



**Feed Costs Rising
Record Domestic Beef
Demand Inflationary Economic Trends**

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2021 Ag Market Themes

- **A Pandemic is rewriting world politics.** Trump Out – Biden In; Brazil's Bolsonaro in Trouble – Lula?, Putin Stays – but popularity ratings are in decline; China's Xi stays but hardline policy is in full display. The Pandemic has made populations less trustful of politicians. Makes for interesting times for currency and policy in future years.
- **Biden is the champion of biofuels.** He sees their low carbon footprint as a steppingstone to electrification of 20% of the US transportation fleet by 2030. Biden must politically push biofuels and will raise pressure on the USDA to pay farmers to sequester carbon. USDA sees farmers are part of the carbon answer.
- **The Pandemic will keep US and world interest rates lower for longer.** ARC doubts that the US Central Bank will raise its lending rate until 2023 at the earliest. The massive amount of liquidity in the system raises the natural rate of inflation. But unsure where that rate will end up? AgResource's bet is that's somewhere between 2.5-4.0% which is double the rate of the past decade.
- **Two New US Ag demand drivers; 1/China corn imports from the US/Ukraine and Renewable Diesel.** Both will combine to raise the need of US cropped acres into 2025. The most disruptive to American agriculture is renewable diesel. Like the US 2007 Energy Bill, it will alter US crop mixtures and crush relationships.
- **Climate change is real, but whether it is produced by man is impossible to quantify.** Weather pattern stagnation produces 2x the risk floods and droughts. The Jet Stream has lost vitality which produces pattern stagnation.

2021-2025 Ag Market Themes

Bullish world meat protein demand/trade based on China's rising standard of living. The story is meat protein trade! Cattle and poultry prices will lead to a revival. Cattle/beef prices generally bullish on quickening herd liquidation.

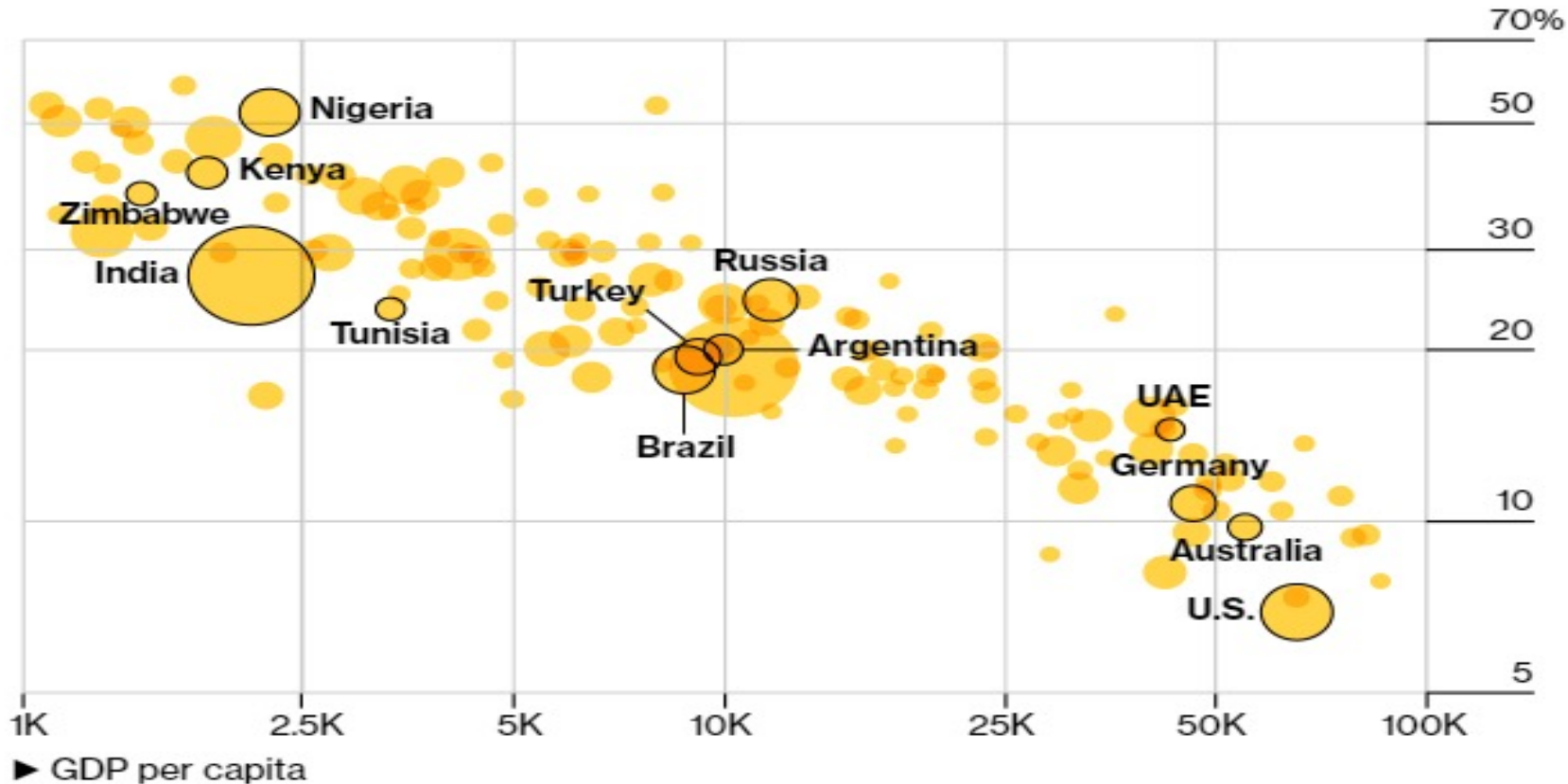
New demand drivers will raise US farmland values and farm incomes into the US Farm Bill in 2023-2024. China is the “demand pull” on world ag supplies. The market must add 20-25 Mil acres of productive farmland in Brazil/Black Sea. The US has run out of arable farmland and future supply growth is based on yield. The US's share of world ag export trade will decline into 2025.



America's Food Abundance – The Cheapest Food in the World!

Circle size = population

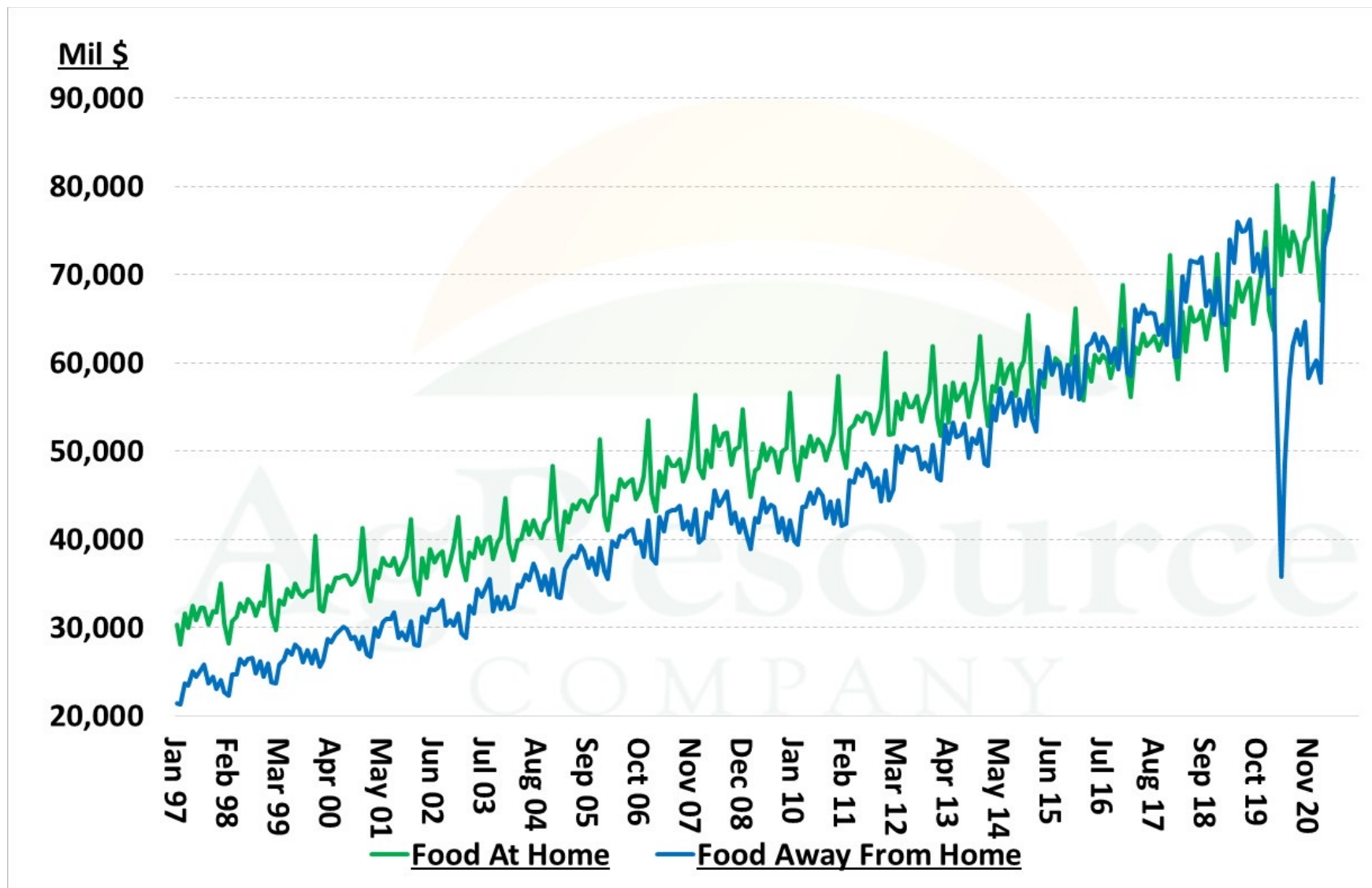
Share of consumer expenditure spent on food ▼



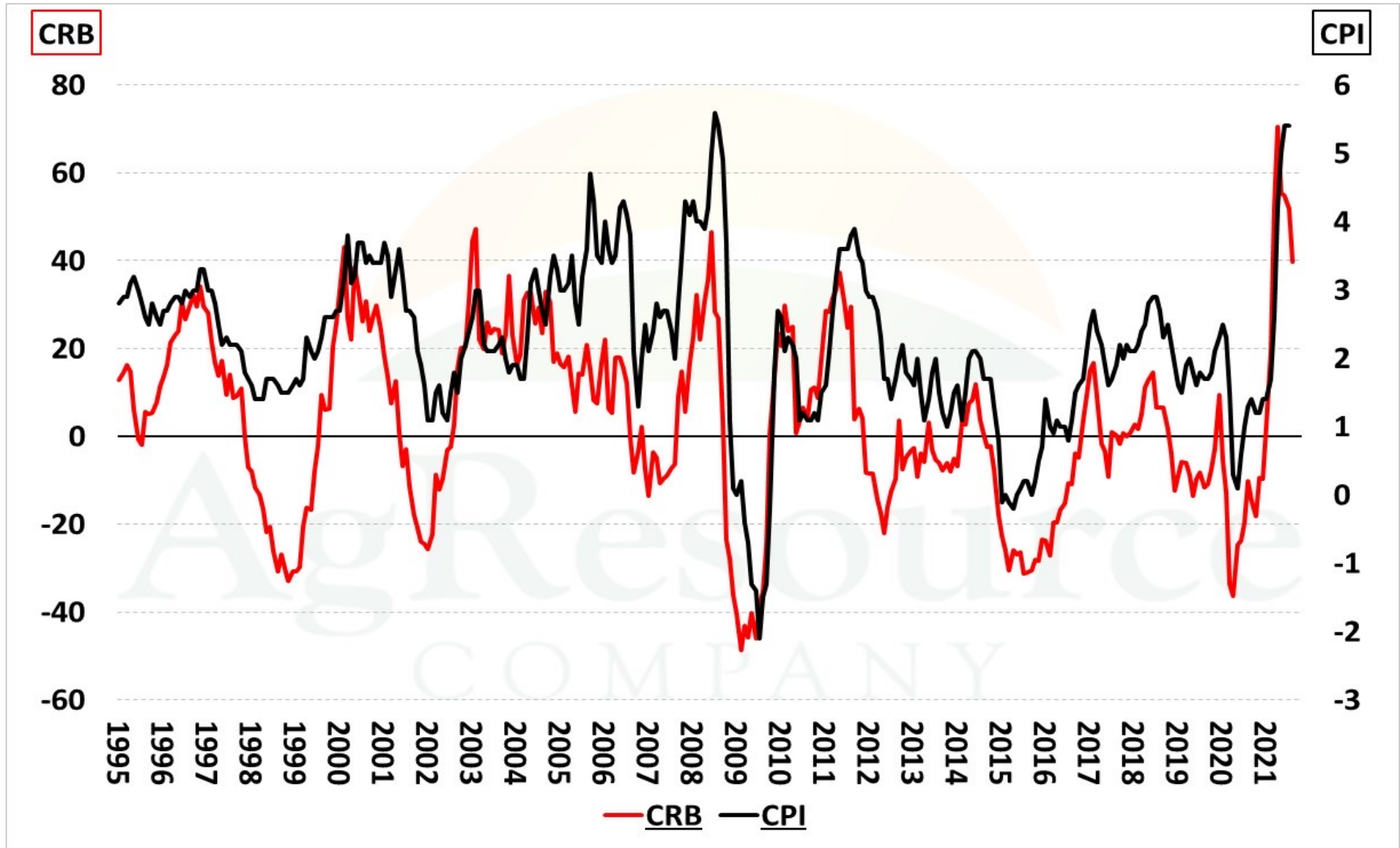
Source: World Bank

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.

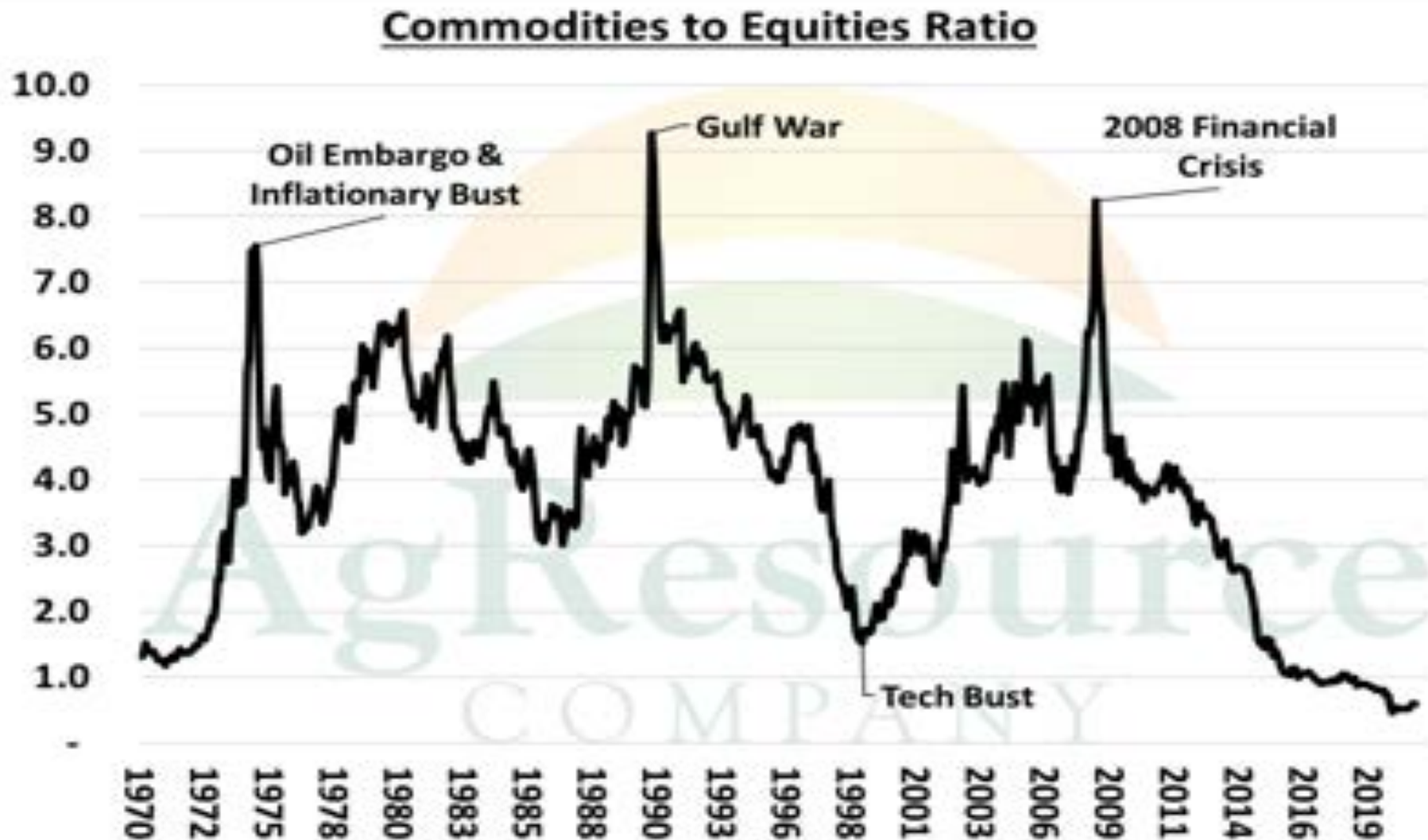
US Food Expenditure (Nominal \$)



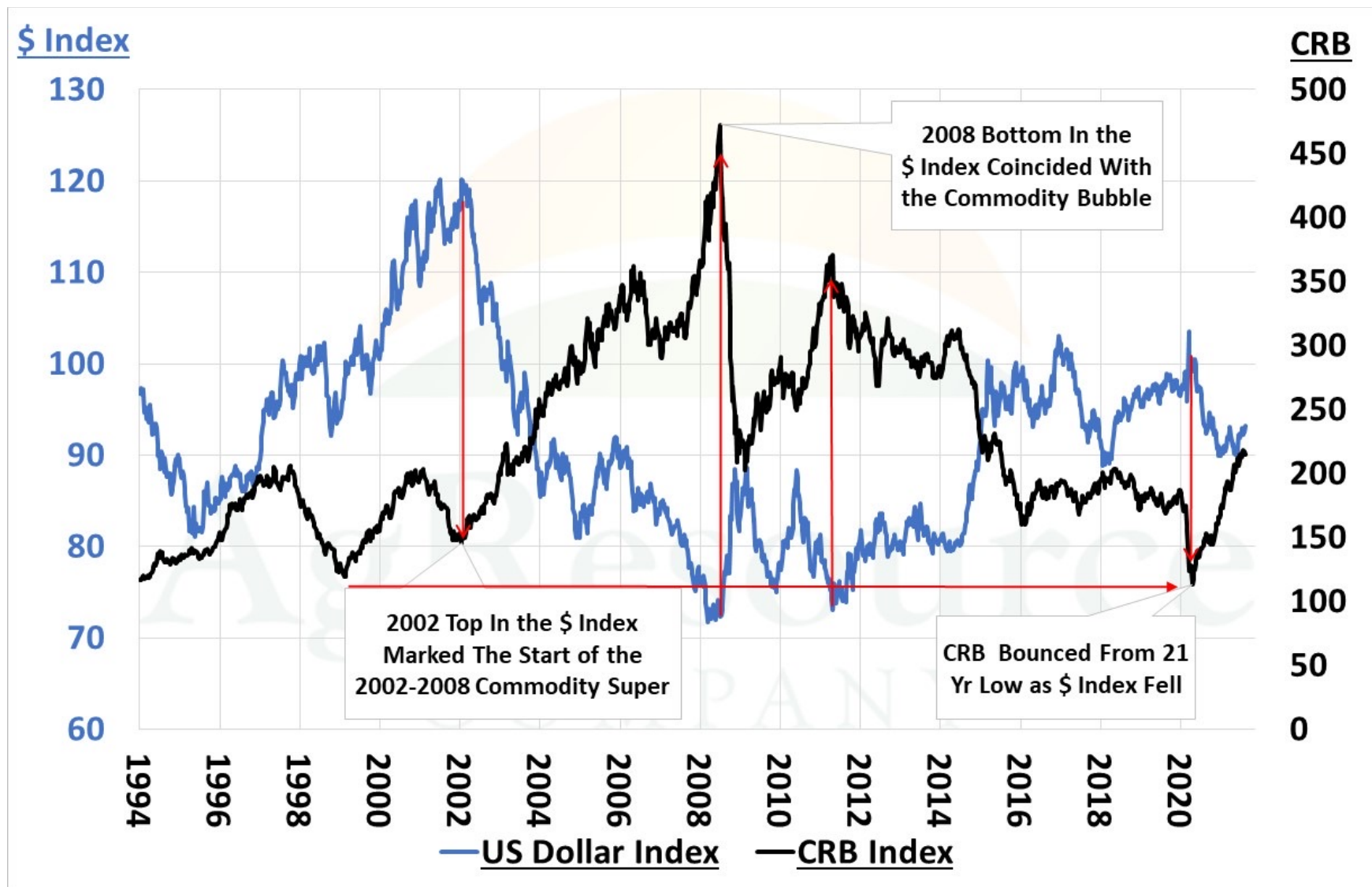
Year over Year % Change in CRB Index and US CPI



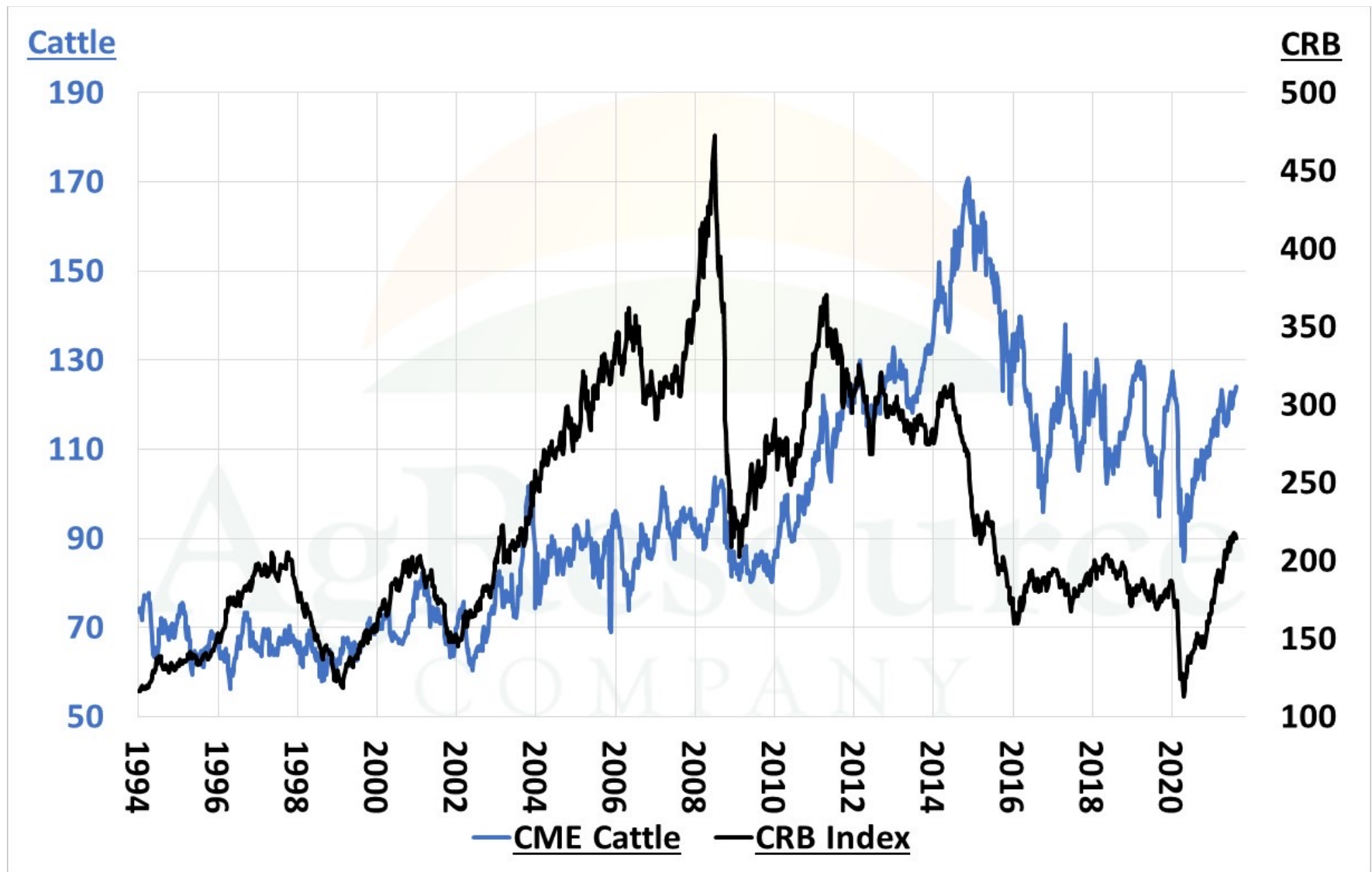
It is Time to be Long of Stuff !



