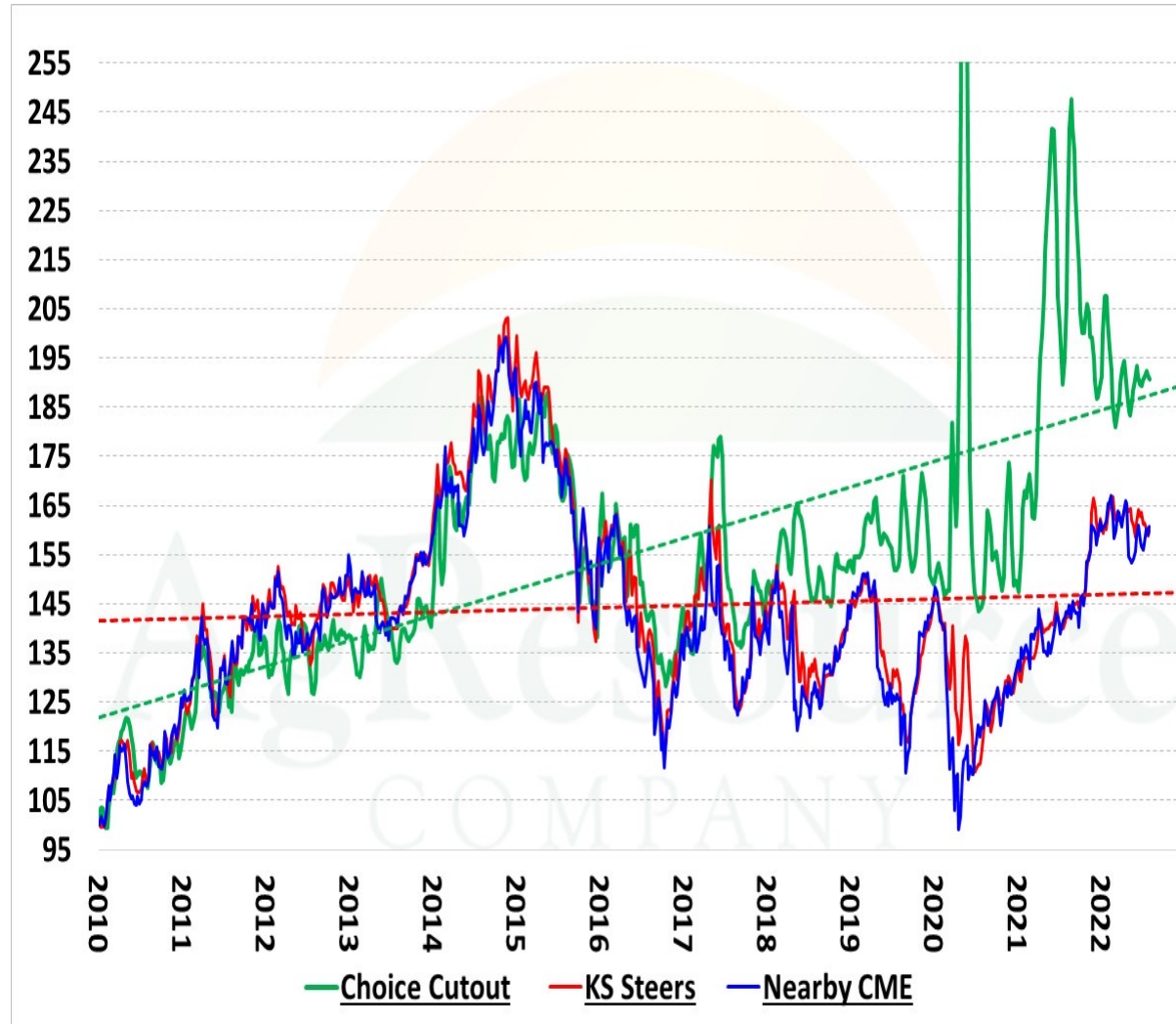
US January-June and June Beef Production



