

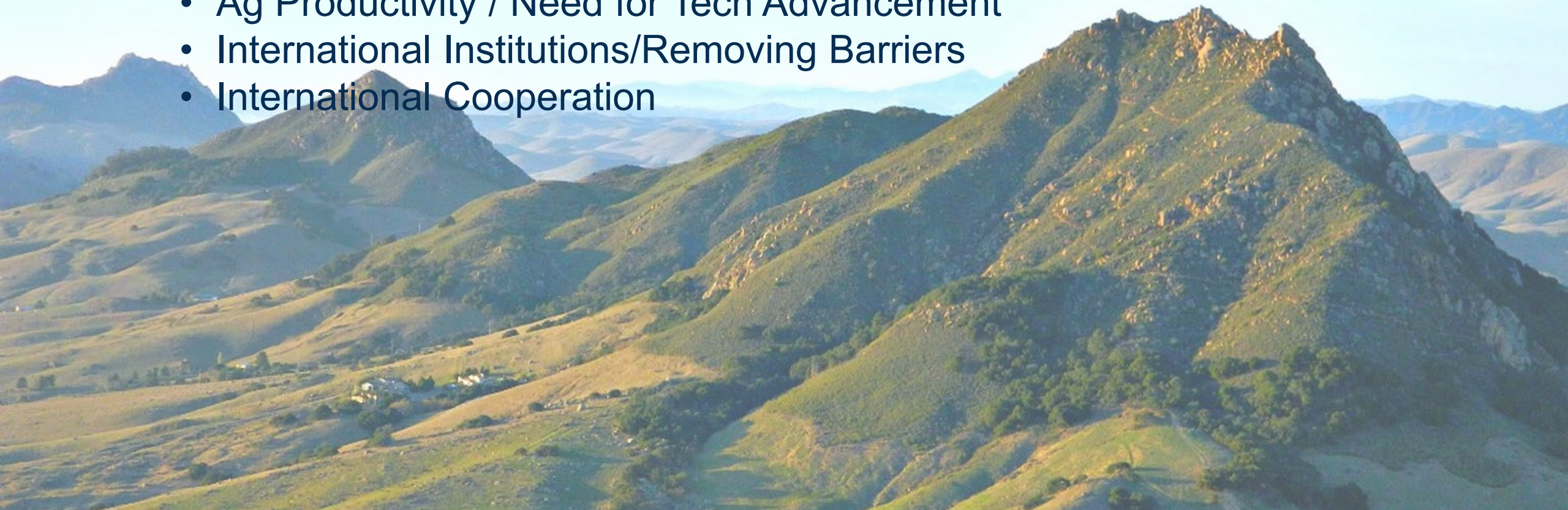


# Food Availability and Affordability in 2023: *Innovation and Cooperation Will Feed the World*

Jason Hafemeister  
Acting Deputy Under Secretary  
USDA Trade and Foreign Agricultural Affairs