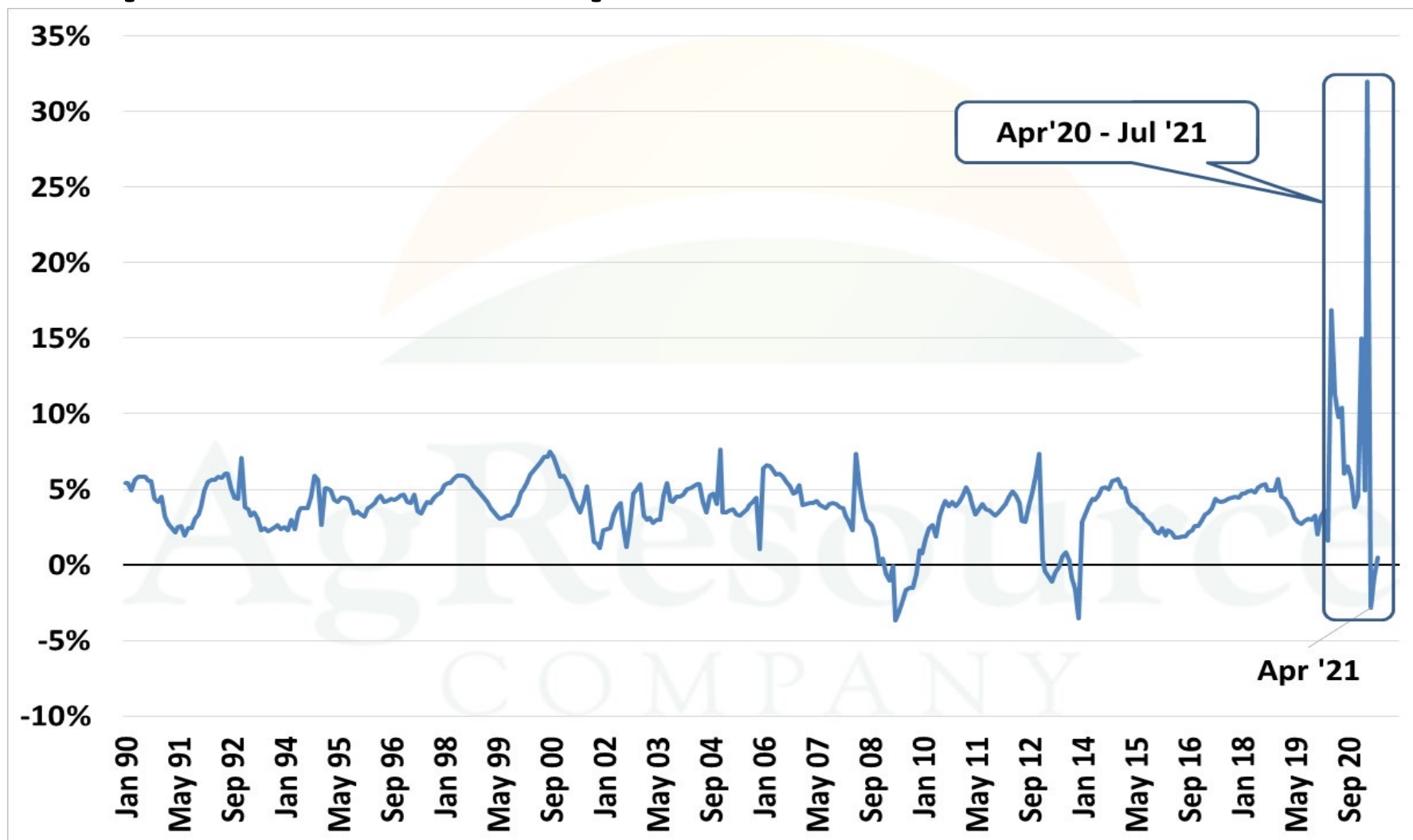
US Dollar Index and CRB Index



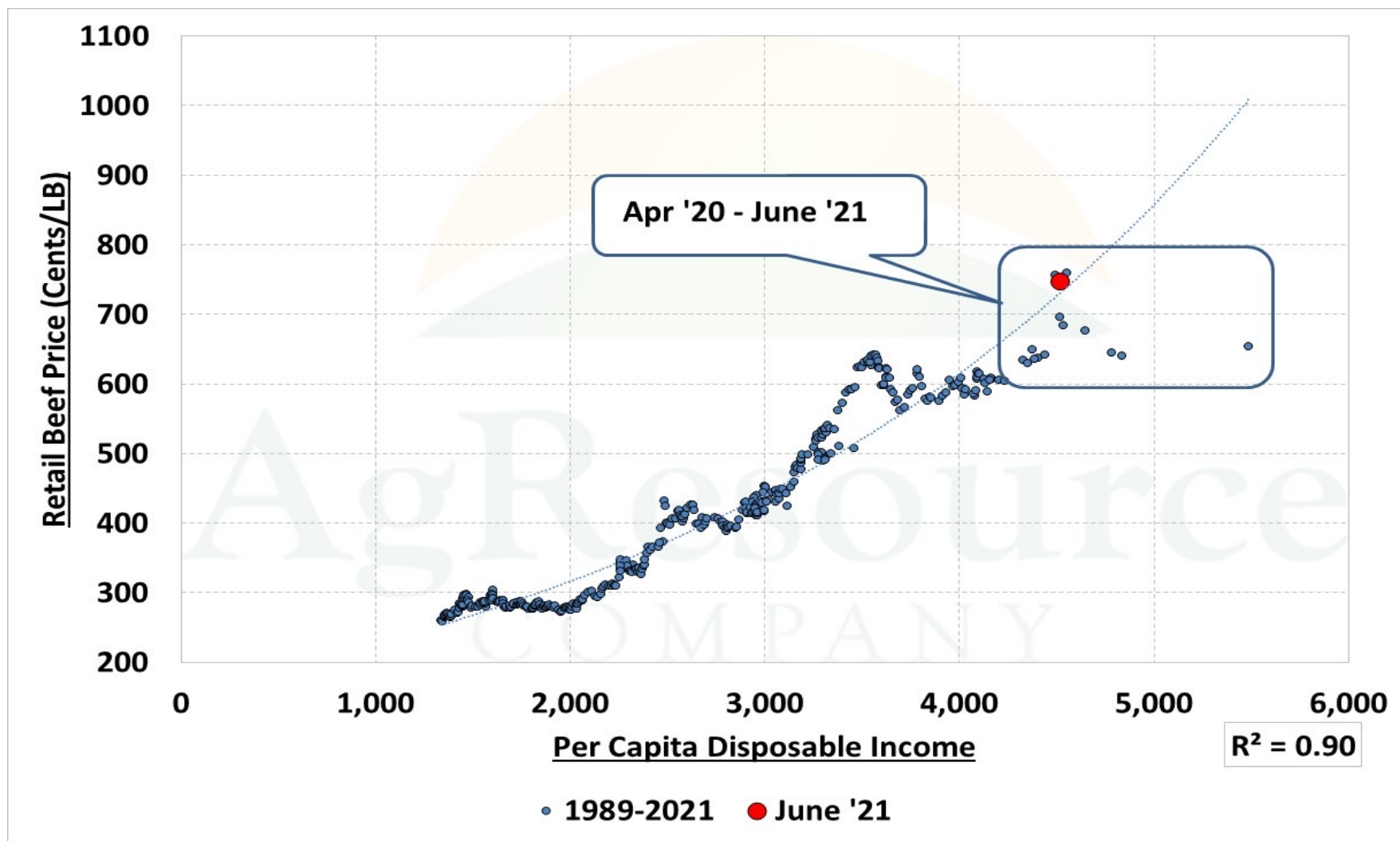
CME Cattle and CRB Index



Year-Over-Year Change in Disposable Per Capita Income



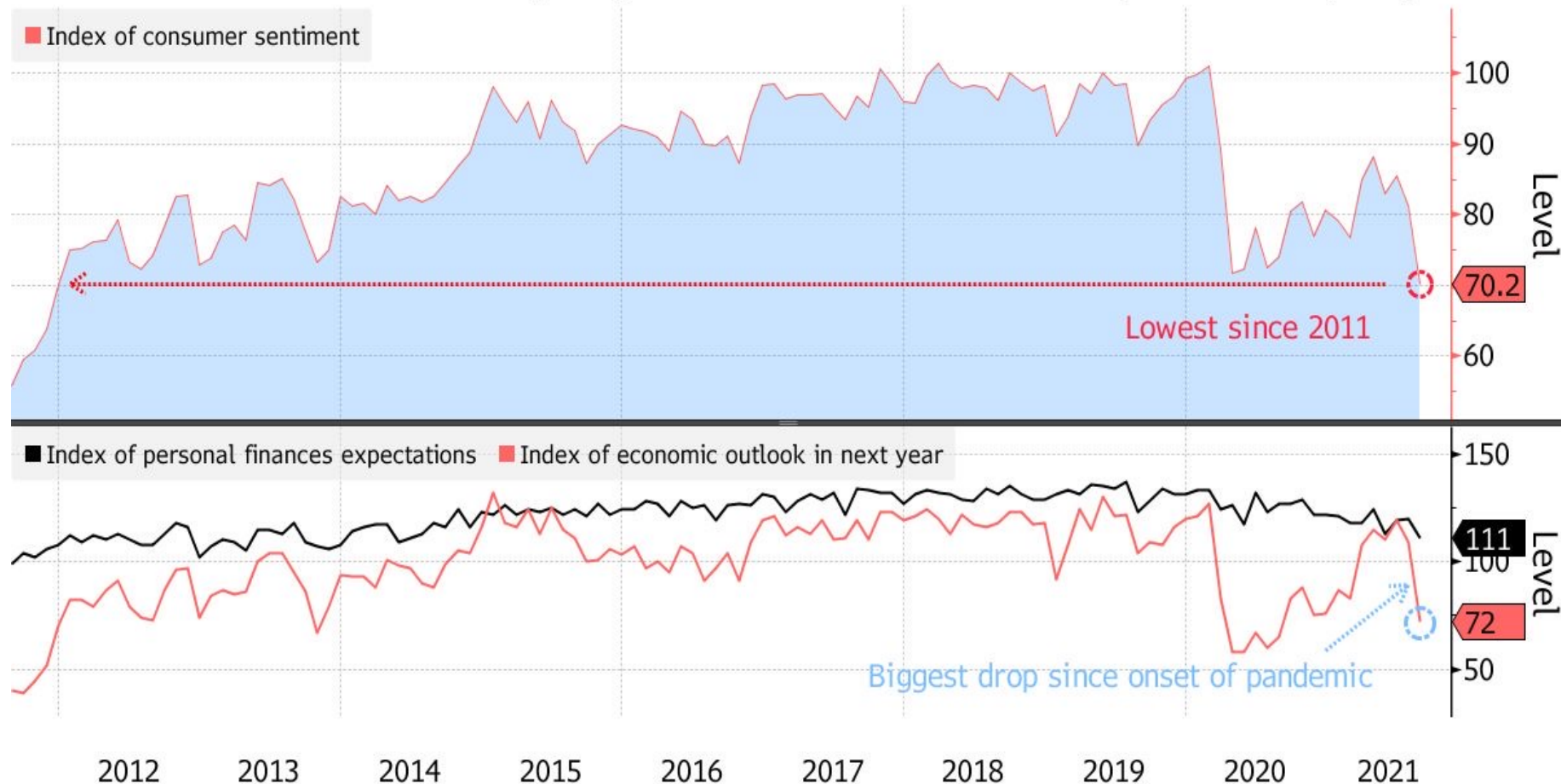
US Per Capita Disposable Income and Retail Beef Prices



Delta Covid Produces Abrupt Change!

Stunning Deterioration

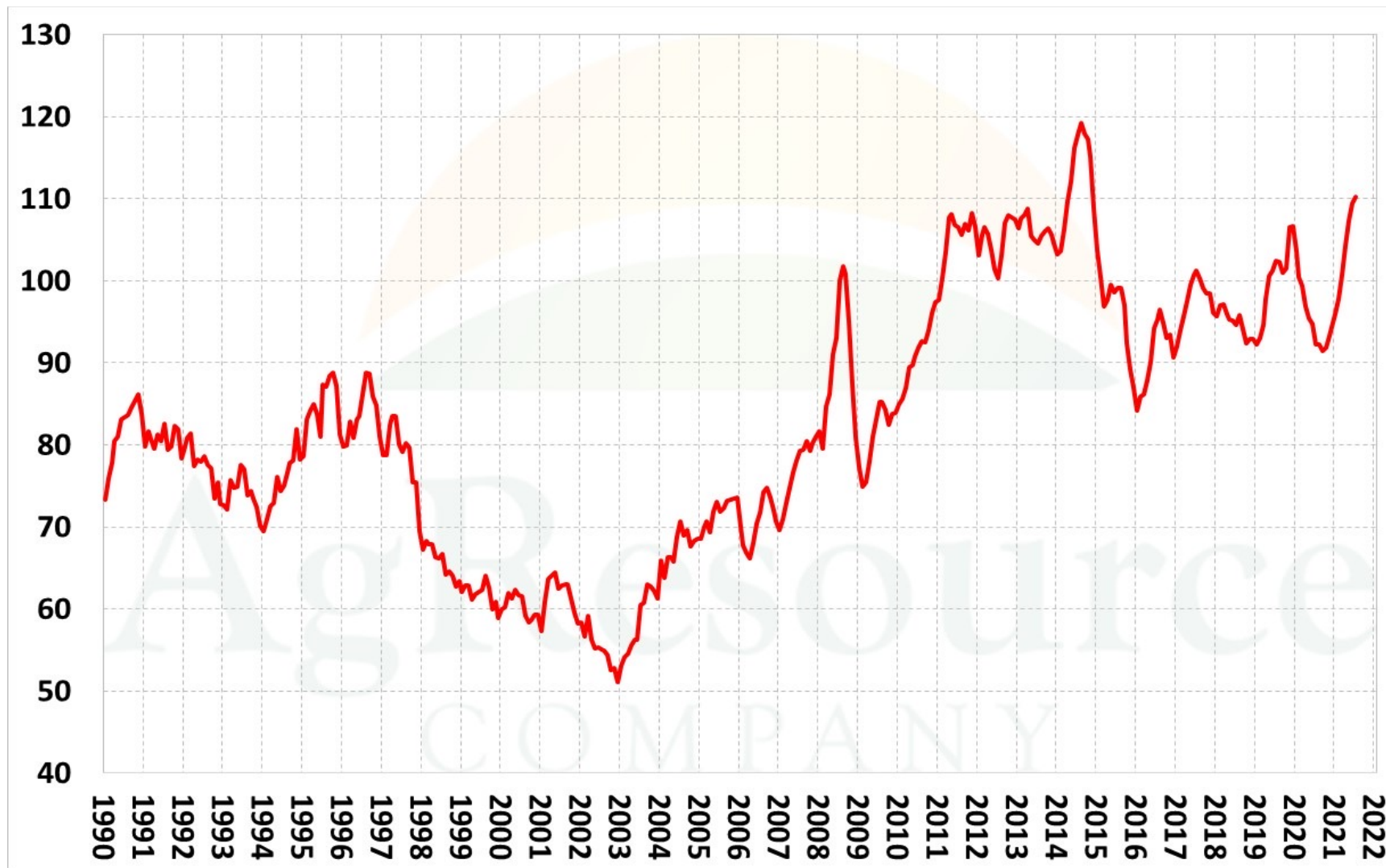
Consumer sentiment in U.S. plunges on concerns about virus, economic prospects



Source: University of Michigan

FAO World Meat Price Index

(2014-2016 = 100)



Agriculture's Mantra

2050 TRENDS ILLUSTRATE THE REAL CHALLENGE



3B in Middle
Class
Growth

**Global
Growth**

Income
Population
Consumption

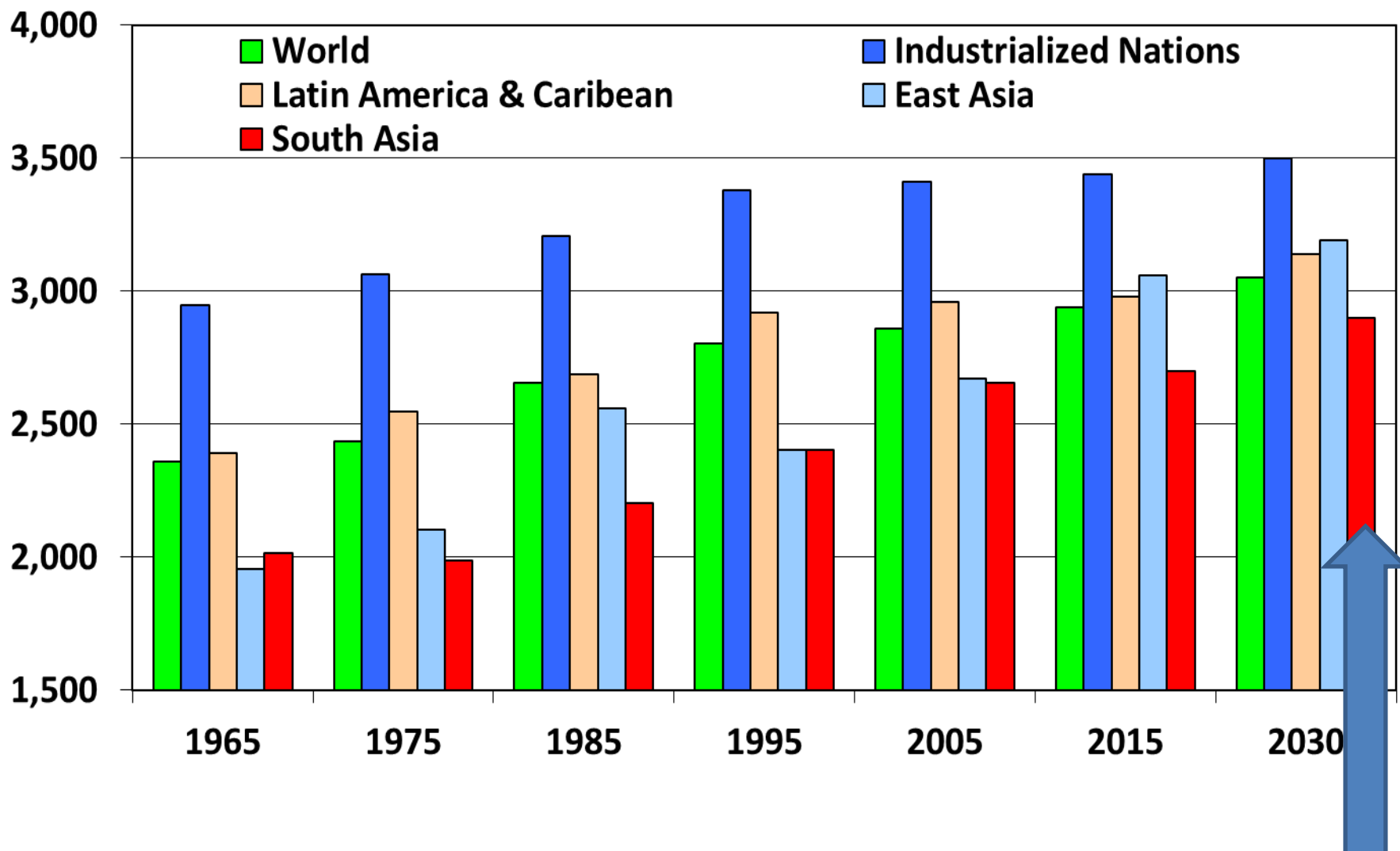
HOW CAN WE FEED
9 BILLION



- Requiring **MORE** Protein
- Currently Consuming **1.5x** Planet's Available Resources

Per Capita Food Consumption

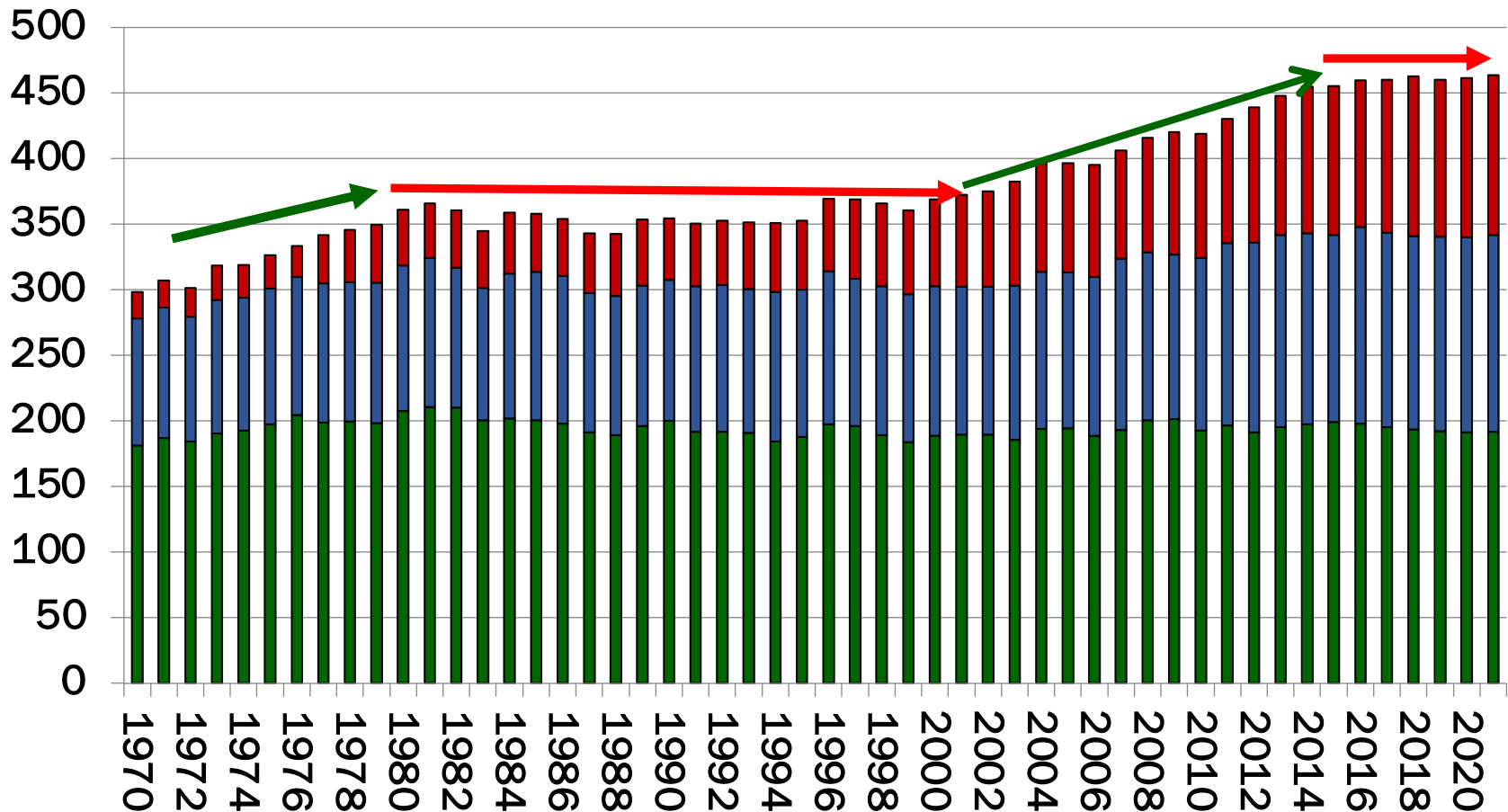
(kcal per capita per day)



Global Major Grain Area Harvested Less China; 20-25 Mil Additional Acres Needed in Next 5 Years

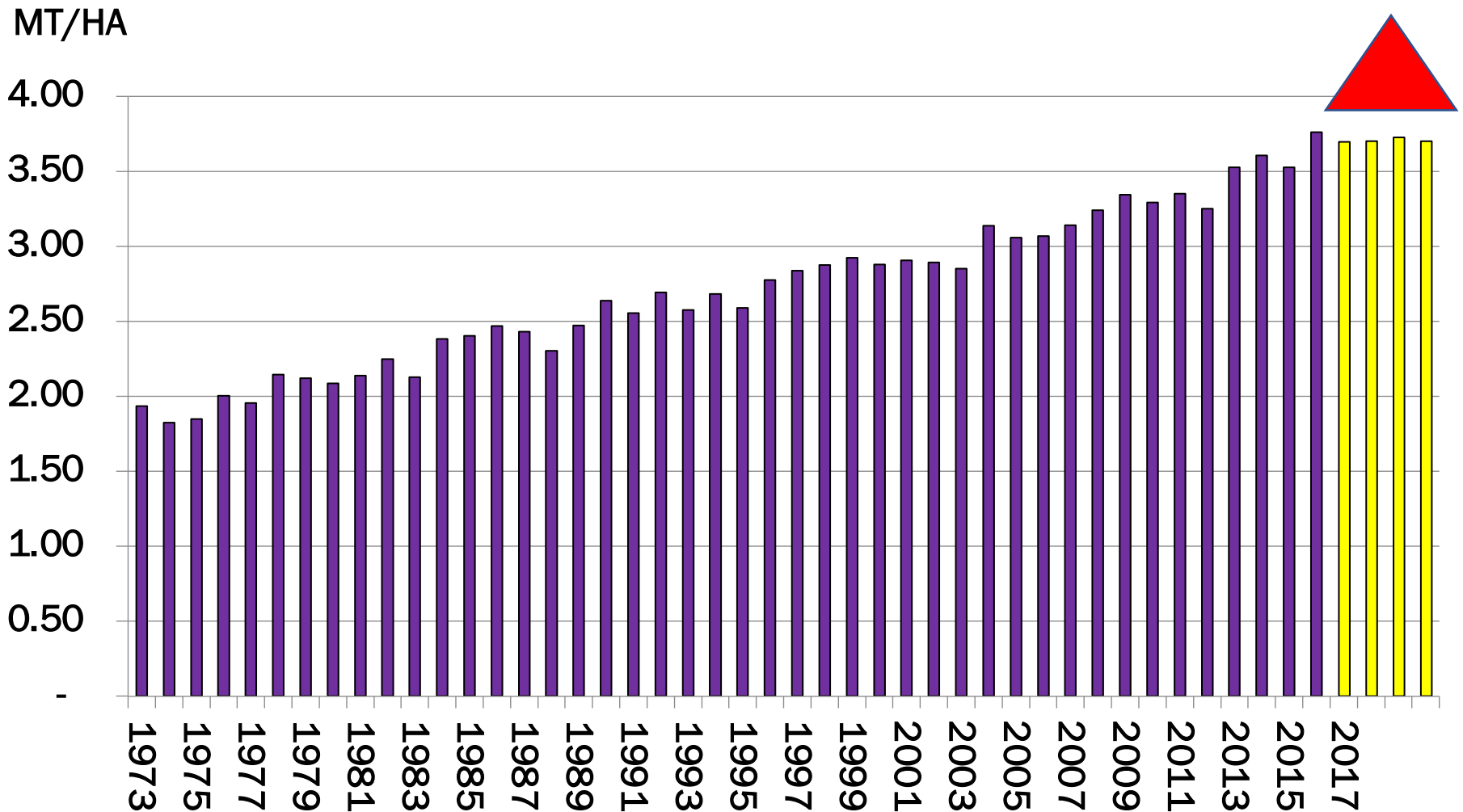
Mil HAs

■ Soybeans ■ Corn ■ Wheat



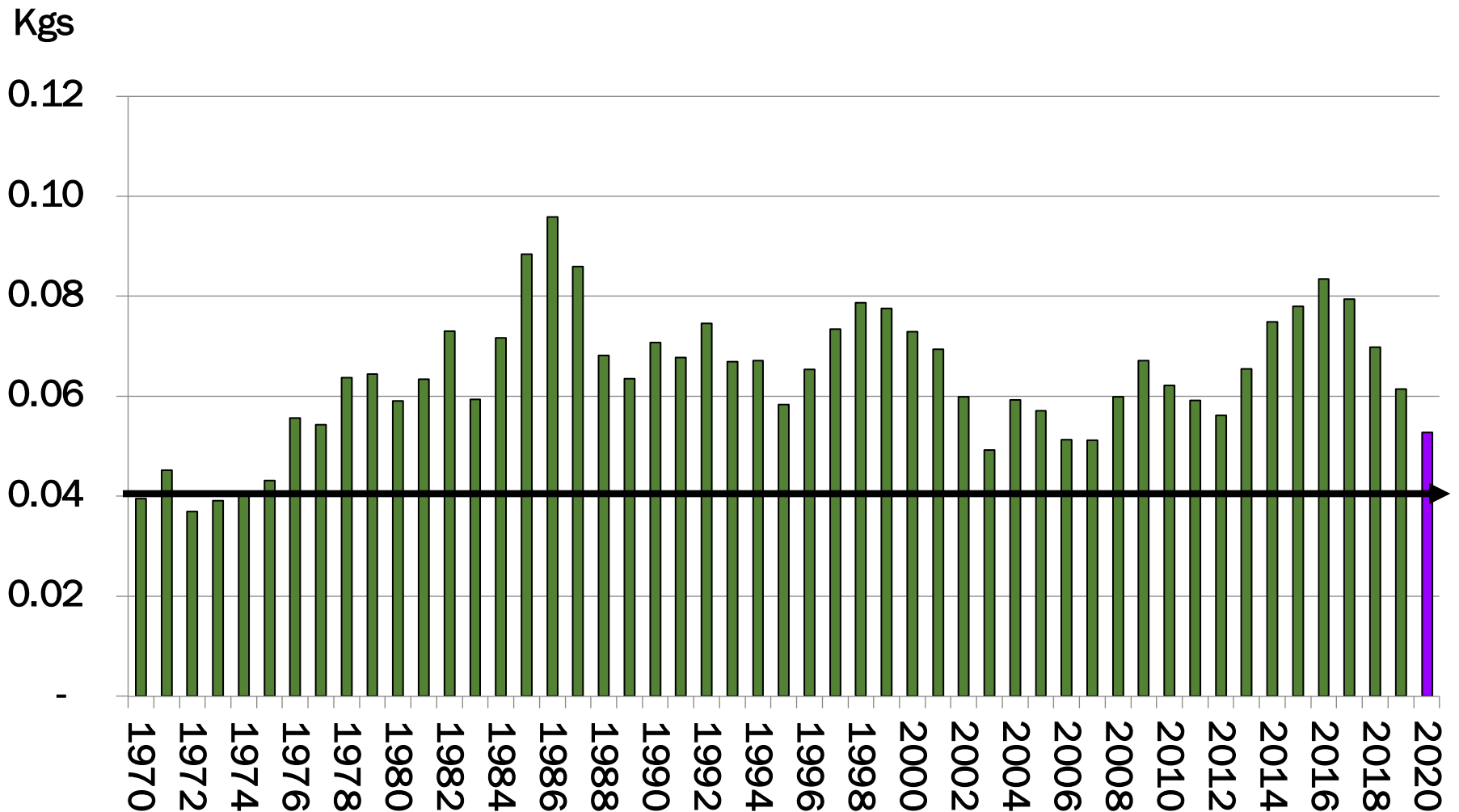
Global Coarse Grain, Wheat & Oilseed Yields Rise

