



# 2022 in review: Economics and a Look Into the Future

**Brett Stuart**

President, Global AgriTrends

*December 2022*

# Our Business: Global AgriTrends

- Global analysis of agriculture markets, est. 2006; focused on global proteins (beef, pork, poultry)
- Economic, policy, forecasting
- Extensive global network of clients and contacts
- On-the-ground research on 6 continents
- Clients include multinational processors, ag banks, Wall St banks, hedge funds, brokers, producers (hogs, cattle, chickens, dairy, grains), trade associations, feed companies, and others seeking market intel in the global protein space

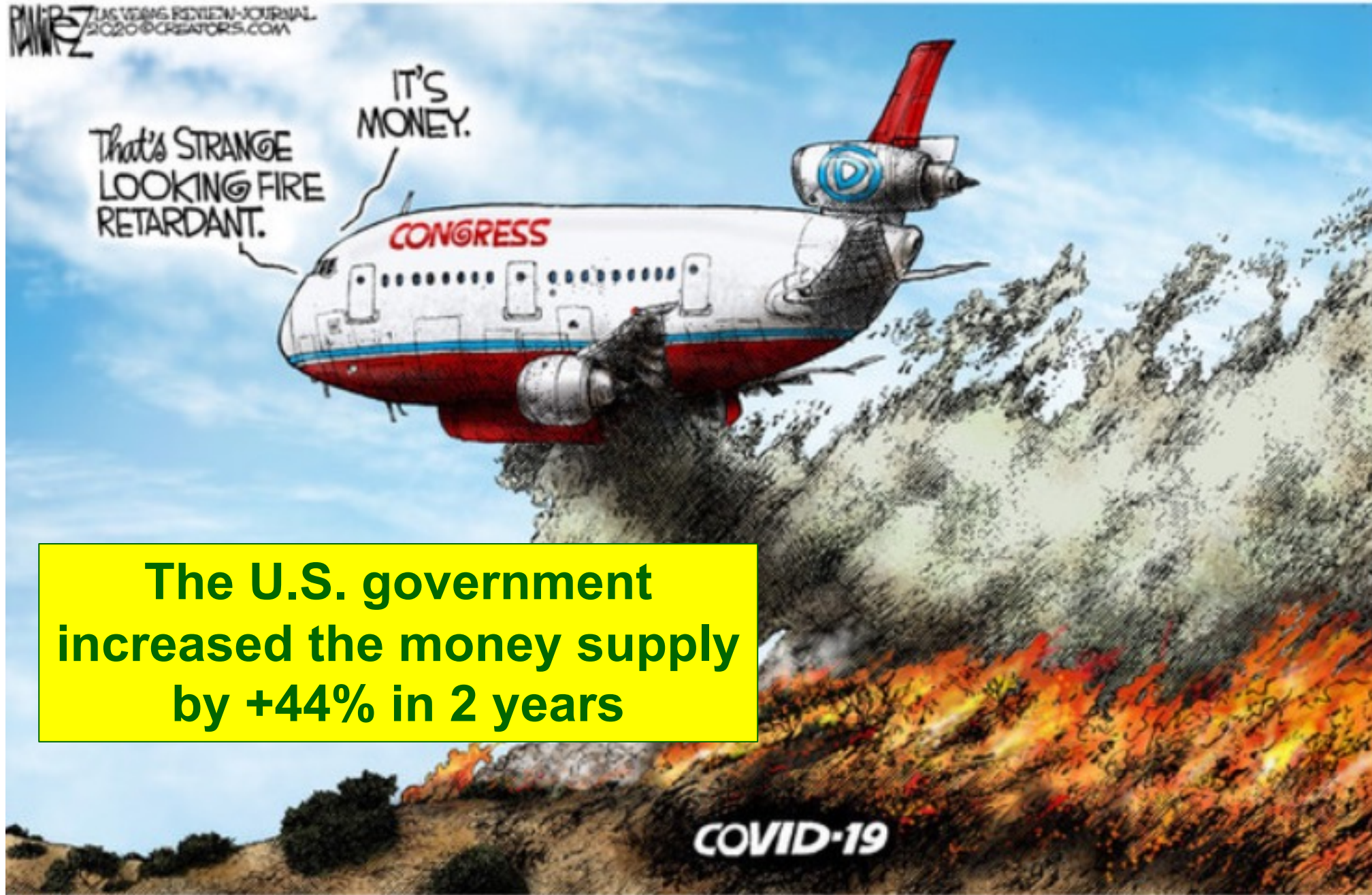


# Outline

- How did we get here??
  - The Largest Macroeconomic Experiment in HISTORY
- Where are we heading?
- Other factors:
  - Weather
  - Alt proteins
  - 10 year outlook

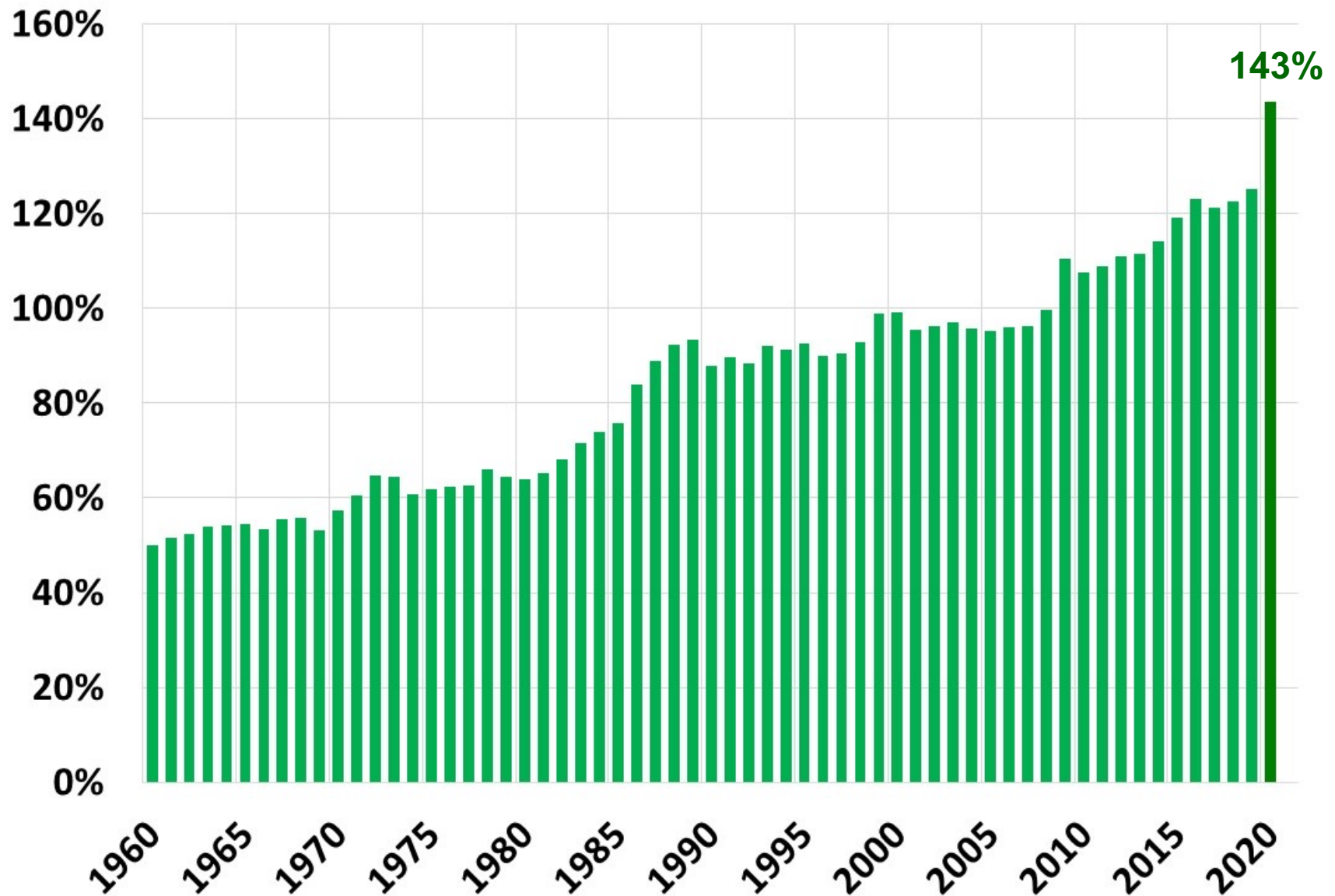
# The COVID-19 Pandemic

- COVID transformed the world in major ways
- The most significant of which was government spending (stimulus and monetary policy)
  - The U.S. money supply increased +44% in 2 years
  - Globally – Broad money as a % of GDP grew +18%
- Relative asset prices (stocks, real estate, cars, commodities):
  - Prices = Money ÷ “stuff”
  - What happens when money increases?



**The U.S. government increased the money supply by +44% in 2 years**

# Global Broad Money Supply % of GDP



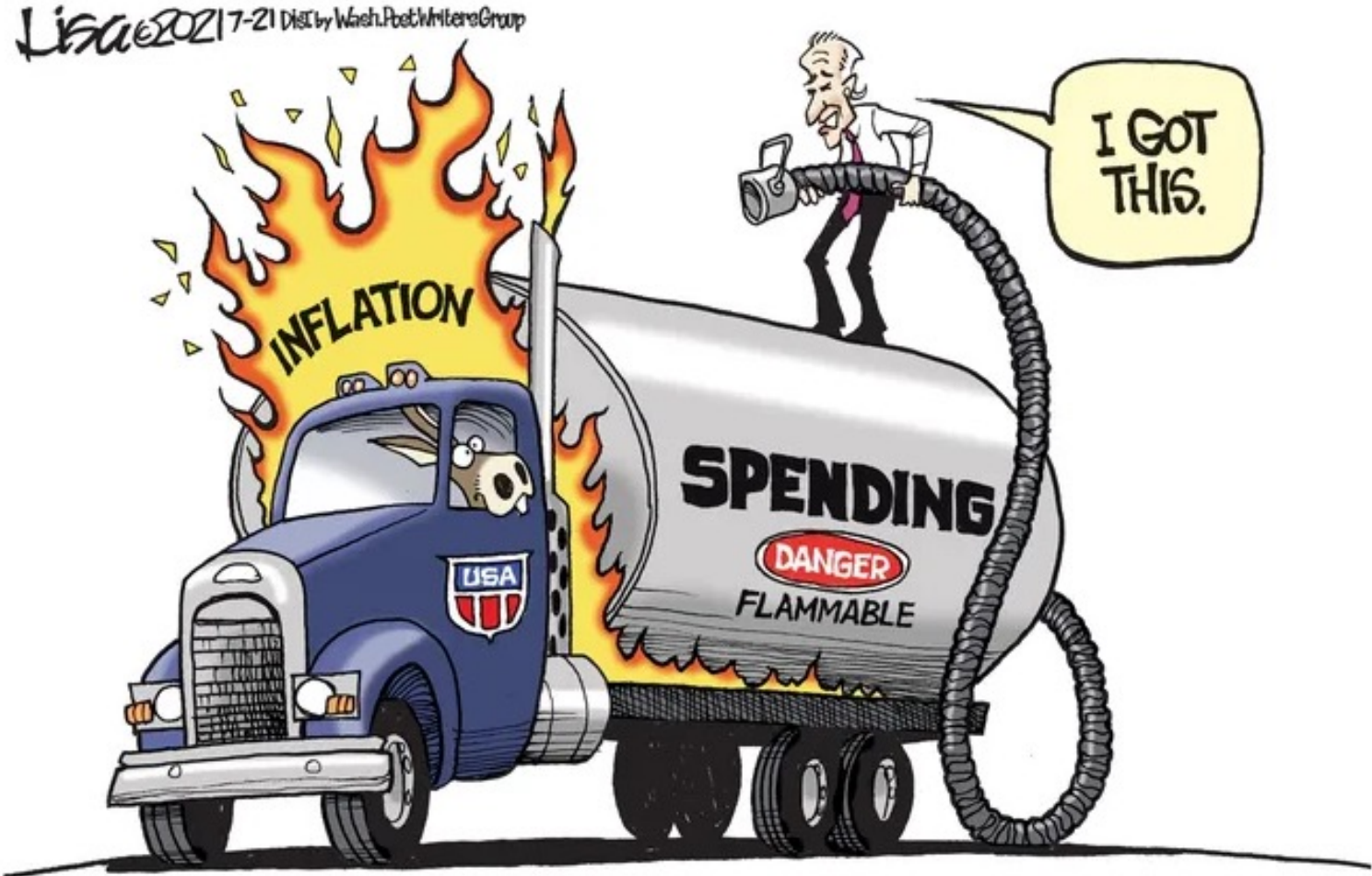
2020:  
+18.4%  
to 143%

2021?

Source: IMF, World Bank, OECD



# The ONE Problem that Spending Can't Fix:



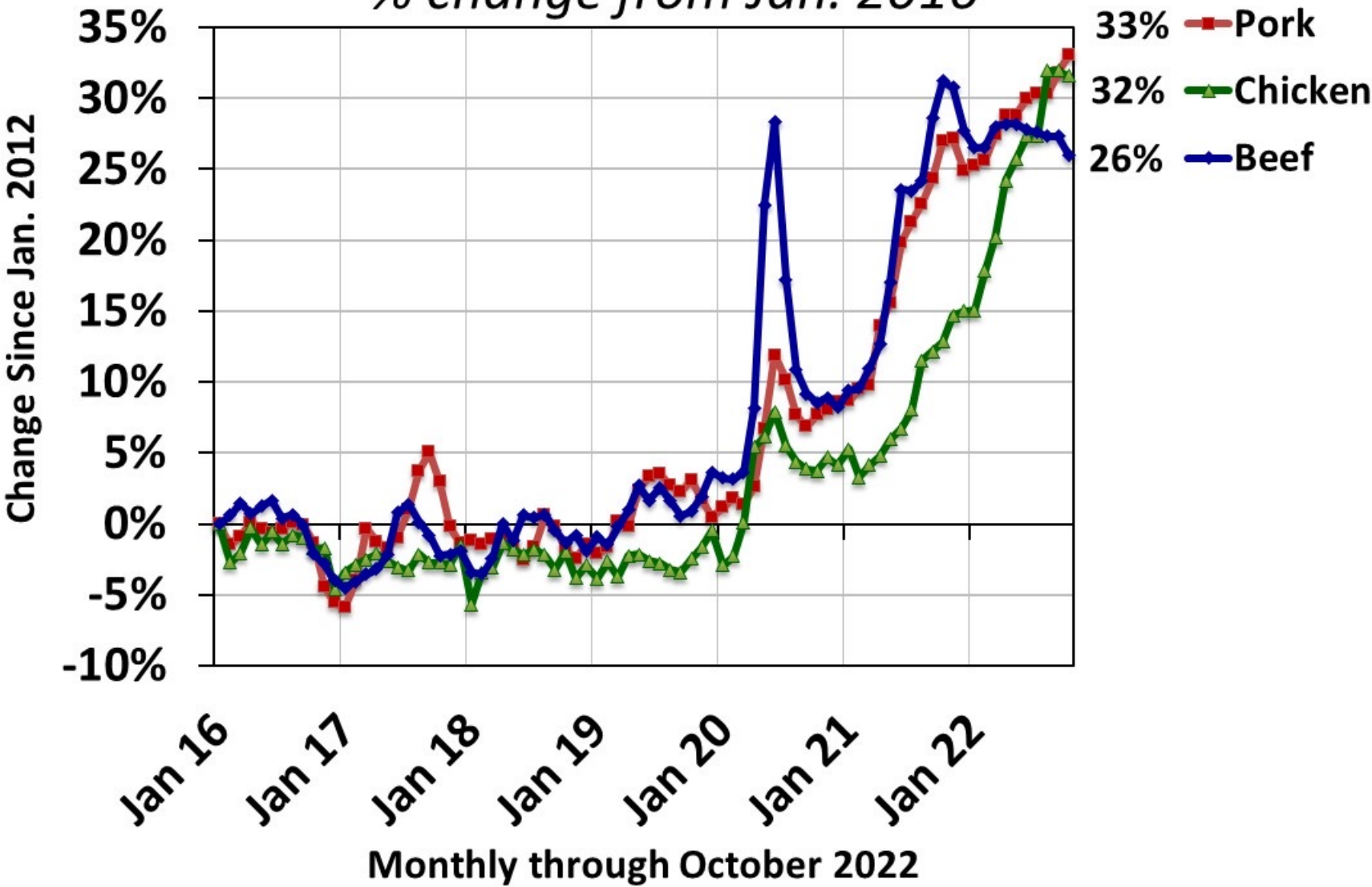


# Inflation

- The massive surge in money supply fueled **inflation levels not seen in 40 years**
  - Food, energy, cars, housing, supplies, equipment
- What is one of the slowest commodities to rise?
  - **LABOR**
  - Labor rates are moving HIGHER
  - Current US unemployment: **3.5%**
- **Wages are still behind other commodities**
- Think about what rising labor costs do to overall inflation
  - **Labor is the base input cost for most goods and services**