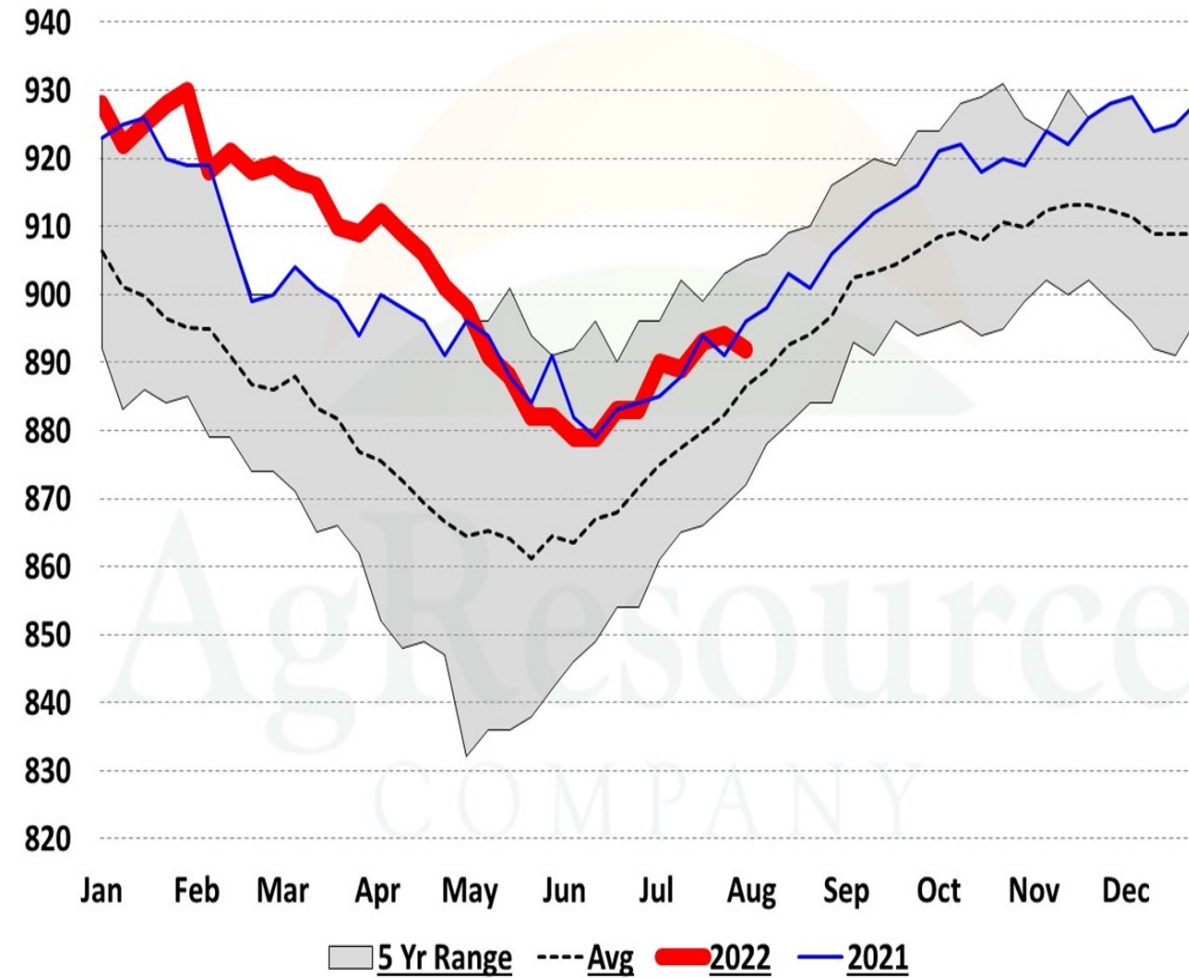
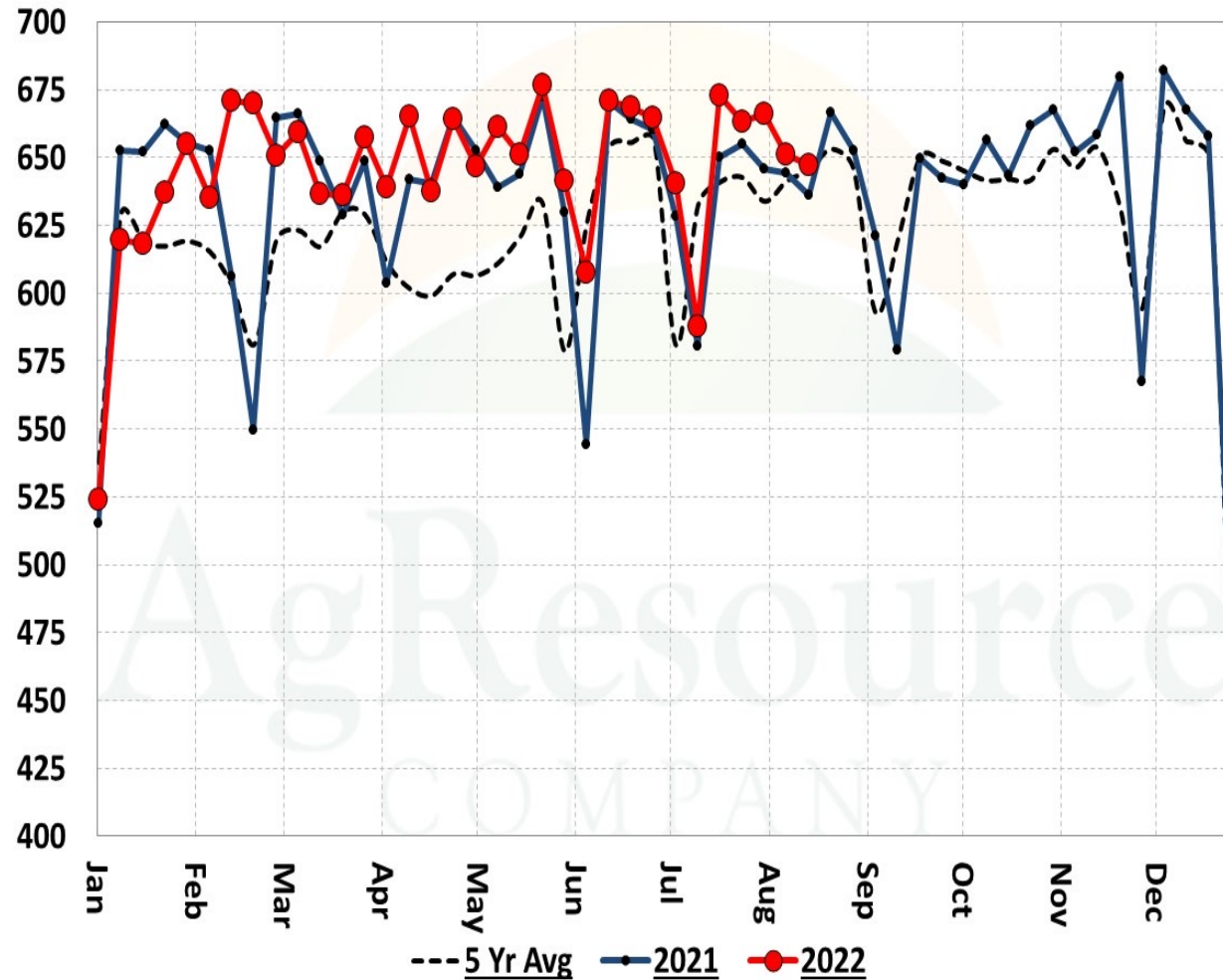
Record High Nominal Beef Prices in 2022



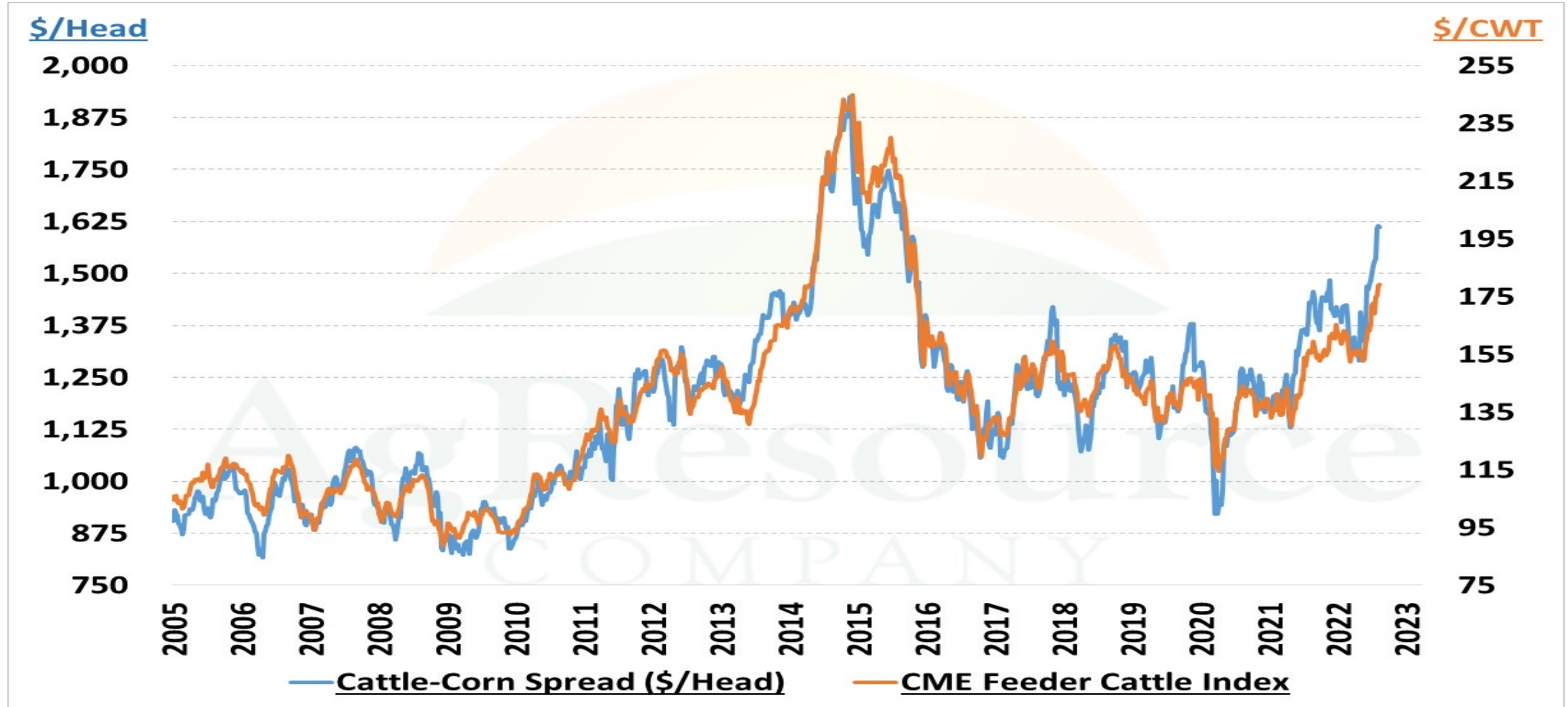
Packer Estimated Kill Margins Against Choice Cutout (Right) and Choice Beef vs KS Steers