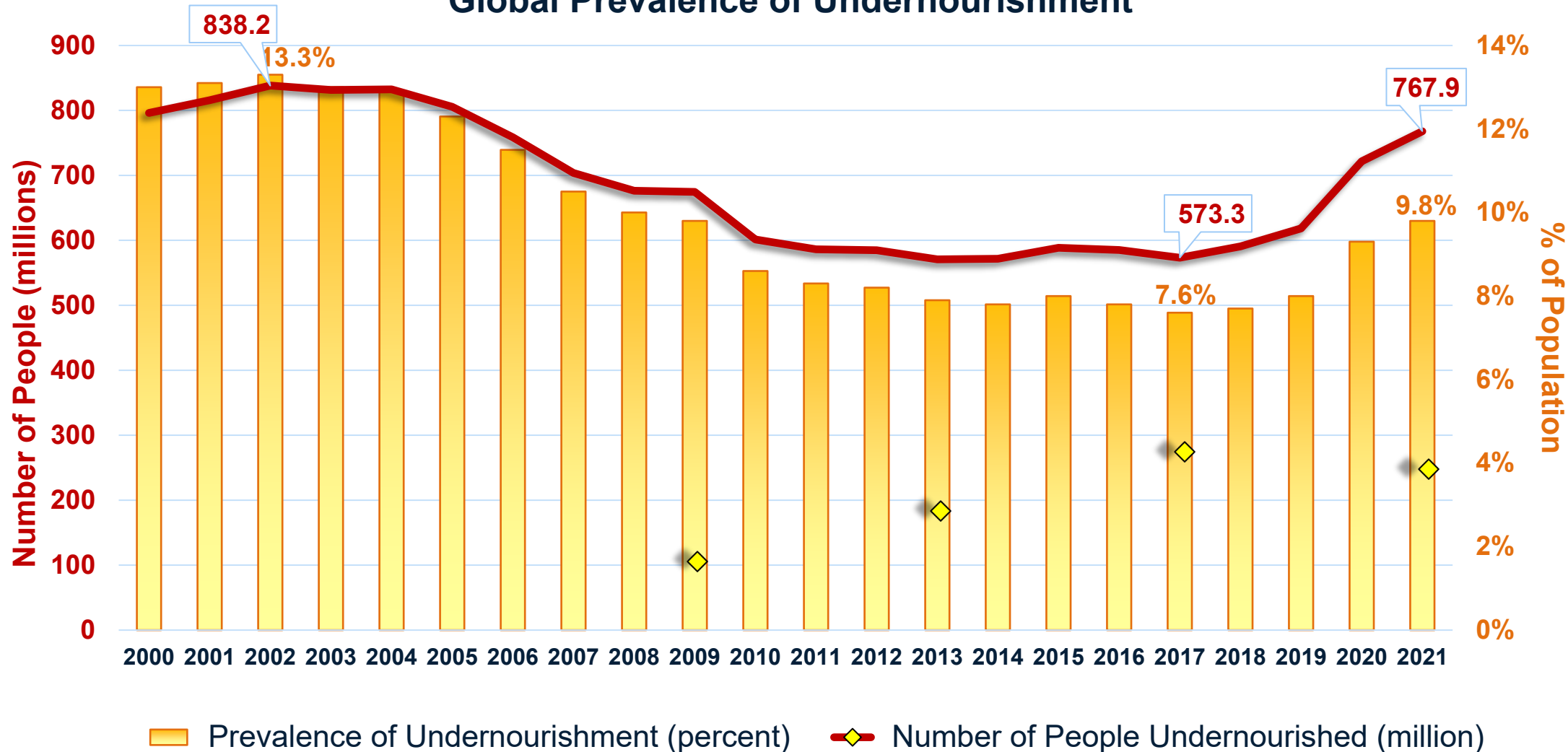
# Overview

- Global Food Security Trends
- Food Affordability
- Food Availability
- Ag Productivity / Need for Tech Advancement
- International Institutions/Removing Barriers
- International Cooperation