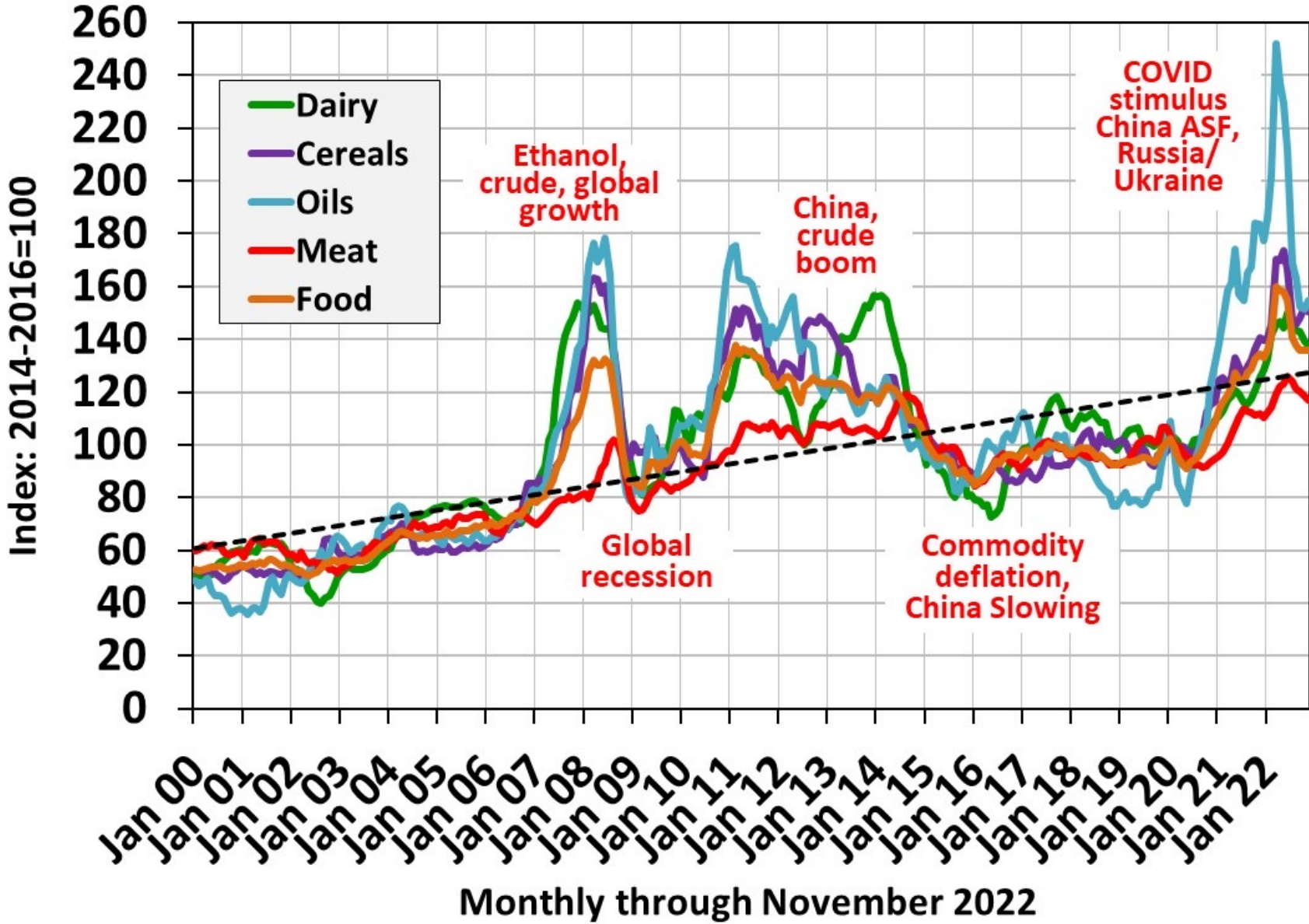
# U.S. Retail Prices

*% change from Jan. 2016*



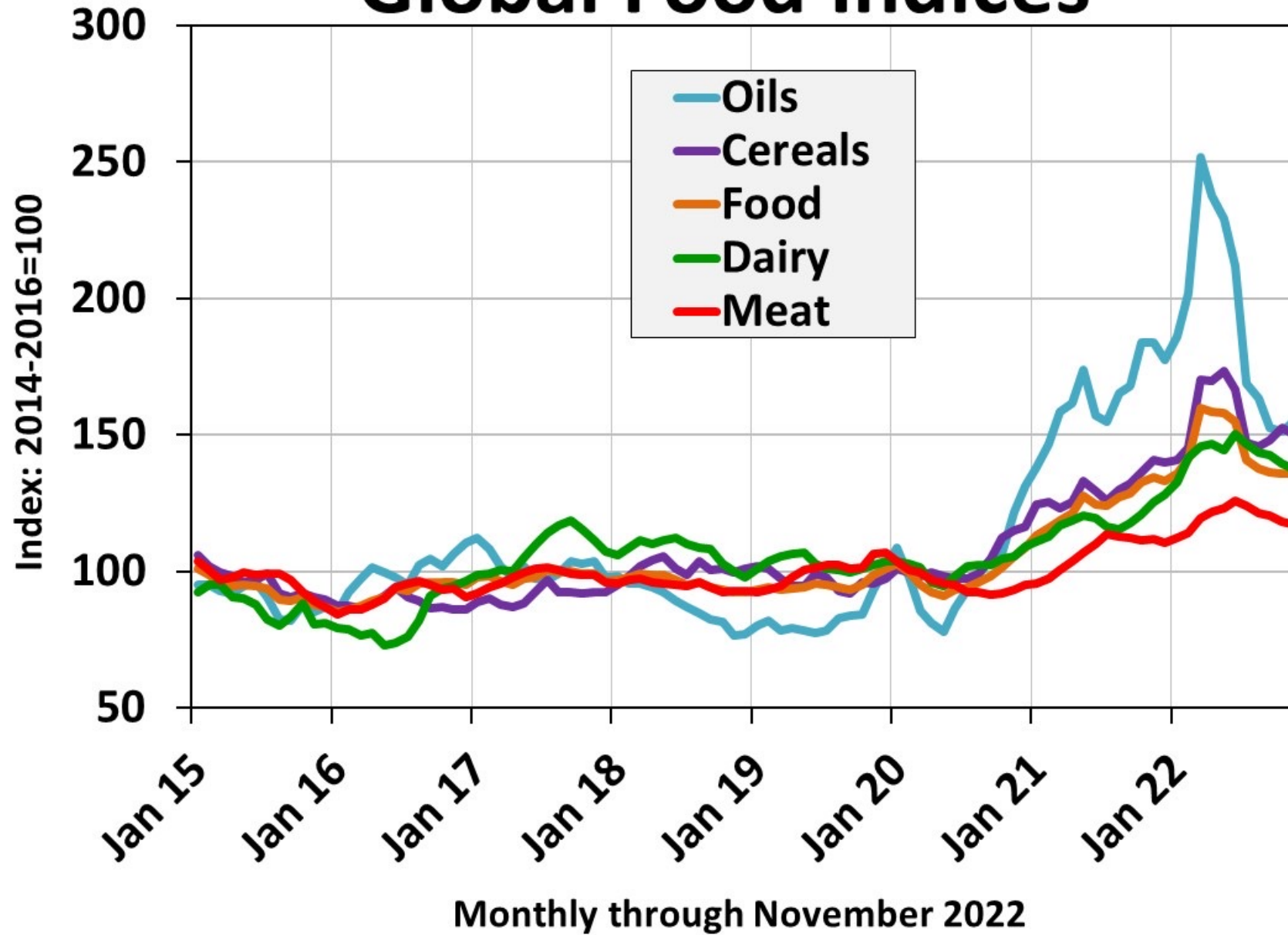
Source: USDA

# Global Food Indices



Source: UN/FAO

# Global Food Indices



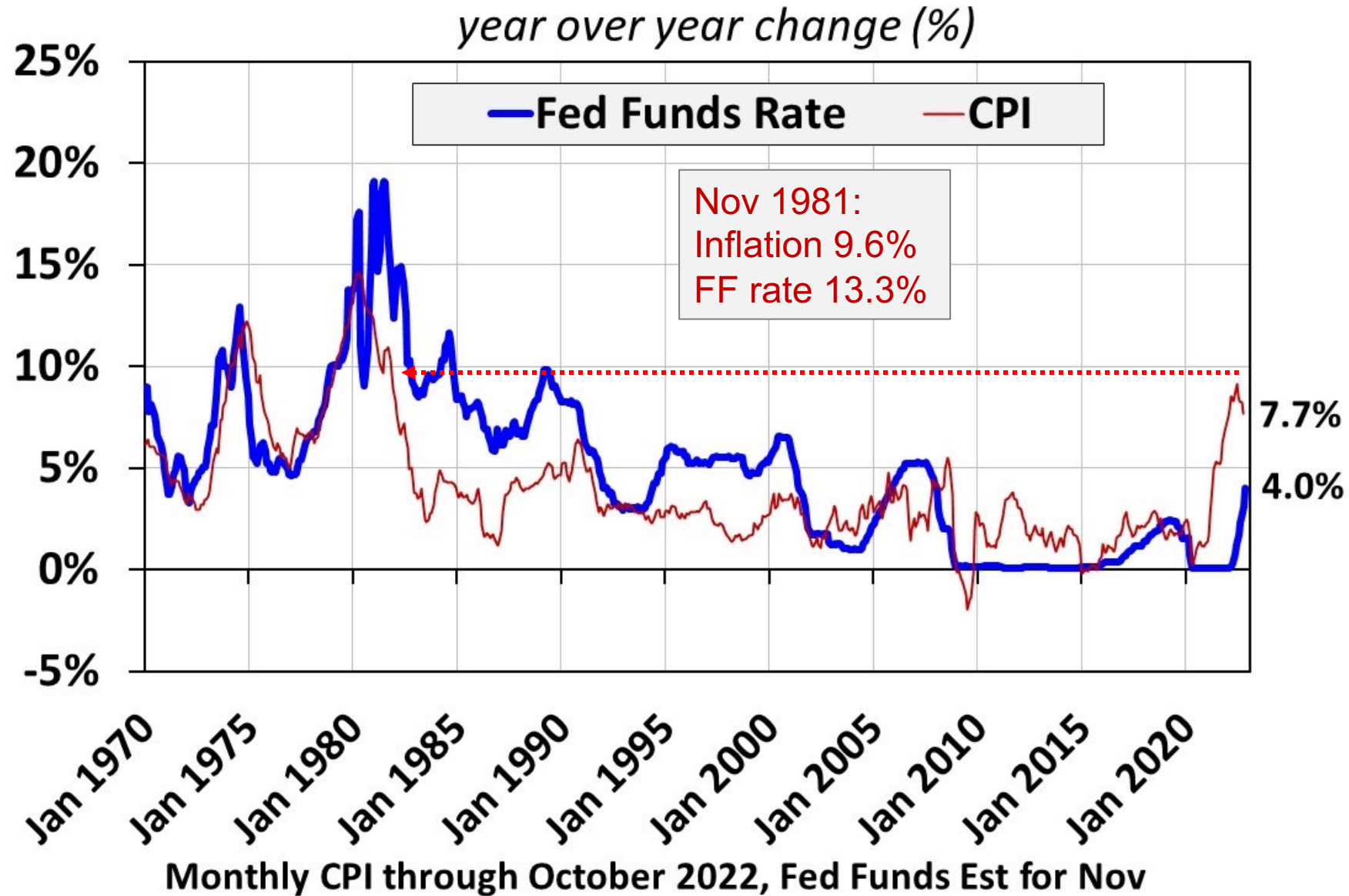
Source: UN/FAO

# The future will be determined by....

- Jerome Powell and the U.S. Fed Reserve
- The U.S. Fed Reserve, after denying through 2021 that inflation would persist, now must fix the problem
- Using interest rates and monetary policy
- It is like brain surgery for the global economy



# U.S. Inflation and Interest Rates



We will not go back to double digit interest rates...

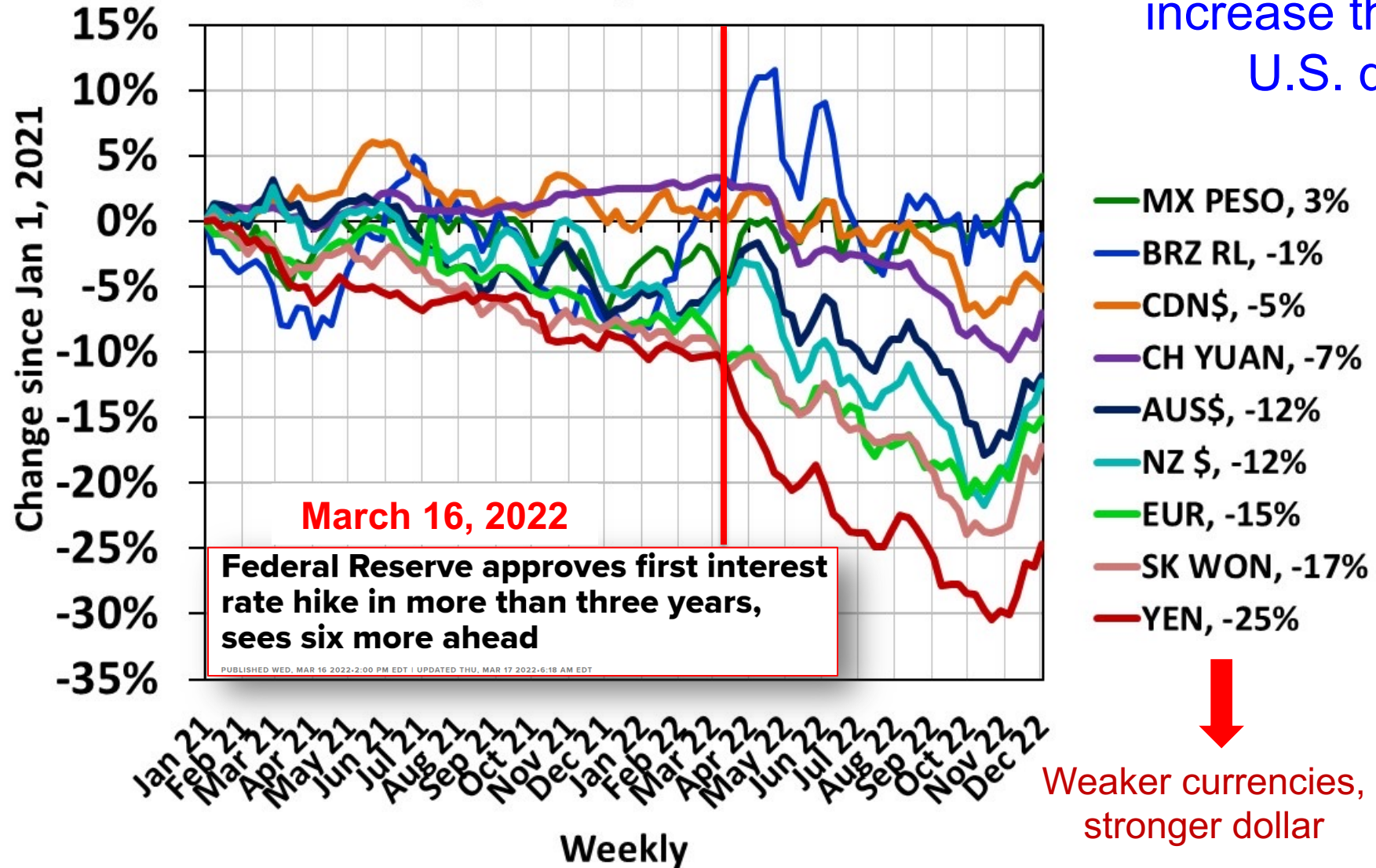
... simply because we cannot afford it

What does that suggest for inflation?

AND the U.S. dollar rate?

# Changes vs. the US Dollar

-- weekly through Dec 2, 2022 --



Higher interest rates  
increase the value of  
U.S. dollars

# 2023 Outlook: Macroeconomics

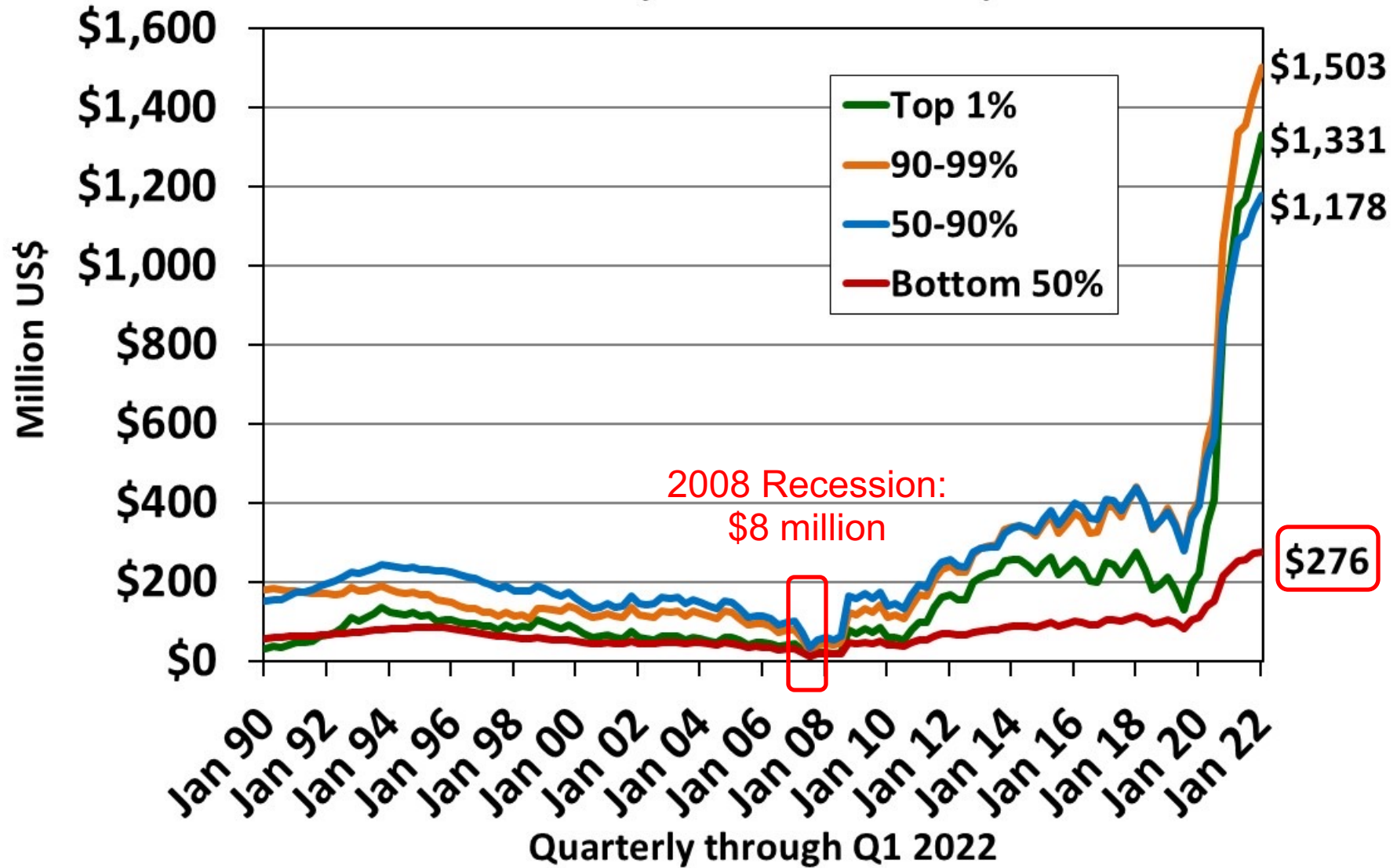


- Recession risks are rising globally
  - U.S. interest rate hikes to continue, but likely to moderate into Q2
  - If the Fed Reserve sentiment reverses, there could be rate cuts in 2023
  - Rate hikes = strong dollar (and vice versa)
  - Japan and Europe vulnerable to inflation and recession
    - Potential energy shortages for Europe