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



Per Capita Grain & Oilseed Stocks

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

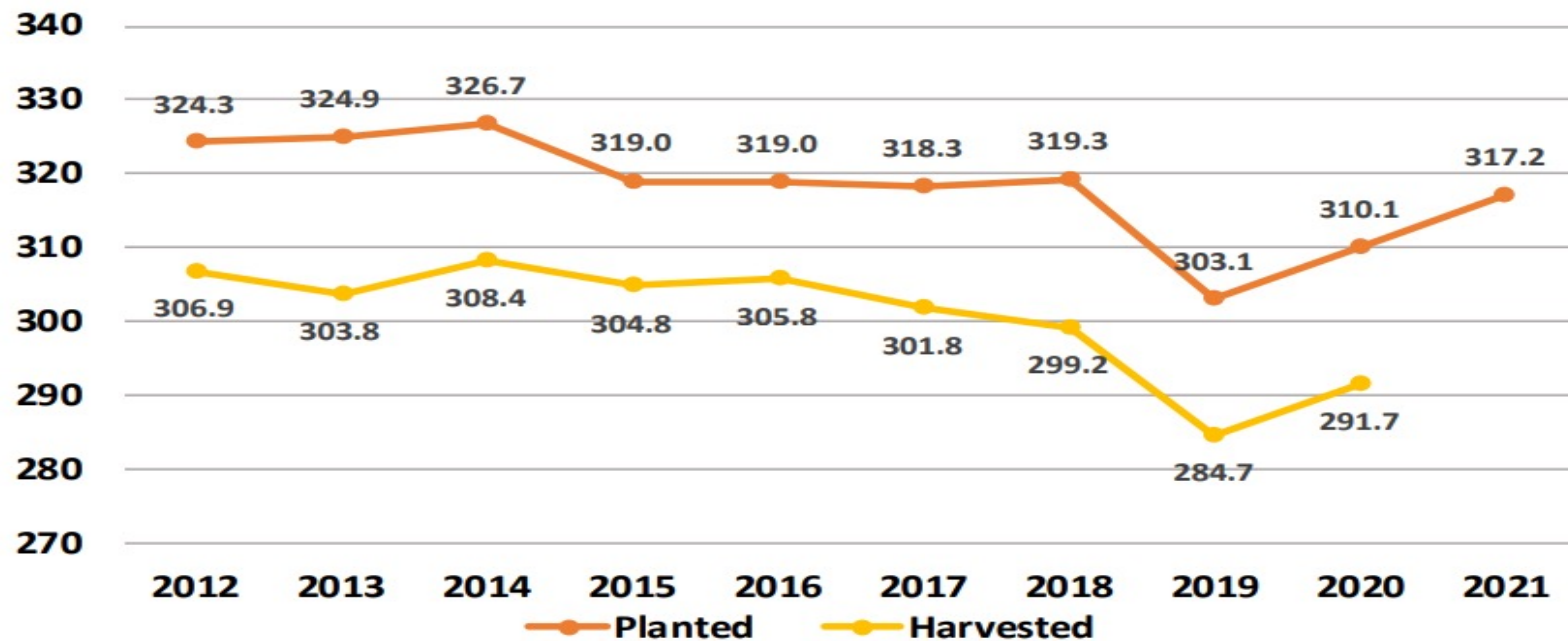


Have US Principal Crop Acres Reached its Peak?



Principal Crop Acres United States

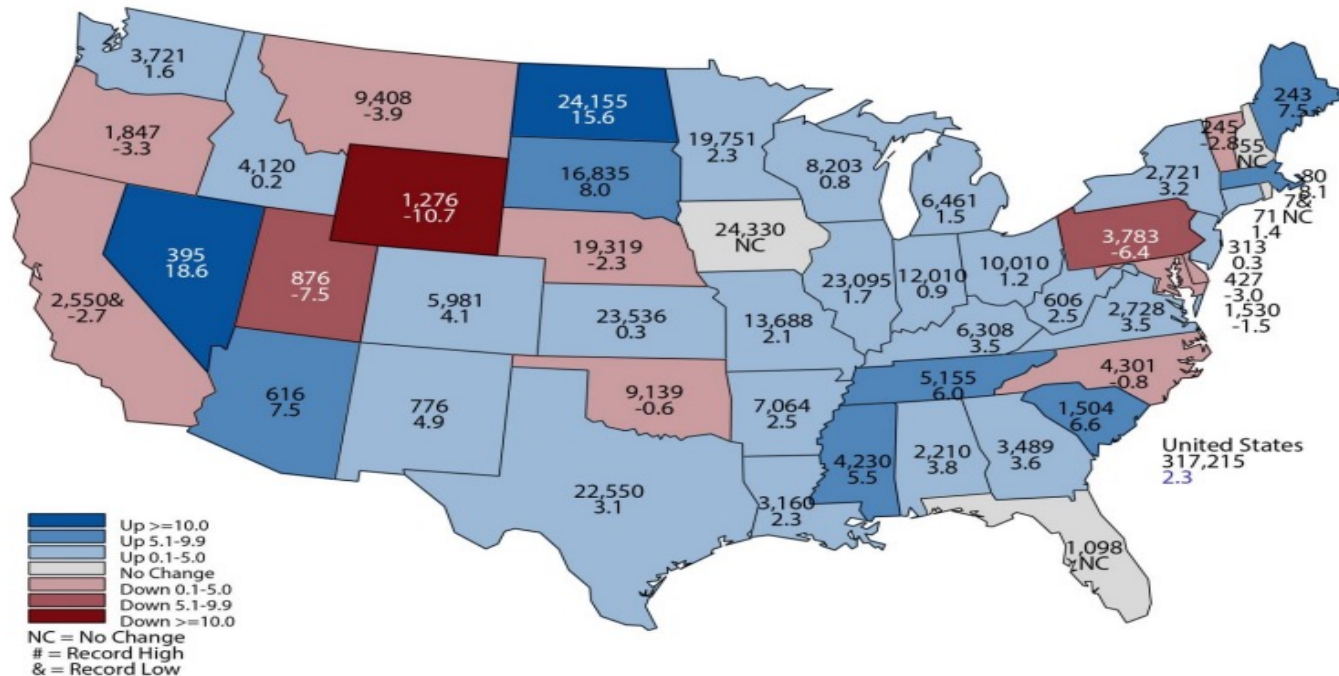
Million Acres



The Acres Gain in 2021 Came from the N Plains – Not the Midwest!



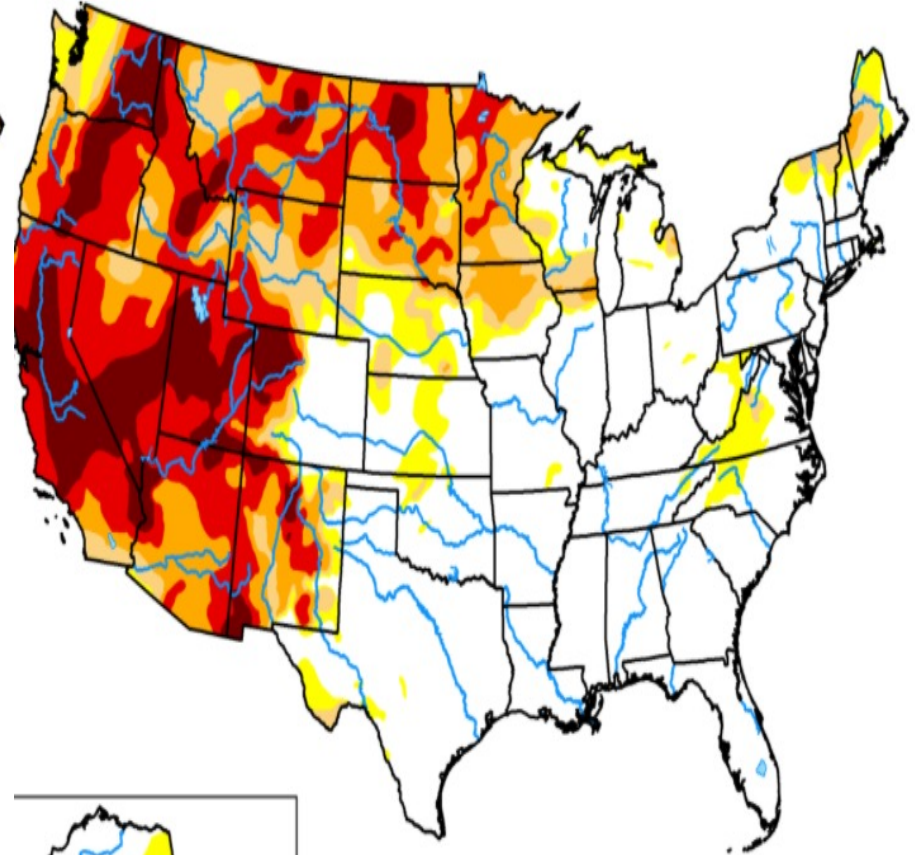
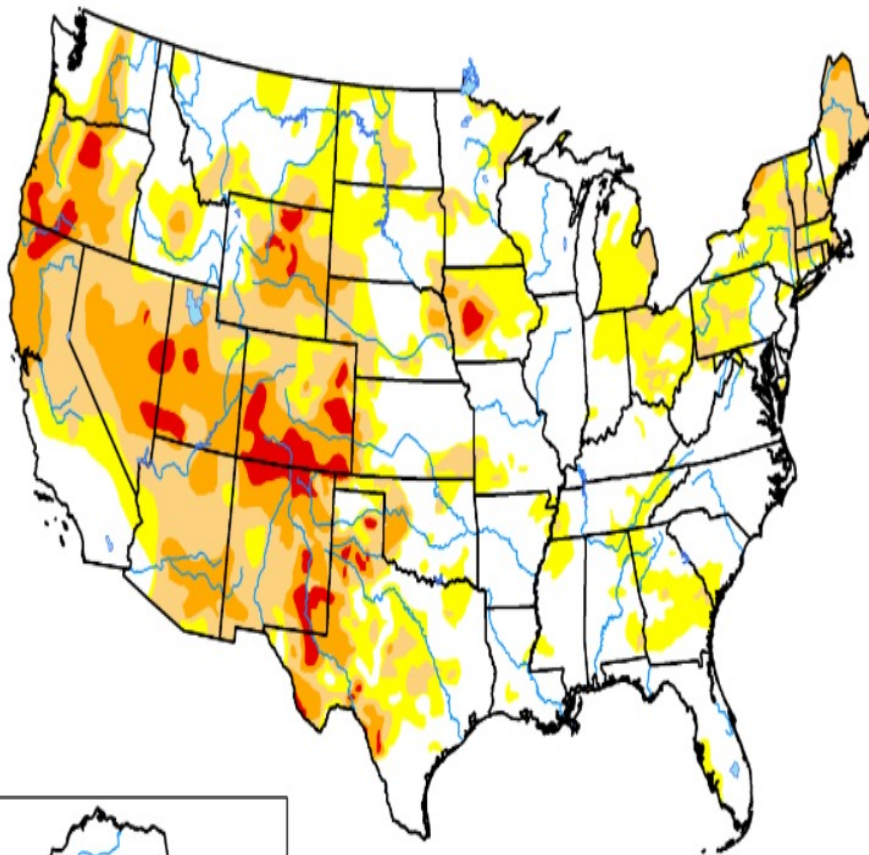
2021 Principal Crops Planted Thousand Acres and Percent Change from Previous Year



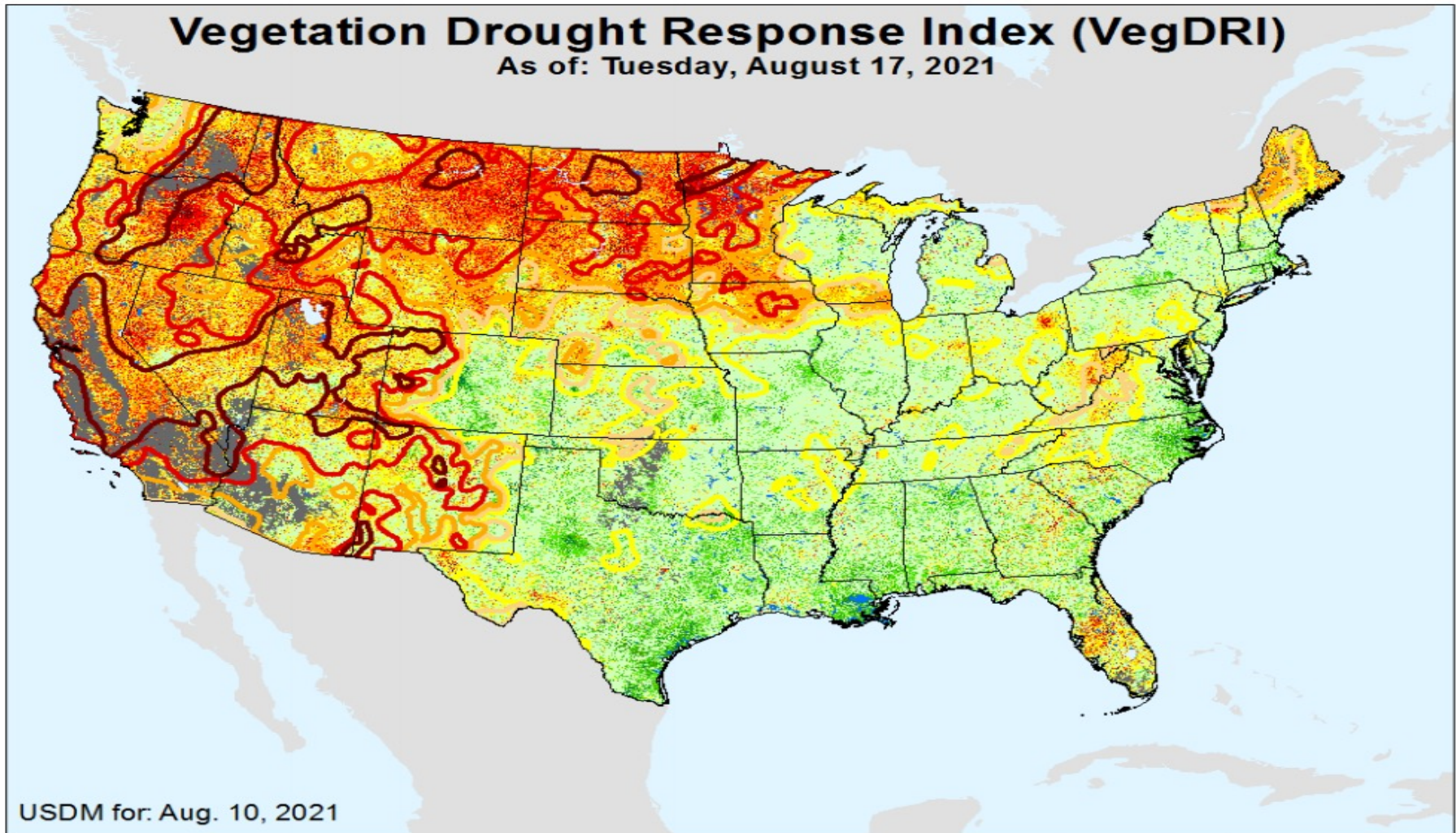
Mid August 2020 vs 2021

(Left)

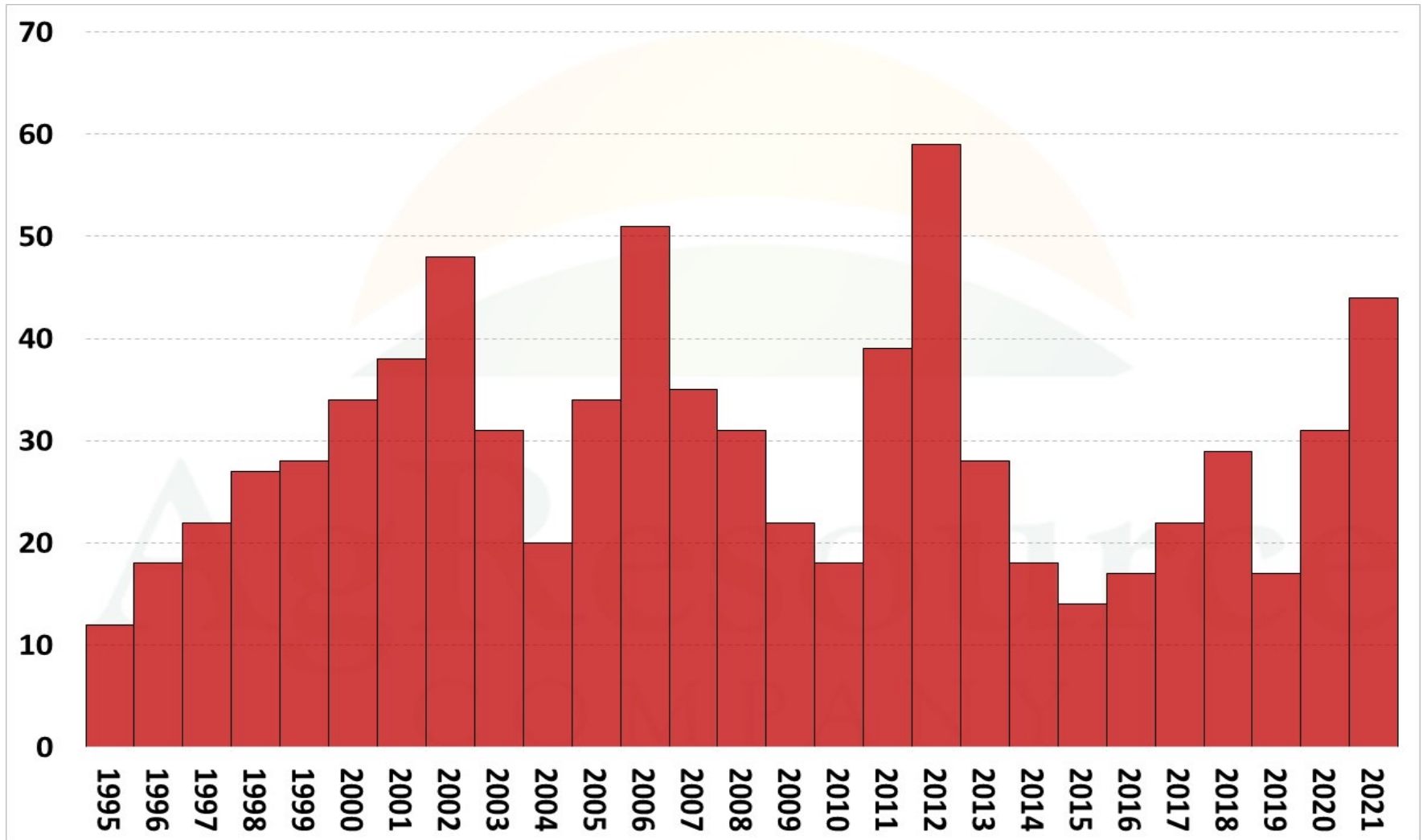
(Right)



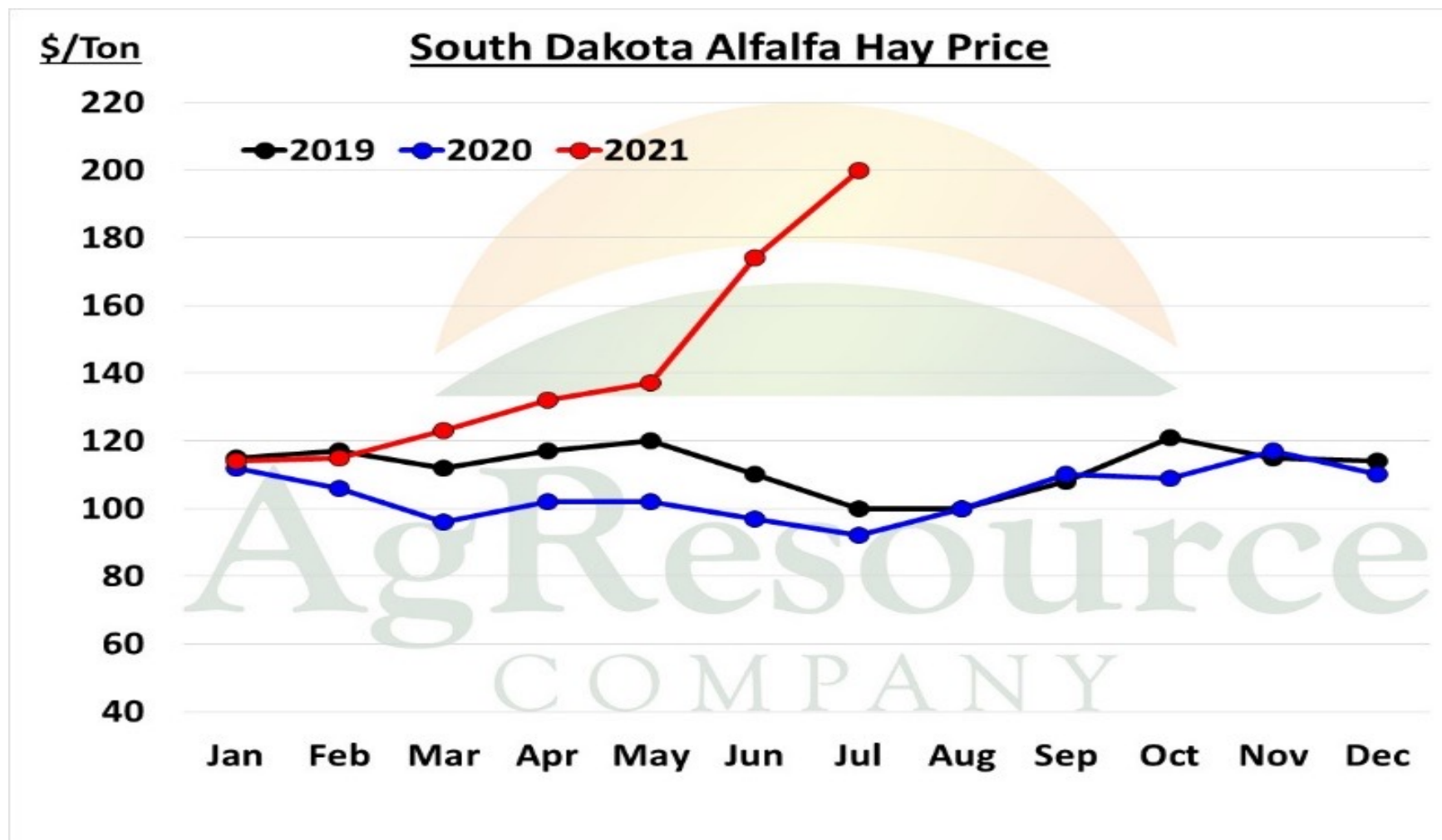
US Corn/Soybean Crops Unlikely to Witness Trend Yields