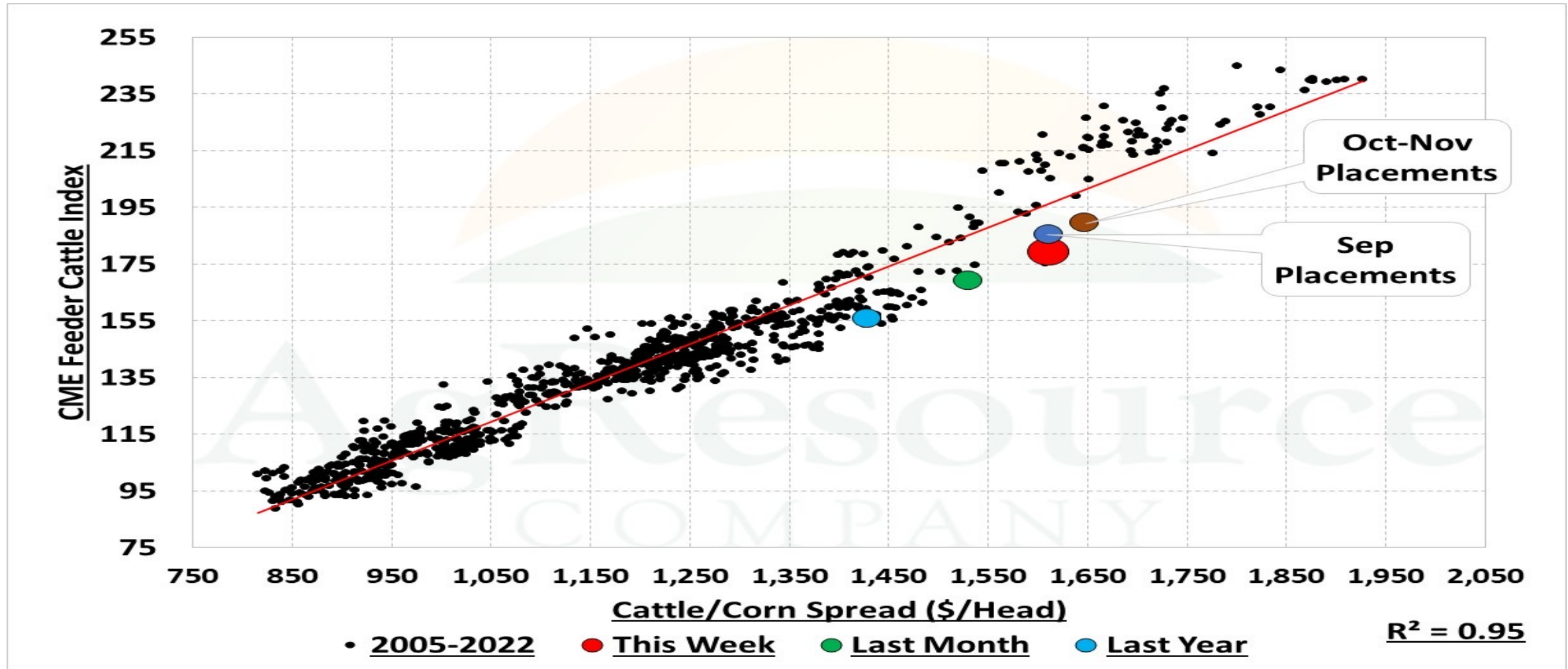
Weekly Cattle Kill (1,000 Head) and Carcass Weights (+2% in 2022 on kills)



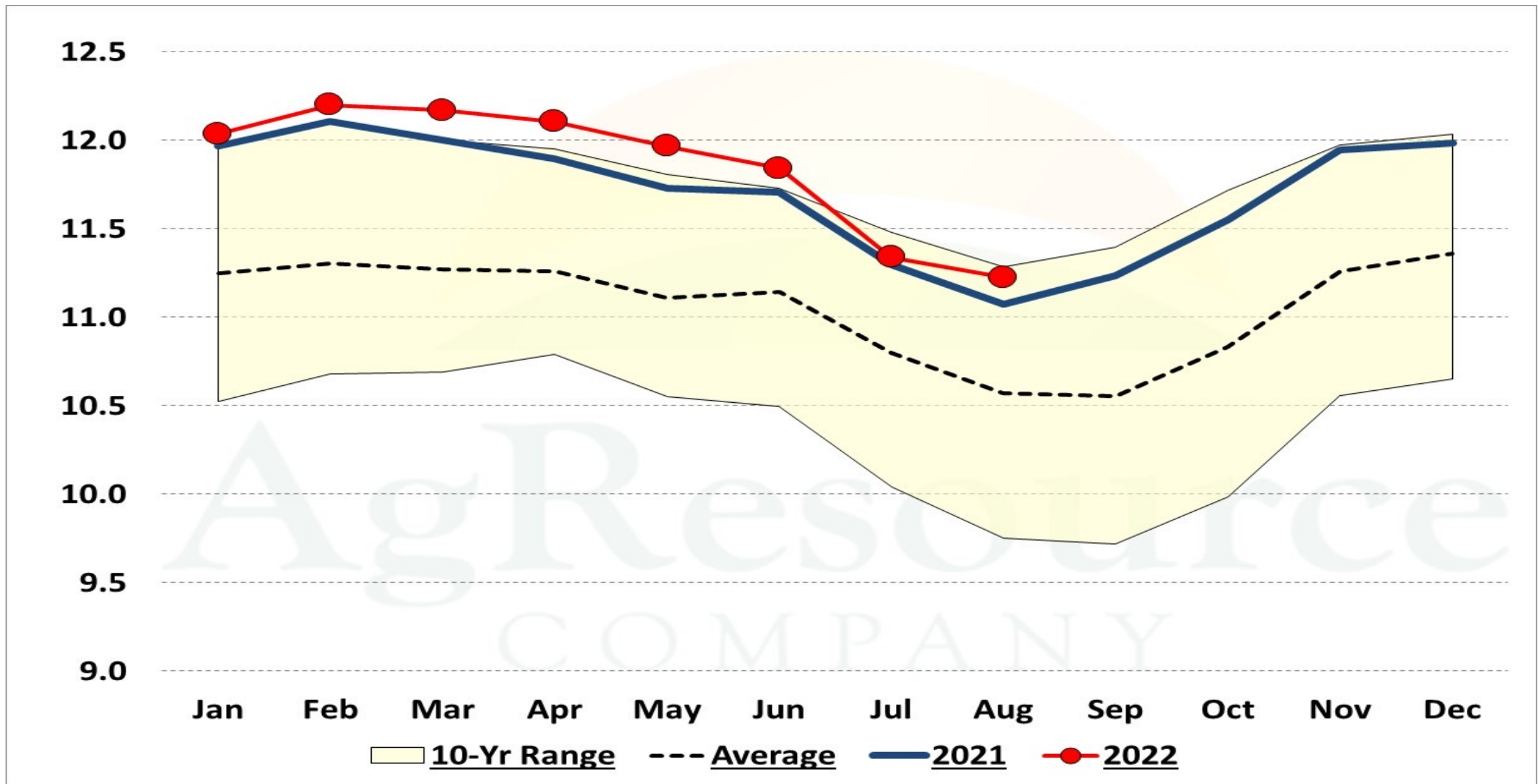
Cattle/Corn Spread (\$/Head) and CME Feeder Cattle Index