# U.S. Checkable Deposits & Currency

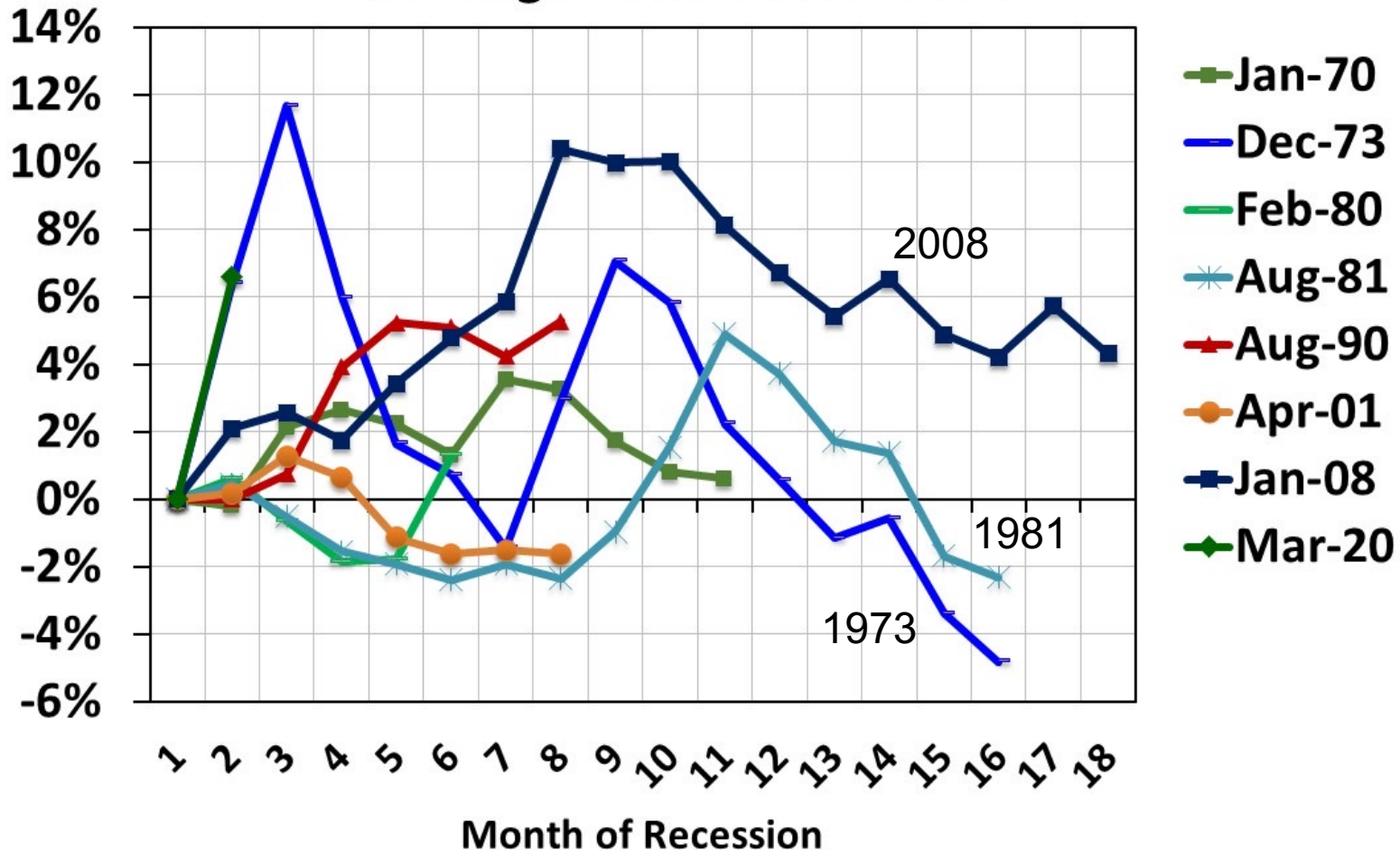
*Held by Wealth Groups*



# Is Beef Recession-Proof?

## Retail Beef Prices

*through U.S. recessions*

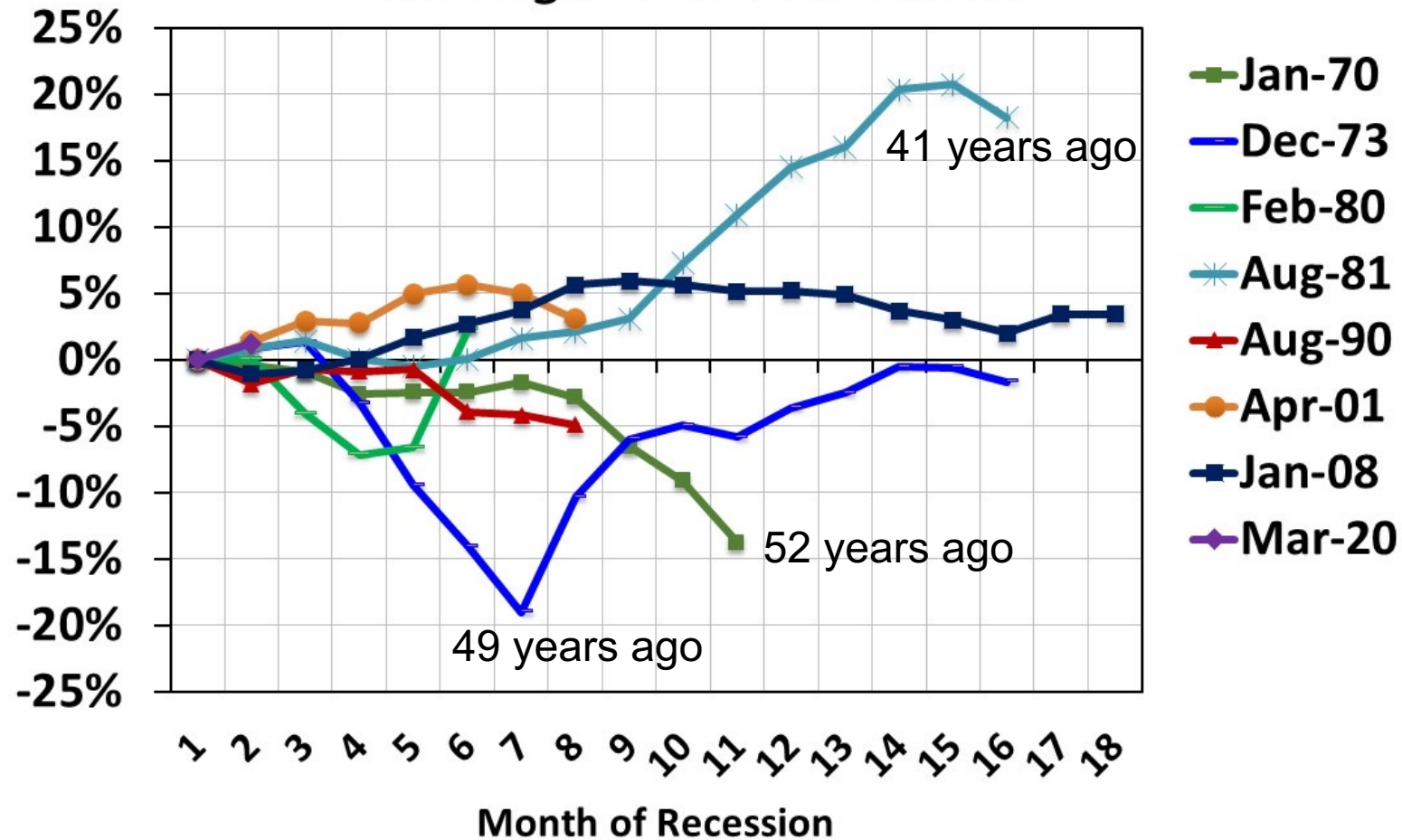


**Keep in mind:**

“Beef” includes pricey tenderloins and affordable hamburger.

# Is Pork Recession-Proof?

## Retail Pork Prices *through U.S. recessions*



Source: USDA

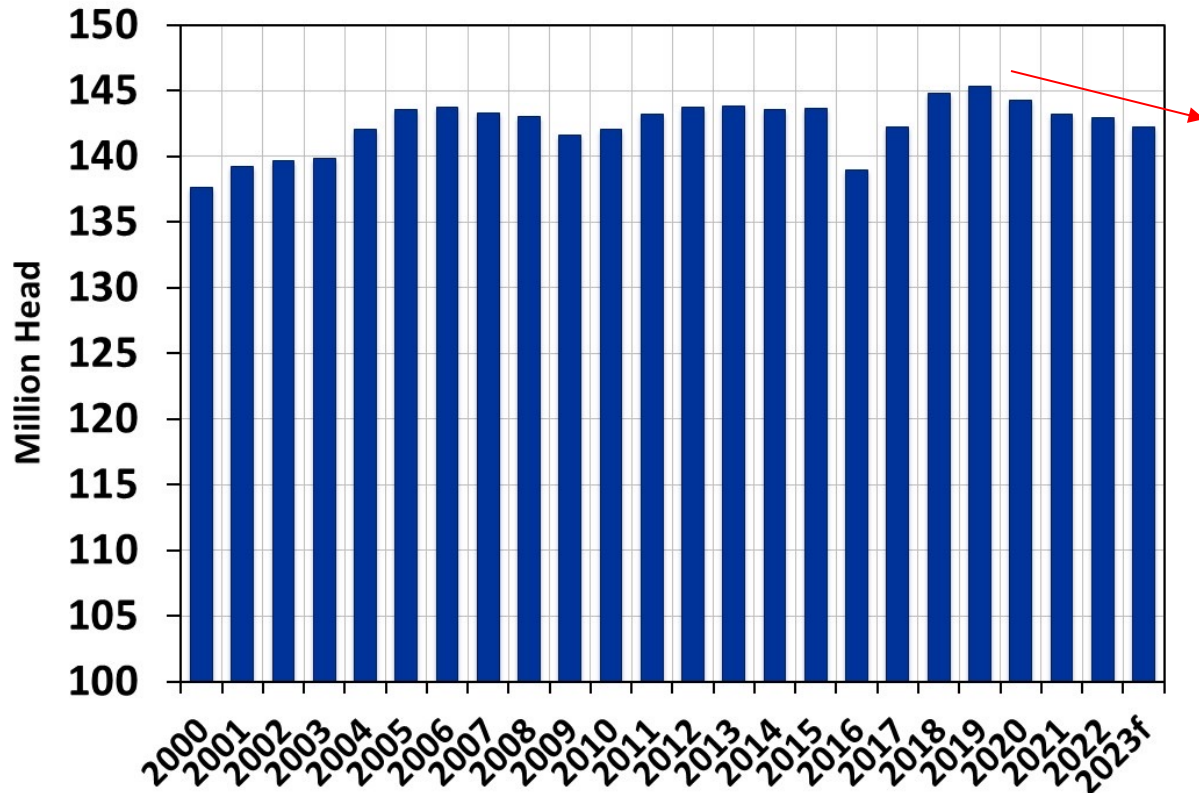
# Where Are we Headed?

Global Supply and Demand – Proteins

# 2023: Fewer Cows and Sows

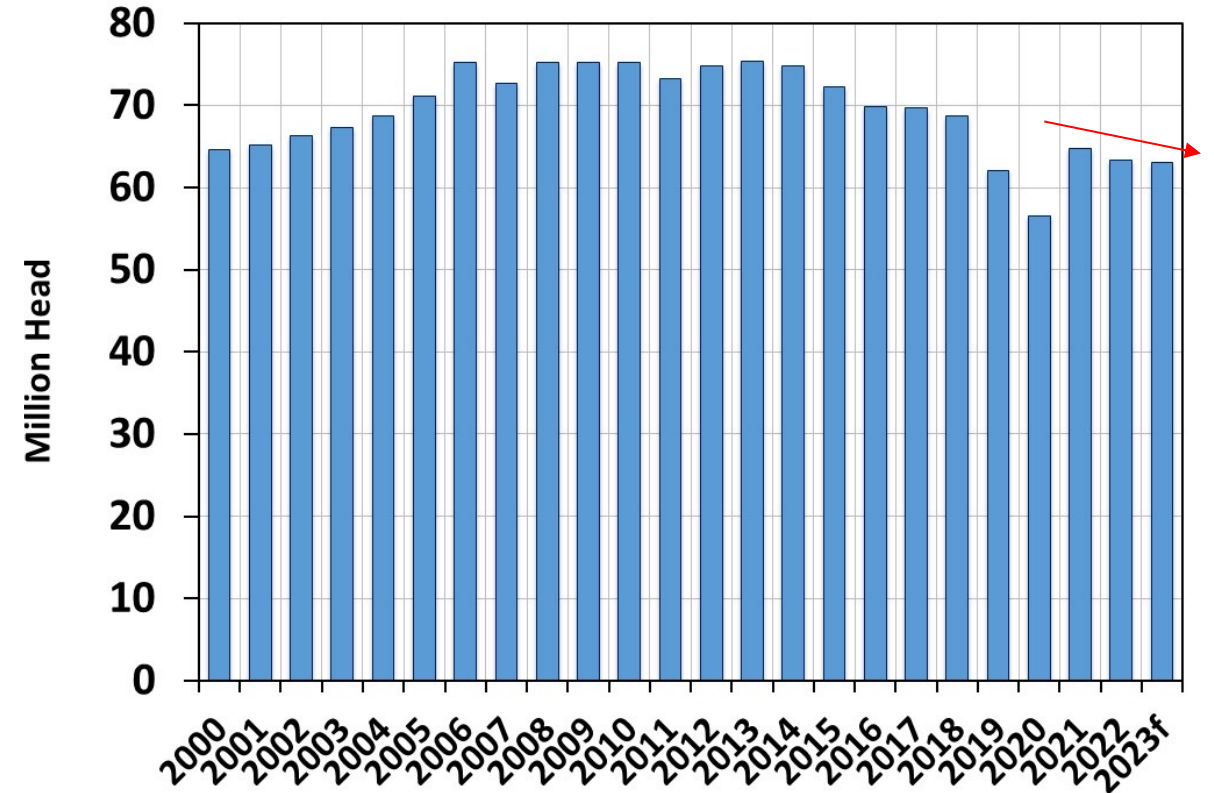
Both estimated down -0.5% Jan 1, 2023

## Global Beef Cow Herd: Top 8



Brazil, U.S., Argentina, Australia, EU, Mexico, Canada, Uruguay

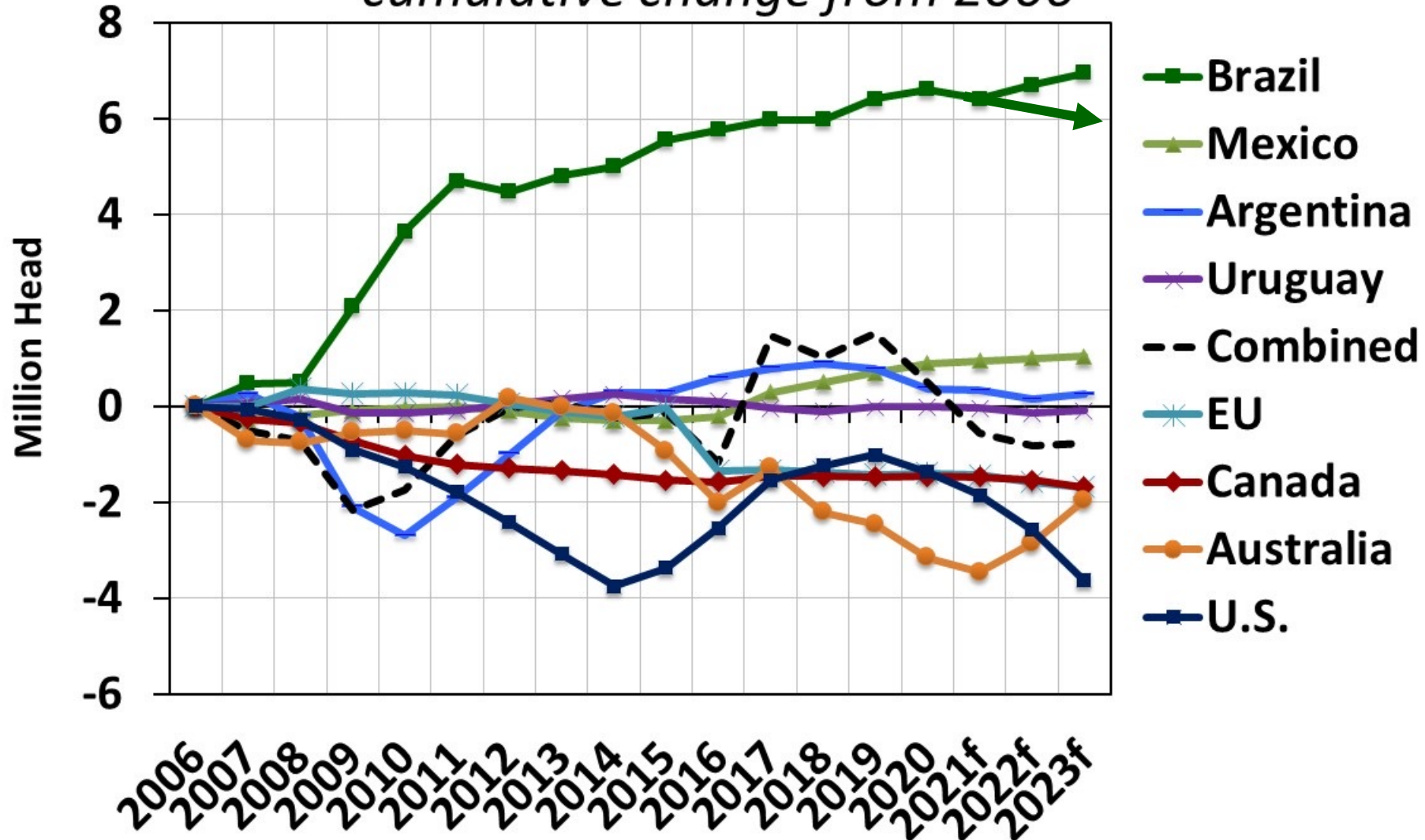
## Global Sow Herd: Top 6



China, EU, U.S., Brazil, Russia, Canada

# Beef Cows, Top 8 Nations

*cumulative change from 2006*



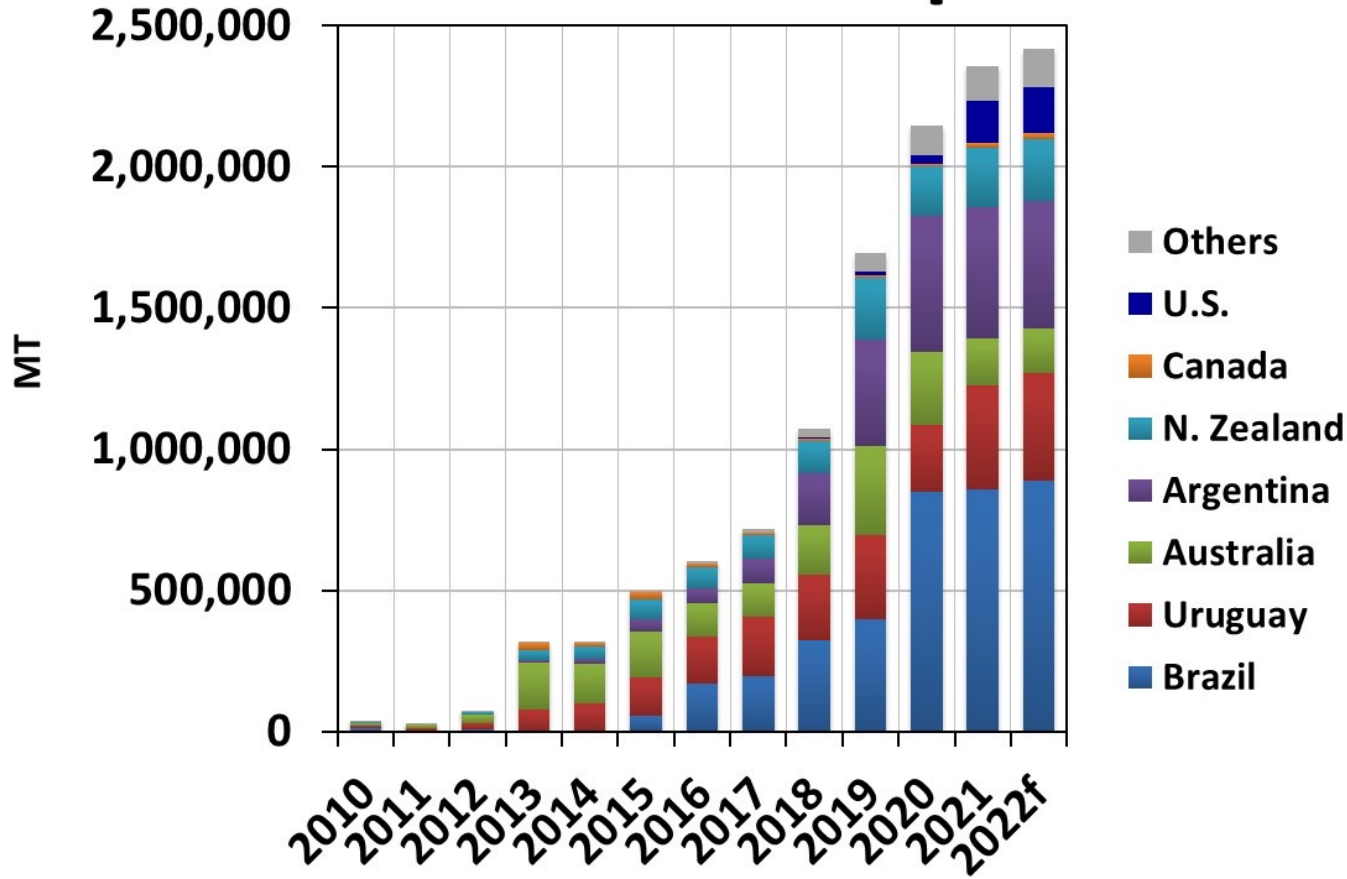
Source: USDA/FAS

## **EU agricultural outlook 2022-32: production growth of major agricultural sectors to slow down**

- **Why?**
  - Trade disruptions and increased commodity prices caused by the post-Covid recovery
  - The Russian invasion of Ukraine led to even higher prices of inputs and energy
  - Food inflation soared and trade was further disrupted
  - Climate change is resulting in more frequent adverse and extreme weather events, and animal disease outbreaks
- **Production of some crops is expected to stagnate or even slightly decline, while milk and meat production would decline.**