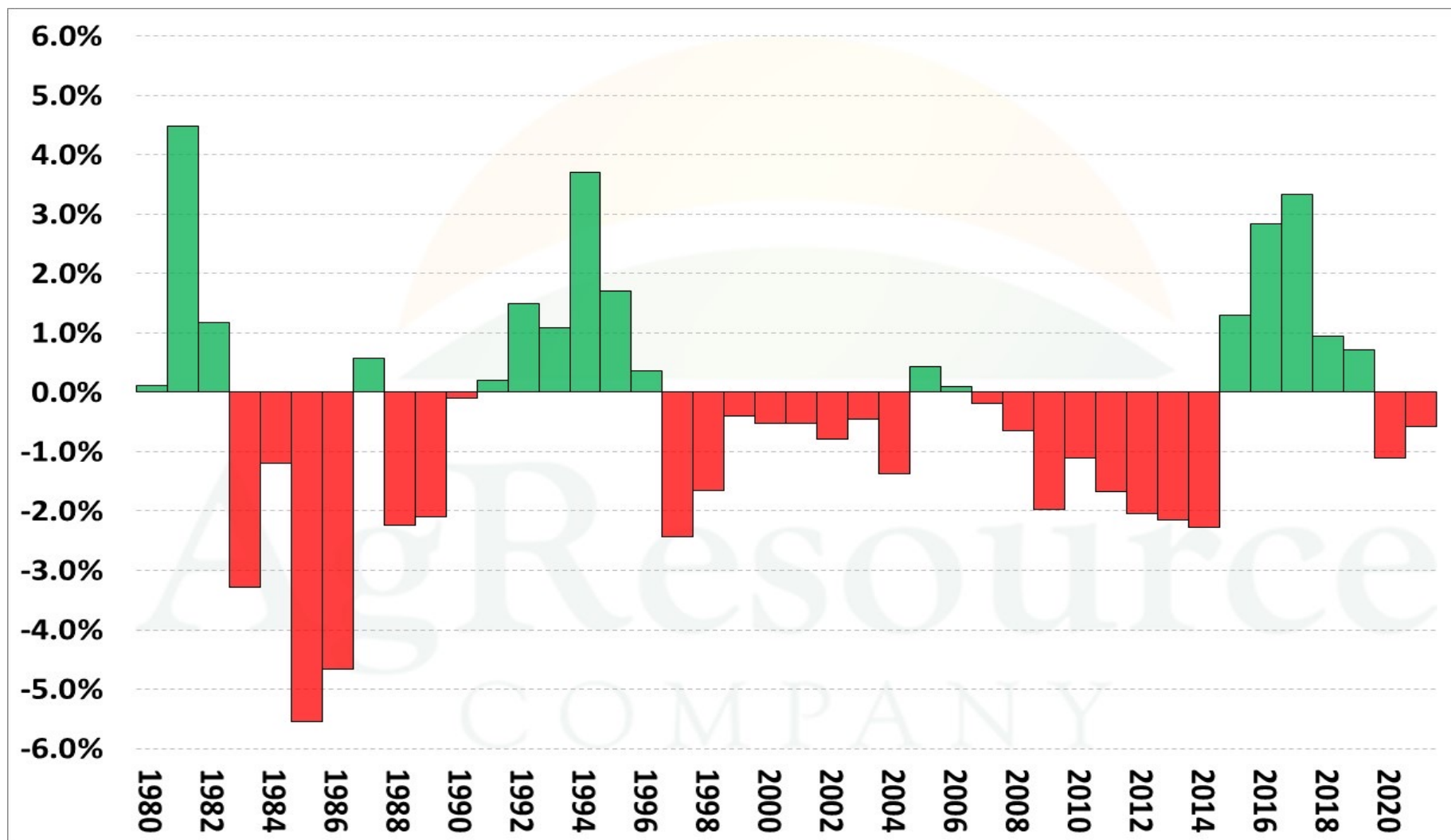
US Poor/Very Poor Pasture Conditions



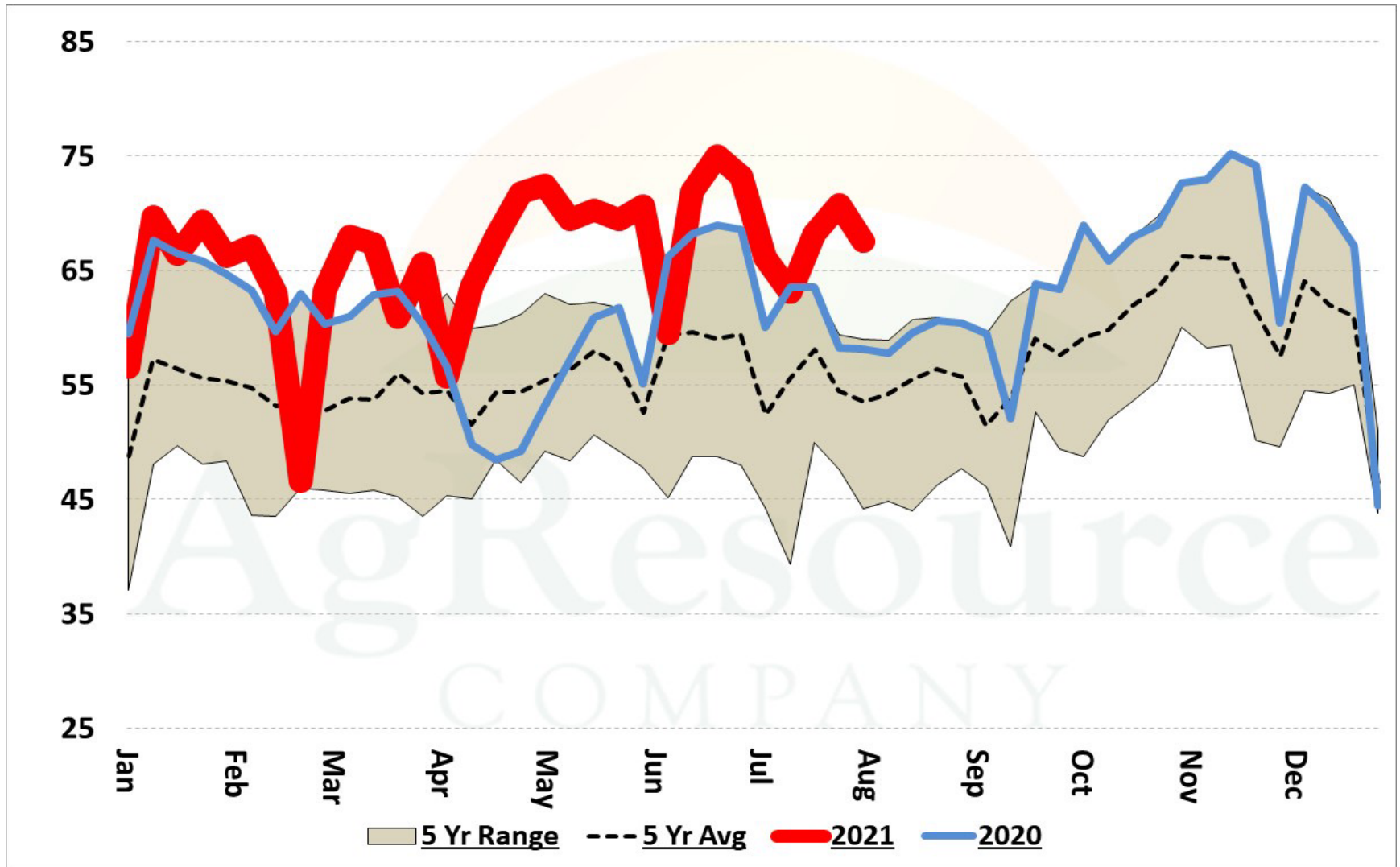
Hay Prices In Bull Market Across the Northern and Western US



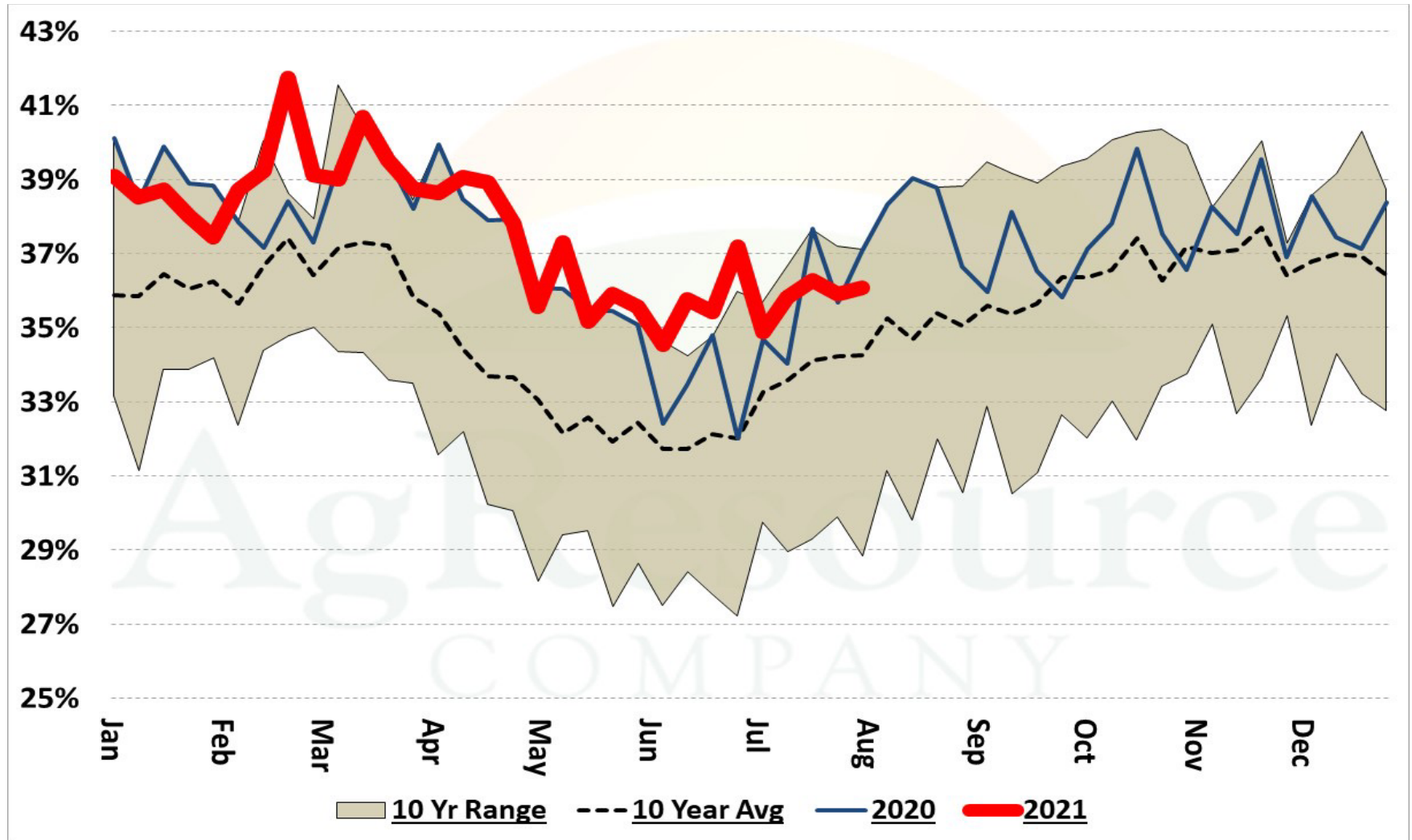
Year-Over-Year Change in US Beef Cow Herd *(January 1st)*



Weekly Beef Cow Slaughter (1,000 Head)

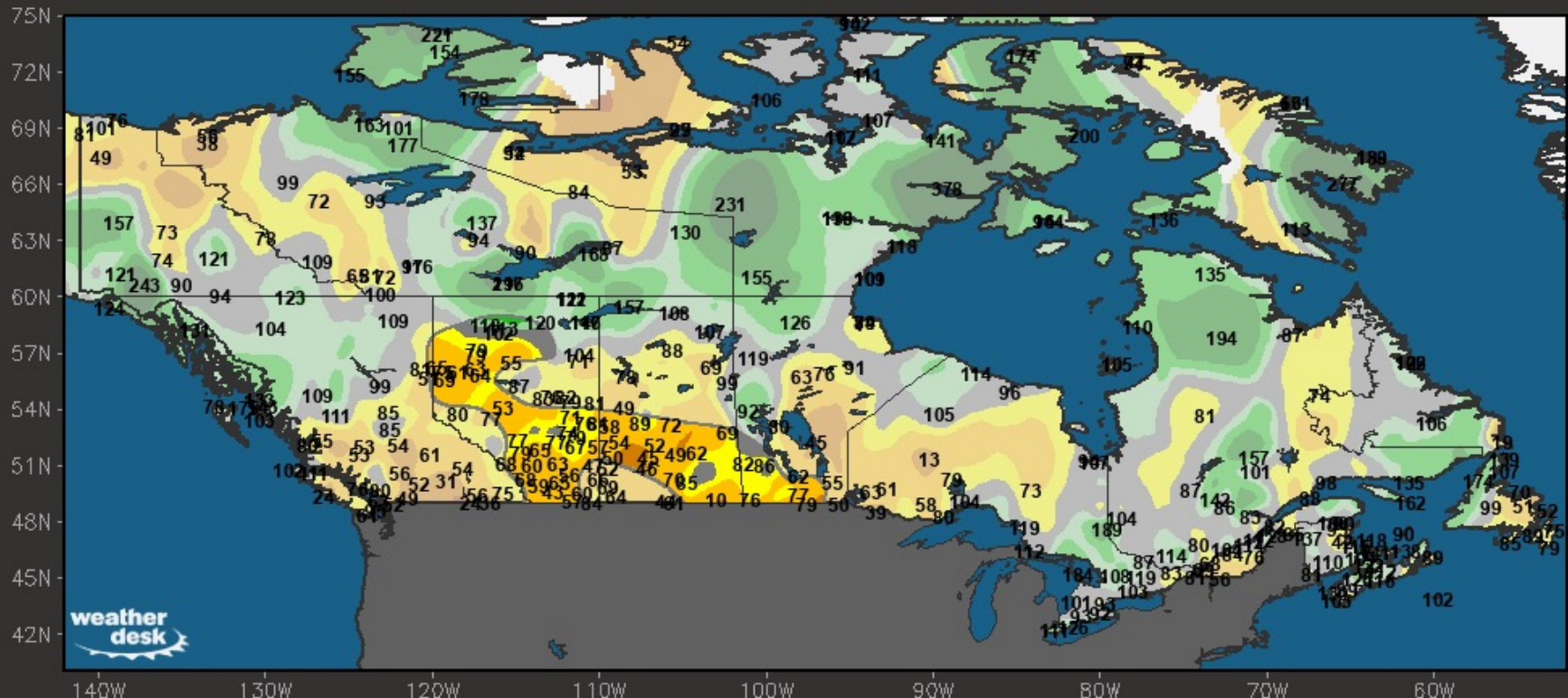


US Heifer Slaughter as % of Total Steer/Heifer Kill

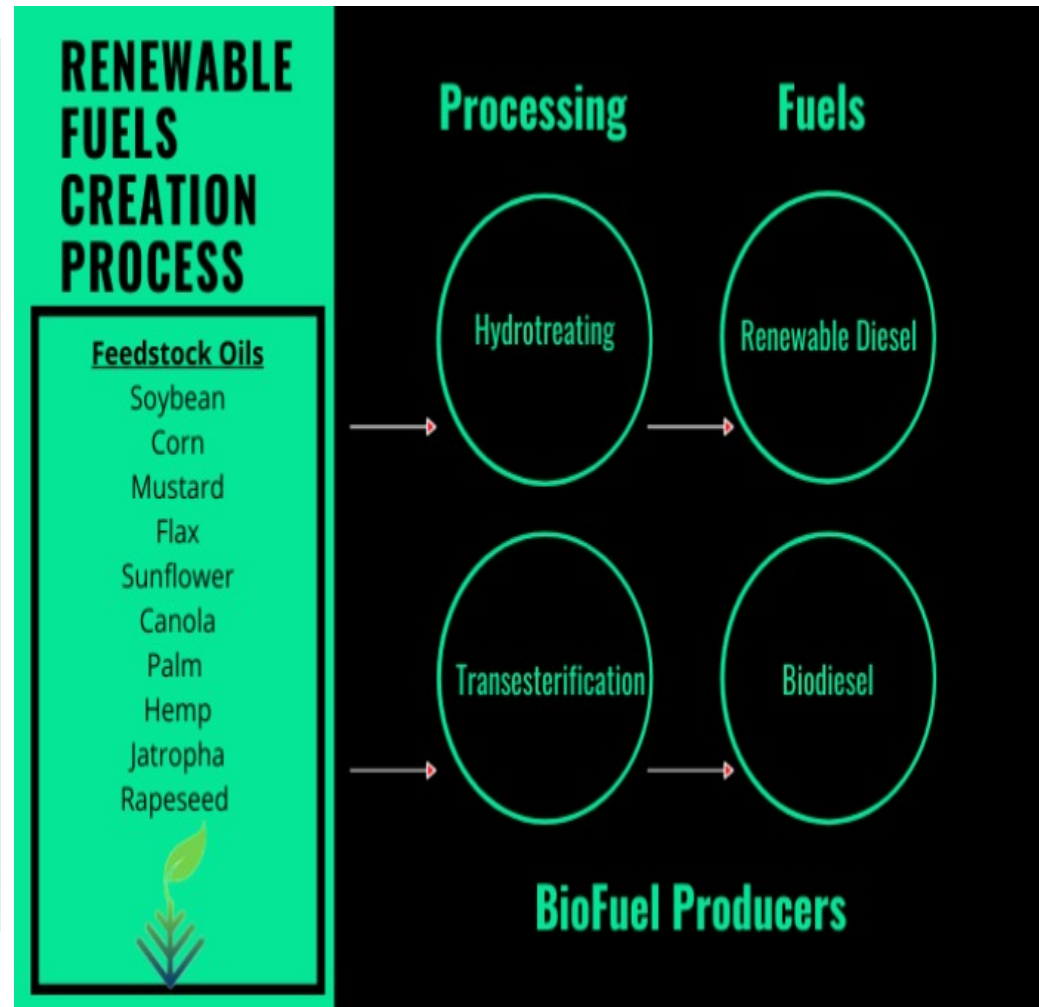


Worst Canadian Drought since 2003; May-August 15th Percent of Normal

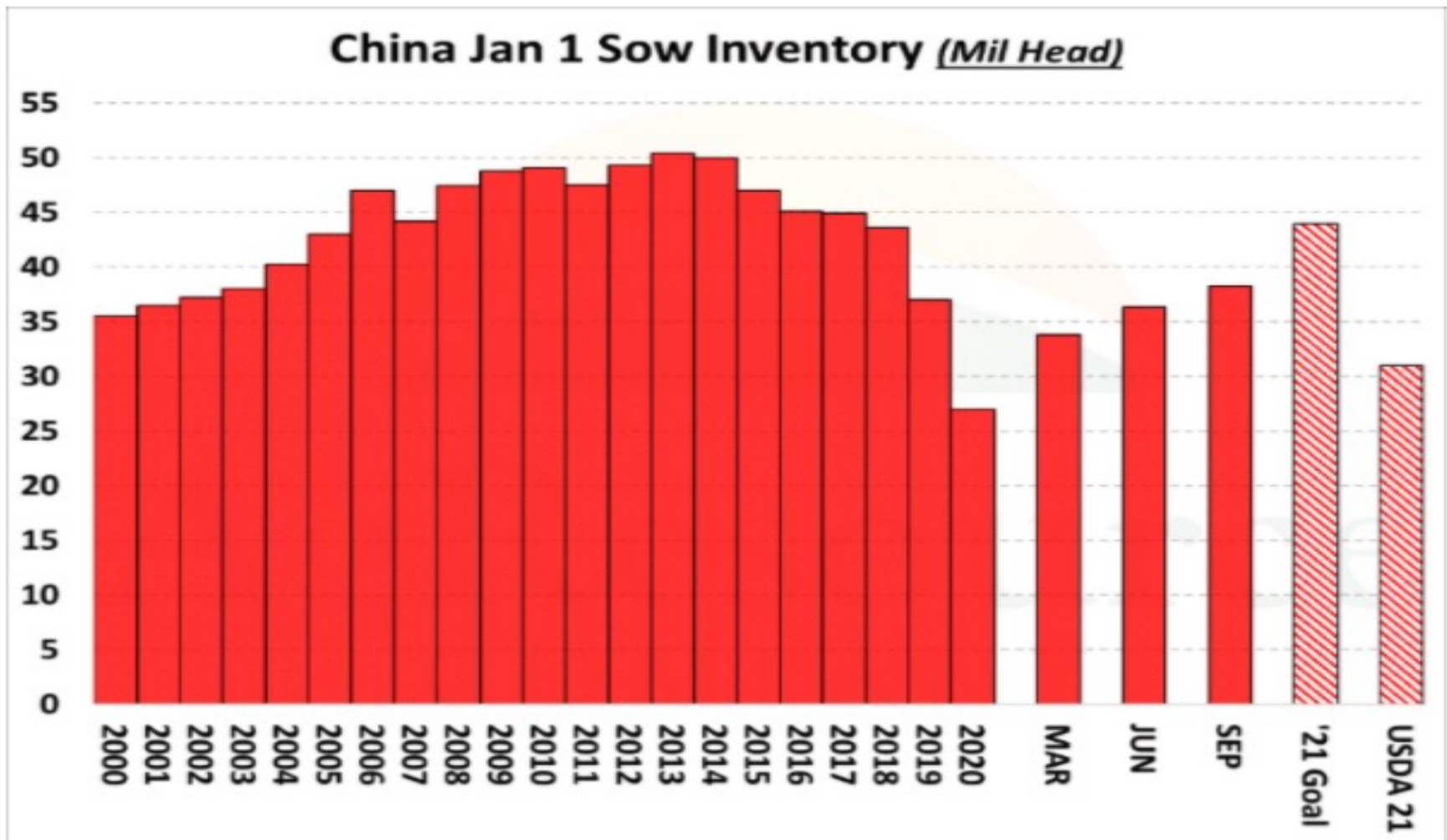
Canada - % Normal Precipitation for May 1st, 2021 through August 15th, 2021 - Rapeseed ⓘ | Rate Limit: 12/100



Ag Demand Drivers: China Corn Imports/Renewable Diesel



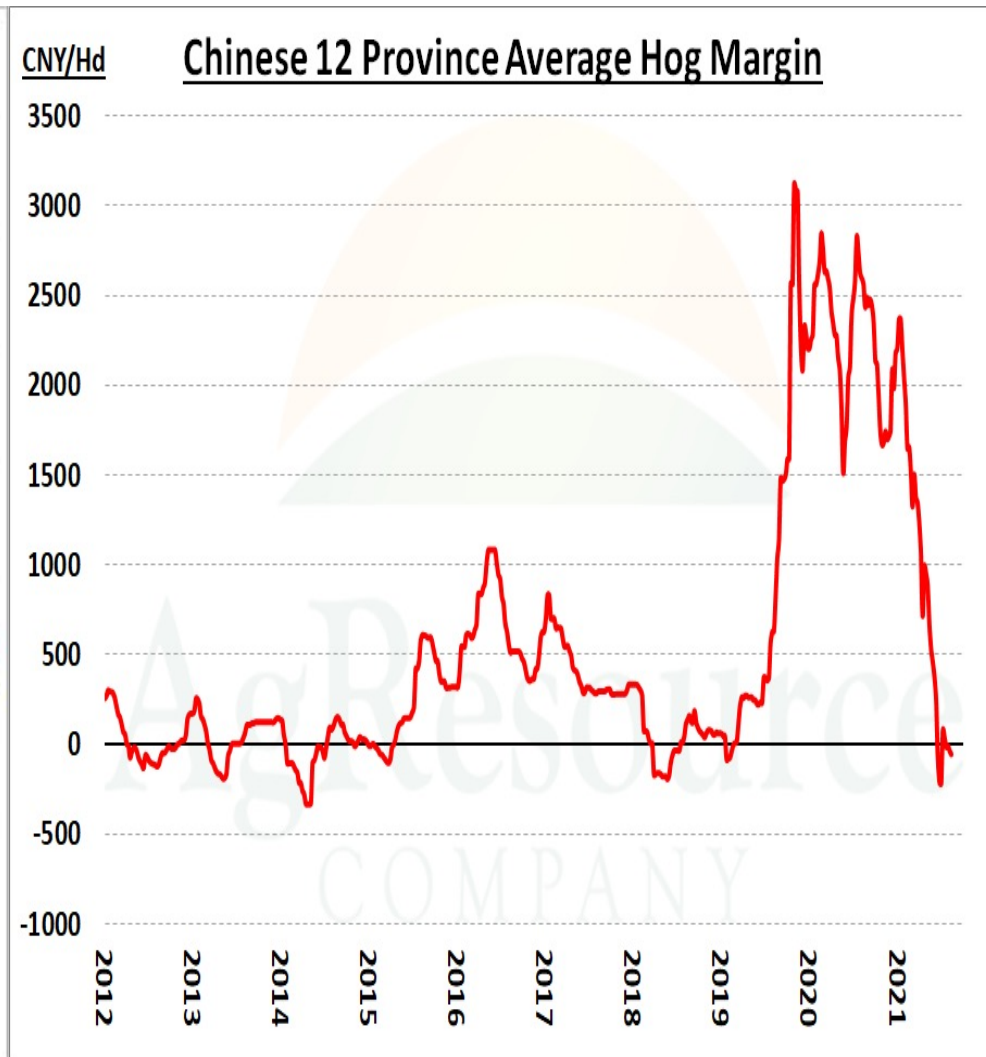
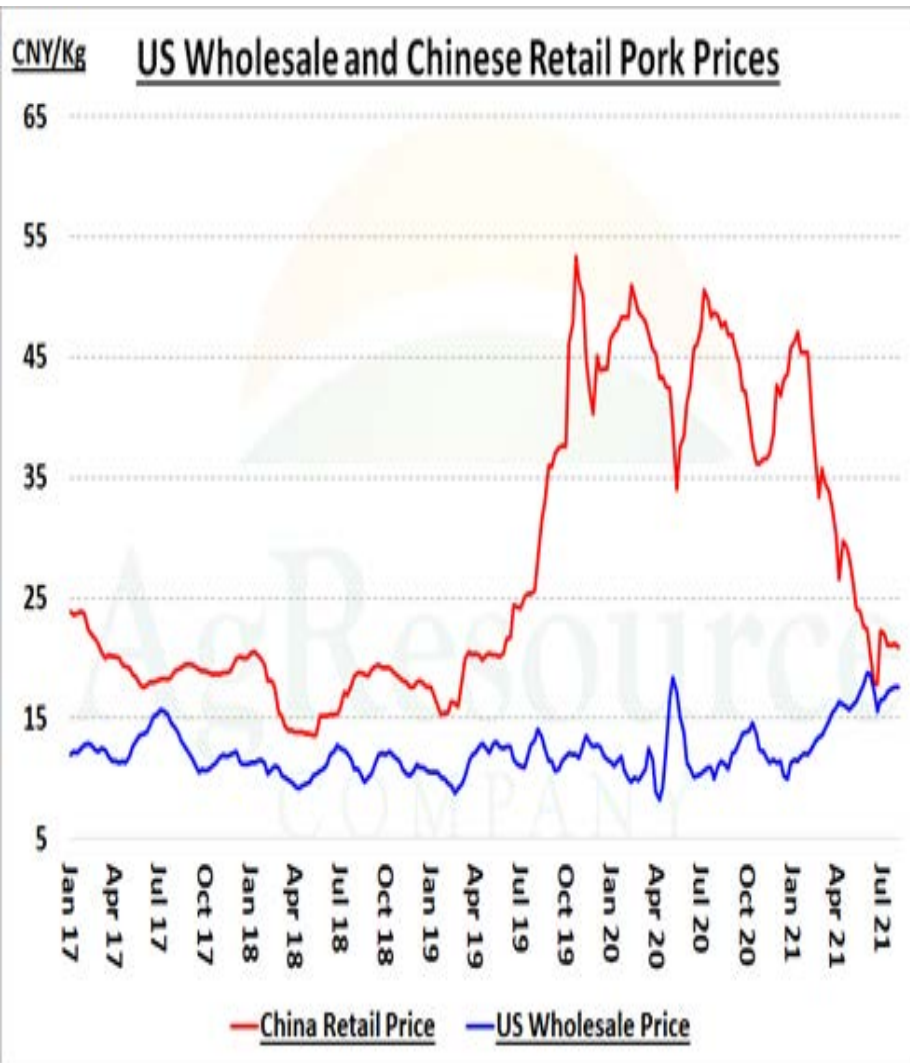
Massive Sow Expansion; China's Pig Numbers Back to Pre AFS by mid 2021