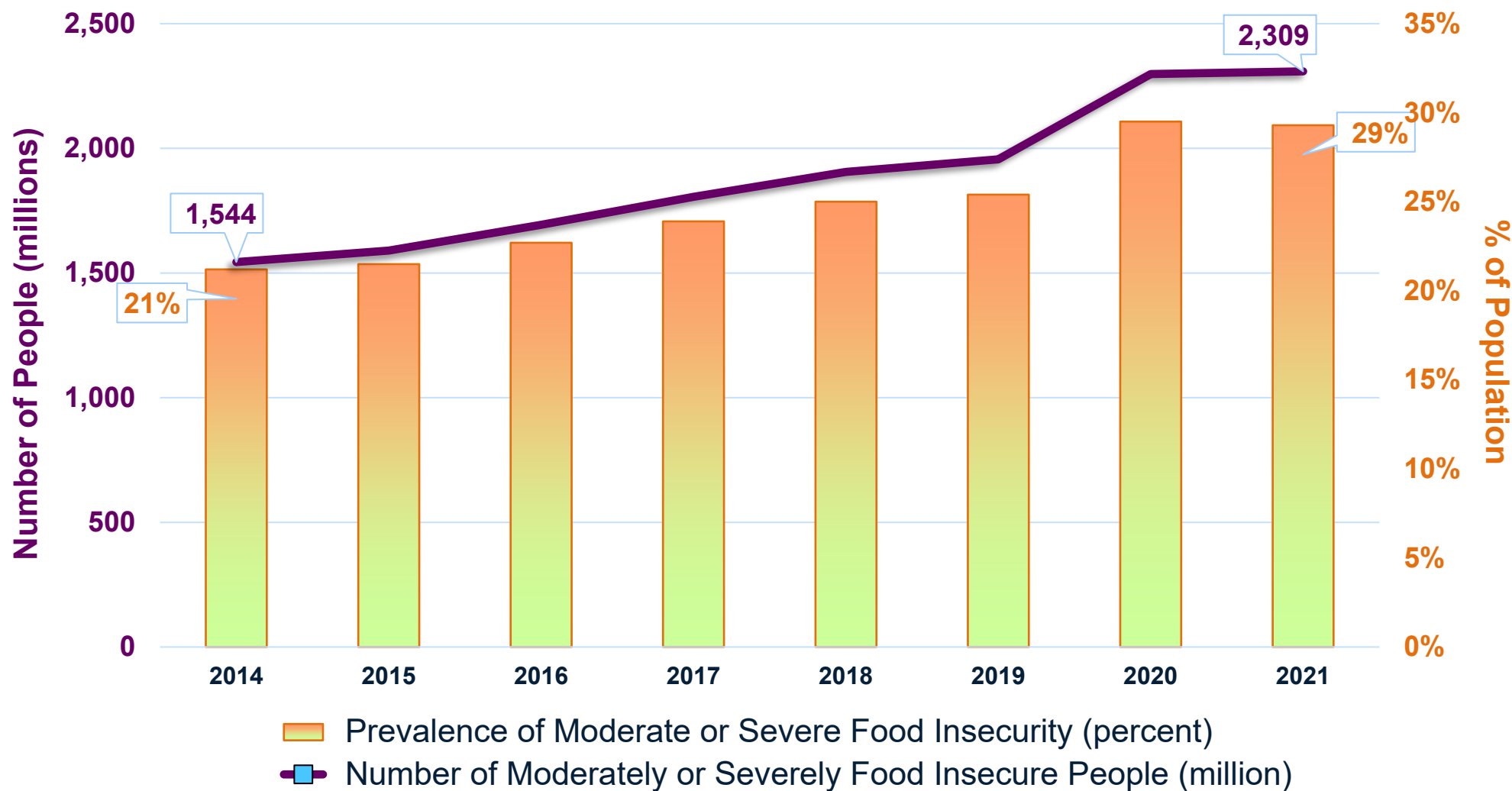
# Losing Progress on Eliminating Hunger

## Global Prevalence of