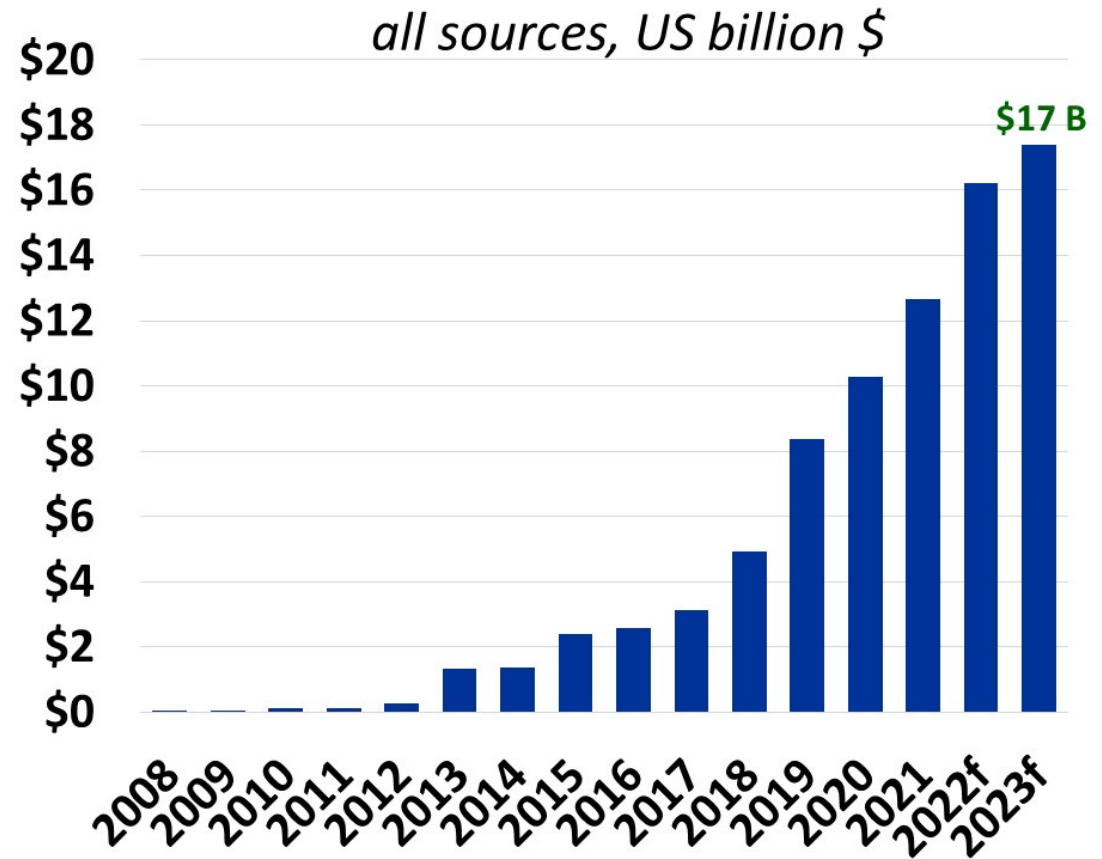
# Global Beef Demand

## China Beef Imports



Source: TDM, AgriTrends

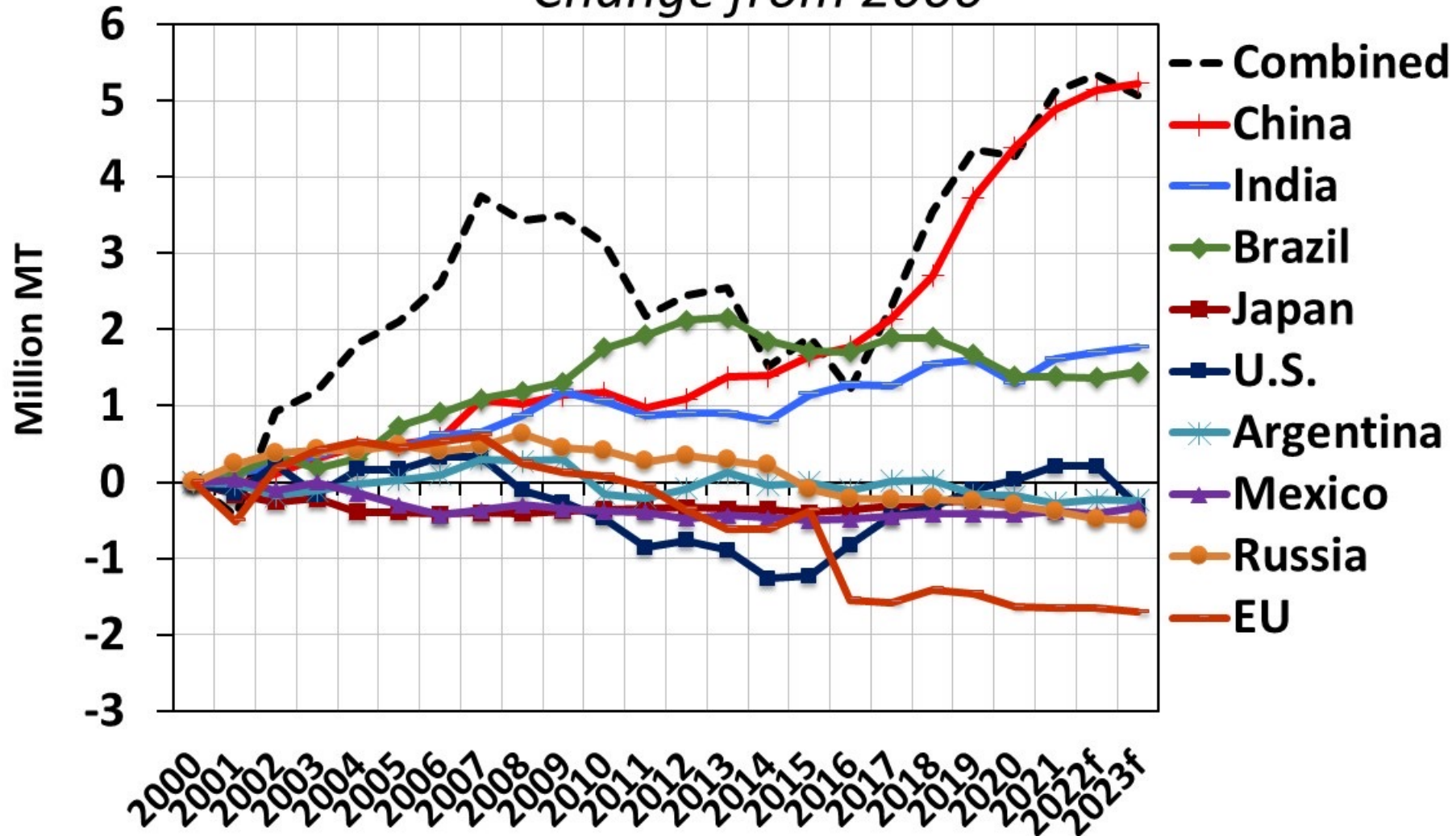
## China Beef Imports





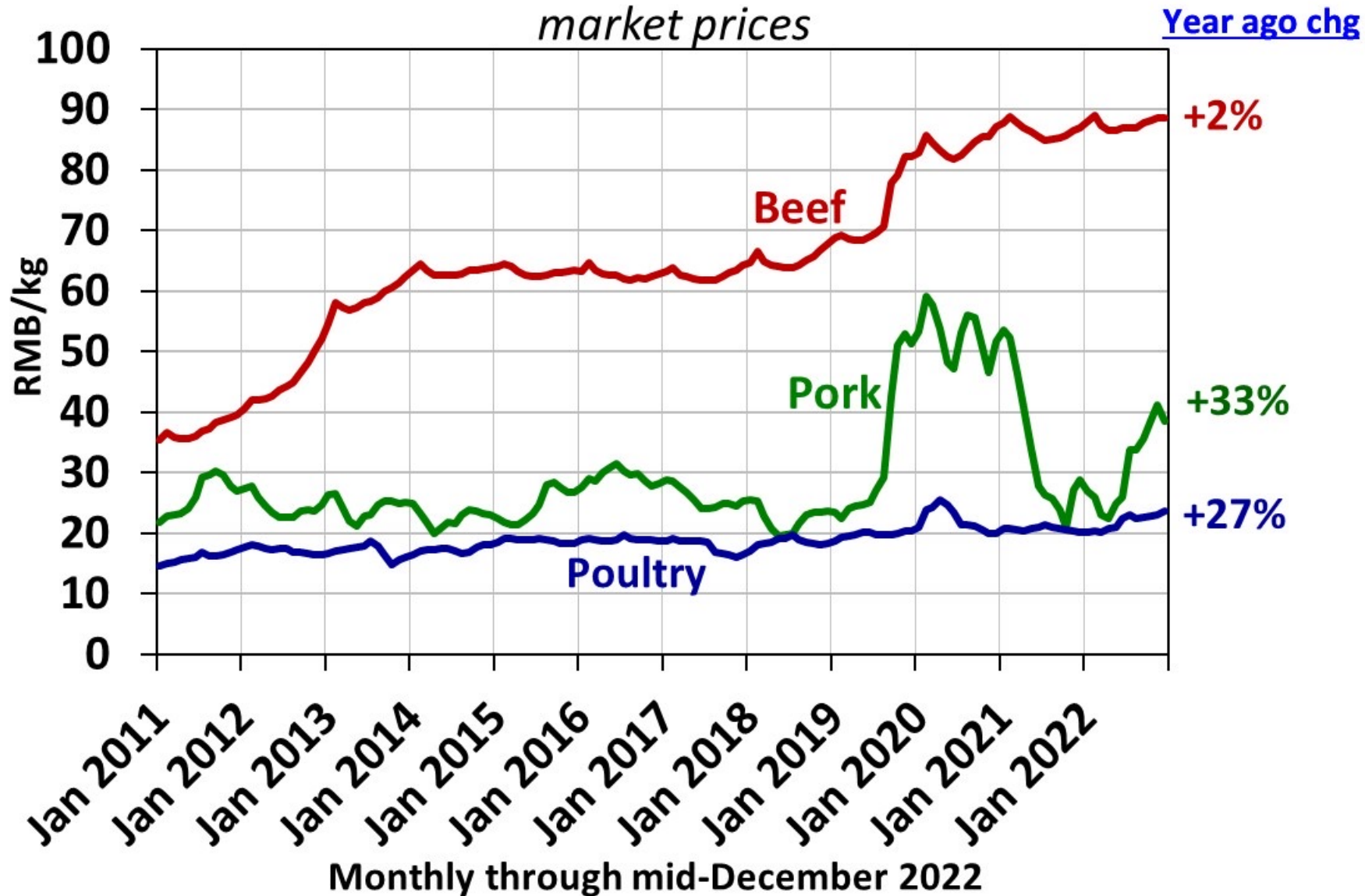
# Global Beef Consumption

*Change from 2000*



Source: USDA/FAS

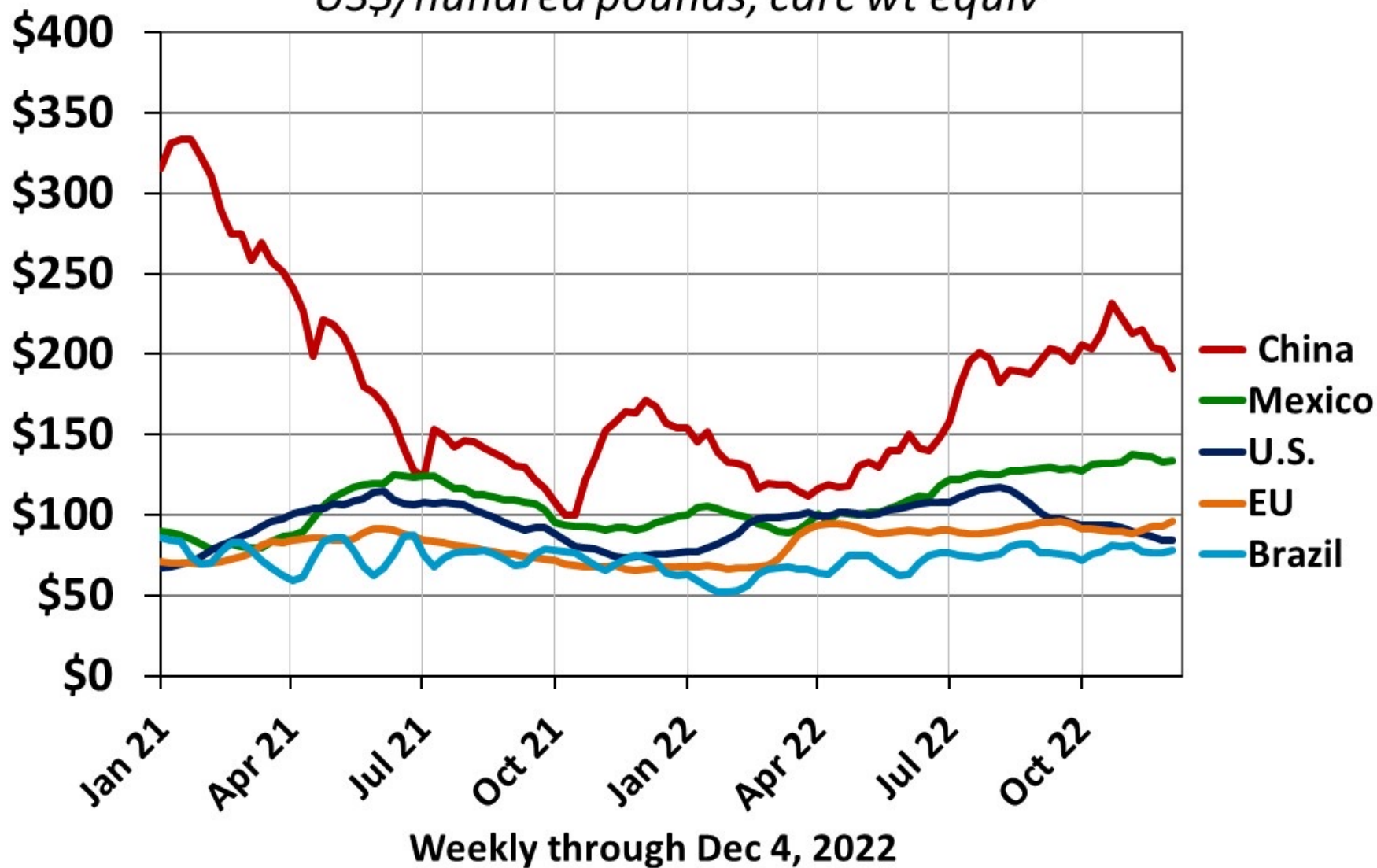
# China Meat & Poultry Prices



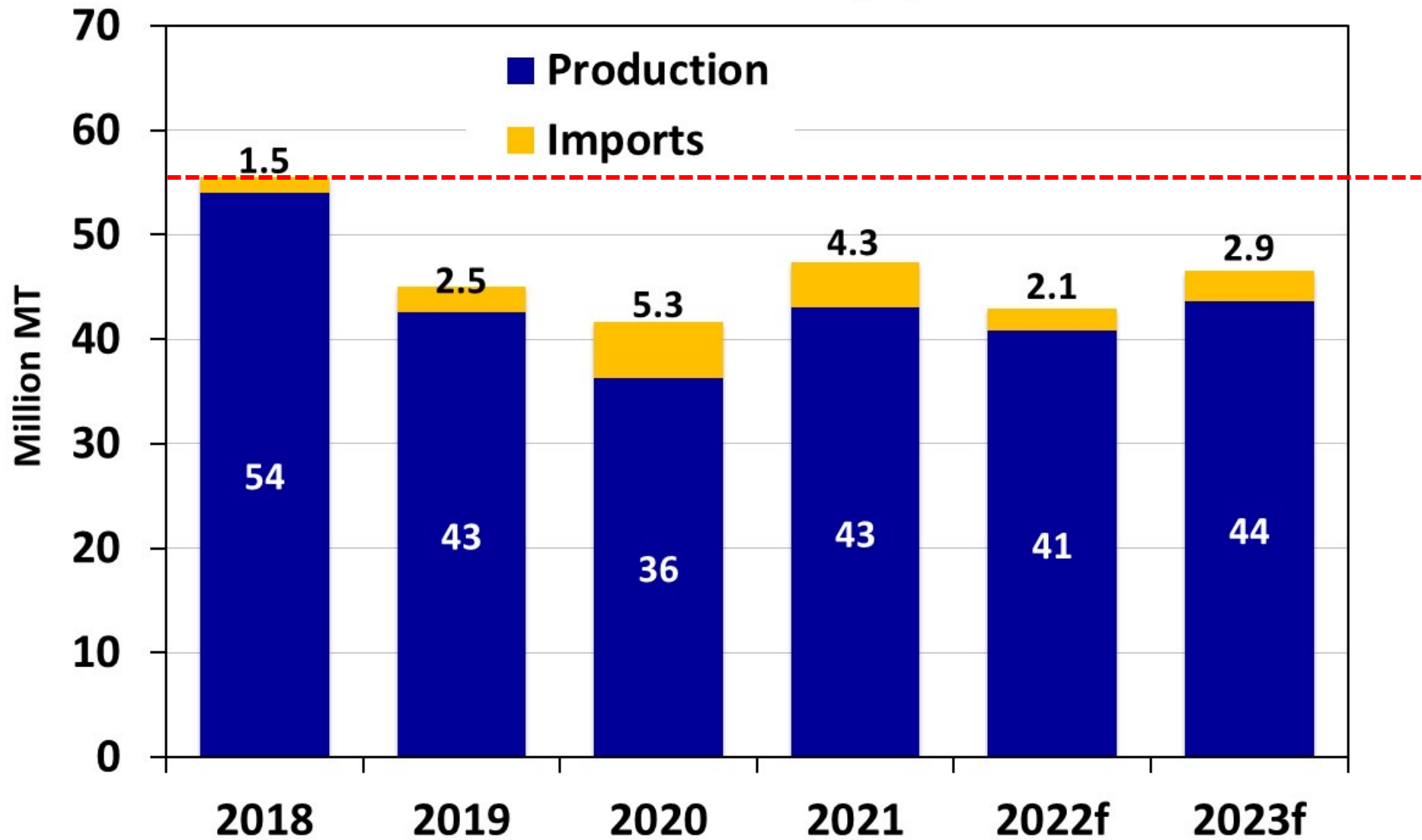
Source: China MARA

# Global Hog Prices

*US\$/hundred pounds, carc wt equiv*

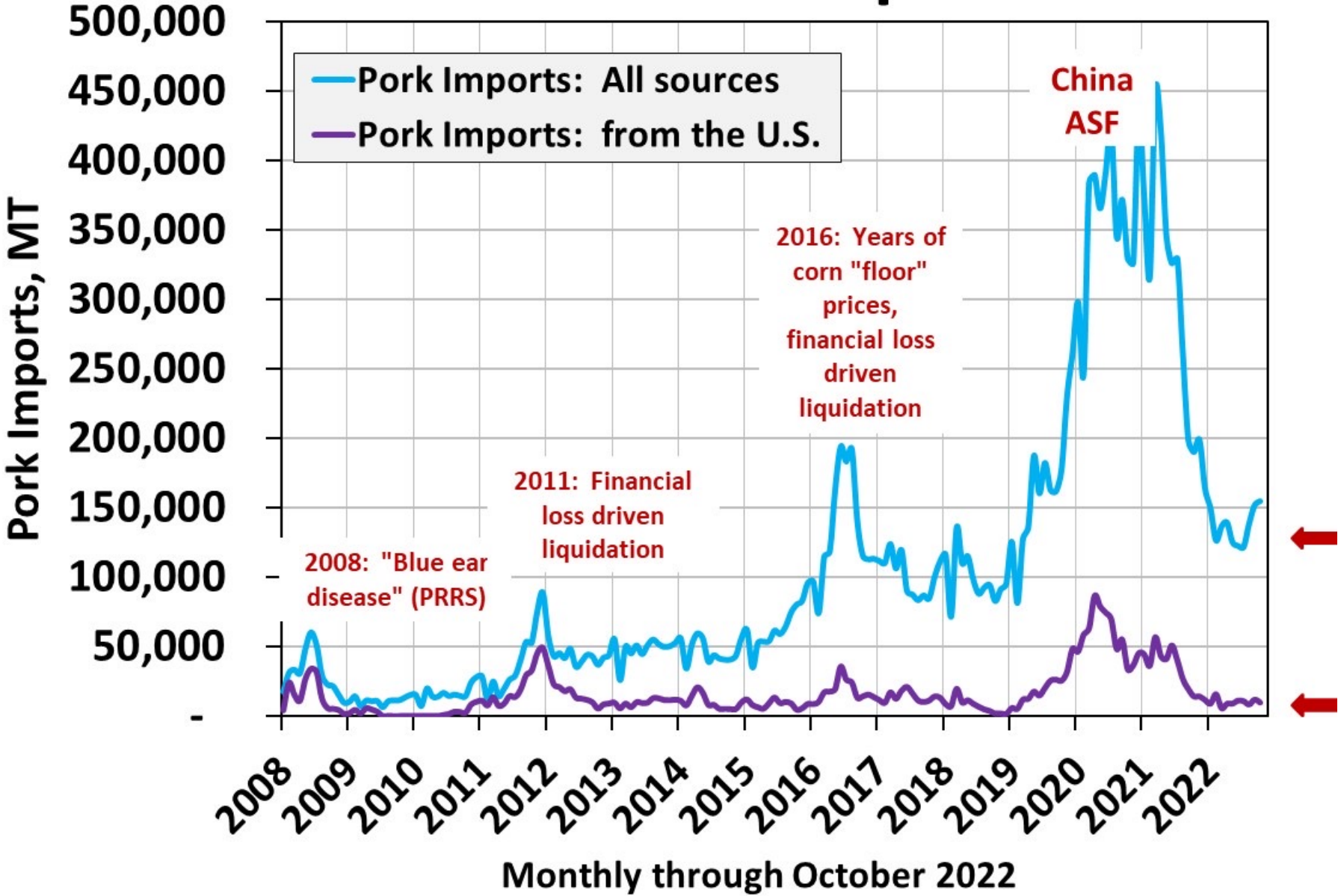


# China Pork Supplies



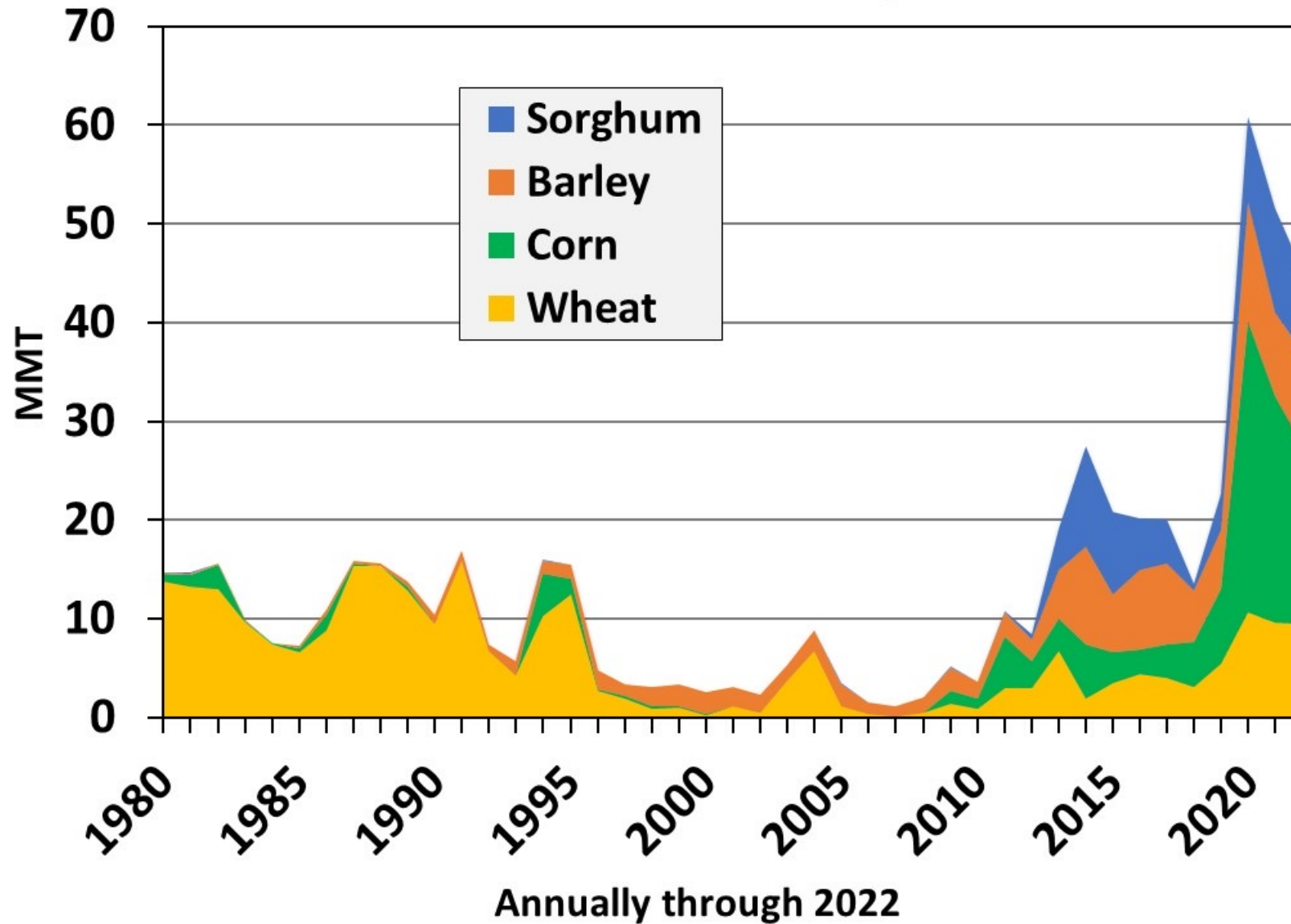
Source: USDA, AgriTrends forecasts

# China Pork Imports



Source: TDM, AgriTrends

# China Grain Imports

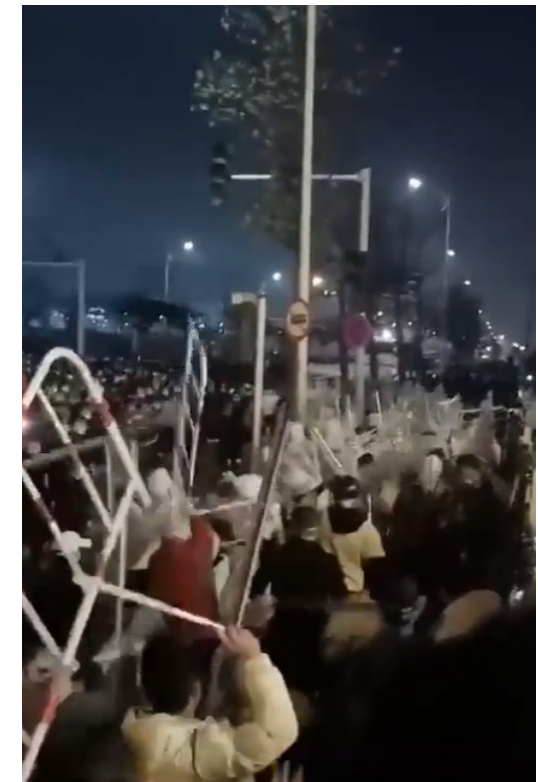


Source: USDA/FAS

# China's Campaign to Wipe Out Covid Is Crushing Its Economy

Juicing growth is again the government's top priority as lockdowns drag on and the party congress looms this fall.

## Covid Protests Spread Across China



**China is now beginning to relax their ZERO-COVID measures...**

# Other Factors

Disease

Meat Policies Rising

Alt Meat?



# African Swine Fever (ASF)

- ASF continues spreading in Asia, Europe, and Africa
- It is now found in Haiti and the Dominican Republic
- There is no commercially available vaccine
- And it is an “**export killer**”; all exports cease upon a single case
- Wild boars in Europe continue the spread
  - Most recently in Germany and Italy
  - But also in Eastern Europe and Russia
- The virus continues in China, Korea, and Southeast Asia

# German ASF Continues Spreading



# HPAI Now at Record U.S. Culling

## 2022 – Map Of Occurrences



## Birds Depopulated

State	Size	Flock Type	Size
IA	15,490,968	Commercial Layer Chickens	38,201,005
NE	5,046,629	Commercial Turkey	7,931,396