CME Cattle Feed Spread and Feeder Cattle Index

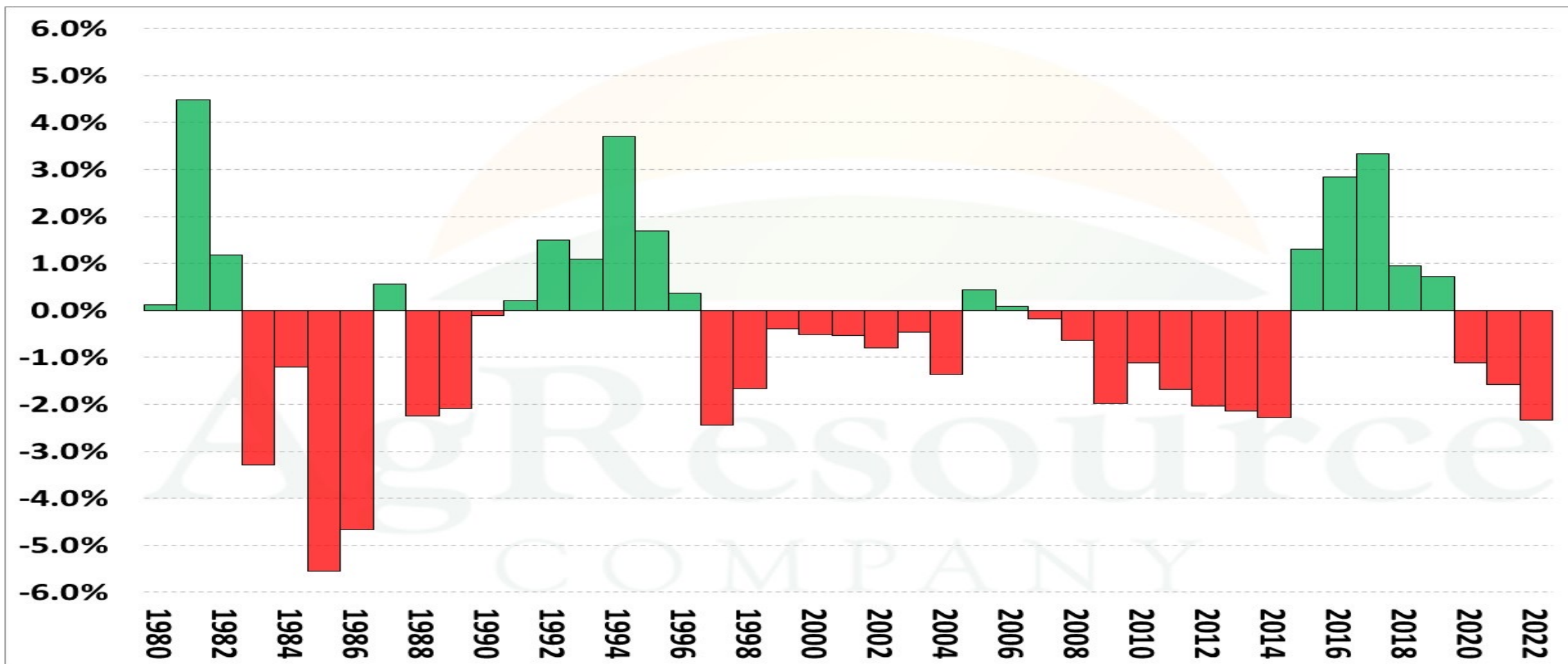


Monthly Cattle On Feed (Mil Head)