Undernourishment



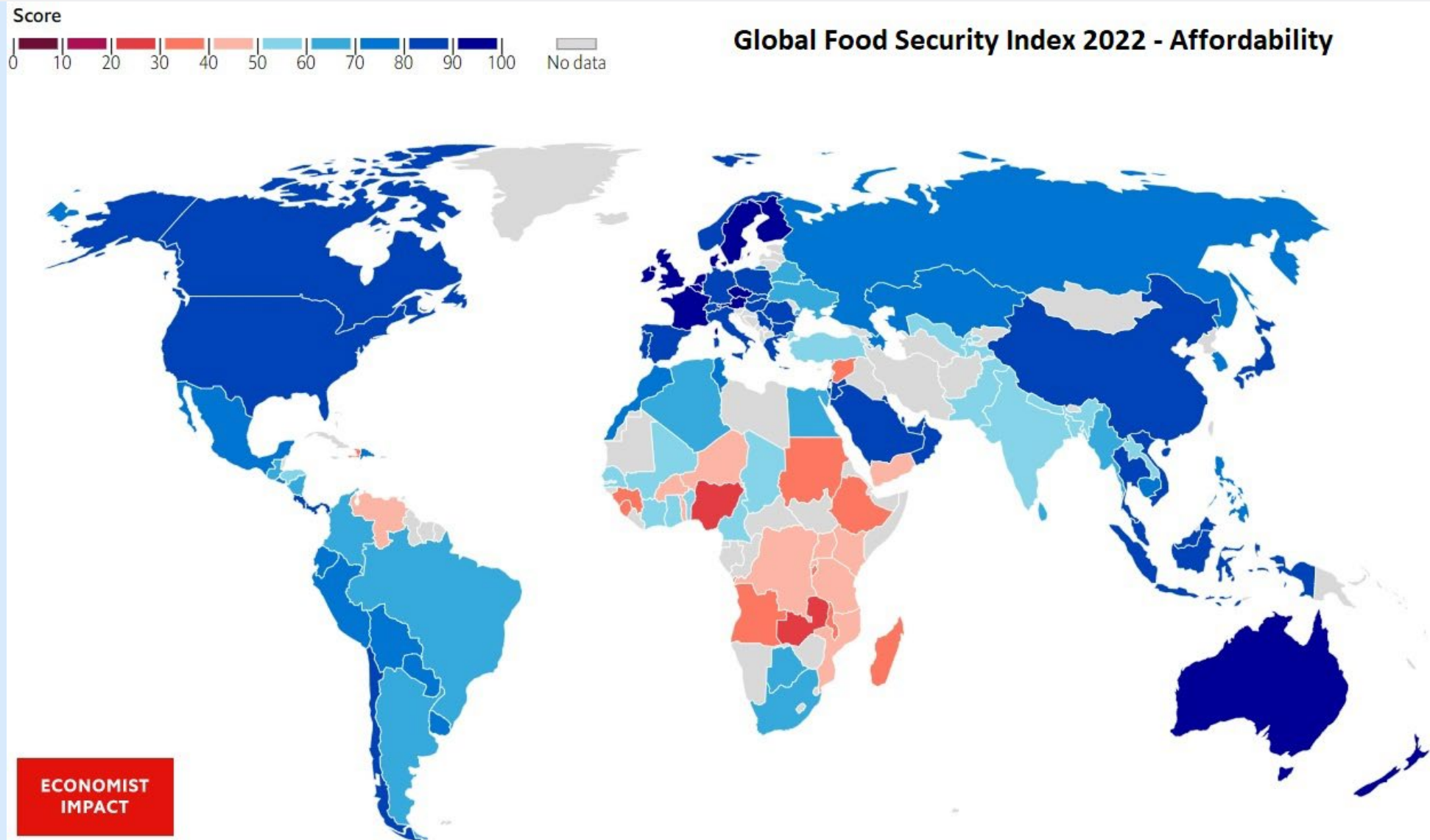
# Undercurrent of Expanding Food Insecurity