Yangxiang Hog High Rise – Mountain Views – 7 Stories – 840,000 Hogs/Year

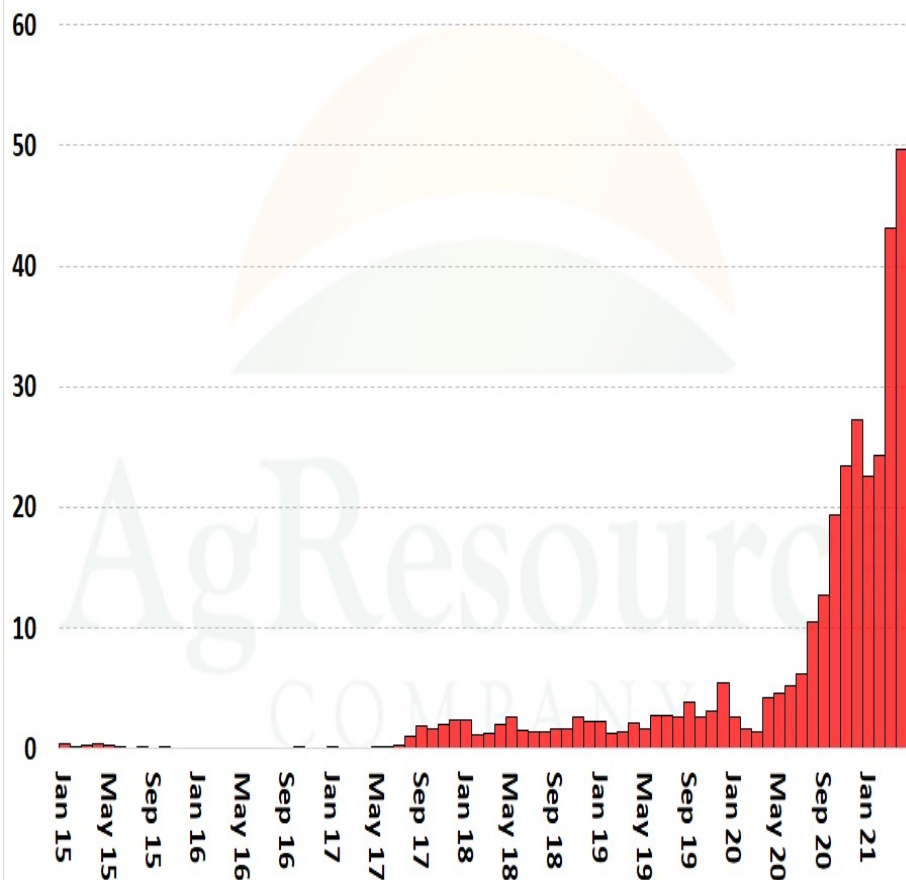


Retail and Producer Margins Confirm Expanding China Pork Supplies

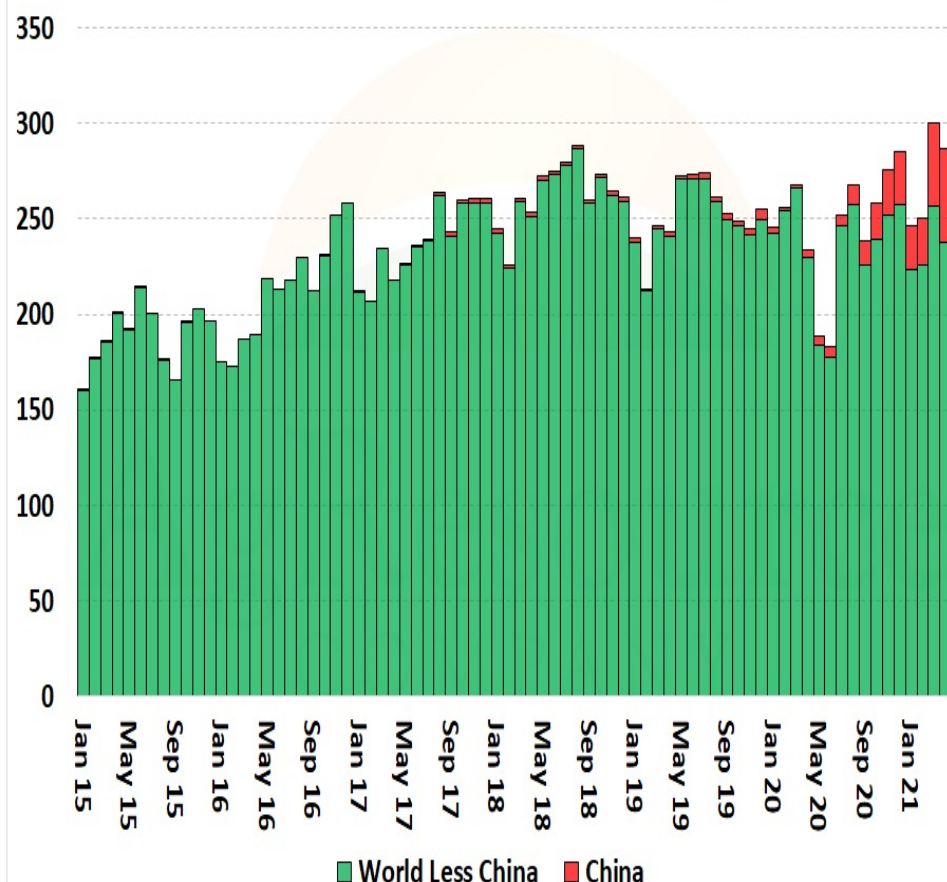


China Contributing to Record Large US Beef Export Demand

US Monthly Beef Exports to China (Mil Lbs)

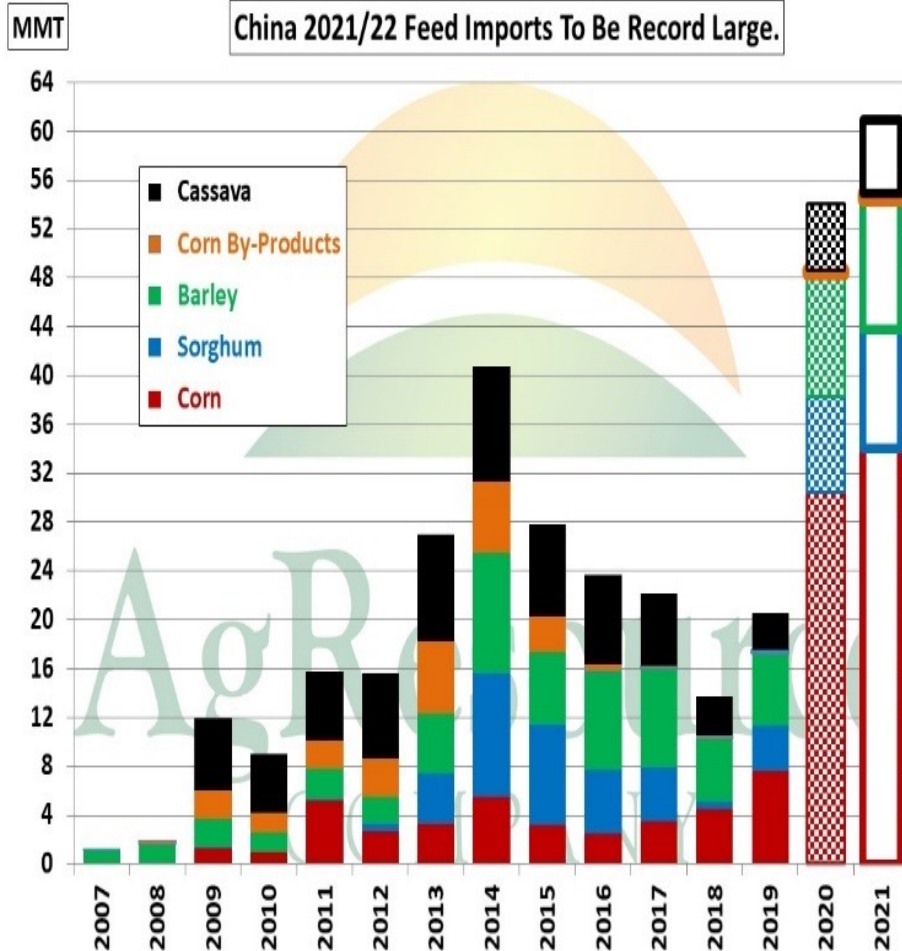


US Monthly Beef Exports (Mil Lbs)

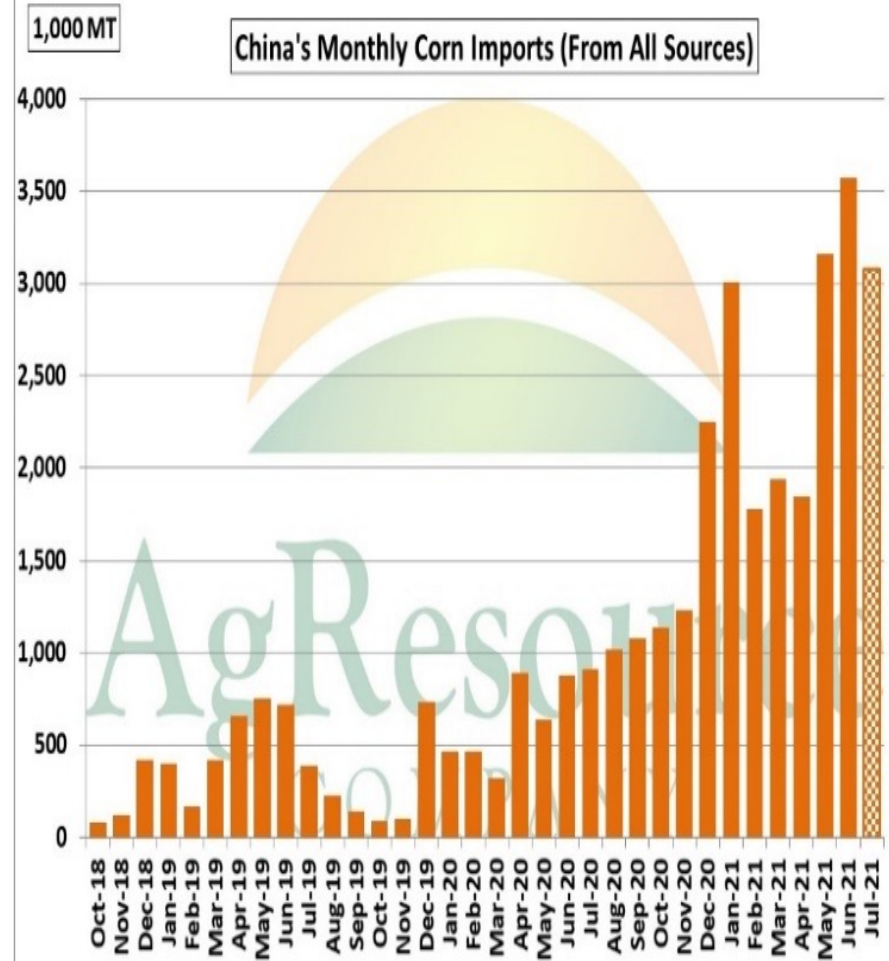


China to Import 30-50 MMTs of World Corn Annually

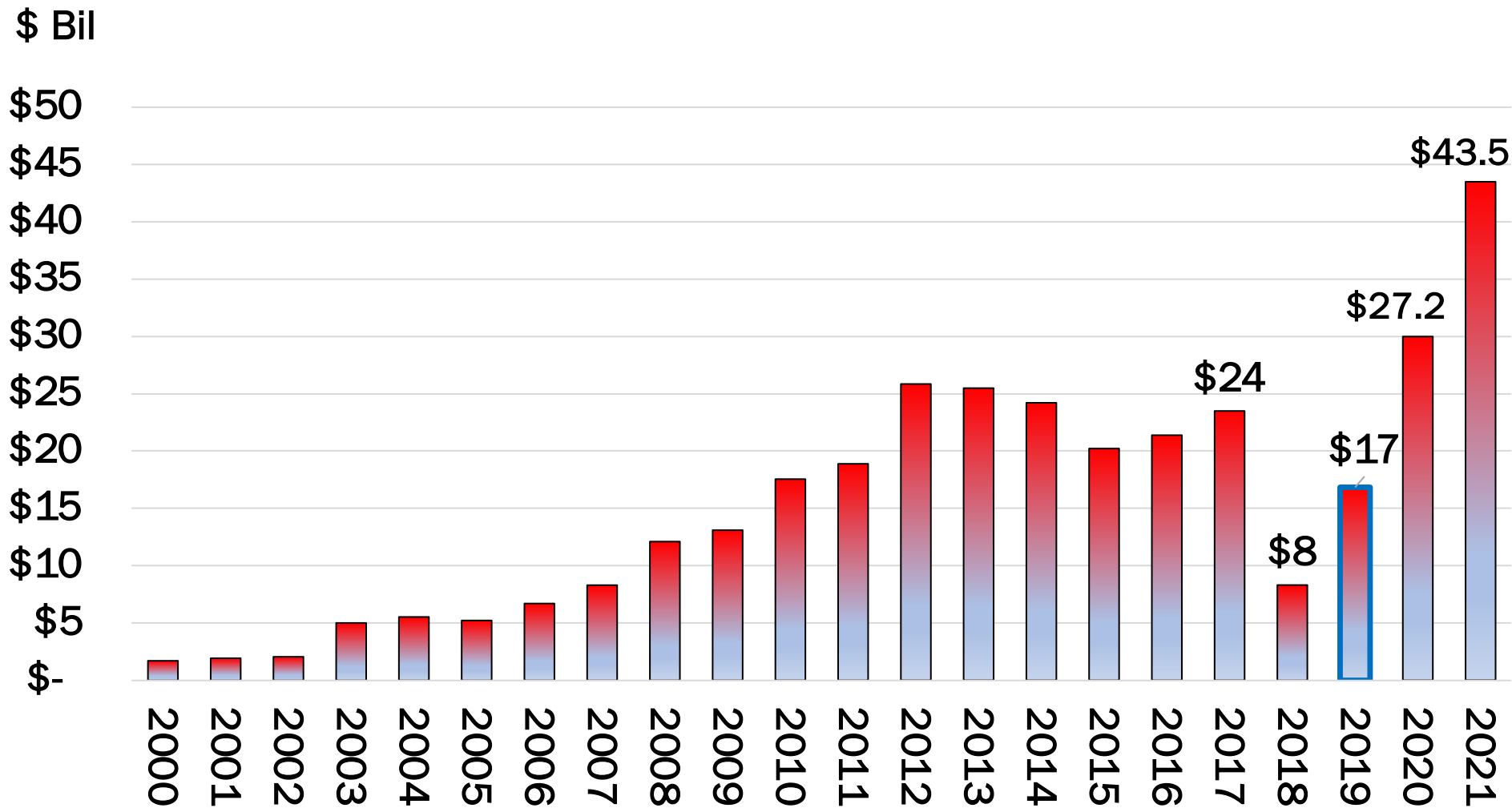
China 2021/22 Feed Imports To Be Record Large.



China's Monthly Corn Imports (From All Sources)



Value of US Ag Exports to China: Estimates for 2020 are \$27.2 Bil or 74% of Pledge



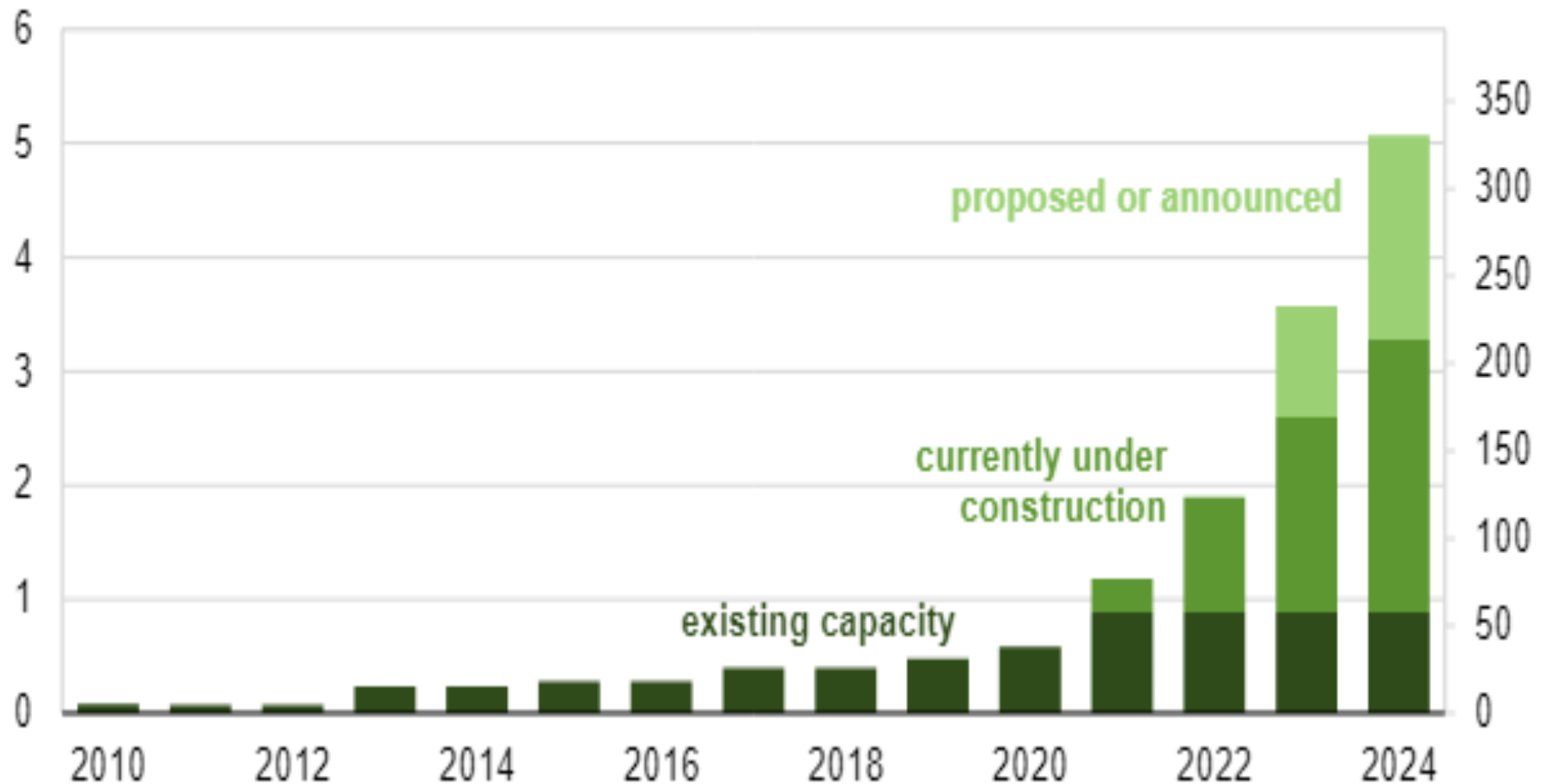
Demand Bull for US Soyoil

Existing and expected U.S. renewable diesel production capacity (2010–2024)



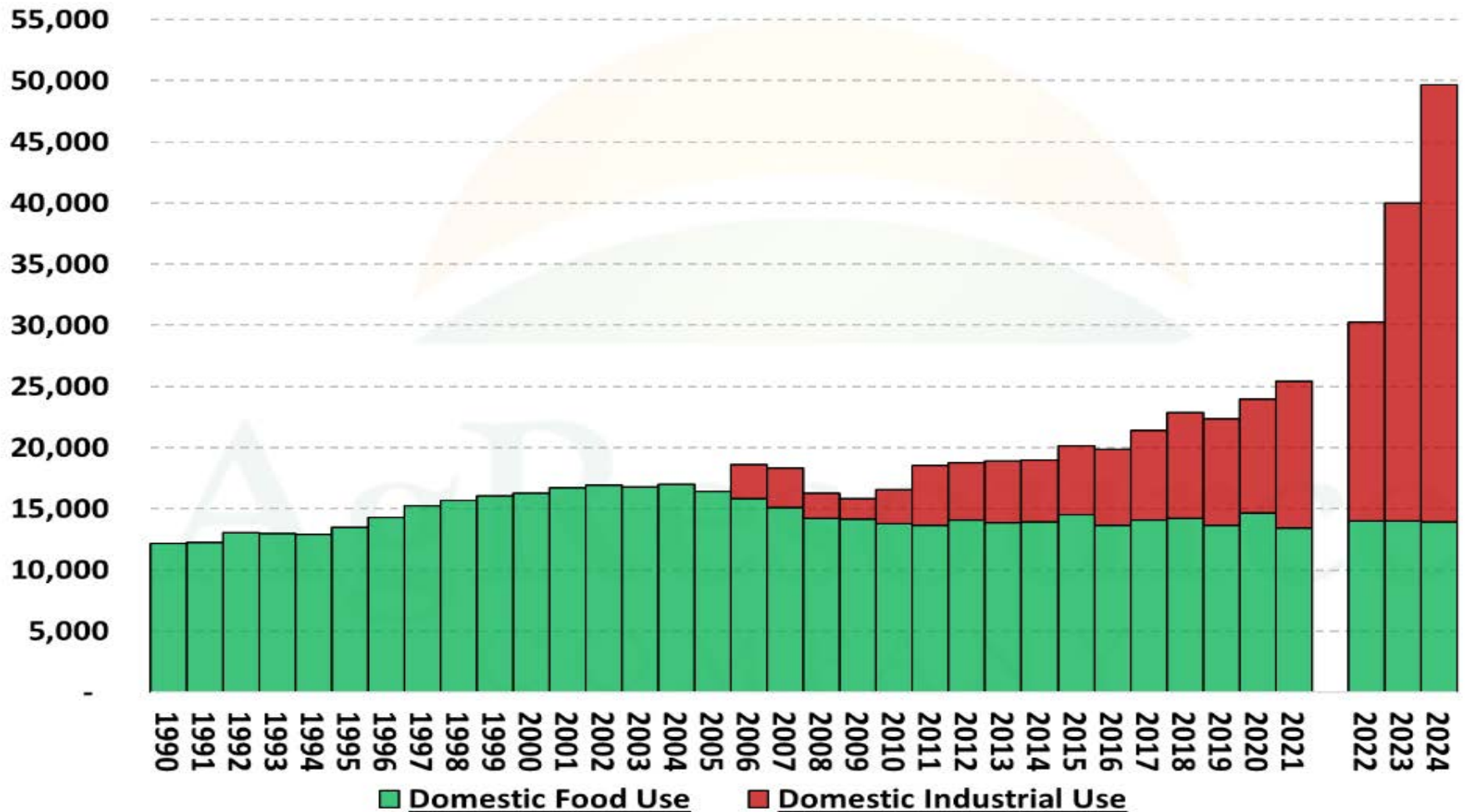
billion gallons per year

thousand barrels per day



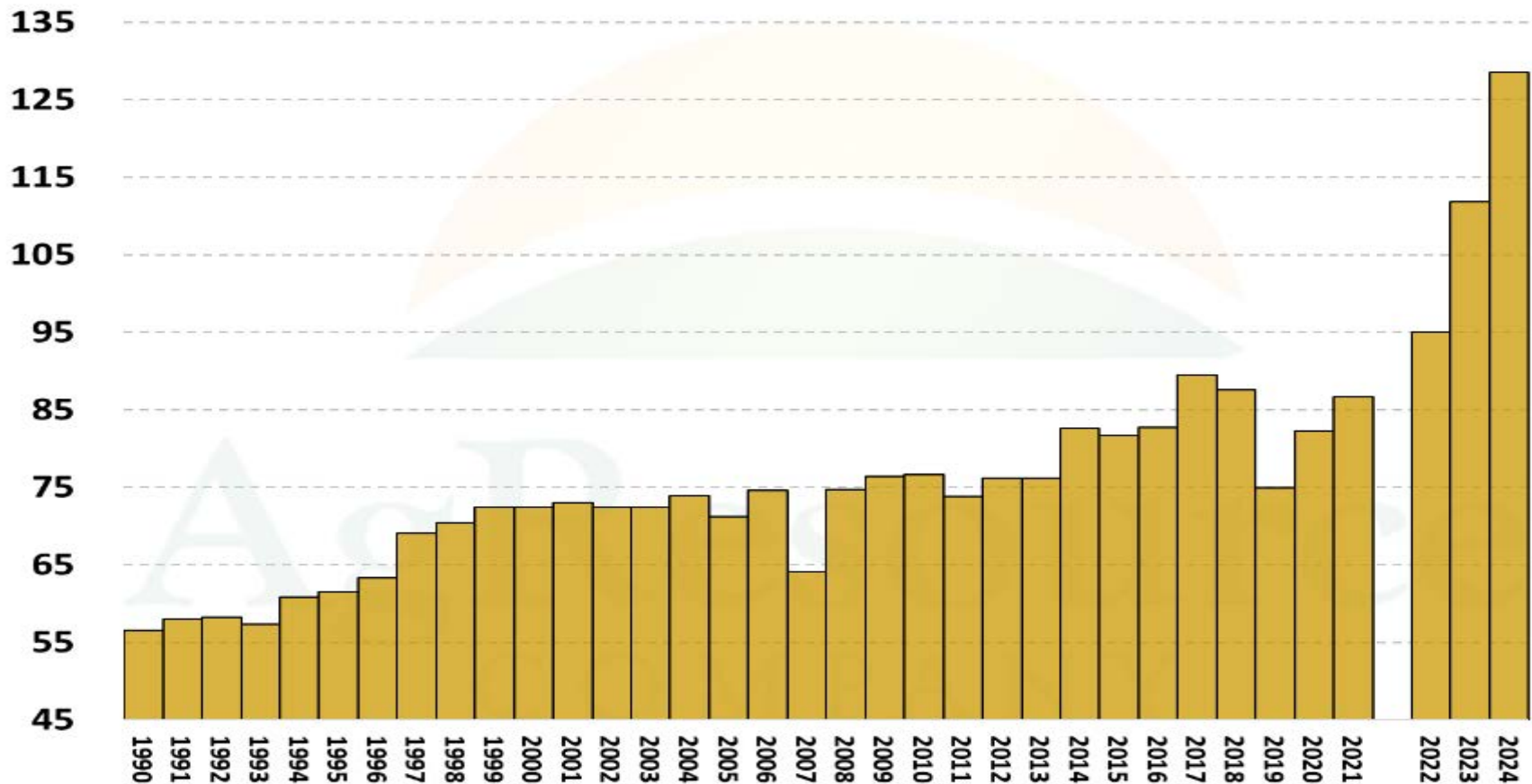
Forecast of Industrial Soyoil Use

US Soybean Oil Domestic Use (Mil Lbs)



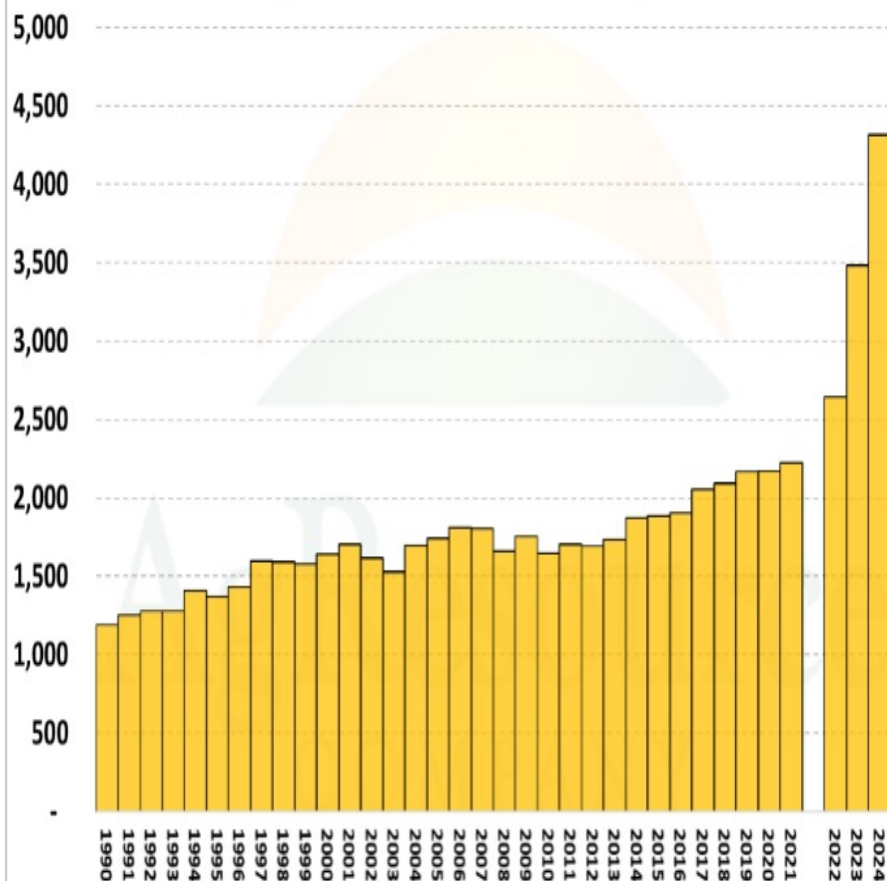
Needed Jump in US soybean Harvested Acres