CO	4,716,814	Commercial Broiler Chickens	2,598,700
PA	4,410,890	Commercial Pullet Chickens	830,639
MN	3,858,478	Commercial Duck	319,024
OH	3,749,423	Other	610,385
WI	3,304,540		
UT	2,208,357		
SD	1,781,646		
Other	5,923,404		

# Foot and Mouth / Lumpy Skin Disease: Indonesia

- Both viruses remain on the move; likely to be declared “endemic” in coming months
- Both would stop Australian beef exports to key markets (Japan, Korea, U.S., China)
  - Aussie beef would be relegated to compete with Brazilian beef and Indian water buffalo at SHARP DISCOUNTS to lesser markets
- Concerns over the hurricane season (starting now) spreading the virus
- Indonesia vaccinating Bali for FMD (95%) but just 22% overall

# The Issue is RISING



**Irish farmers say they will be forced to cull cows to meet climate targets**



**'Emotion and pain' as Dutch farmers fight back against huge cuts to livestock**

Farmers express fury at government drive to tackle nitrogen pollution through a major reduction in numbers of pigs, cattle and chickens in the Netherlands

HEALTH

## Here Comes the Meat Tax

Paying more for environmentally harmful foods may be inevitable.

# Sustainability is an Opportunity

Frank Mitloehner Retweeted



CLEAR Center @UCDavisCLEAR · Aug 24



“Methane is a super opportunity for the agricultural sector. If we can manage methane, agriculture can be part of the solution to reduce global warming.” — @GHGGuru



ruralnewsgroup.co.nz

Better methane measure will make an impact

Recognition is urgently needed on a new measure for short and long-lived greenhouse gases and their impact on global warming. That was ...

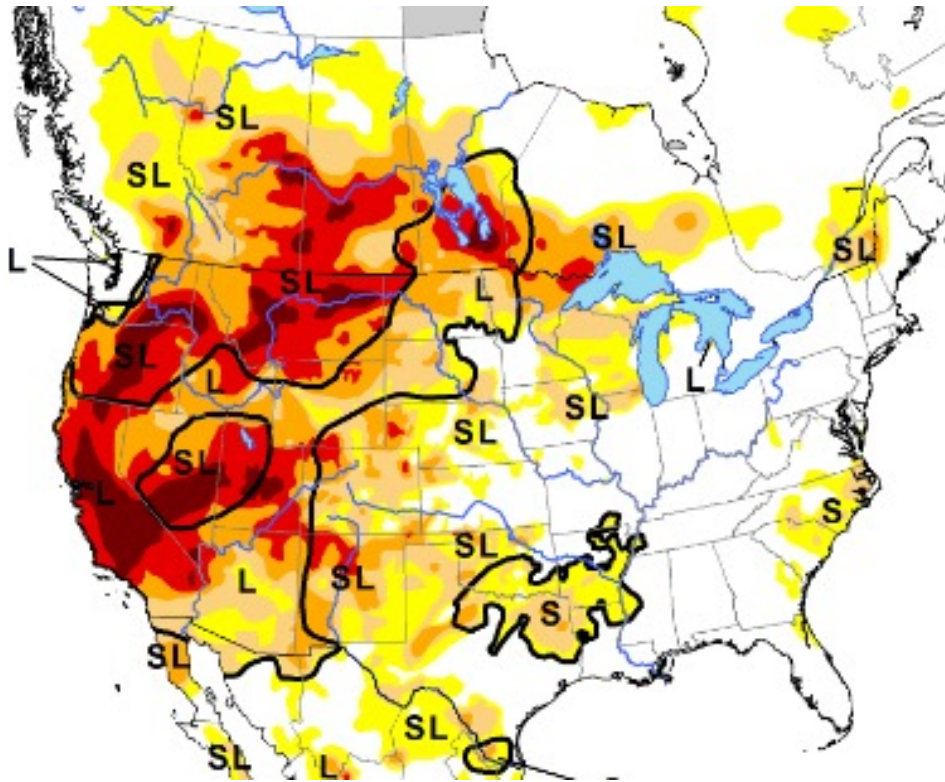
# Global Weather Pattern SHIFTING?

- 3 years of La Niña
  - Dry for N. America
- Weather pattern shifting?
  - Forecasts say YES
  - To an El Niño