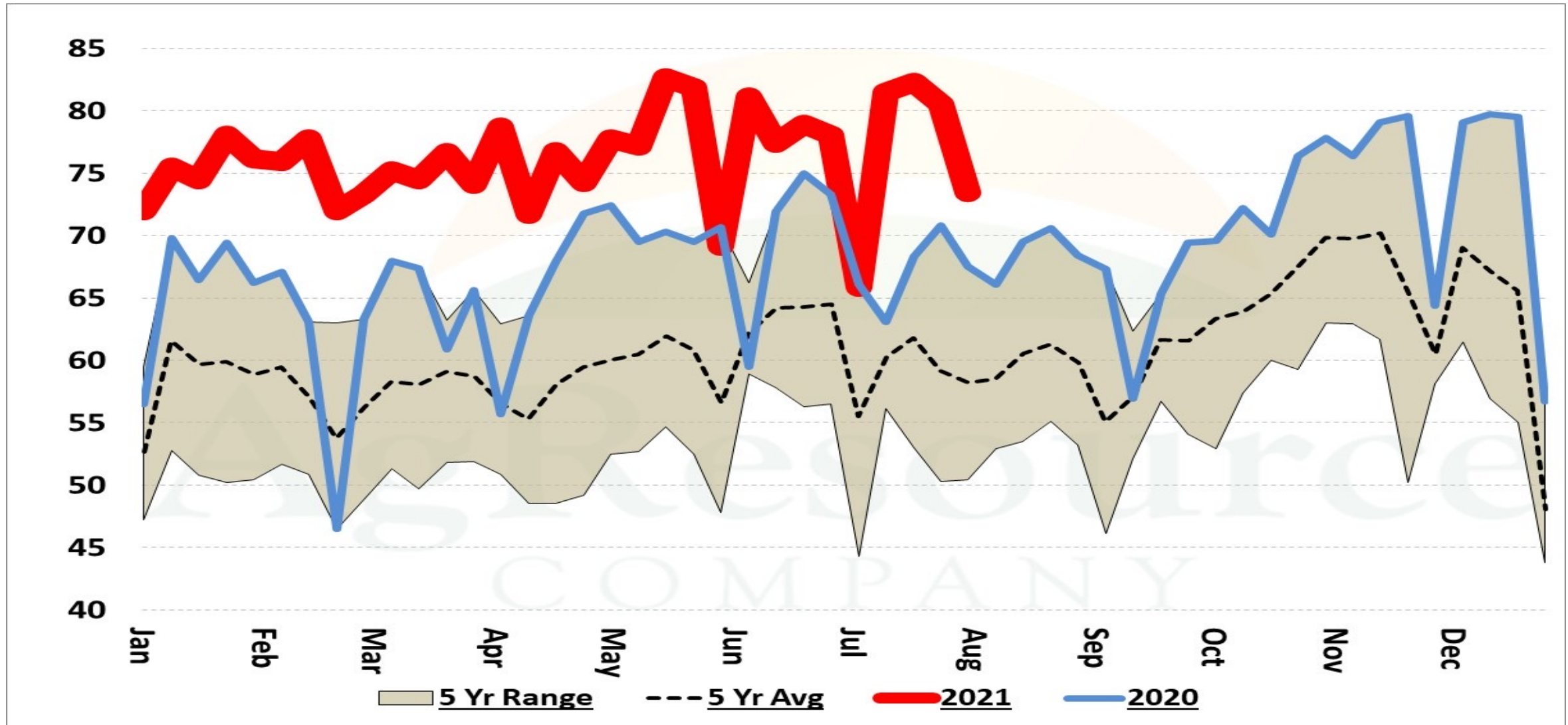


Year-Over-Year Change in US Beef Cow Herd

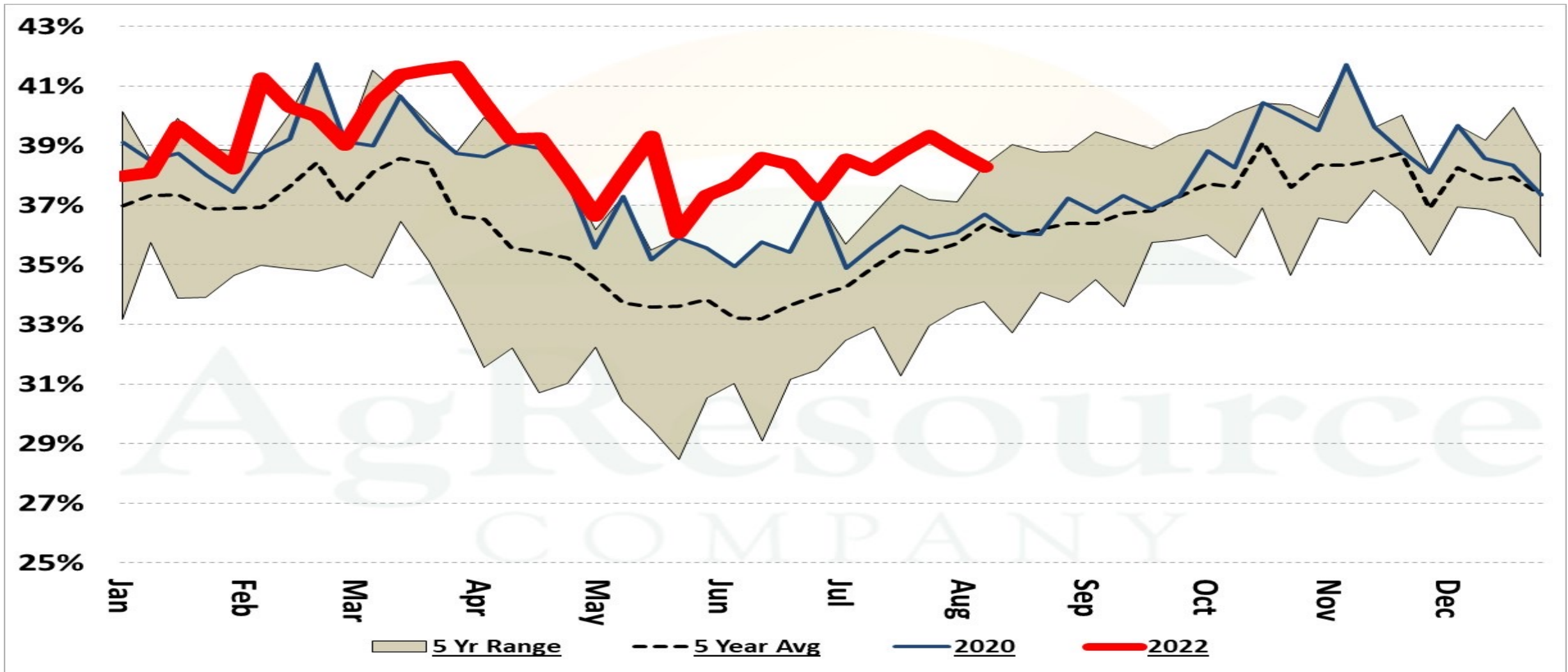