Harvested Soybean Acres

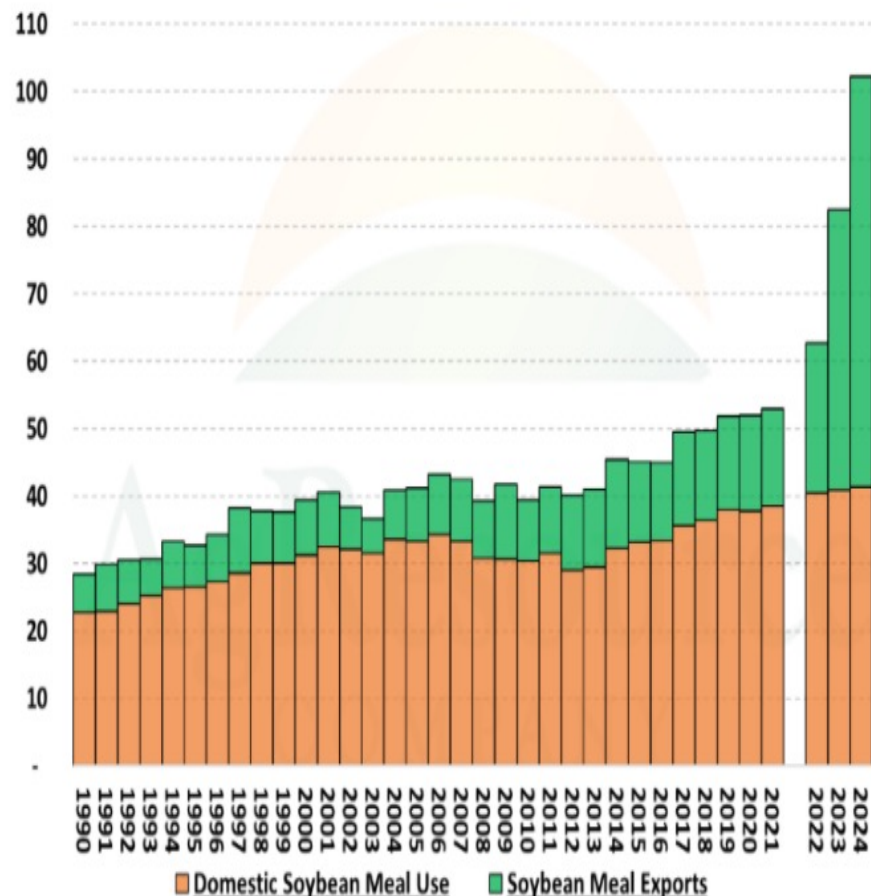


US Future Soybean Meal Supplies Will Dramatically Increase

US Soybean Crush (Mil Bu)



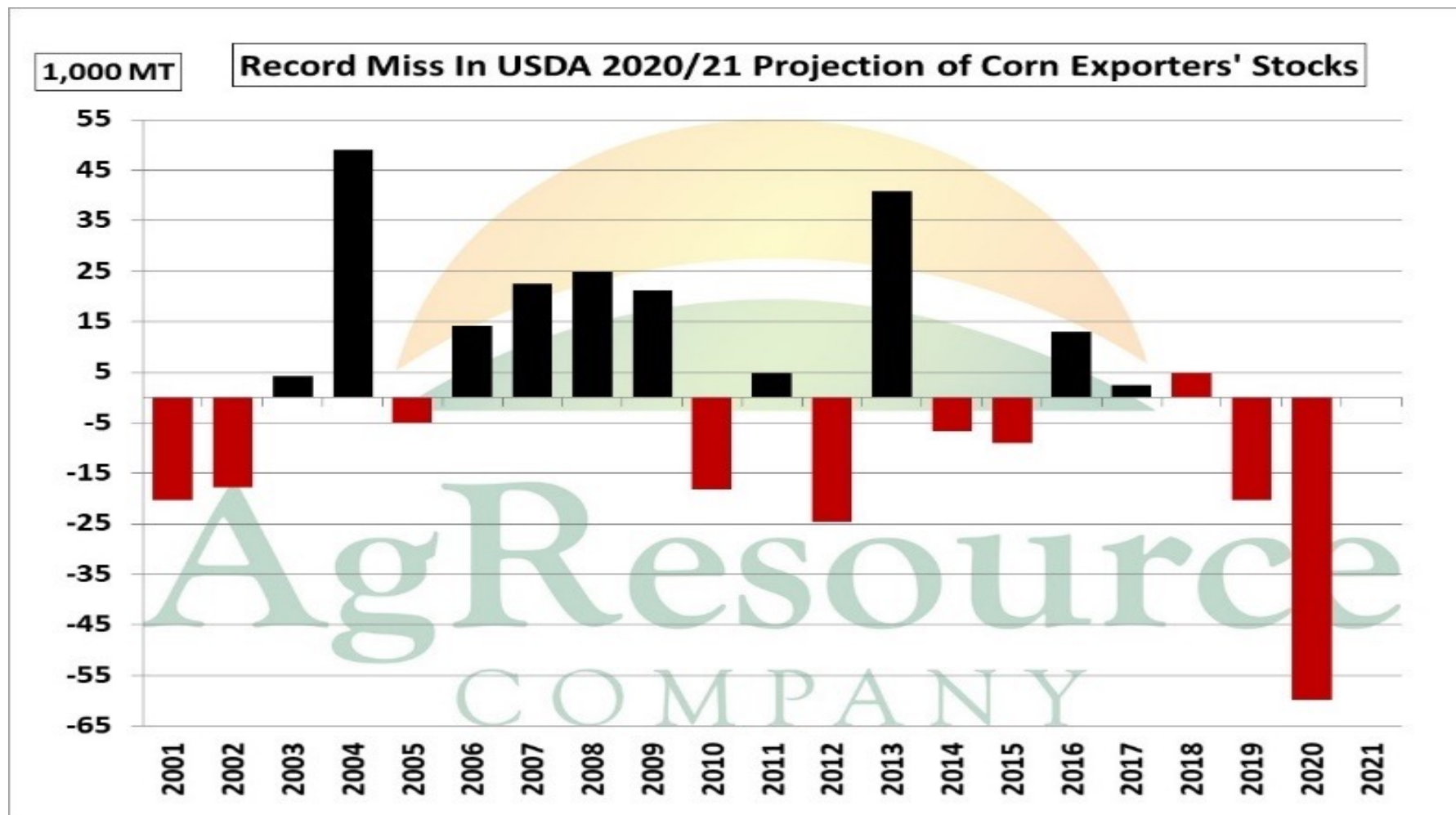
US Soybean Meal Use & Exports (Mil Short Tons)



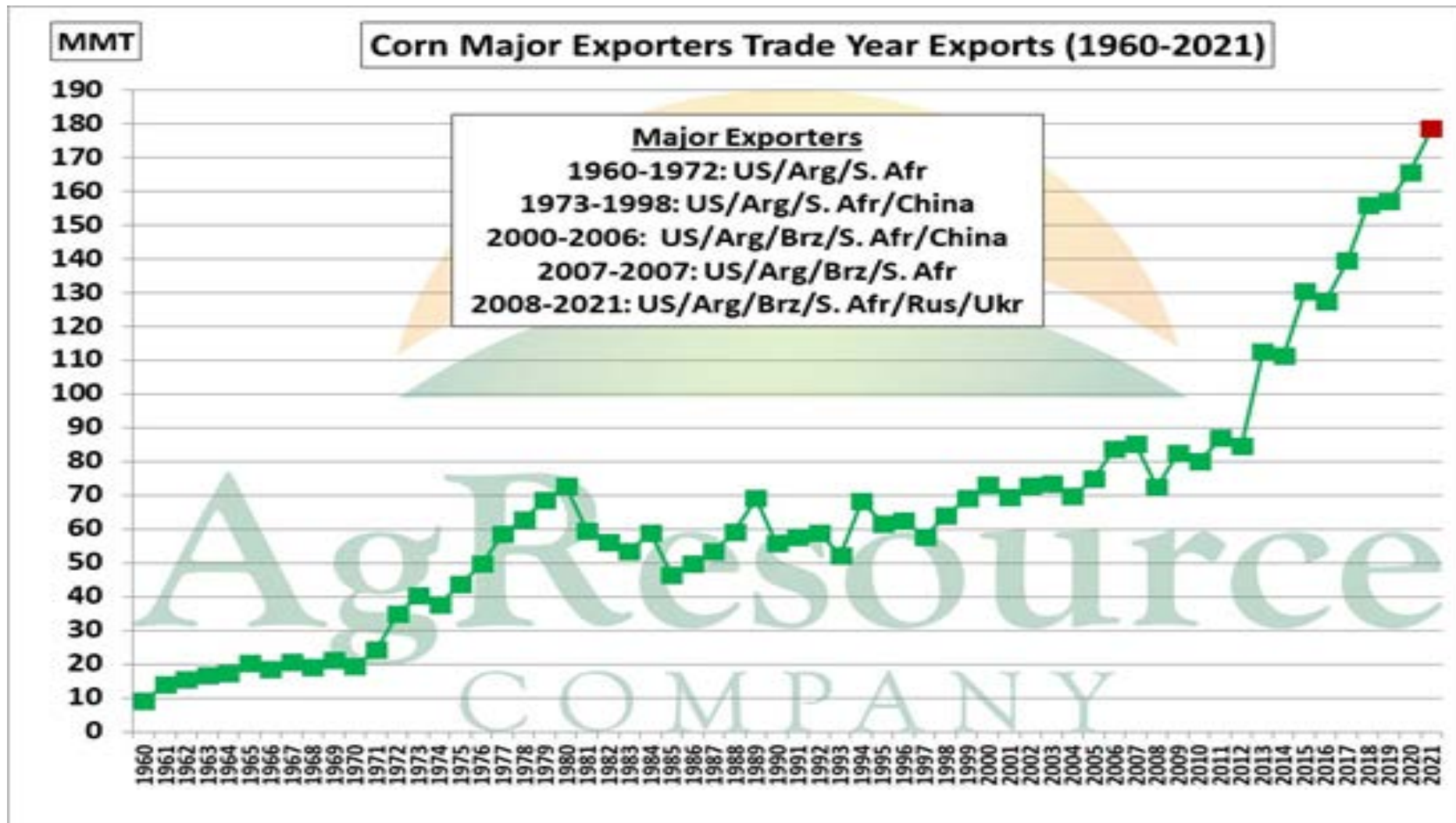
Offal Boosting US Steer By-Product Values



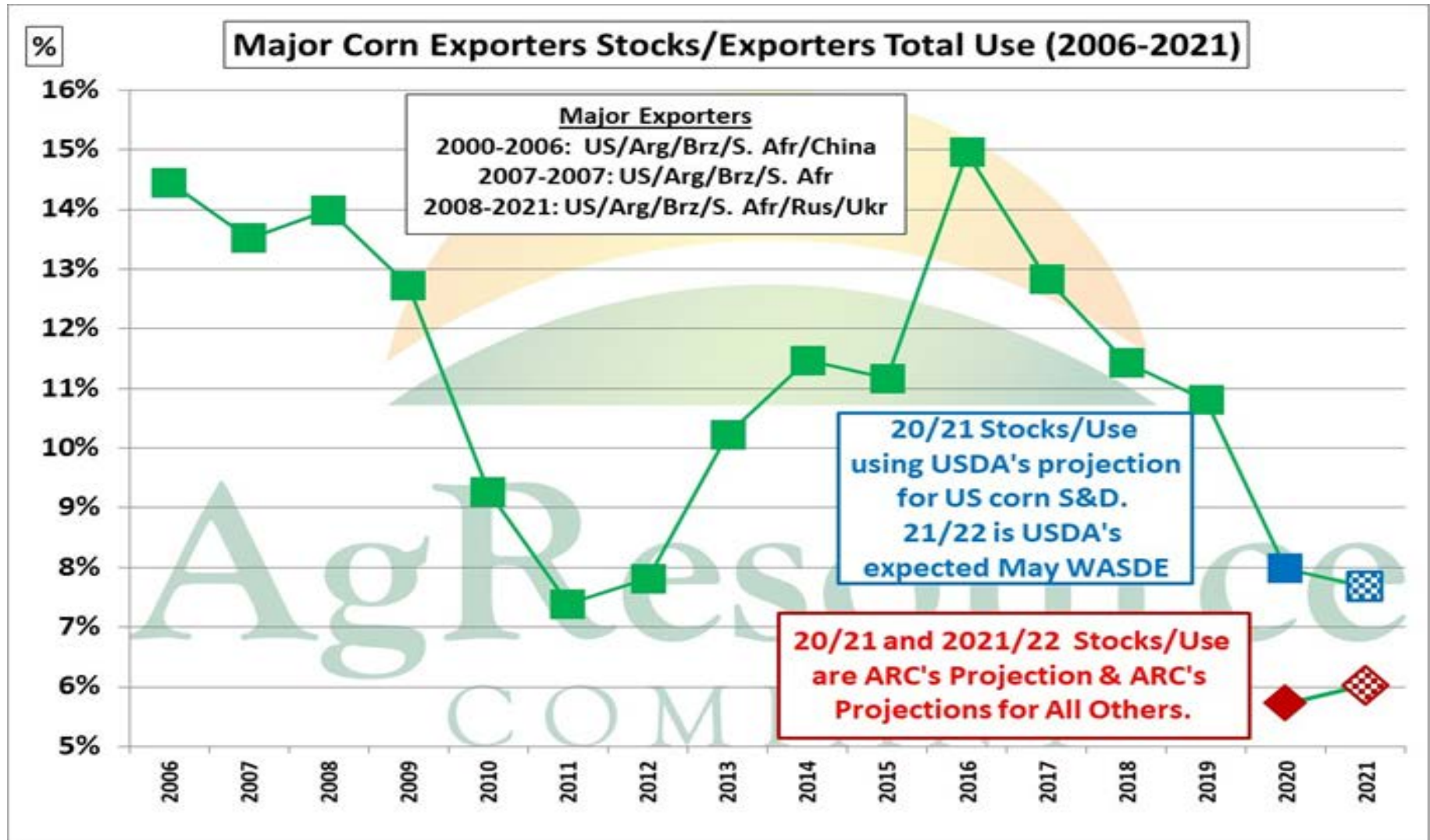
Record Loss for 2021 World Corn Production; US Exports to Rise as Result



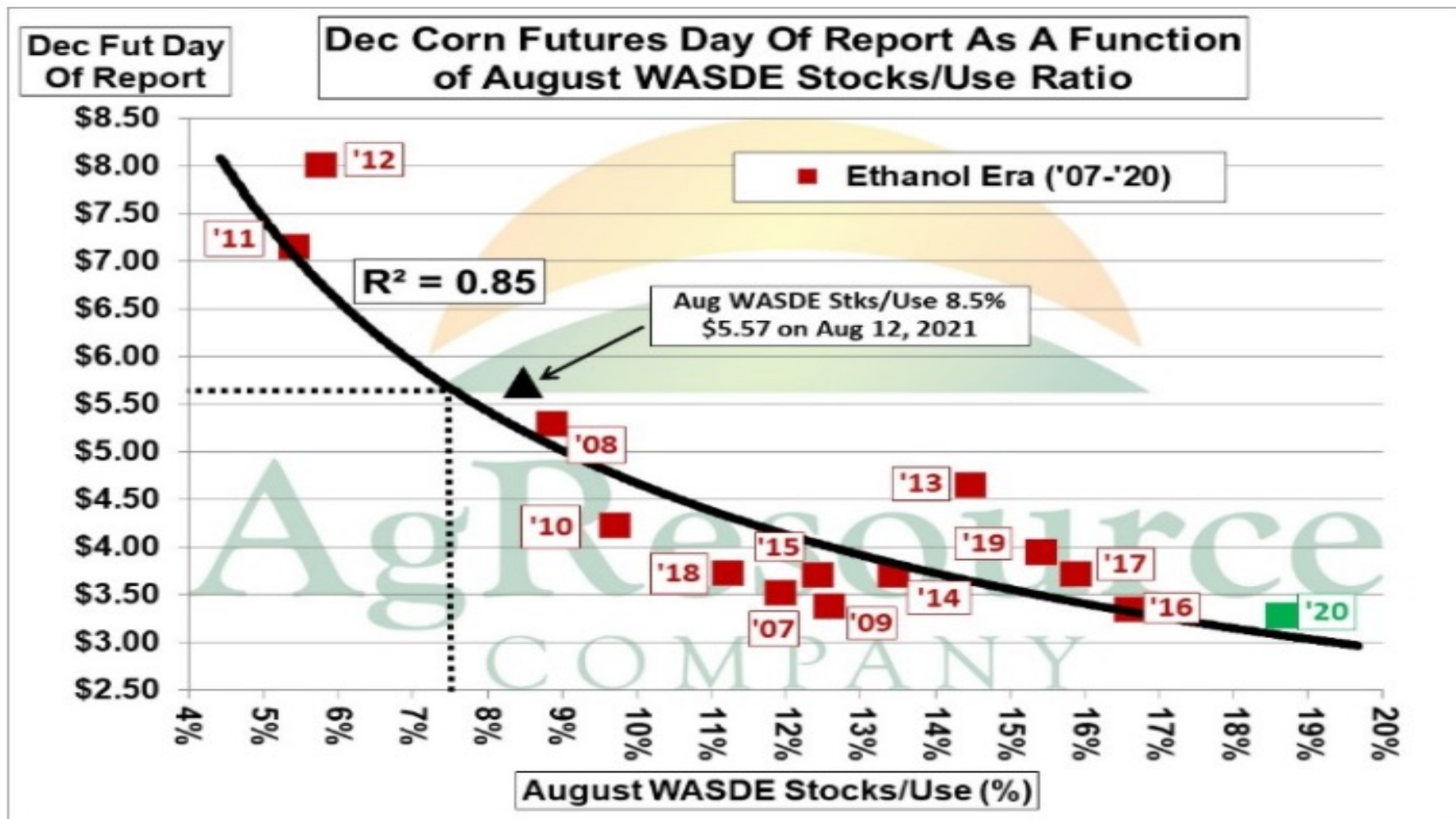
WASDE Forecast World Corn Trade at Record 180 MMTs.



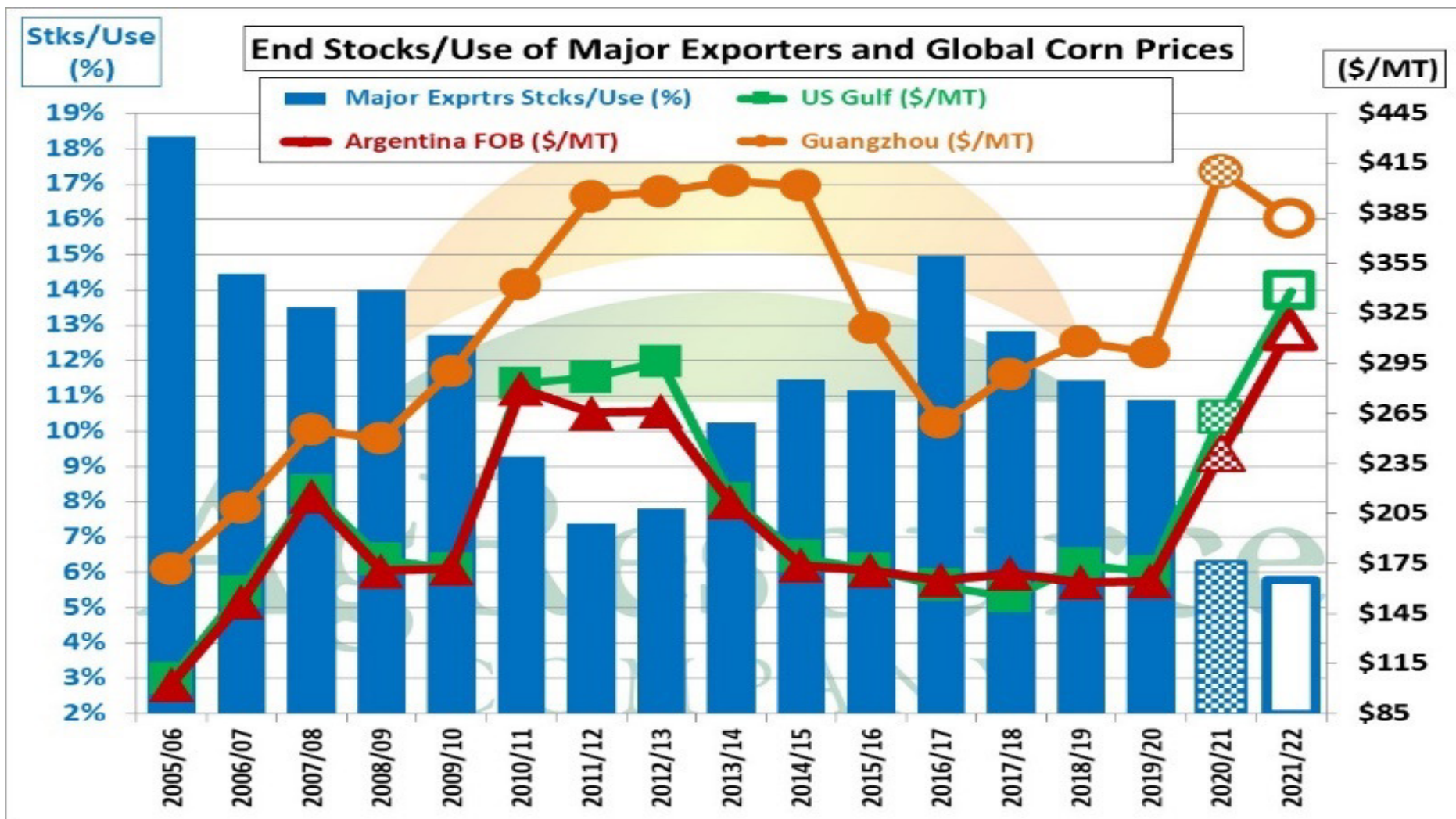
World Corn Exporter Stock/Use Ratio at Record Low – just 6-8%!



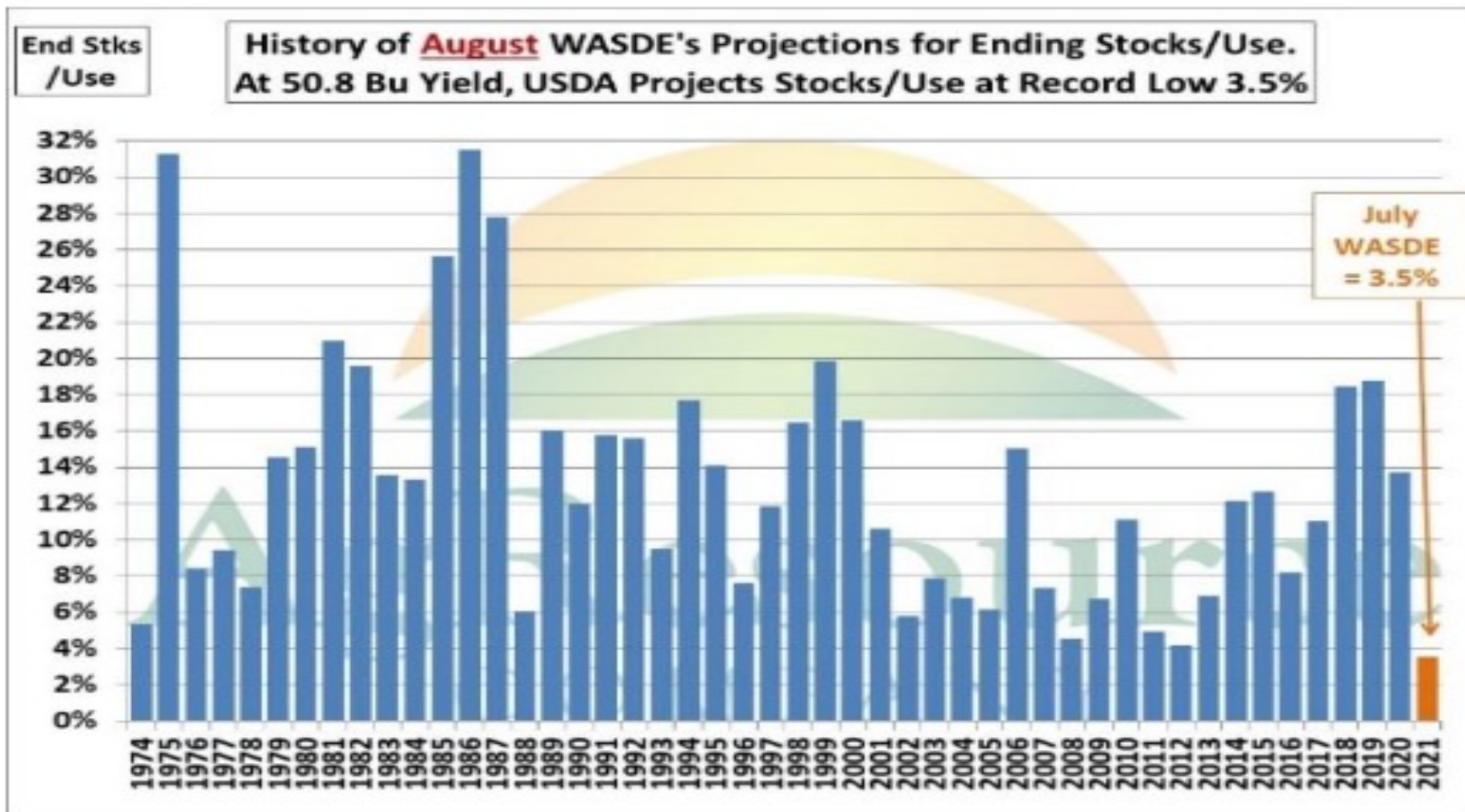
Dec Corn Lows Projected at \$5.10-5.30 on Stock/Use Analysis!