## Global Prevalence of Moderate or Severe Food Insecurity





# Food Affordability Has Decreased

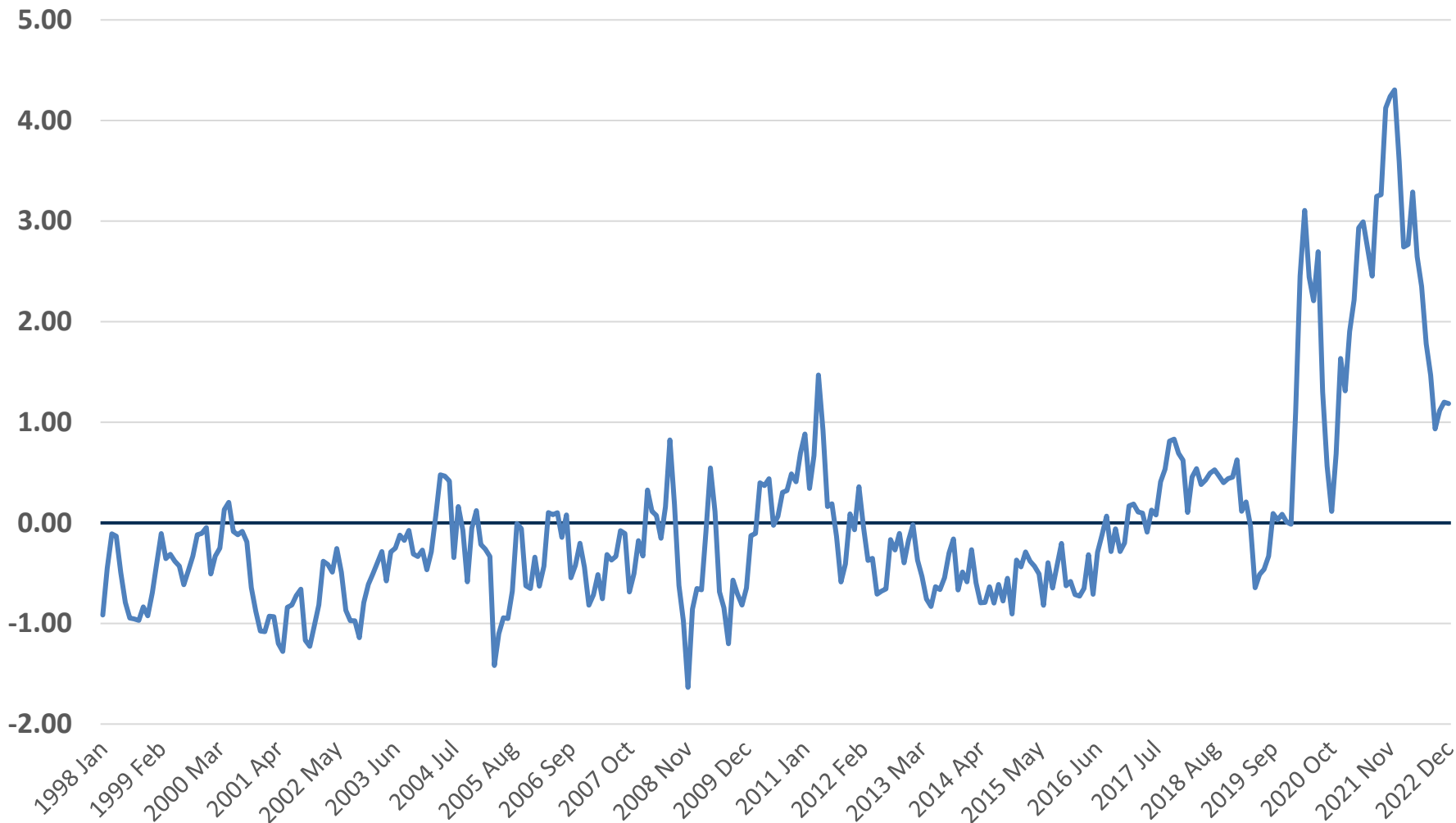


The Food Affordability Index fell 4% from 2019 to 2022

- Covid disruptions
- Russia's invasion of Ukraine
- Export restrictions, notably by Russia, Kazakhstan and India

# Supply Chain Pressure Remains

## Global Supply Chain Pressure Index



The impact of pandemic supply chain problems registered extreme impacts on distribution channels and elevated freight costs.

These impacts were most acutely incurred by those who could least afford it.