(January 1st)



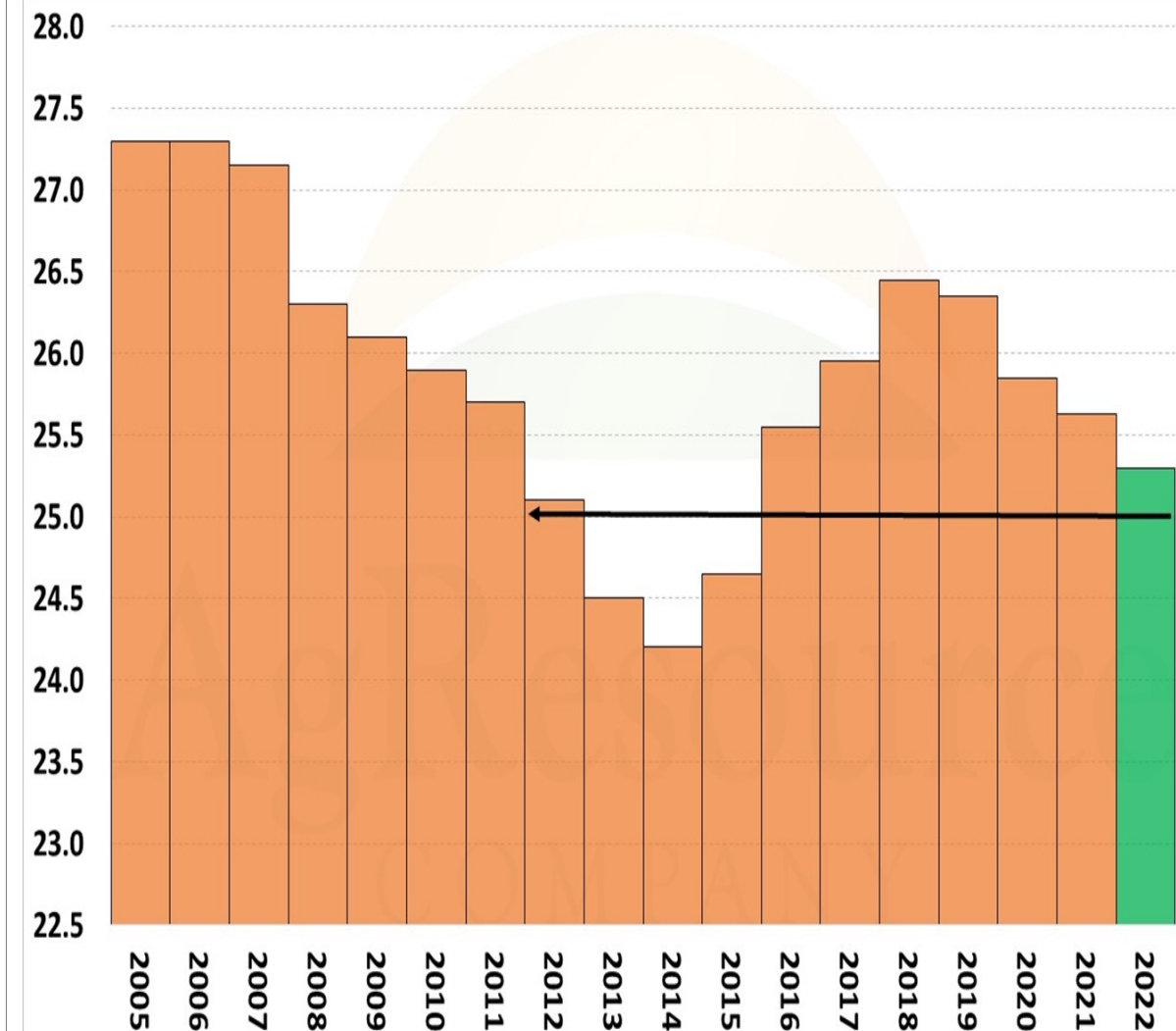
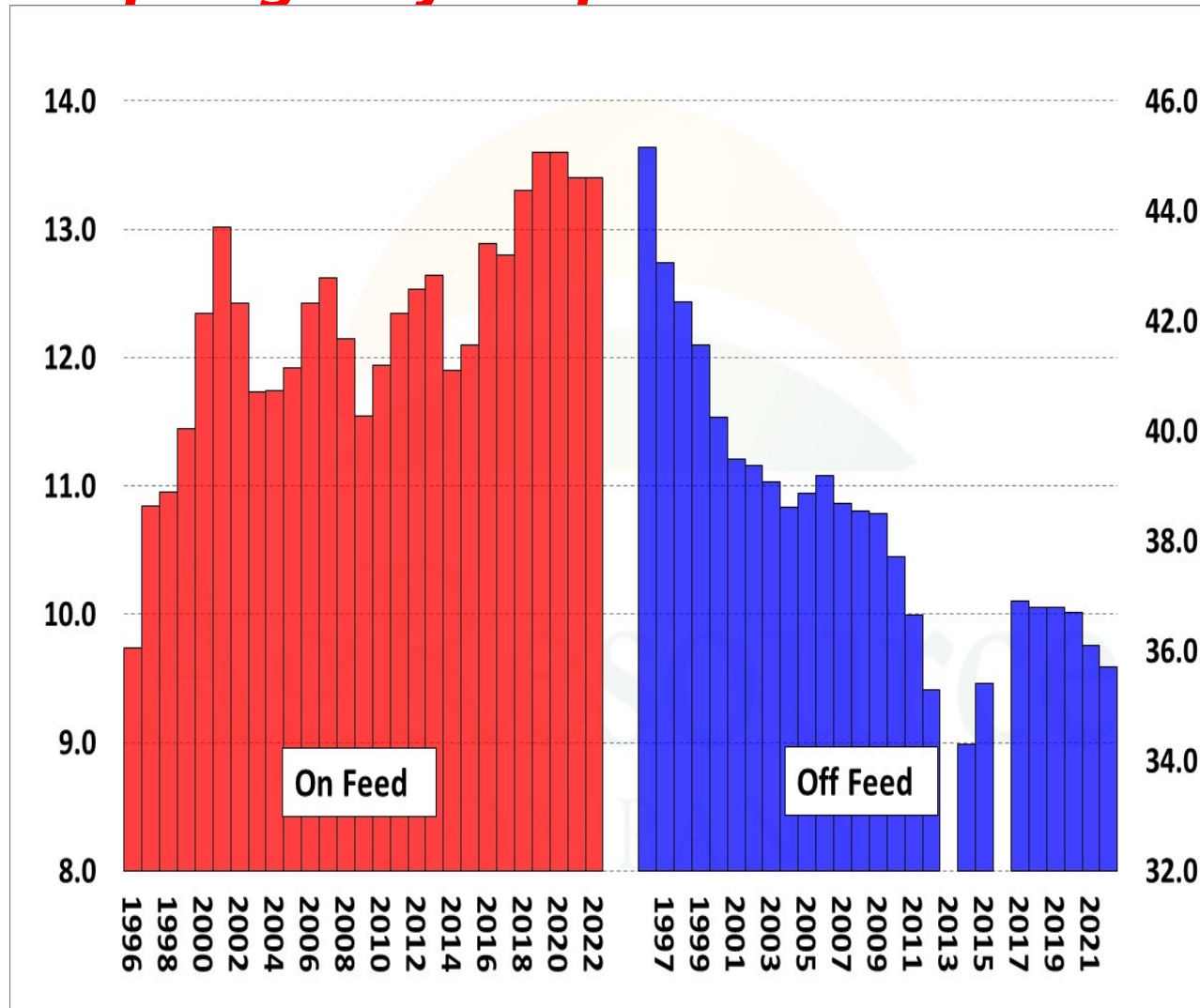
Weekly Beef Cow Slaughter (1,000 Head)