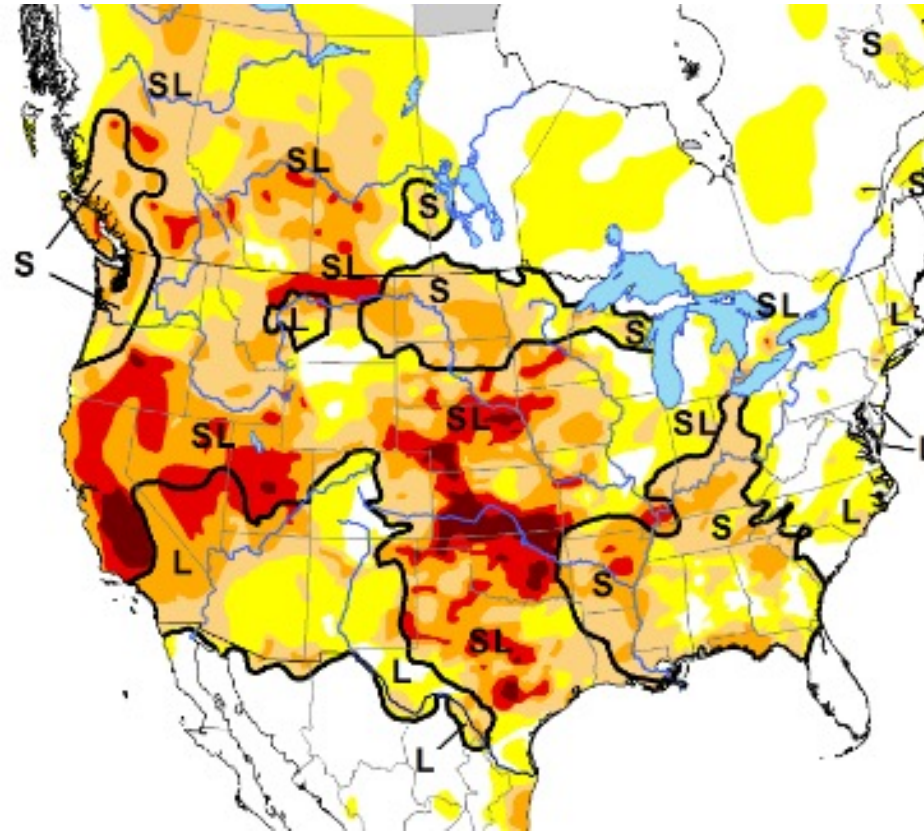


# North America Drought Monitor

October 31, 2021



October 31, 2022



In 2022,  
13.5% of  
the beef  
herd will be  
slaughtered

That is the  
highest level  
since 1984

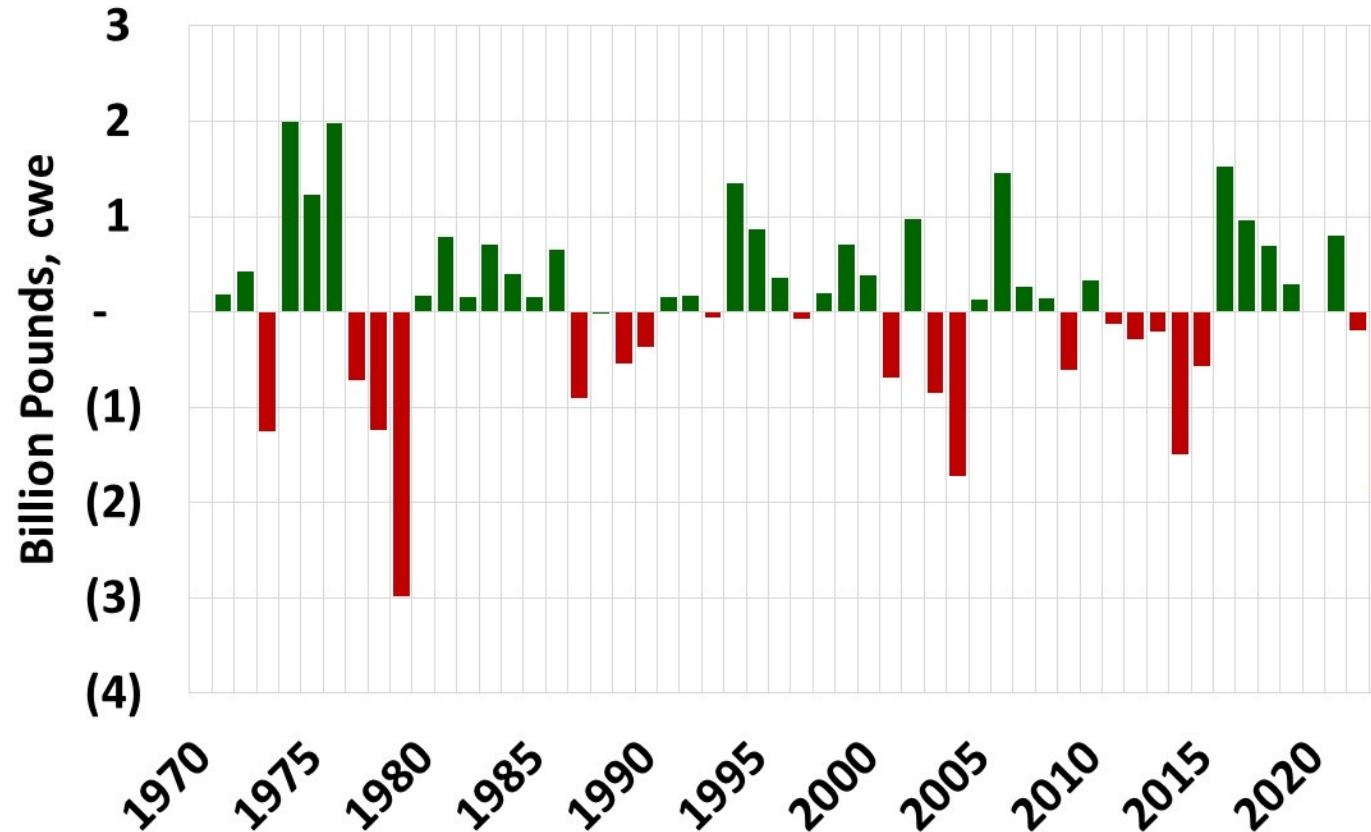


# USDA Beef Forecast:

## 2023 Production drops by most in 44 years

### U.S. Beef Production

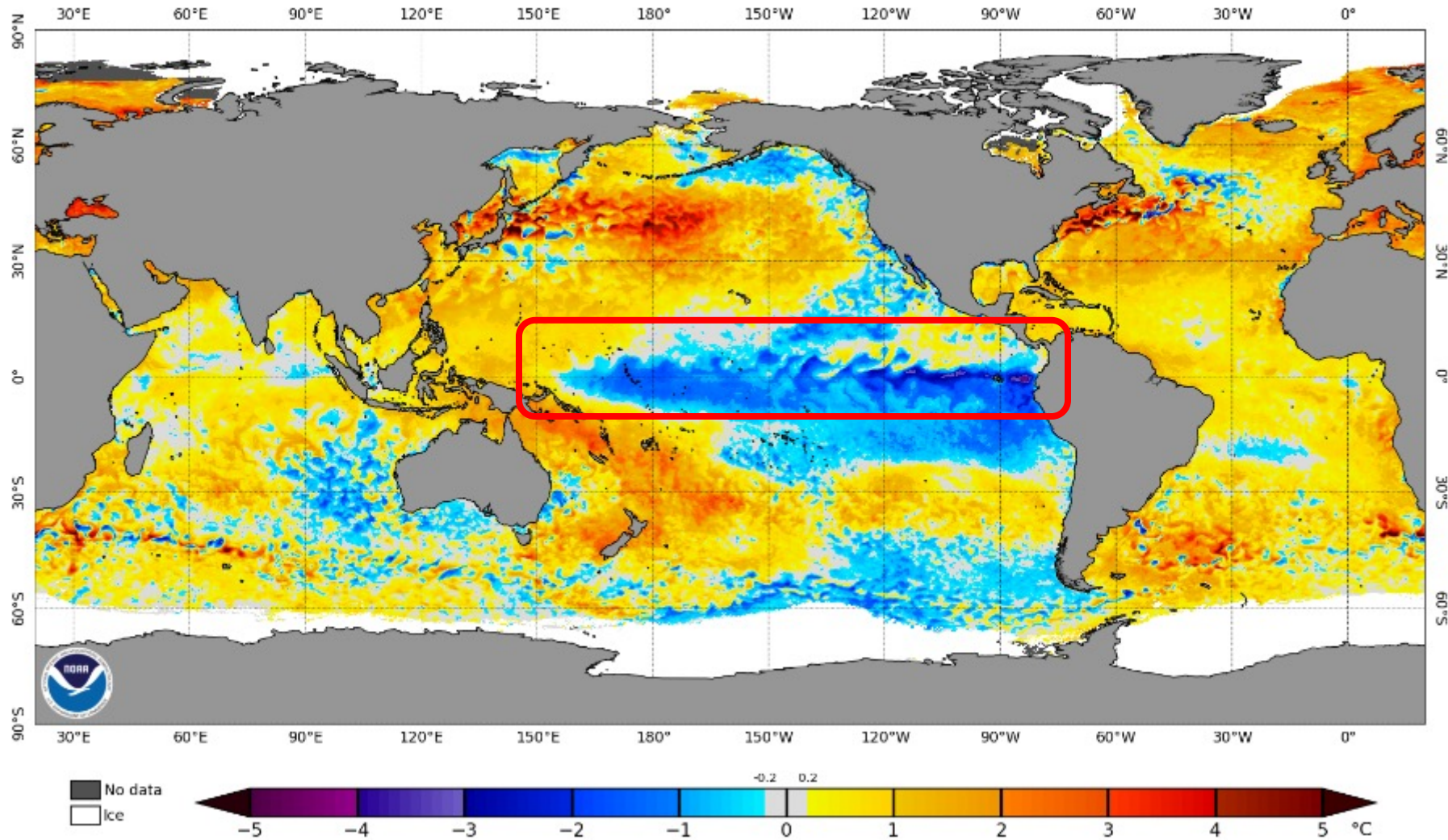
*Year/Year Change*



Source: USDA

# It all happens on the Pacific Equator...

NOAA Coral Reef Watch Daily 5km SST Anomalies (v3.1) 20 Nov 2022

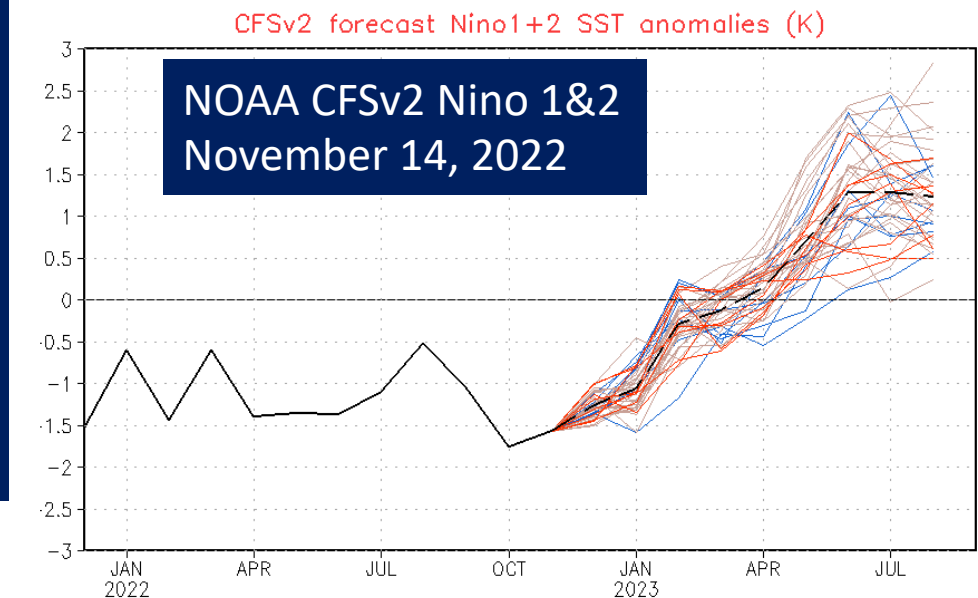
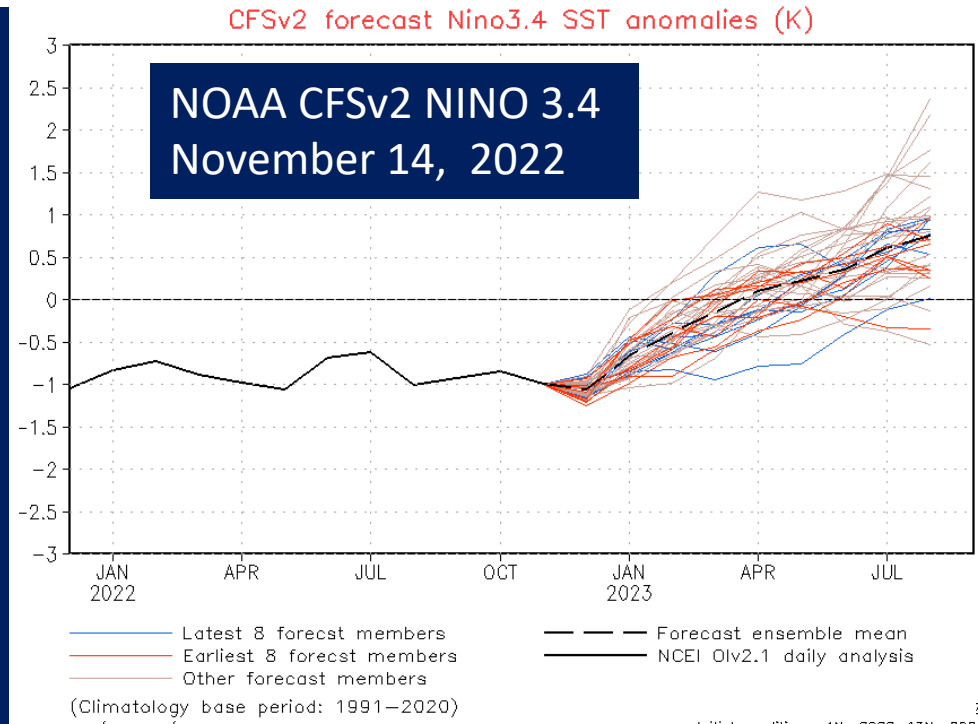


# NOAA CFSv2 El Nino Forecasts through July 2023

The NOAA CFSv2 model continues to forecast strong warming across the equatorial Pacific starting in February and March, 2023.

The newest forecast for Nino Region 1&2 shows explosive warming in May and June with SST anomalies leveling off going into July. This is a typical evolution of El Nino off South America with one period of strong warming March-June followed by another period of strong warming later in the fall.

Cold SSTs through January will keep South American weather patterns in a strong La Nina pattern (dry Argentina and wet central Brazil) though their summer rainy season.





**“Don’t bet on the end of the world. It only happens once – and the odds are really against it.”**



# Thank You

Brett Stuart

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**Is Alternative Protein the Answer?**

PLANT  
BASED 

# WELCOME TO THE AGE OF ALTERNATIVE MEAT

**HIGH  
PLANT  
PROTEIN**



# Beyond Meat, Inc. (BYND) ☆

NasdaqGS - NasdaqGS Real Time Price. Currency in USD



## Stock Opens May 2019 at \$66 And quickly surges to \$234!

- Investors gush over alternative meats as they write checks for hundreds of millions into this new “disruptive” industry
- Companies spring up **EVERWHERE**
- The new **WAVE** of the future
- **No more livestock!**



# Recent Headlines

## Beyond Meat Stock Lost Its Sizzle a Long Time Ago

The company's failing financials should give BYND stock traders food for thought

## Beyond Meat may be struggling with its fast-food partnerships

Jul. 21, 2022 11:30 AM ET | **Beyond Meat, Inc. (BYND)** | YUM, HRL | By: Clark Schultz, SA News Editor | 6 Comments



## Beyond Meat Stock Is a Busted Growth Play Not Worth Chasing

Trading for a fraction of past highs, BYND stock may seem cheap, but that's far from the case

# Beyond Meat, Inc. (BYND)

NasdaqGS - NasdaqGS Real Time Price. Currency in USD



## Beyond Meat Inc

NASDAQ: BYND

Market Summary > Beyond Meat Inc

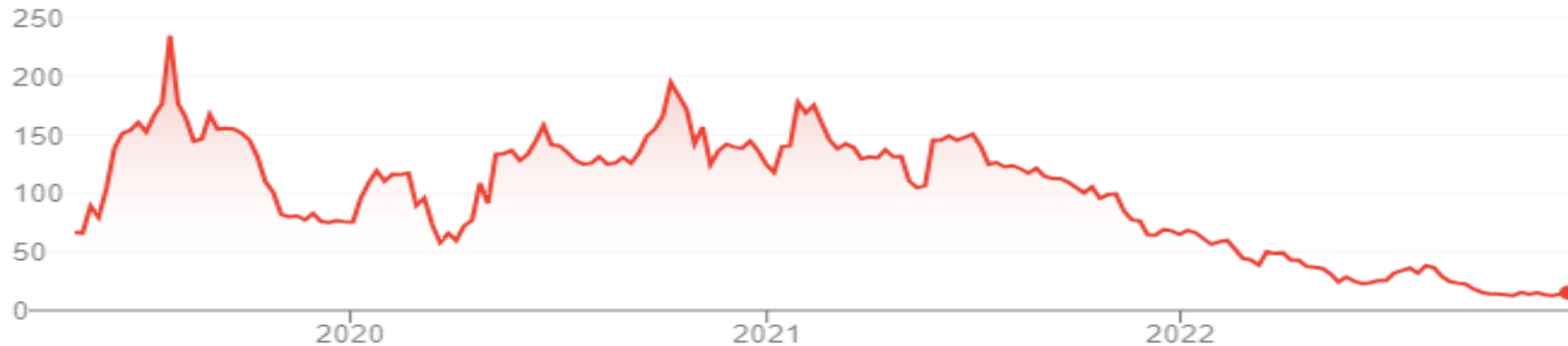
### 14.81 USD

-51.98 (-77.83%) ↓ all time

Dec 9, 11:29 AM EST • Disclaimer

1D | 5D | 1M | 6M | YTD | 1Y | 5Y | Max

**\$234**



**BYND has lost  
-93% of its  
value**

**\$15 now**

**The customers have spoken.**

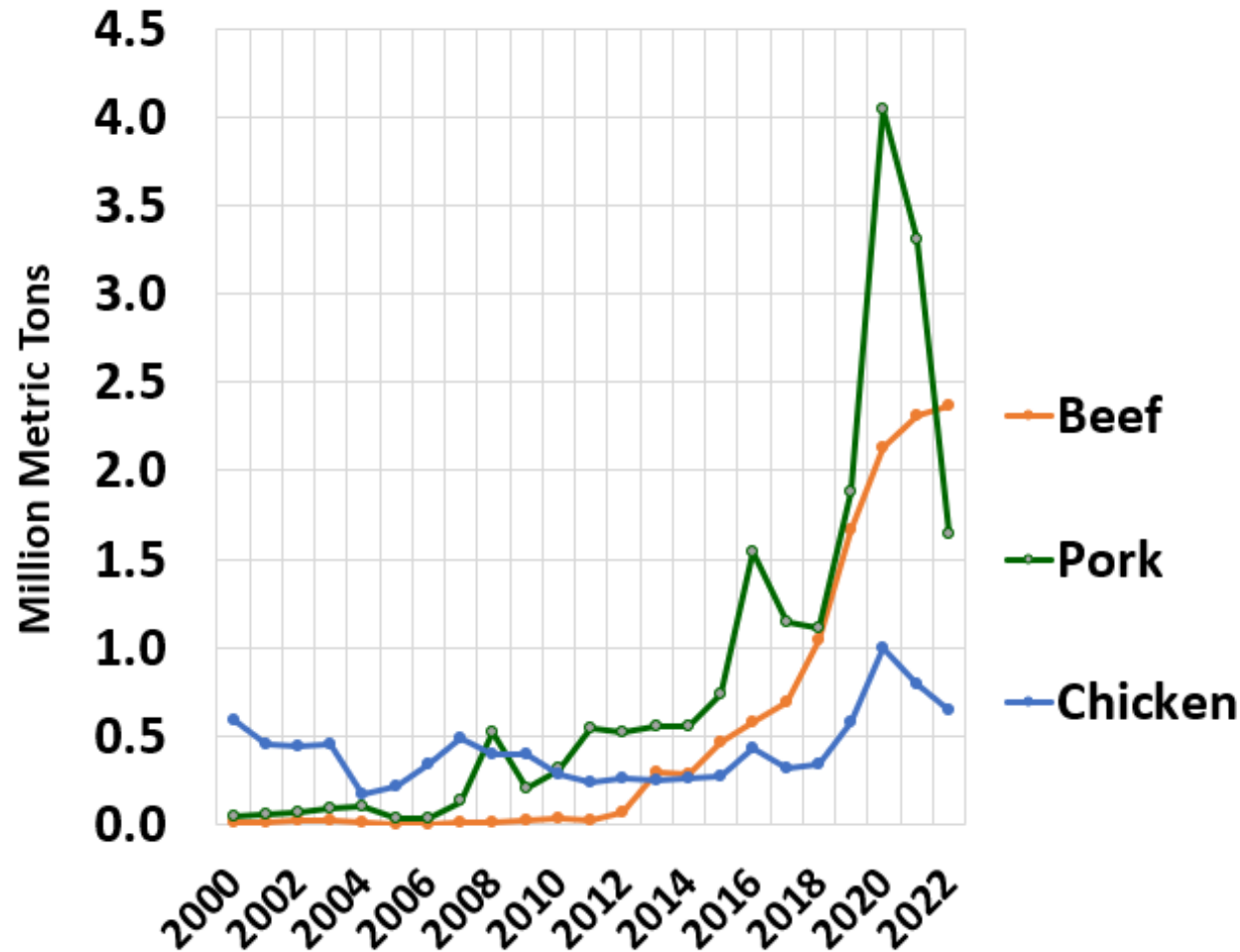
# Other Alt-Meat Companies

- Maple Leaf Foods cut their plant-based business Greenleaf Foods by -25% in August 2022
  - Gross margin declined 24.7% due to investments made to increase capacity to meet growth that never happened.
  - “And we used to believe in a transformational category outcome for meat alternatives, this did not materialize and we no longer believed that it will materialize” - Maple Leaf foods CEO Michael McCain
- JBS pulled the plug on their U.S. plant-based business Planterra
  - But maintains their businesses in Brazil and Europe
- "Eventually it will be a good business for a few players. Today, it is a sinkhole for many folks that are throwing good money after bad, chasing too little demand with way too much supply."
  - Gary Stibel, chief executive of the New England Consulting Group