US Corn Prices to Rise to \$7-7.50 2022 on Tightening World Stocks



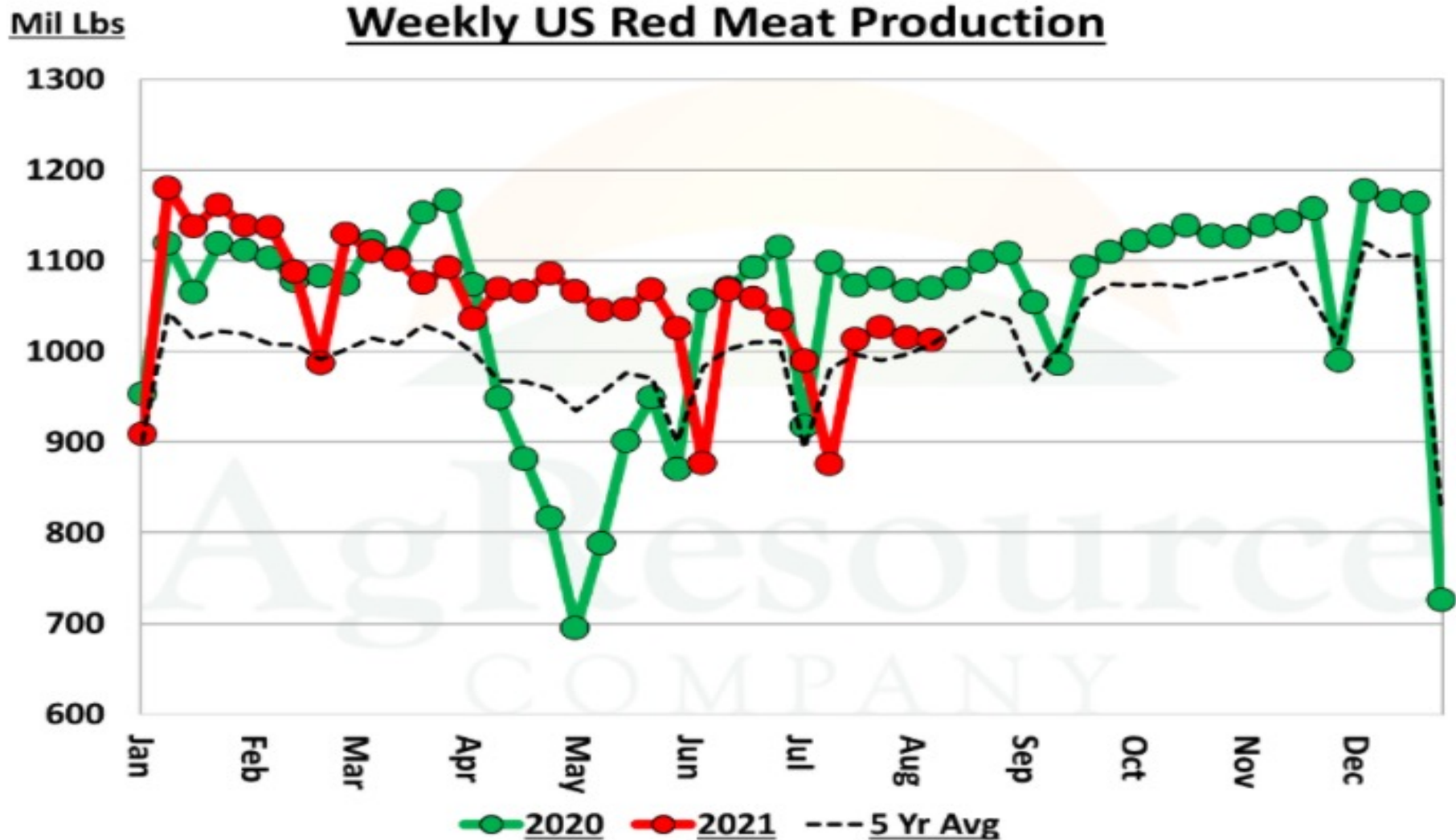
WASDE August Soybean Stock/ Use Ratio at Record Low 3.5%



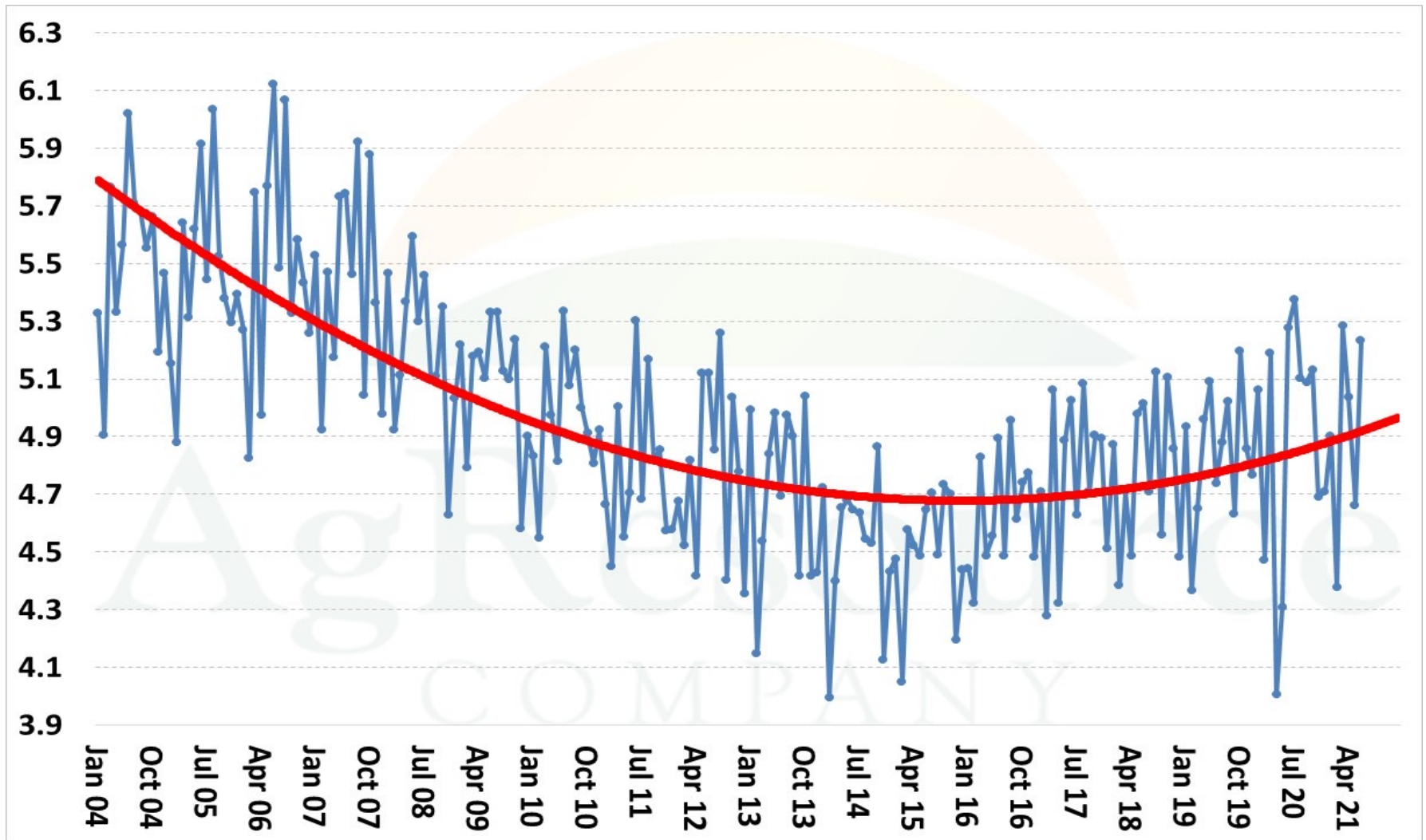
Beef Production and Prices



US Red Meat Production back to Normality!

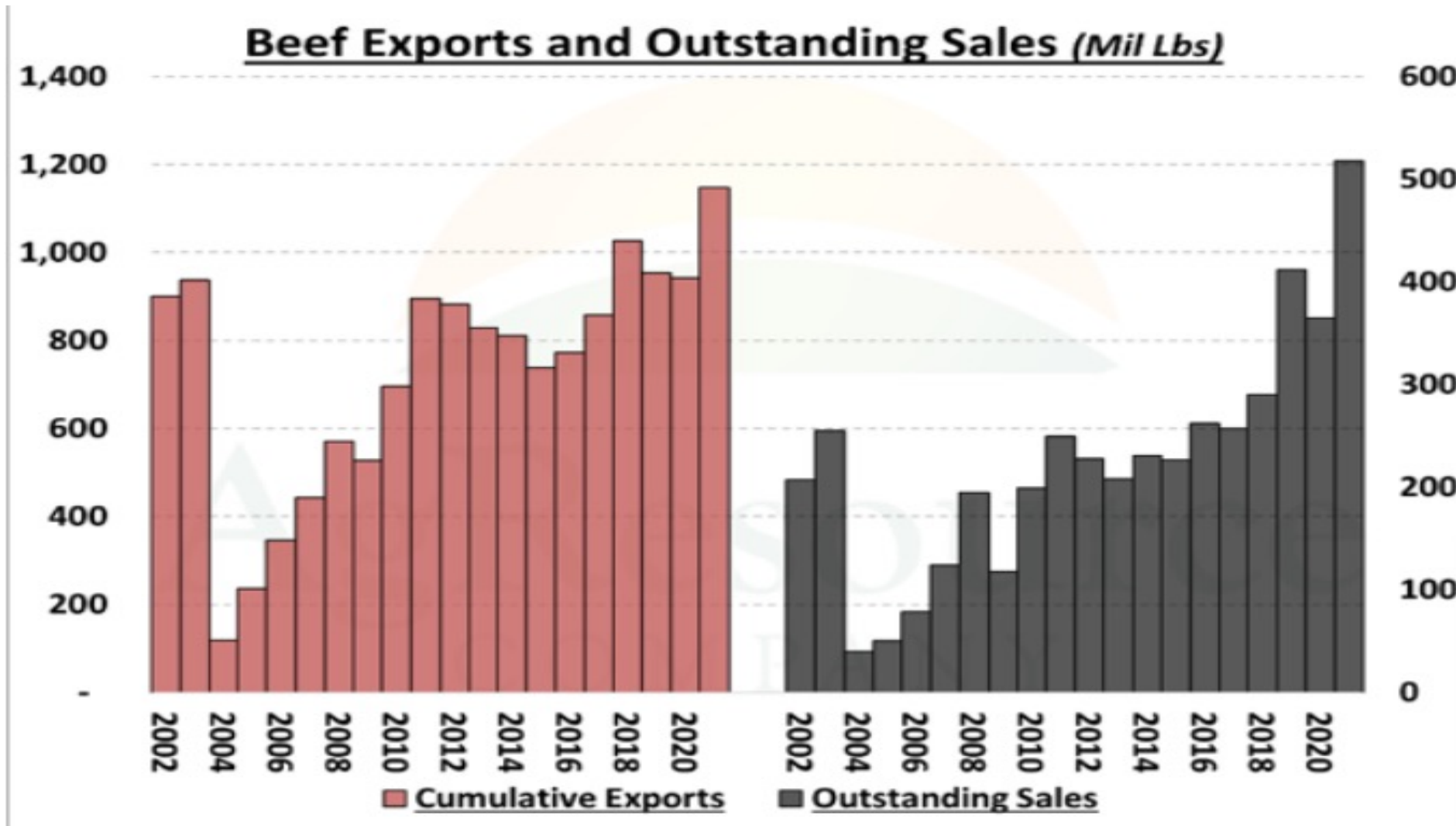


Monthly Per Capita Beef Disappearance (LBS, 2004-Present)



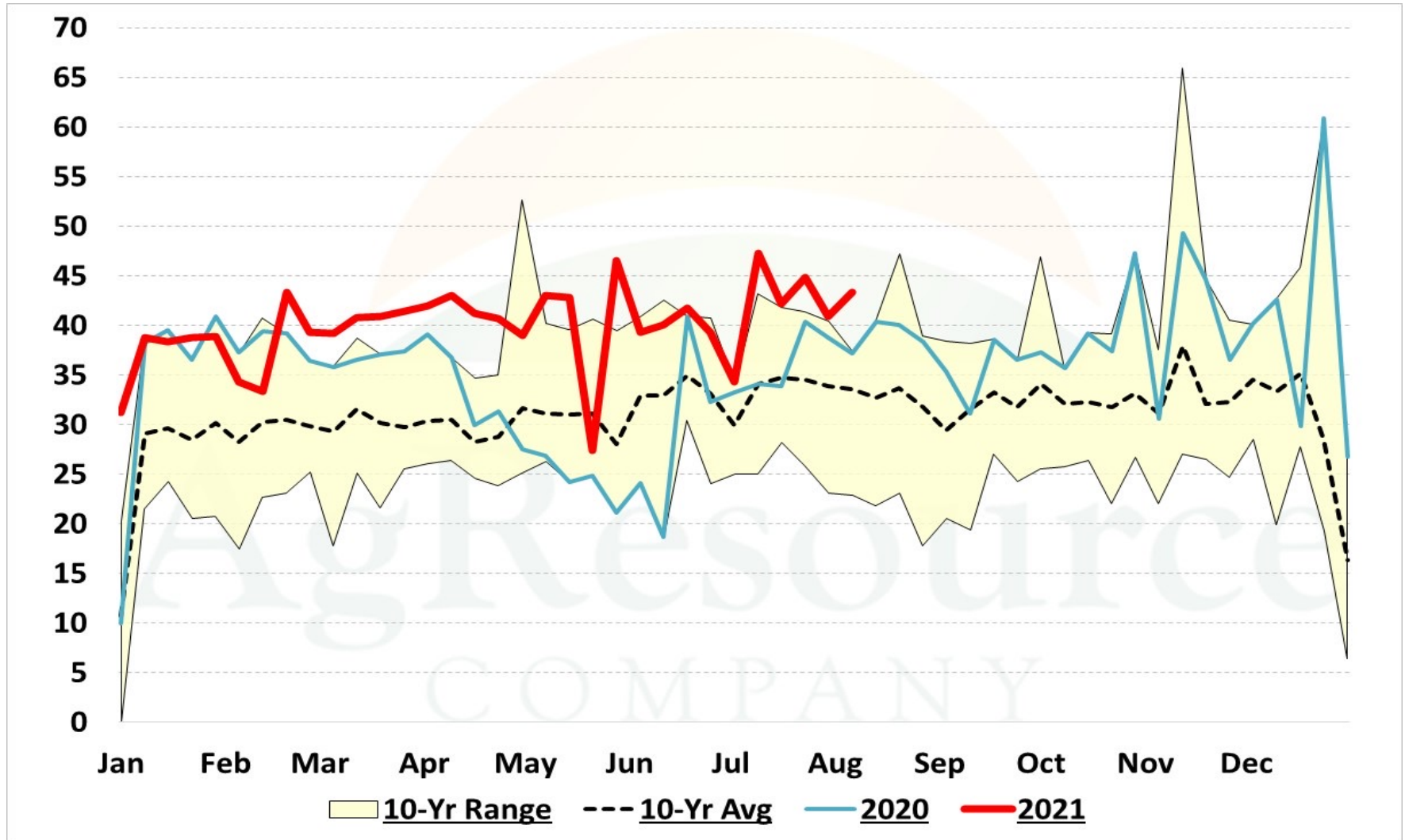
Record Large US Beef Exports/Sales

Beef Exports and Outstanding Sales (Mil Lbs)



Weekly Beef Exports (Mil Lbs)

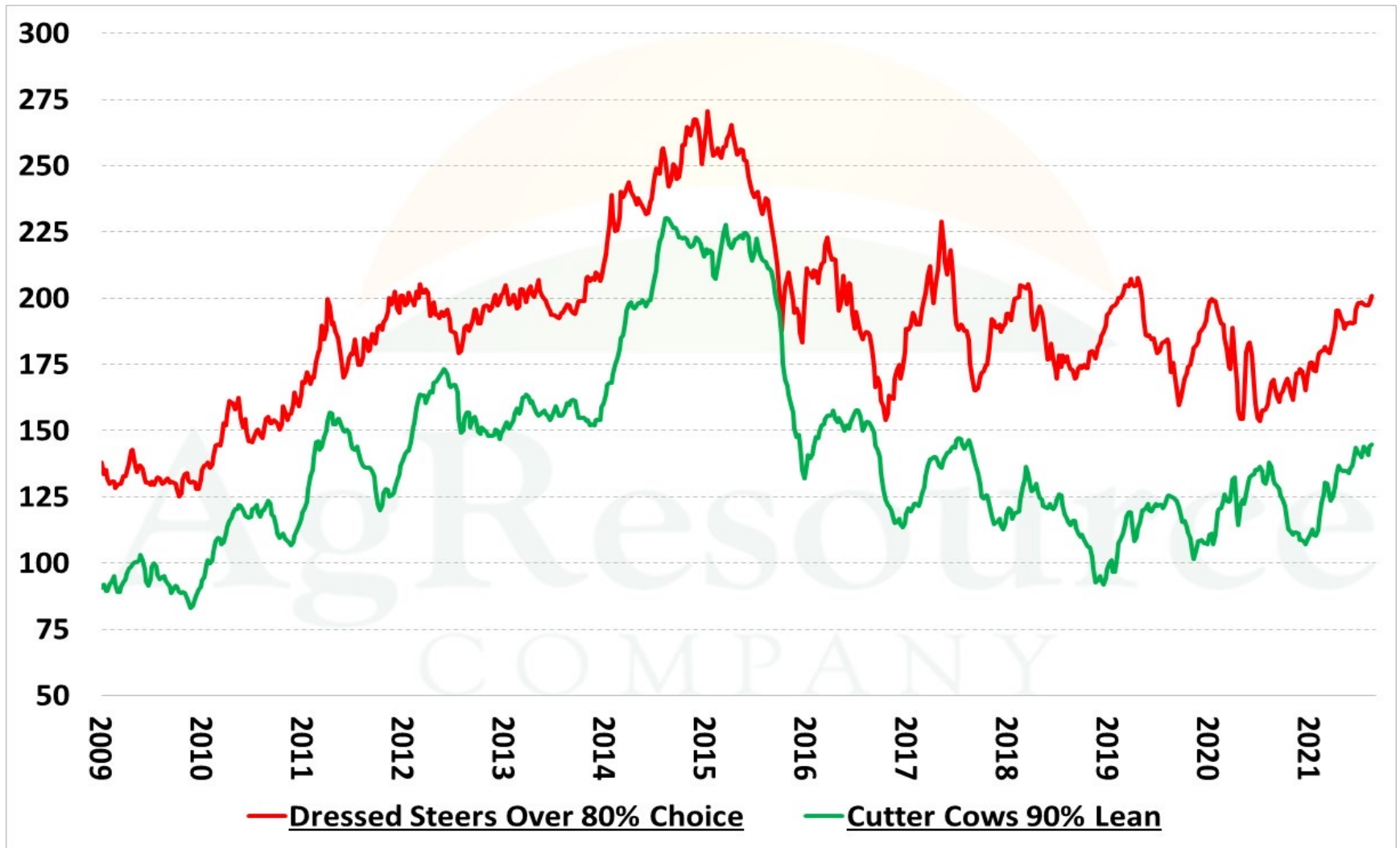
+21% in 2021



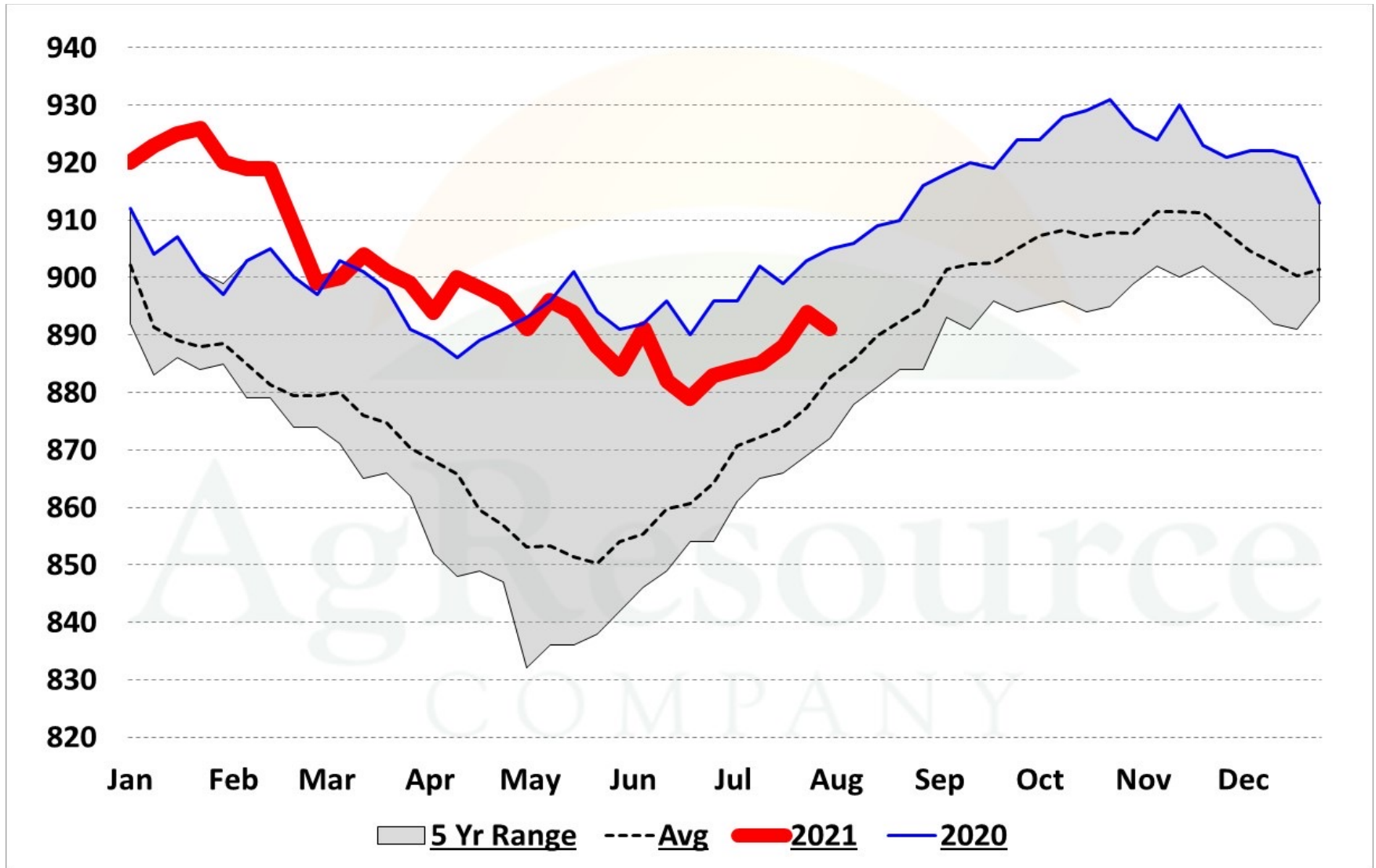
US Beef Export Commitments and Annual Exports (Mil Lbs)