US Heifer Slaughter as % of Total Steer/Heifer Kill

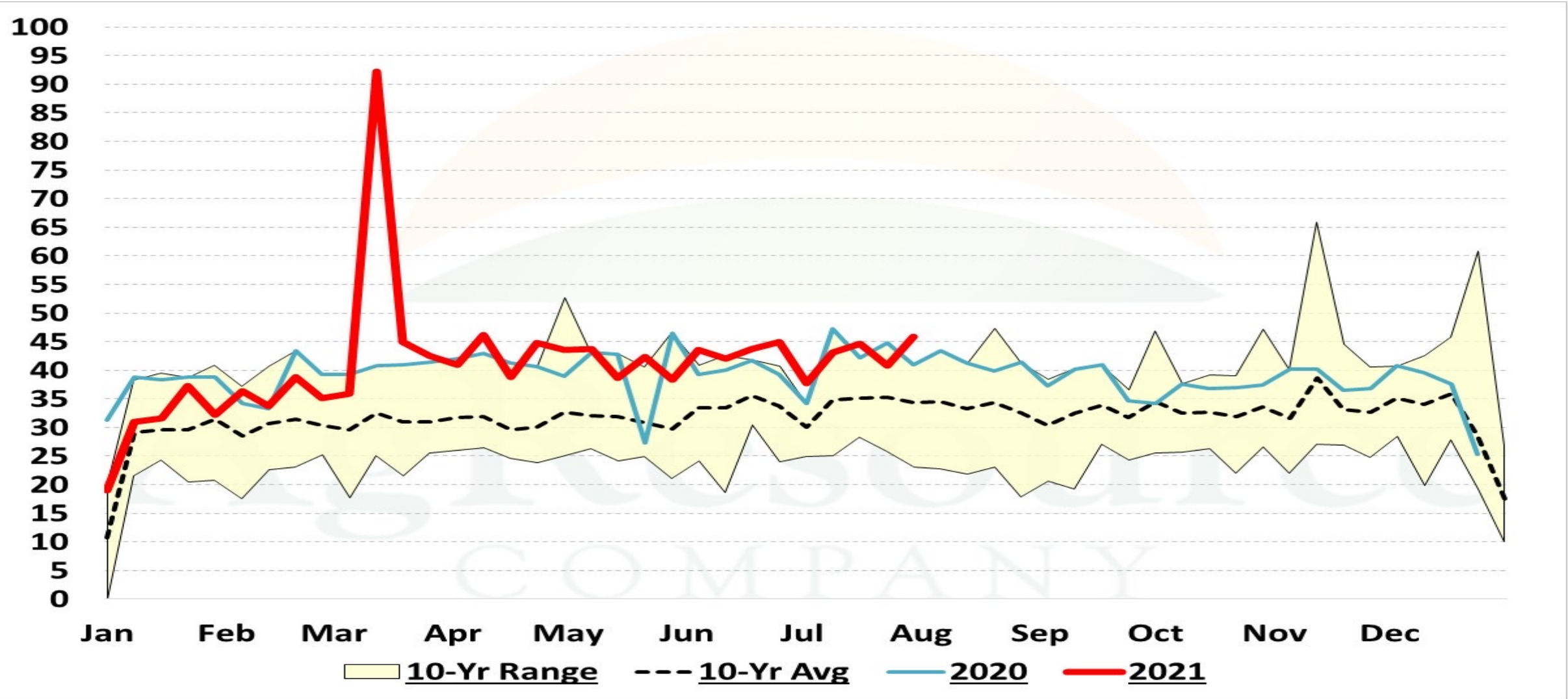


July 1st Feeder Cattle Supplies (Mil Head) and Spring Calf Crop

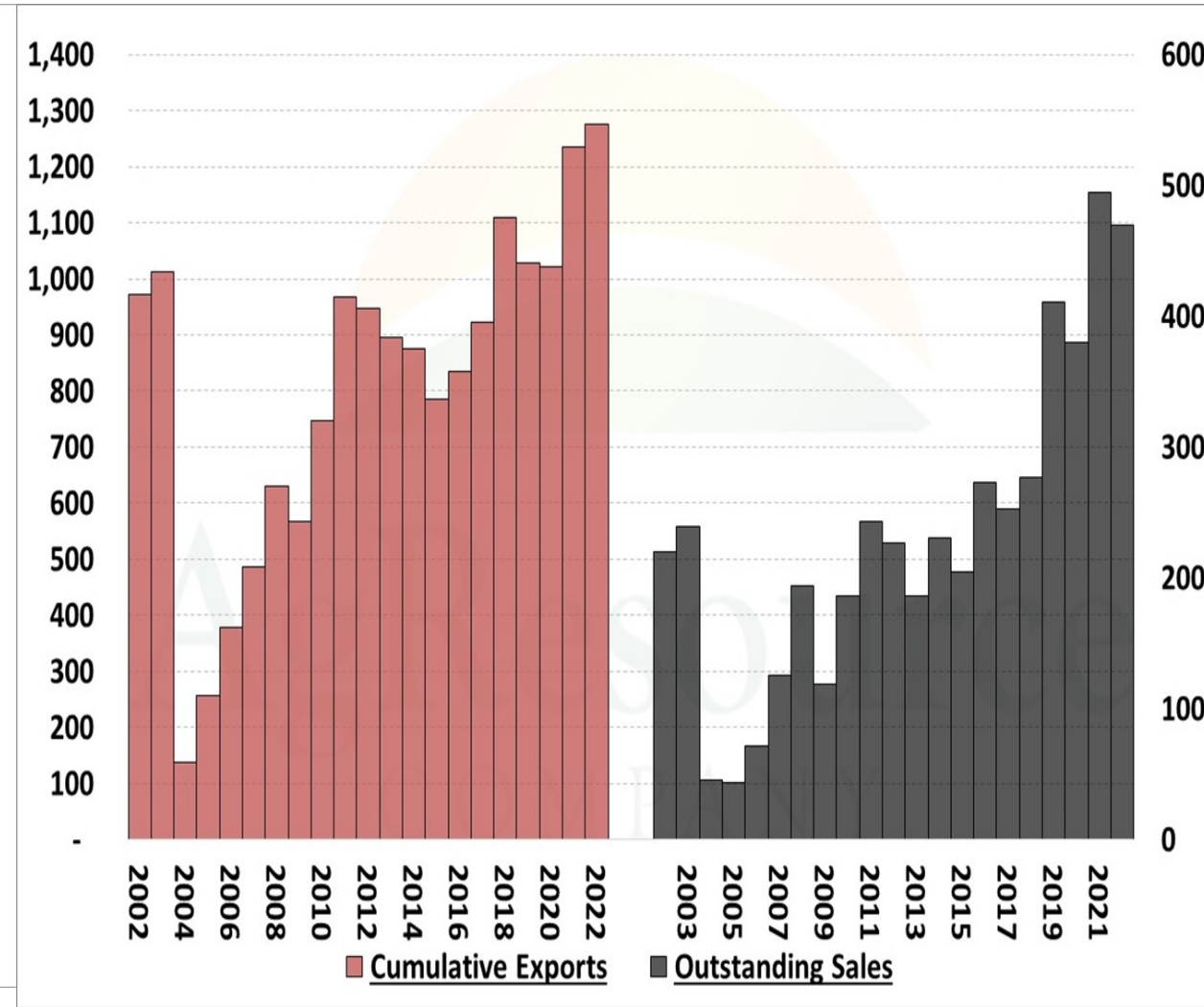
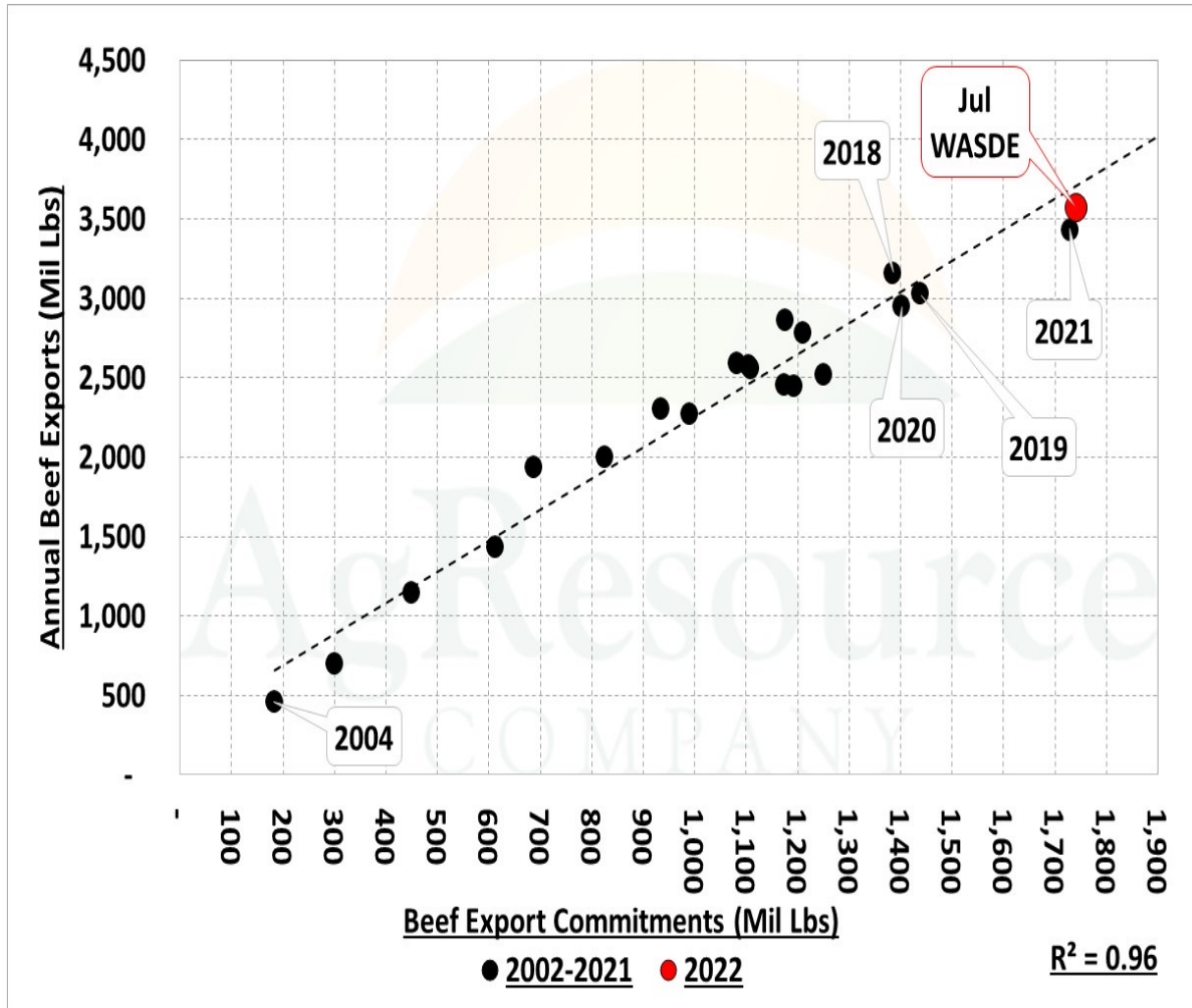


Weekly Beef Exports (Mil Lbs)