# China Shifts to Beef?

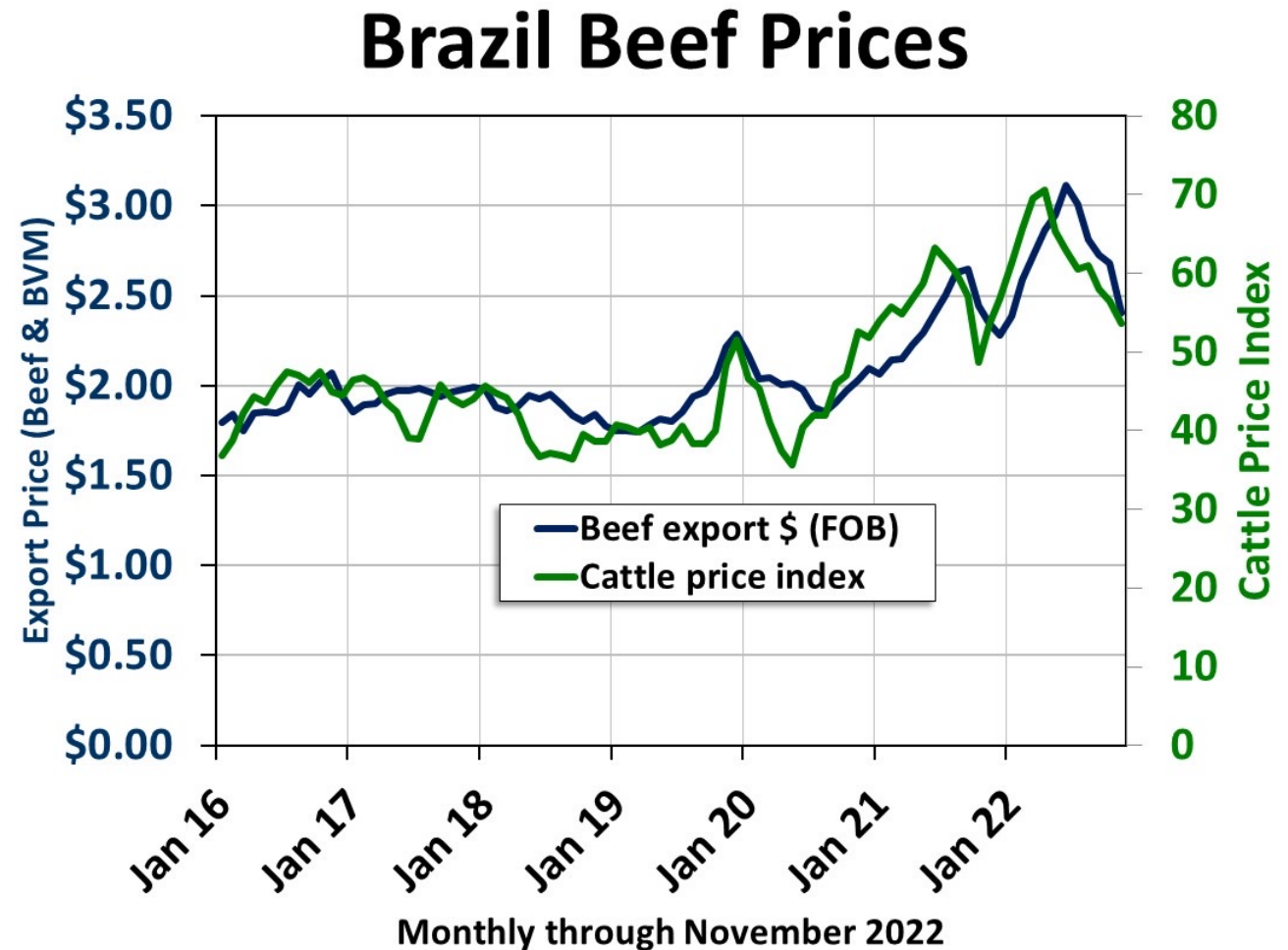
## China Imports



- Beef imports are now surpassing pork into China
  - US\$12 billion last year
- Beef per-capita consumption remains <12 pounds
- Pork per-capita consumption remains >60 pounds

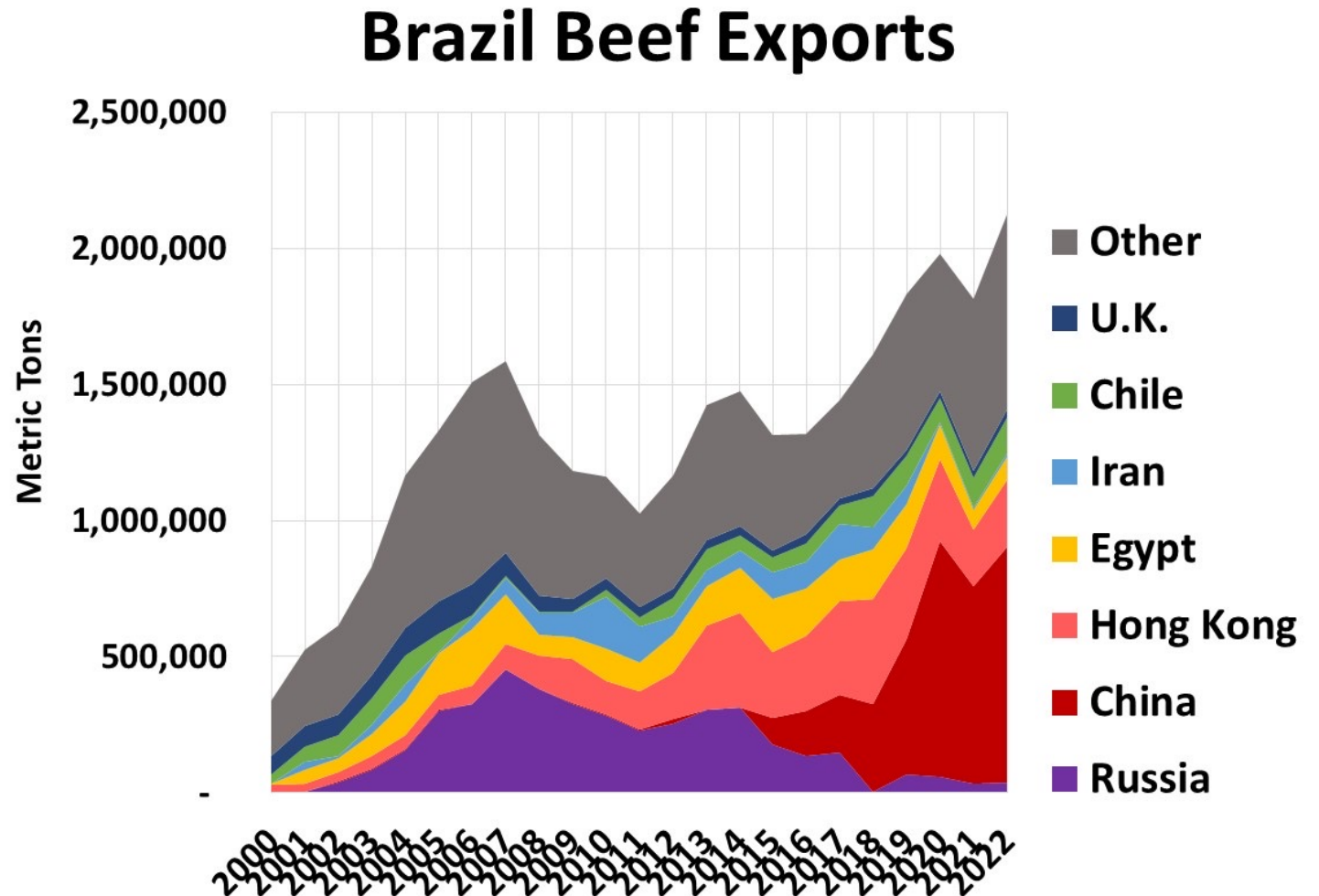
# Brazilian Beef Herd

- Slaughter and production data is scarce
  - USDA estimates
- Price and export data is the most accurate
- 2016-2020 avg versus 2022:
  - Exports: +51%
  - Cattle prices: +47%
- Exports drive Brazilian cattle prices



# And Who is Driving Brazil's Beef Export Demand?

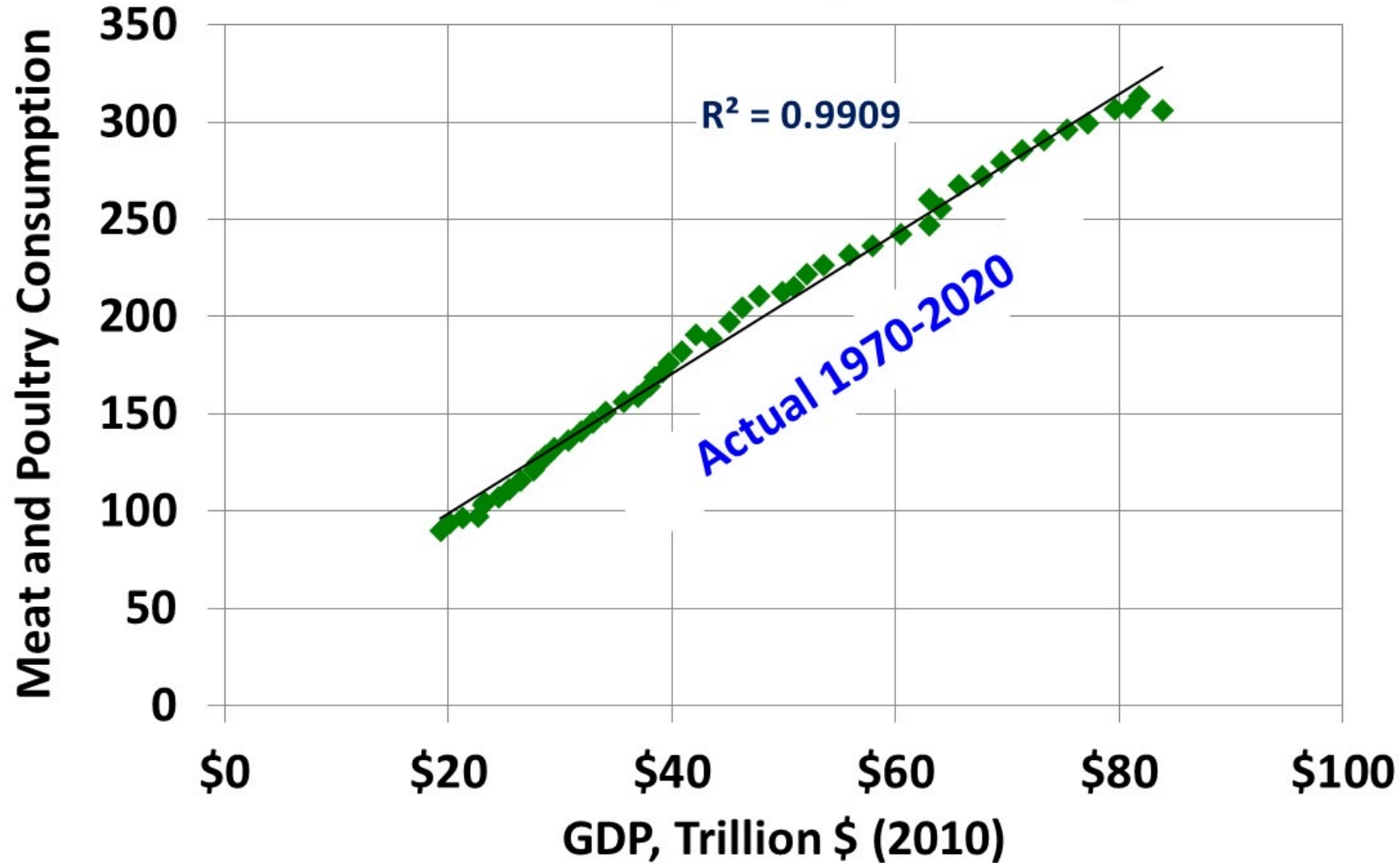
- Brazilian Beef to China has averaged +37% annual growth the past 5 years
- US\$7.8 billion in 2022
- China's economy remains unsteady into 2023



# 10-Year Outlook



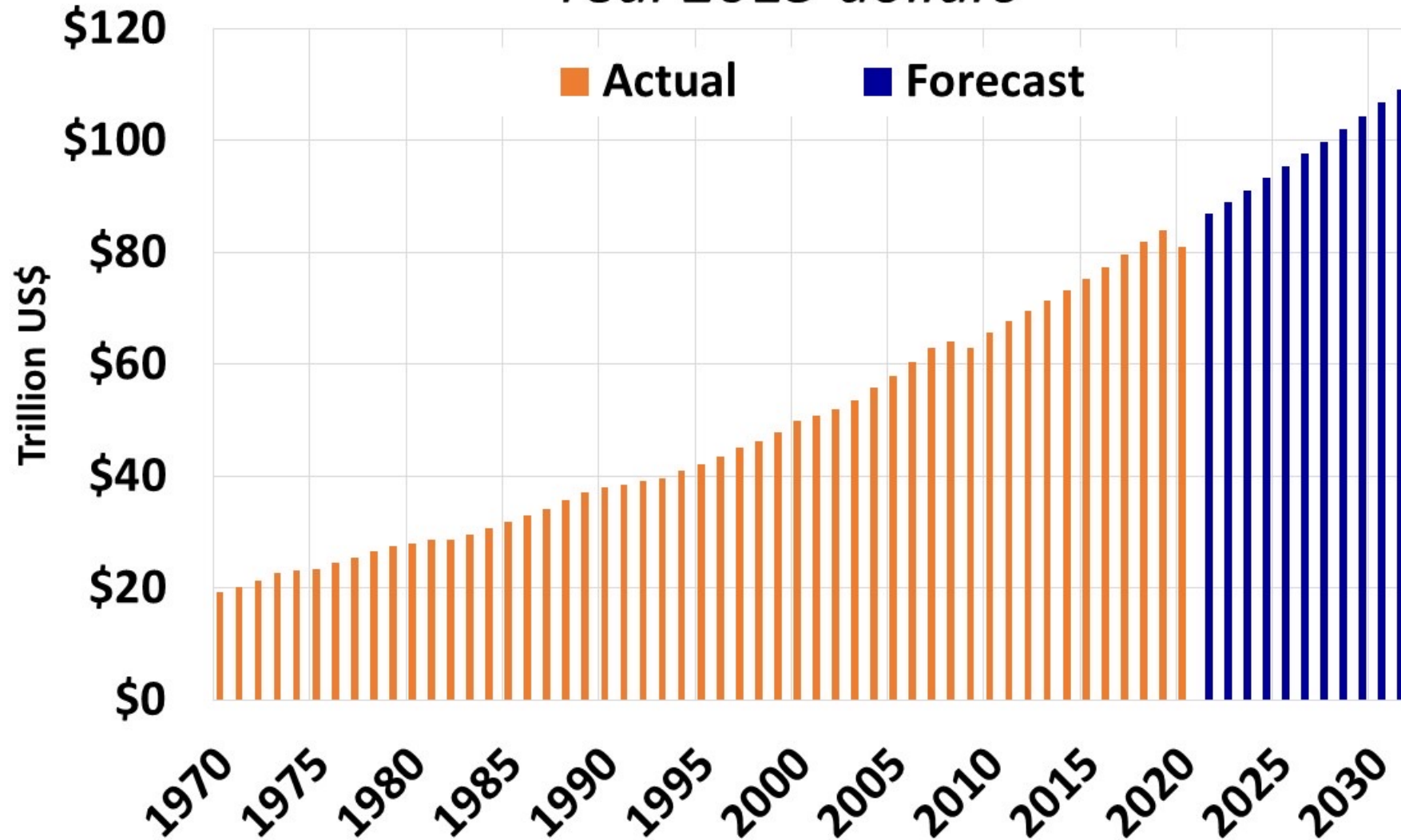
# Global GDP and Meat & Poultry Consumption, Annually