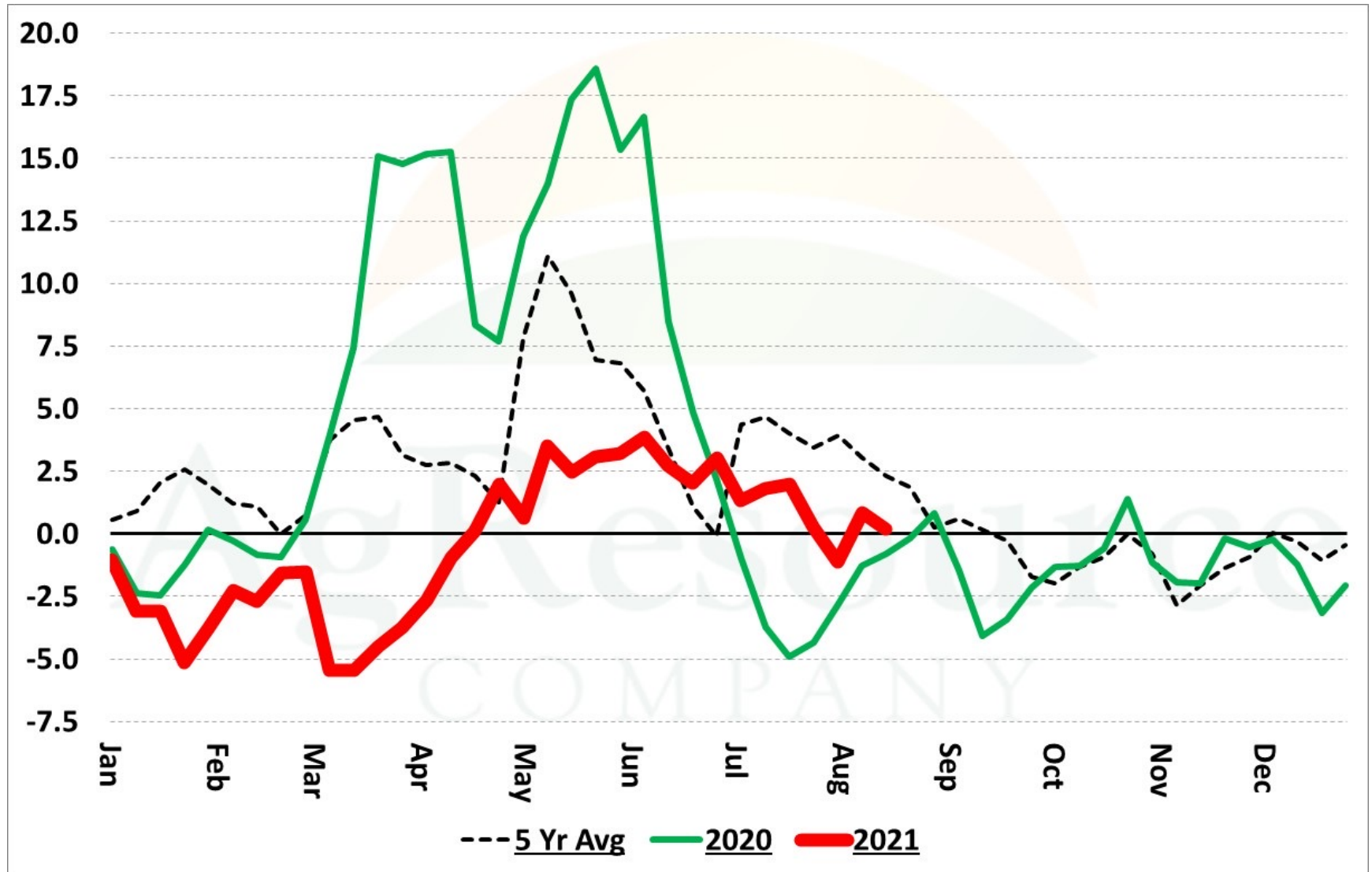
Fed Steer and Cull Cow Dressed Prices



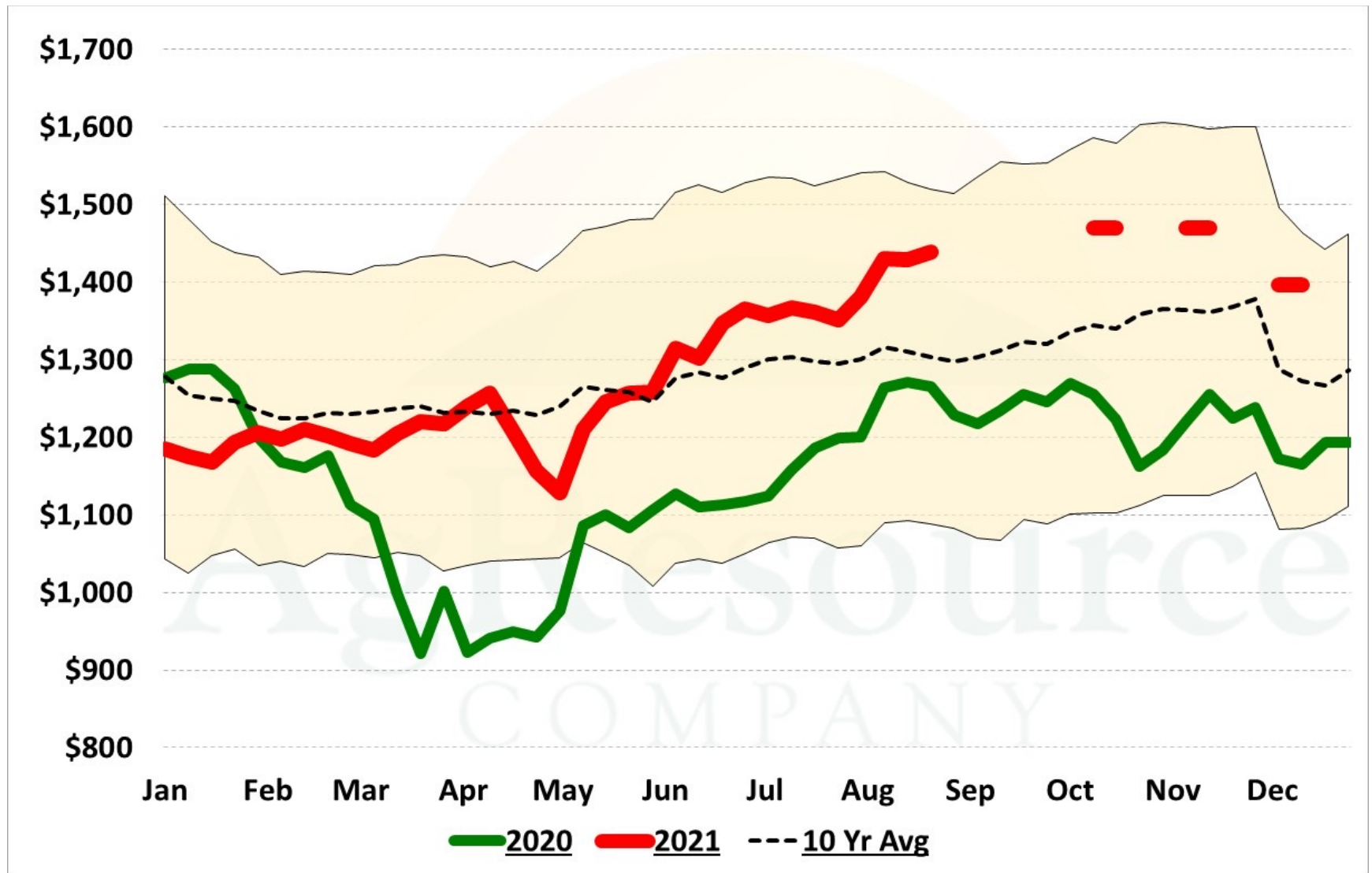
Weekly Steer Carcass Weights



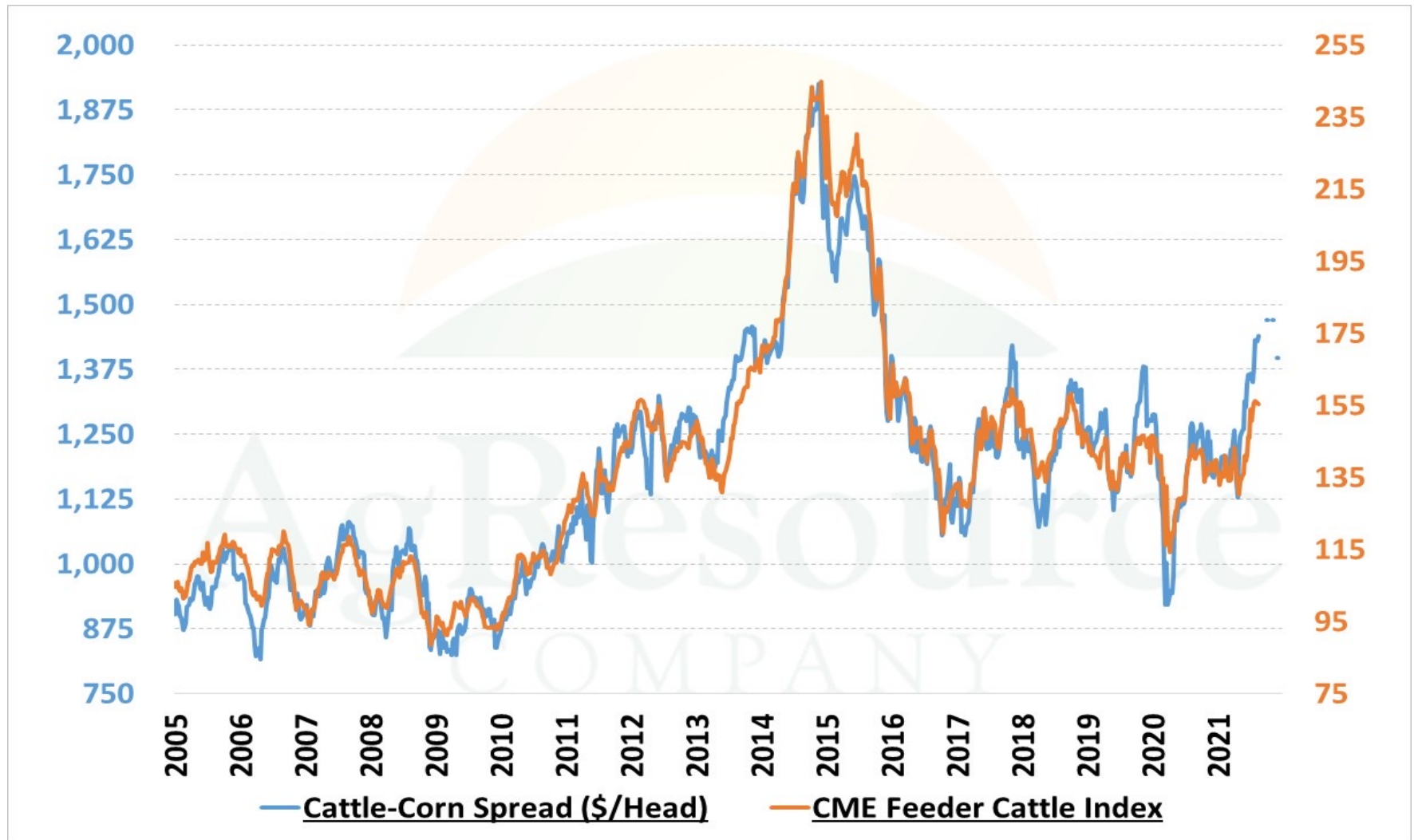
5-Area Steer Seasonal Basis



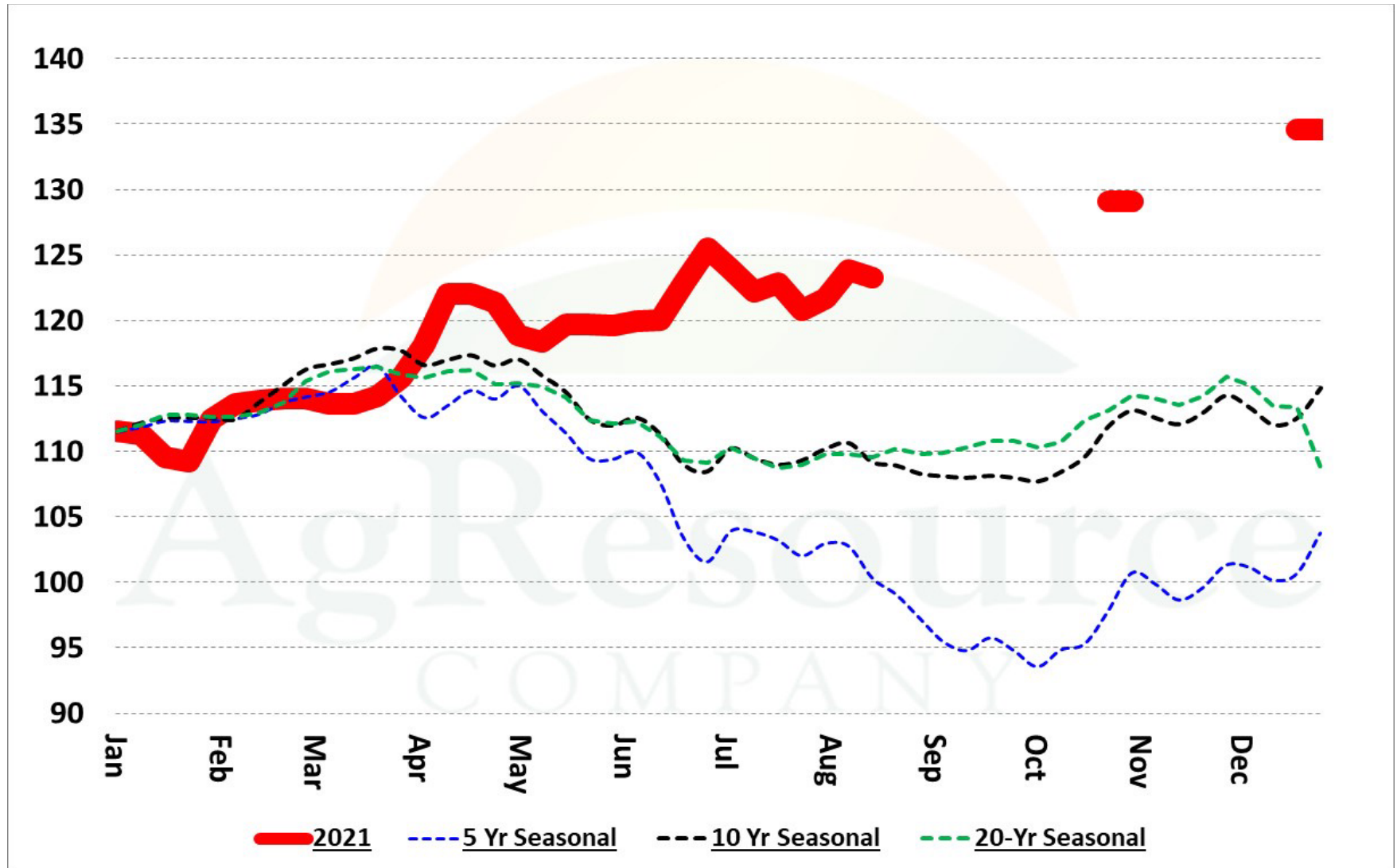
Nearby Cattle/Corn Spread (\$/Head)



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

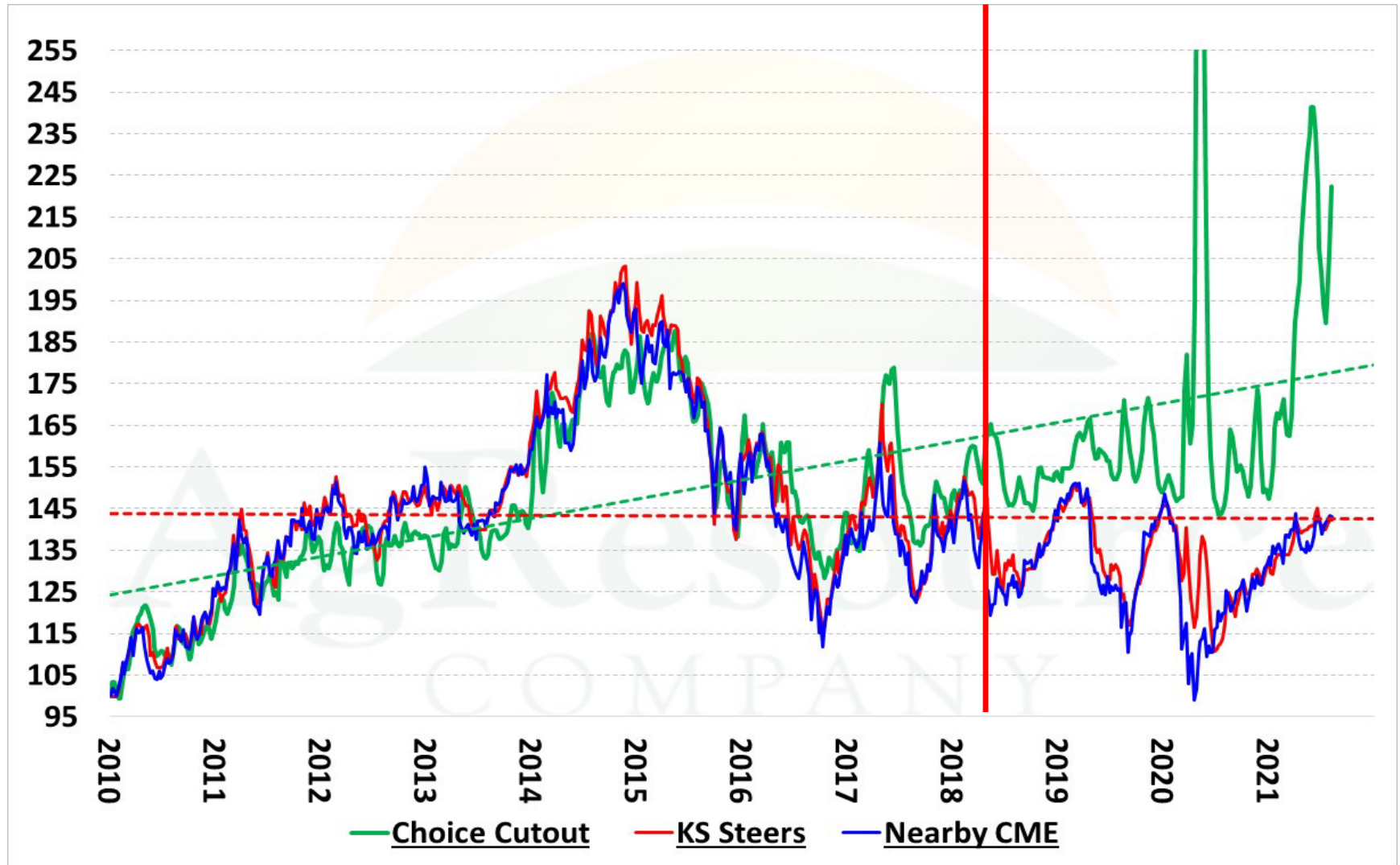


5-Area Steer Seasonal Price

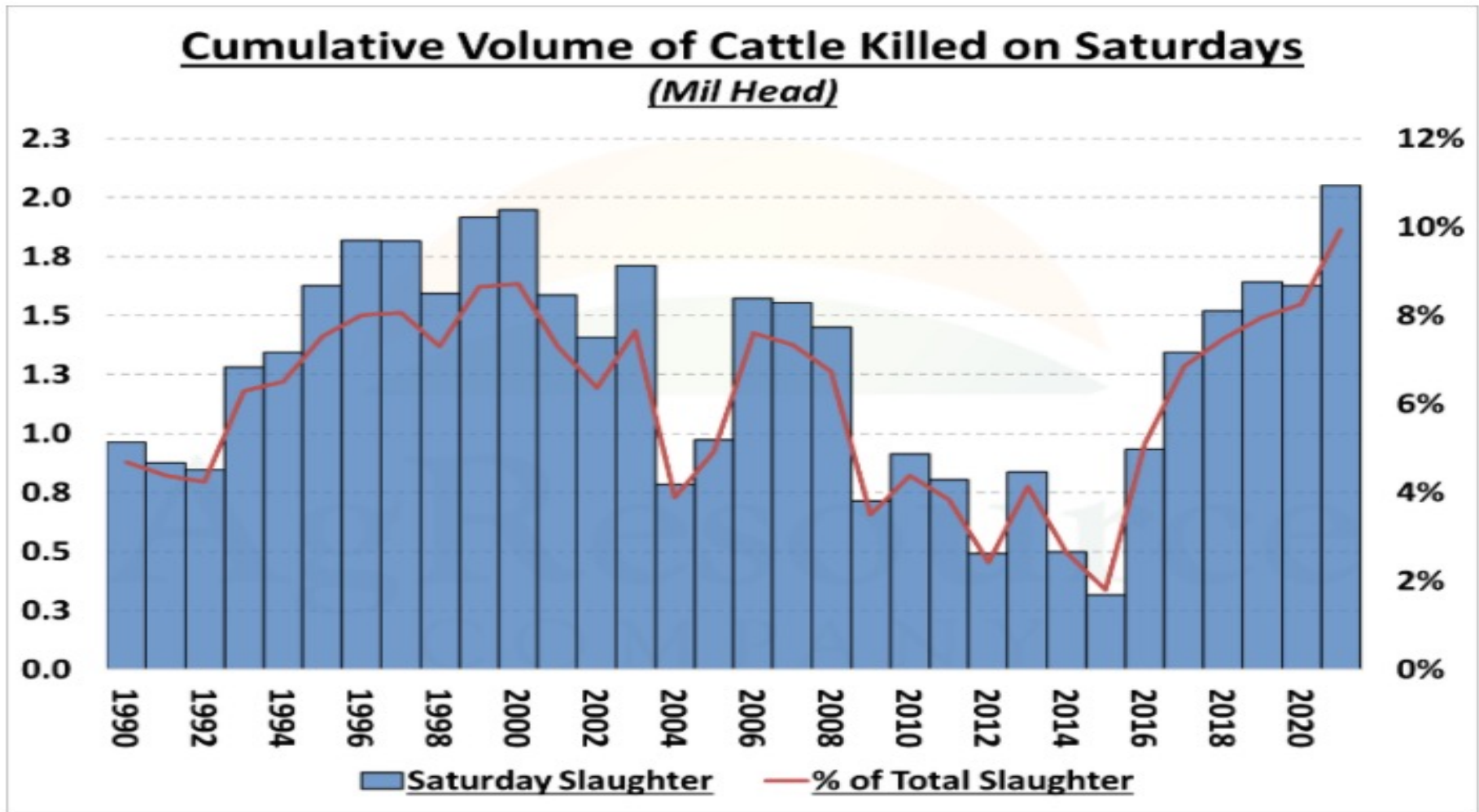


Cattle and Beef Price Indexes

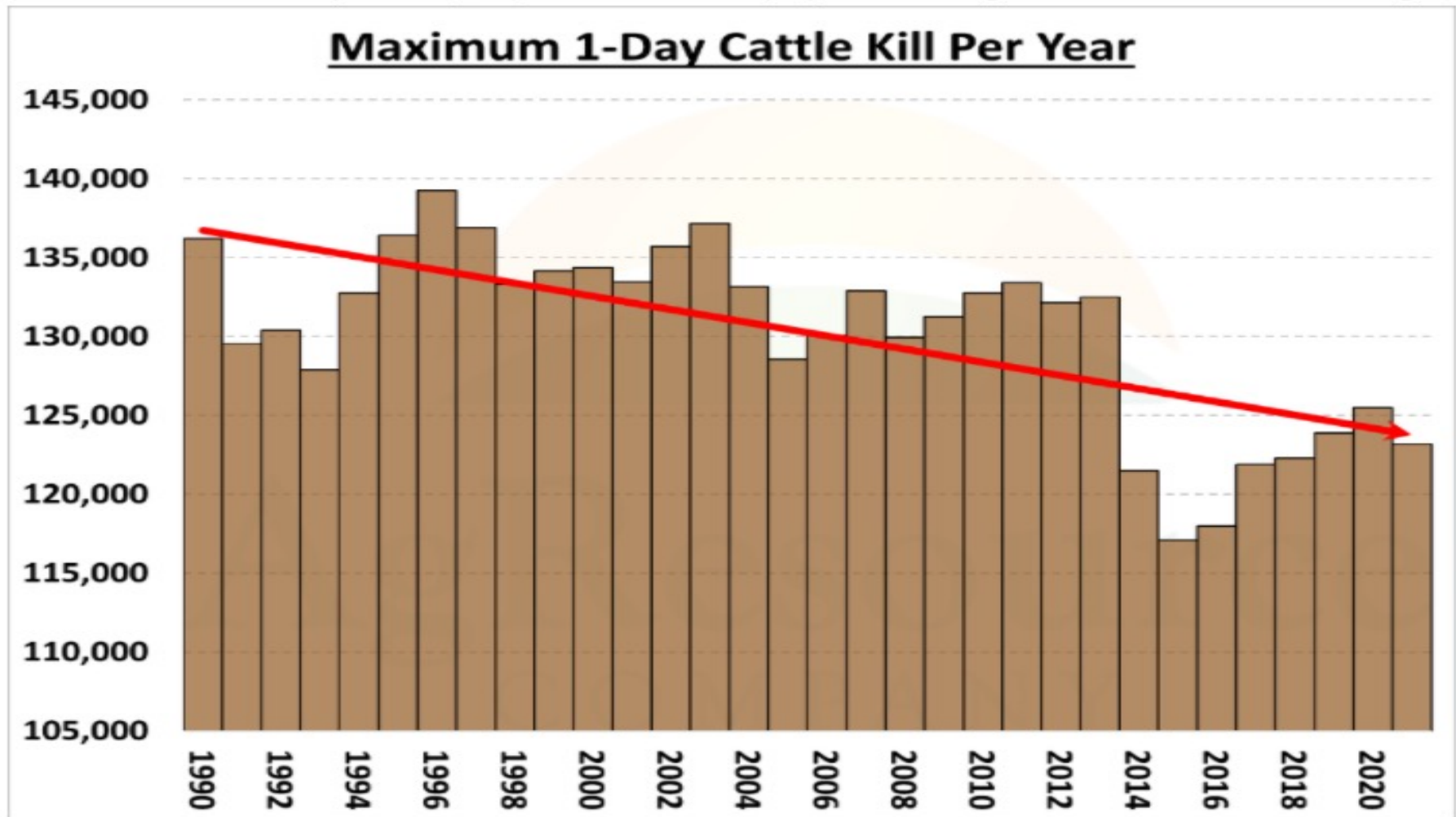
Jan 2010 = 100



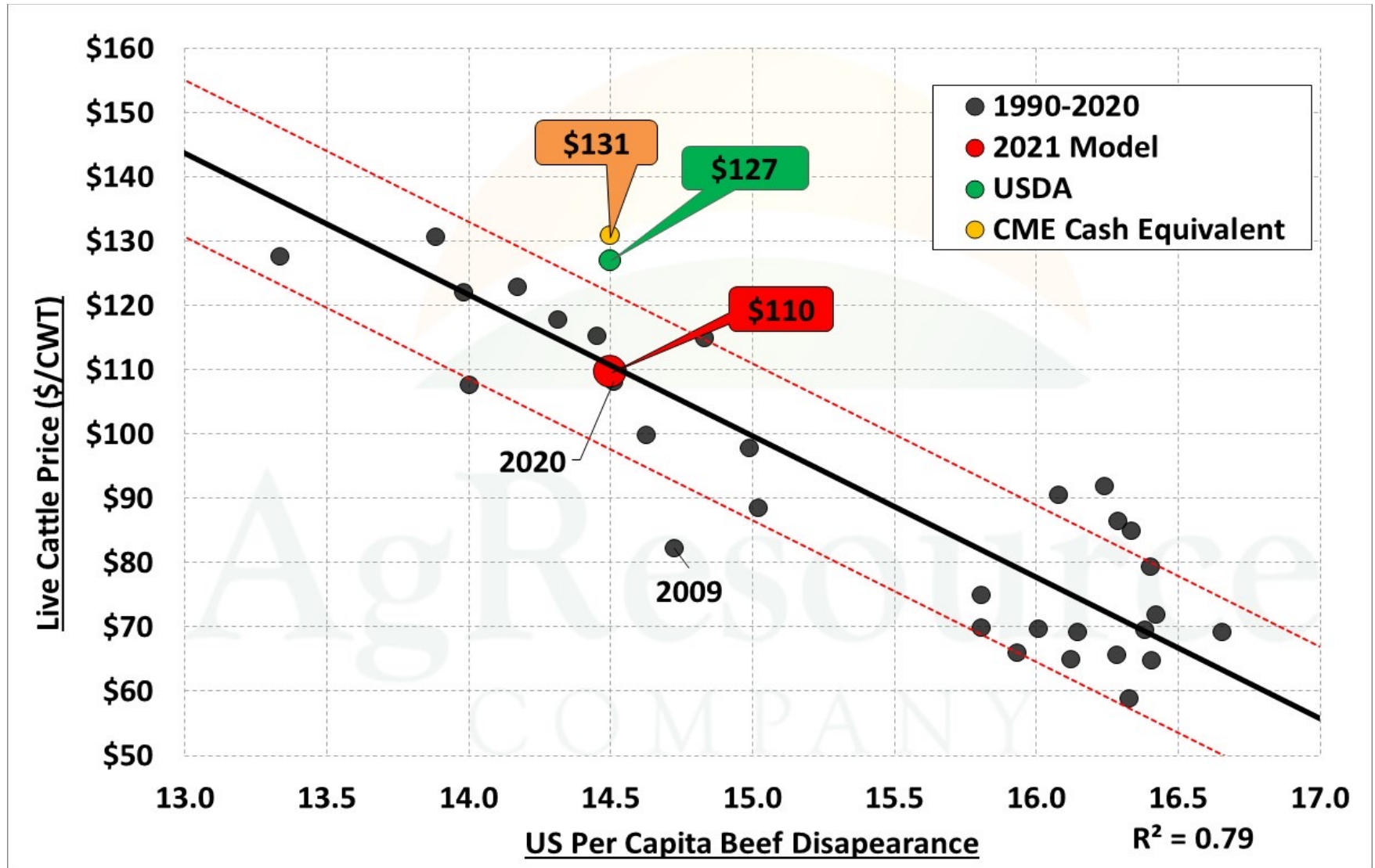
Beef Market Raising Saturday Kills



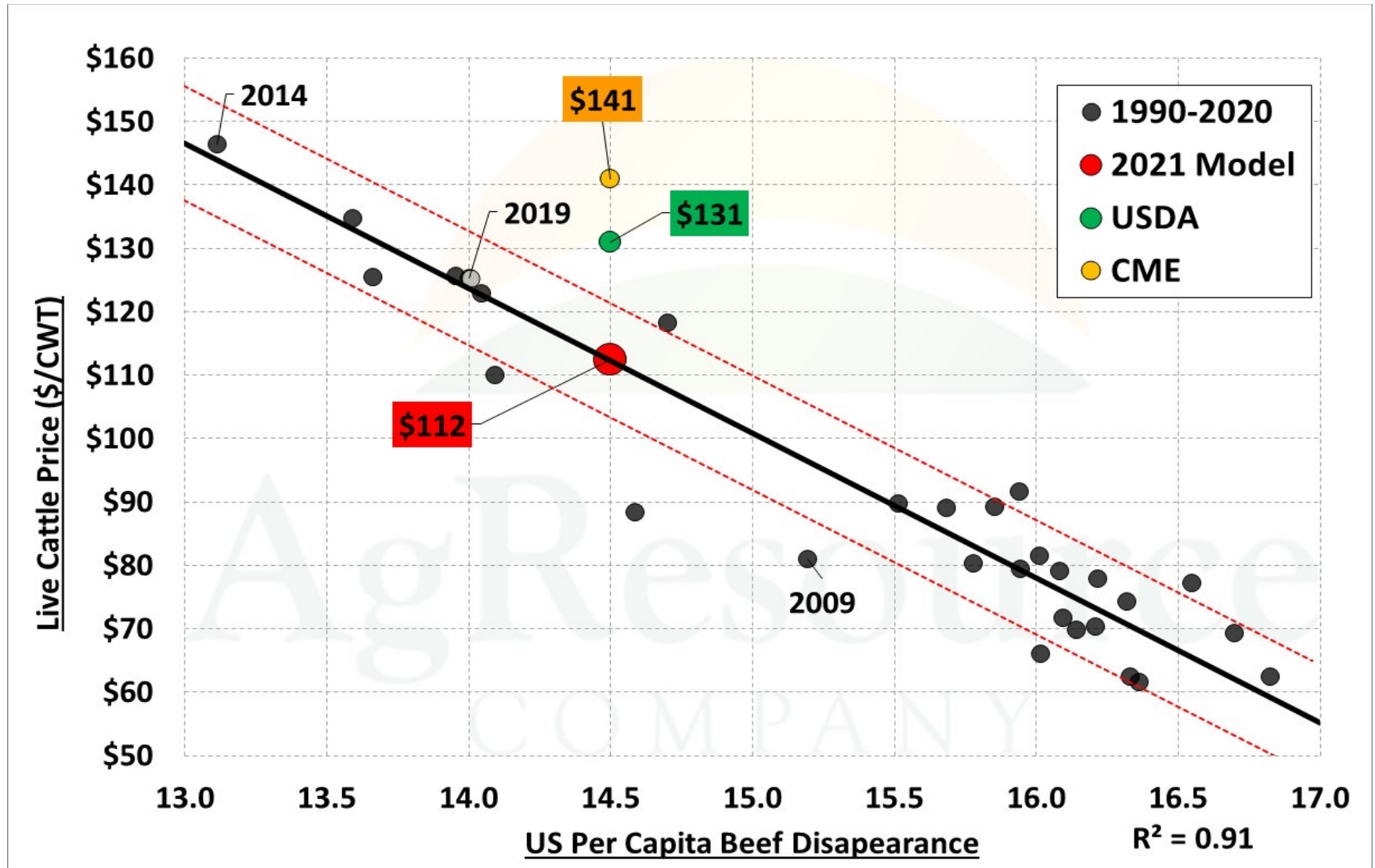
Overall US Kill Capacity in Decline



Q4 Avg Live Cattle Price Model



Q1 Avg Live Cattle Price Model



Thank You

It's not enough to know the news.

You need to trust the analysis.