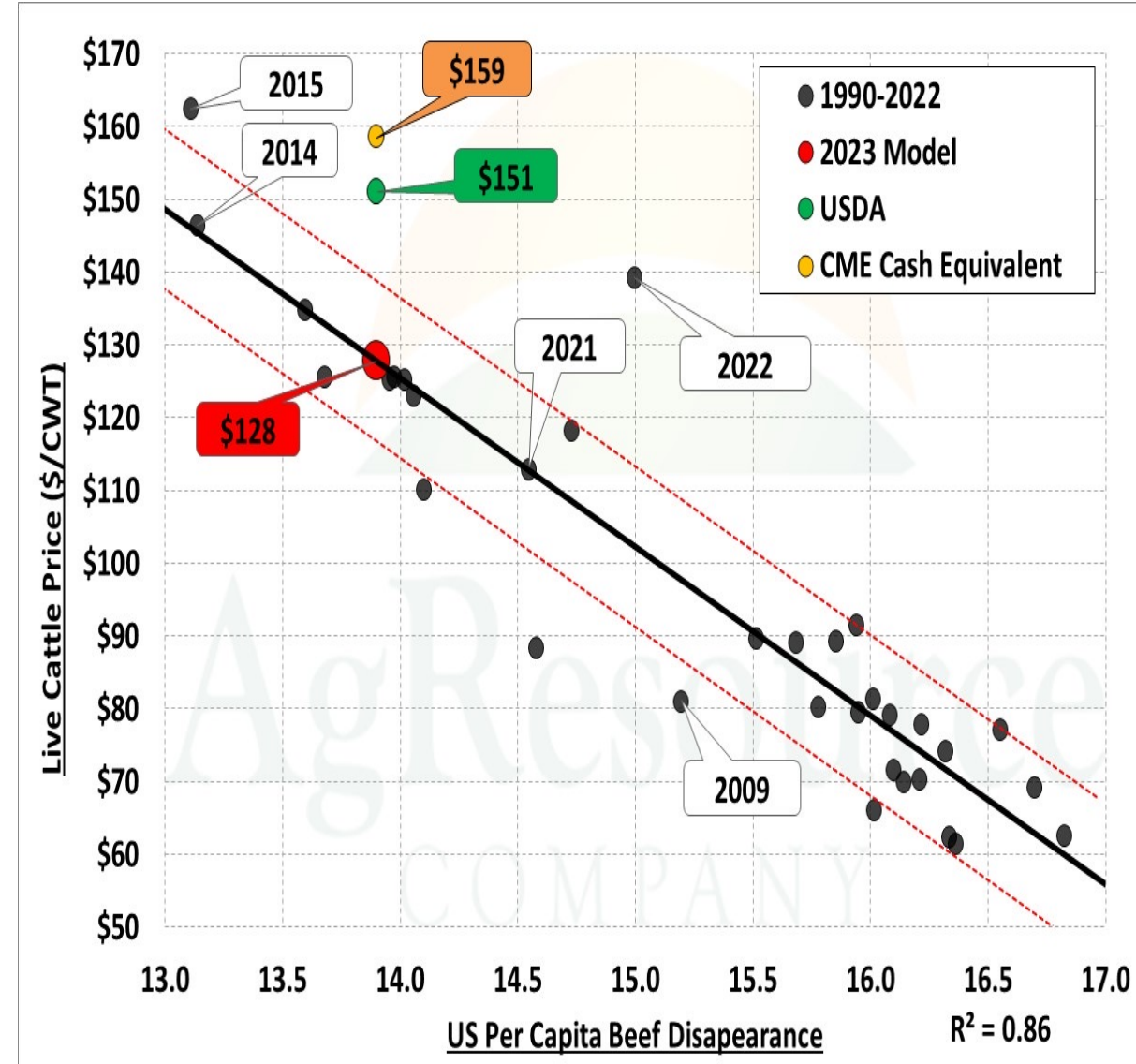
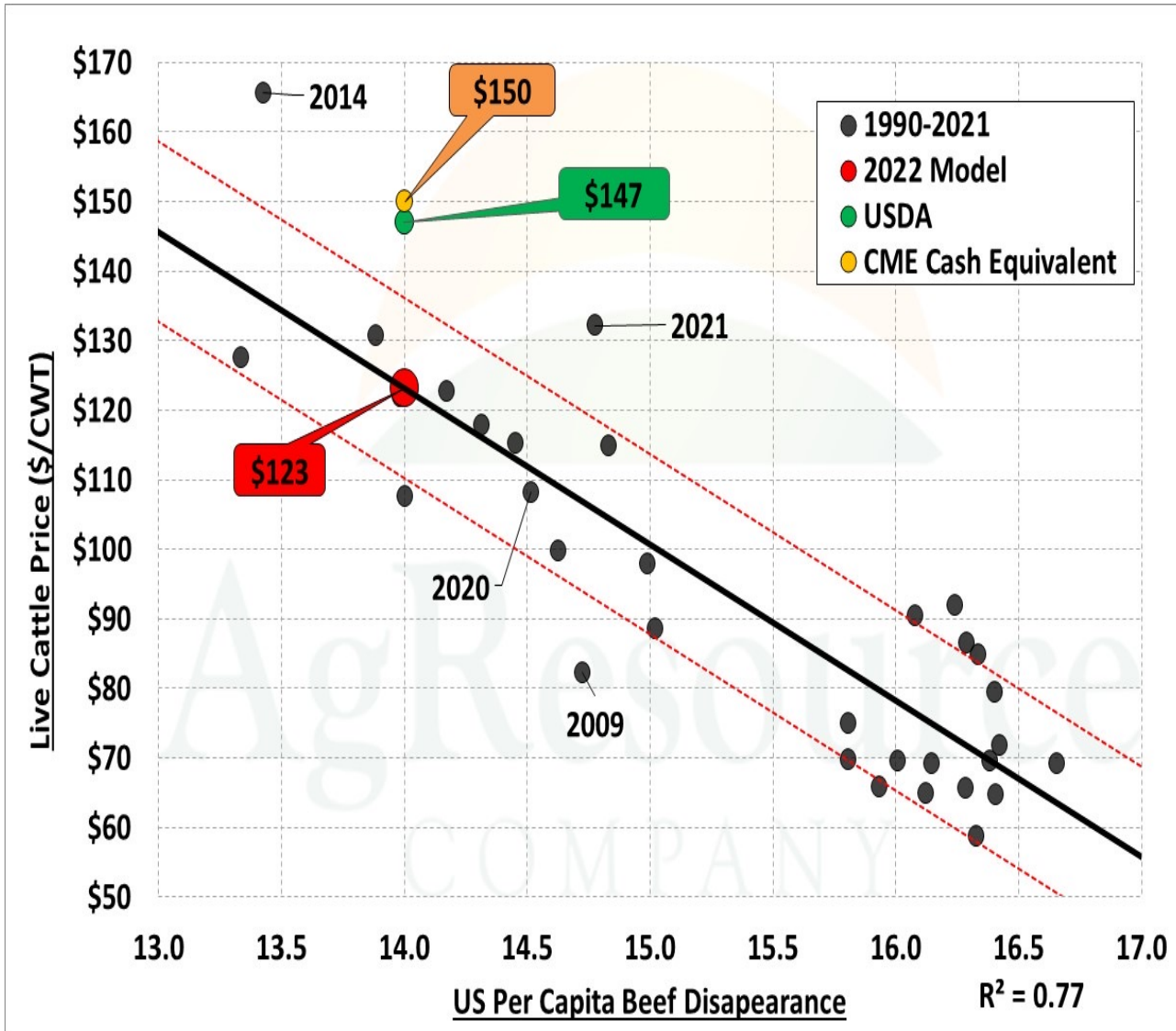
+3% in 2022 and EX



US Beef Export Commitments and Annual Exports (Mil Lbs)



Q4 and Q1 Avg Live Cattle Price Model



It's not enough to know the news.
You need to trust the analysis.

Thank You