Source: UN/FAO

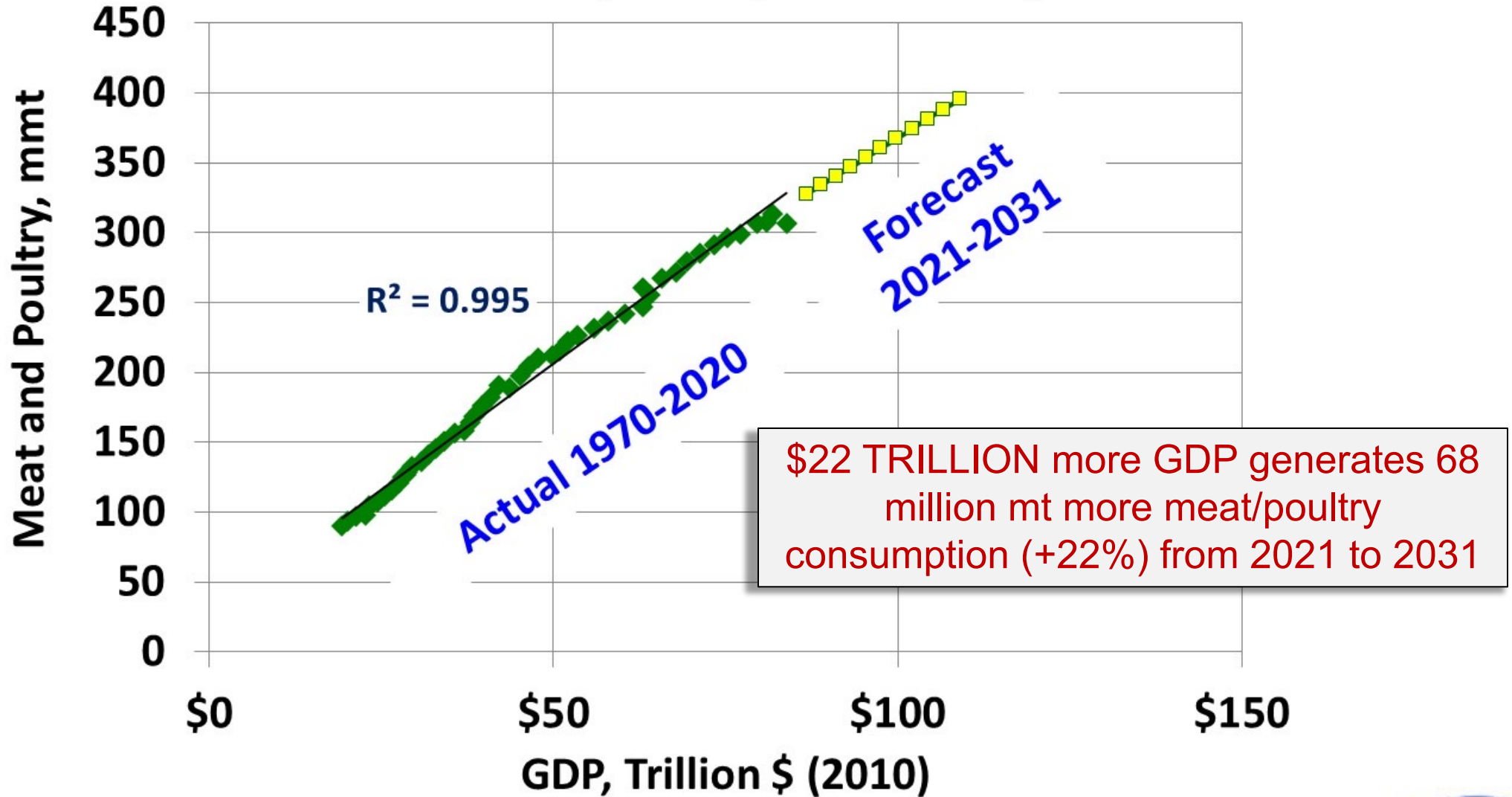
# Global GDP

*real 2015 dollars*



Source: FAO, UN, IMF, World Bank, AgriTrends

# Global GDP and Meat & Poultry Consumption, Annually

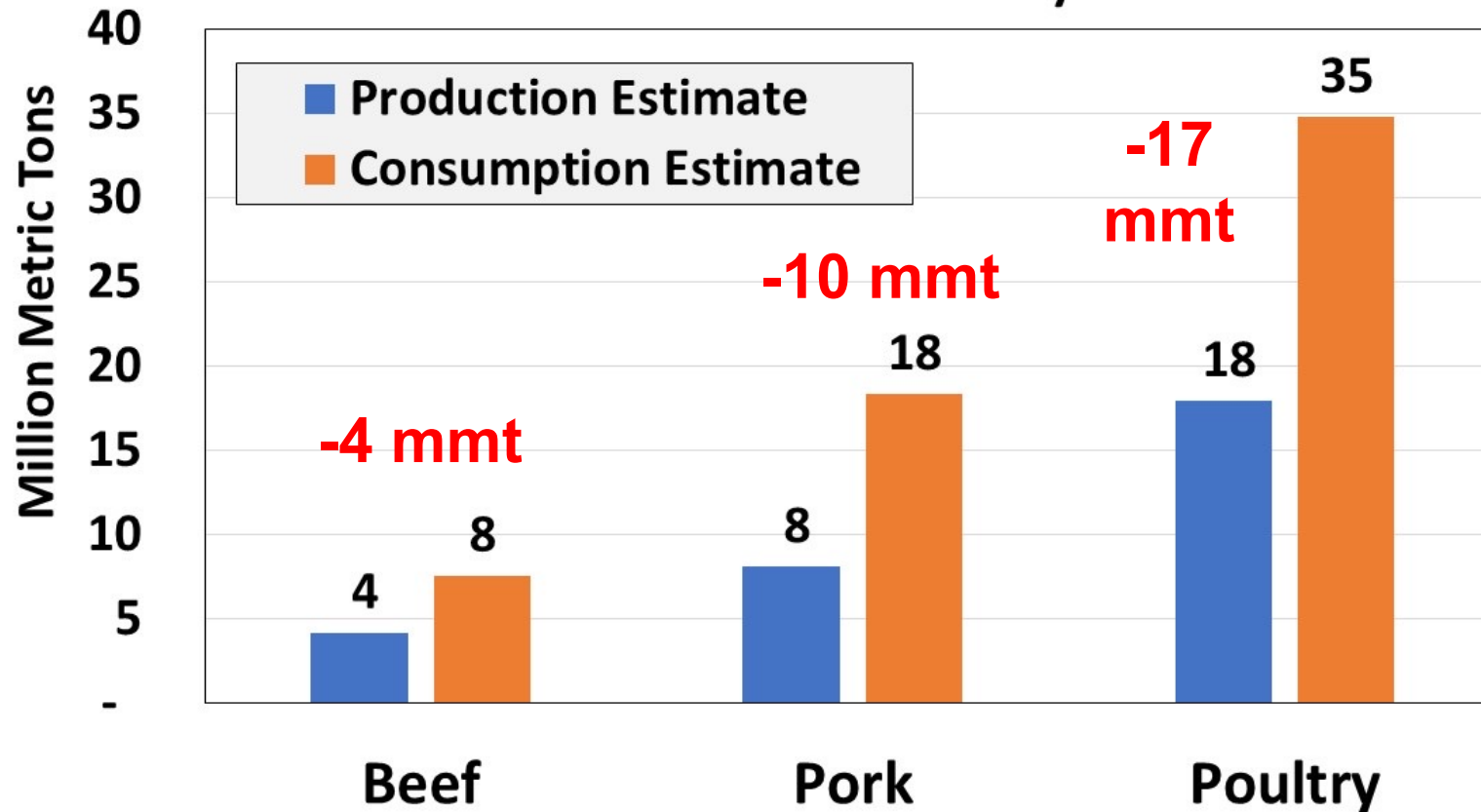


Source: IMF, World Bank, UN/FAO, forecast uses 2000-2020 as base years

# Supply and Demand Projections

## 10-Year Projections:

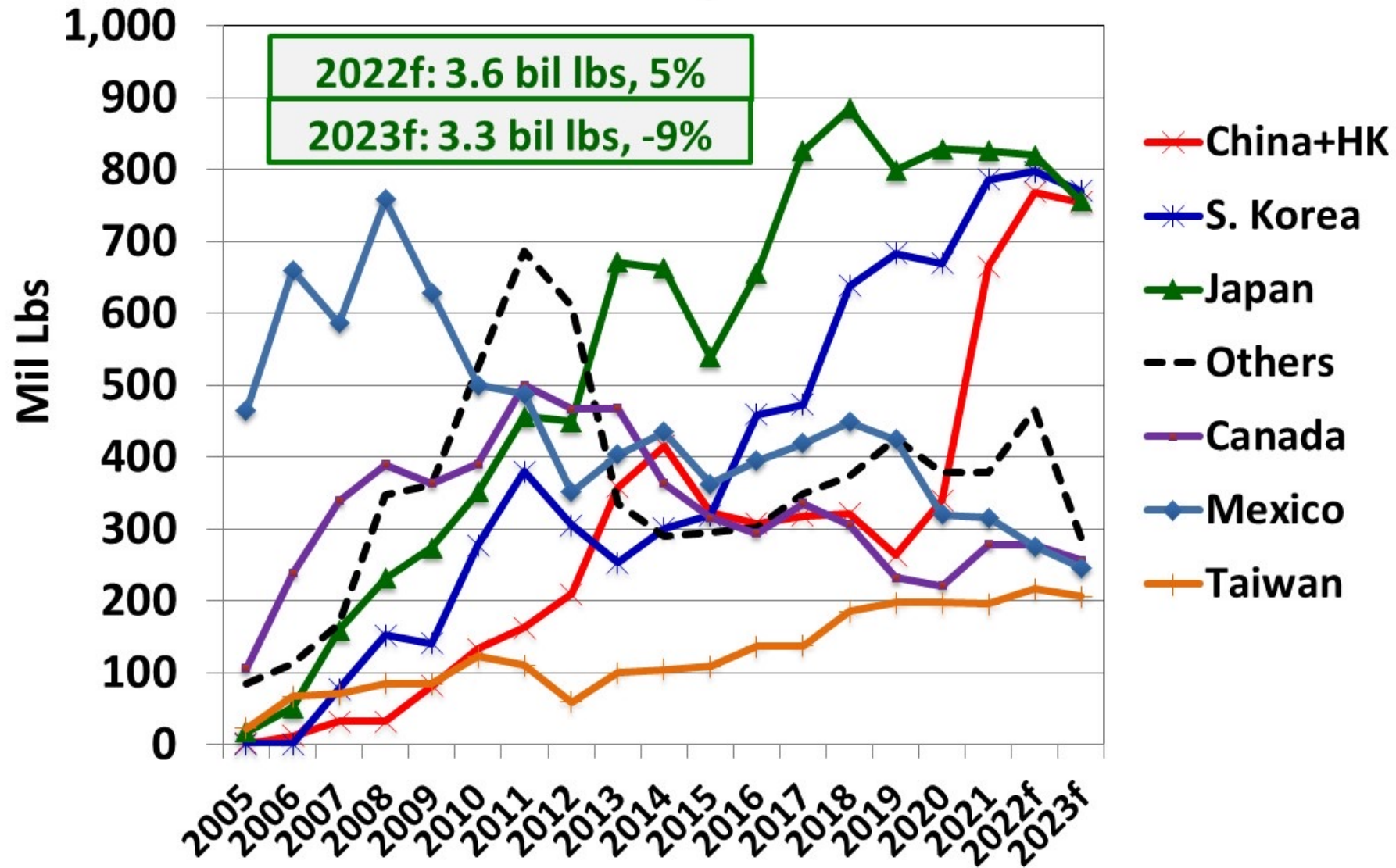
### Global Meat and Poultry Increases



Production estimate: FAO <http://www.fao.org/publications/oecd-fao-agricultural-outlook/2021-2030/en/>

Consumption estimate: AgriTrends Global Demand model (2022-2031)

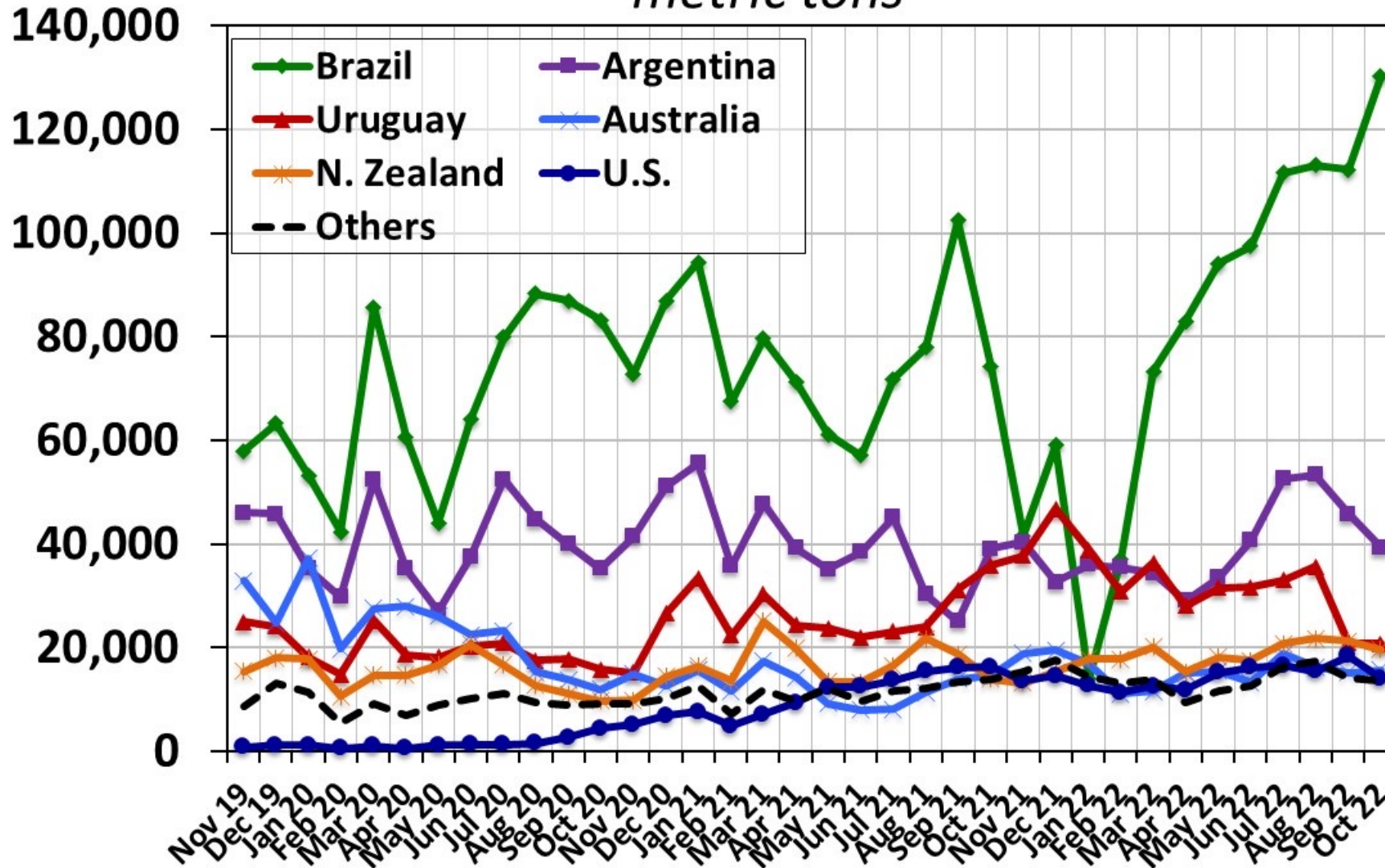
# U.S. Beef Export Forecasts



Source: USDA, AgriTrends forecasts

# China Beef Imports

*metric tons*



**China YTD Beef Imports:**

+22% in tonnage  
+55% in value

Source: TDM, AgriTrends

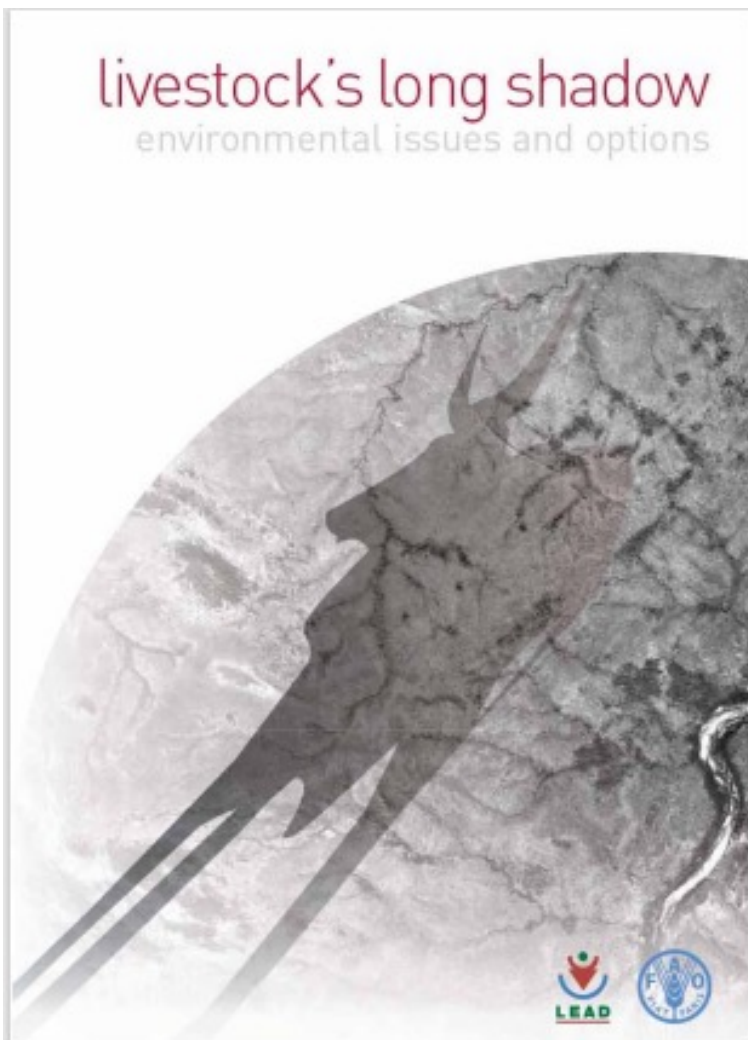
# **Sustainability and the Global Beef Industry**

# What is Food Sustainability?

- Textbook Definition
  - Able to be maintained at a certain rate or level
- Producer Definition:
  - Long term profitability
- Consumer Definition:
  - Ecologically responsible food production



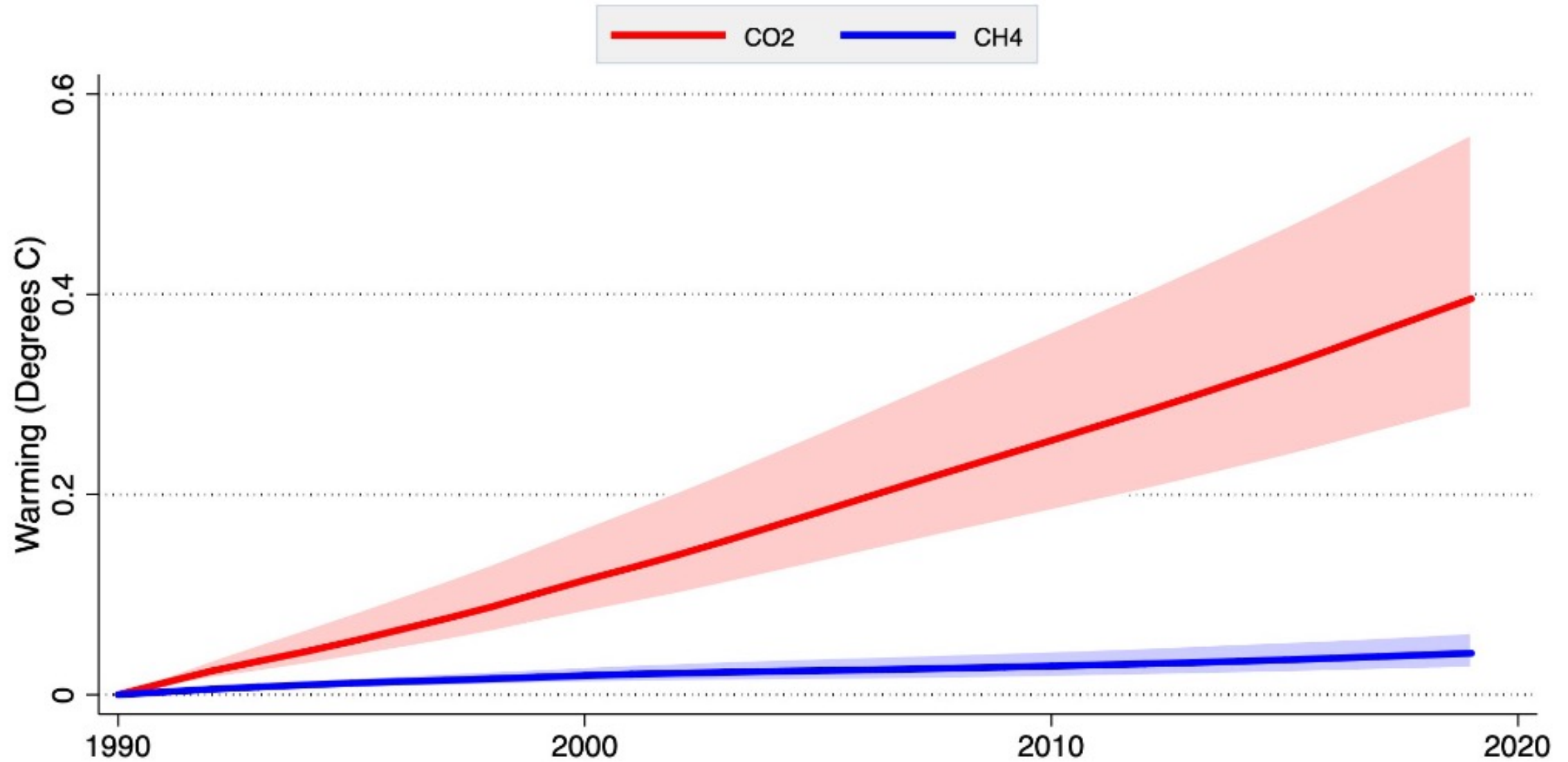
# Global Livestock Under Attack



- UN published in 2006
- “Globally, livestock produces a staggering 18% of the world’s greenhouse gas emissions.”
  - Conclusion: Livestock was doing more to harm the climate than all modes of transportation combined.
  - The report was proven WRONG within a year
  - **A retraction was issued**
- **But public perception remains...**

*How do you “un-ring” the bell?”*

# Global temperature rise since 1990 attributable to CO2 and CH4



This analysis is based on data in Figure 7.8 in the recent IPCC AR6 WG1 report

# Innovation in Global Protein

- **CO2 versus Methane?**
  - A new index to measure emissions is coming
- **Feed additives to reduce methane:** Asparagopsis, others
- **Increasing productivity** offers PART of the solution to reducing carbon footprint
  - Increasing turnover (shorter lifespans for cattle)
  - More output per cow, sow, and bird
- In the 1970s, 140 million head of cattle were needed to meet U.S. demand
  - Now, just 90 million head are producing **more** meat beef
  - **And the carbon footprint has been reduced**
- Thus far there are no commercially viable premiums for “Carbon Neutral” Beef
  - When will this happen?