# Fertilizer Price Surge

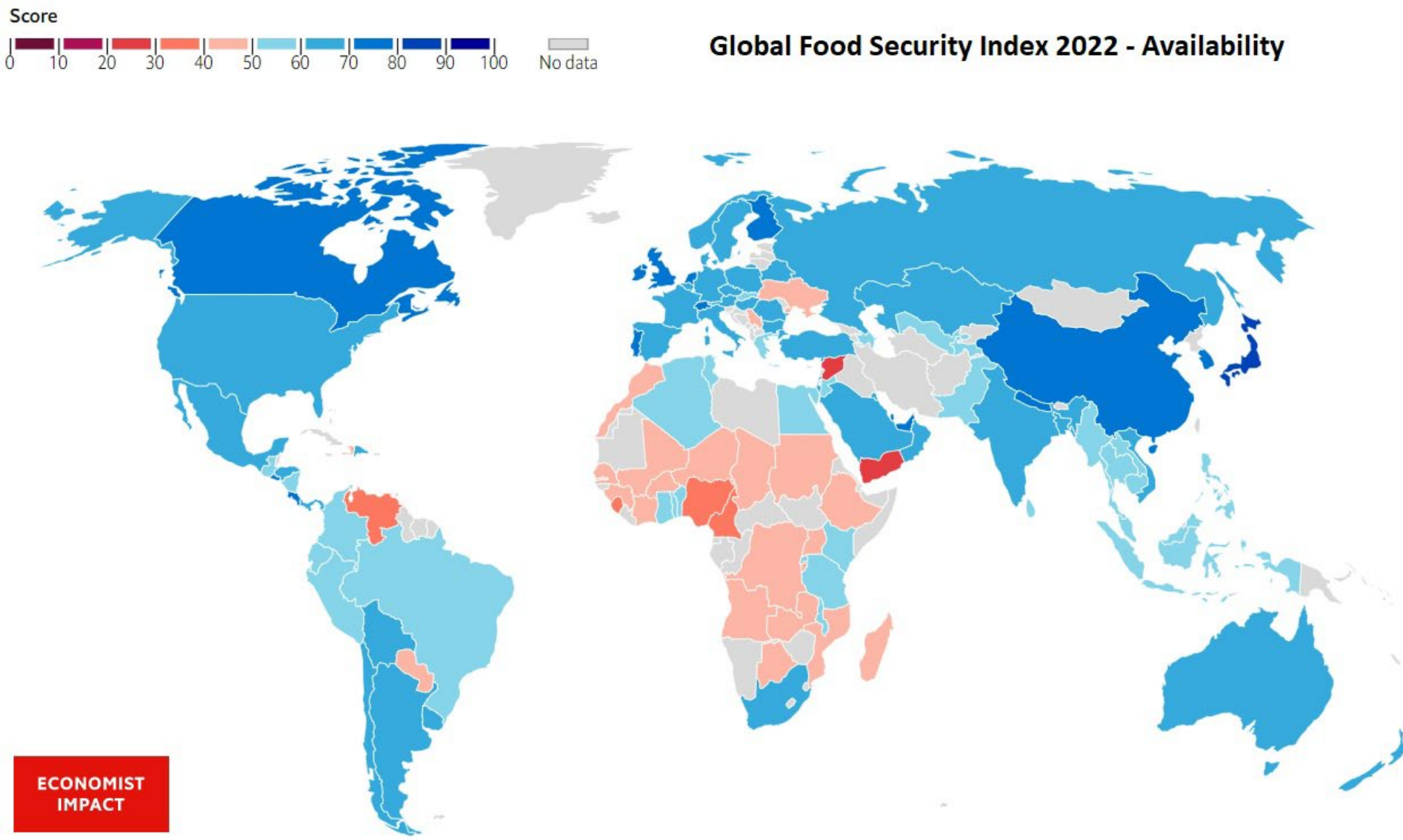


Russia Invades Ukraine

Export Restrictions Spike Prices

Input availability and affordability limits farmer capacity to increase production.

# Limited Access to Food and Farm Production Resources



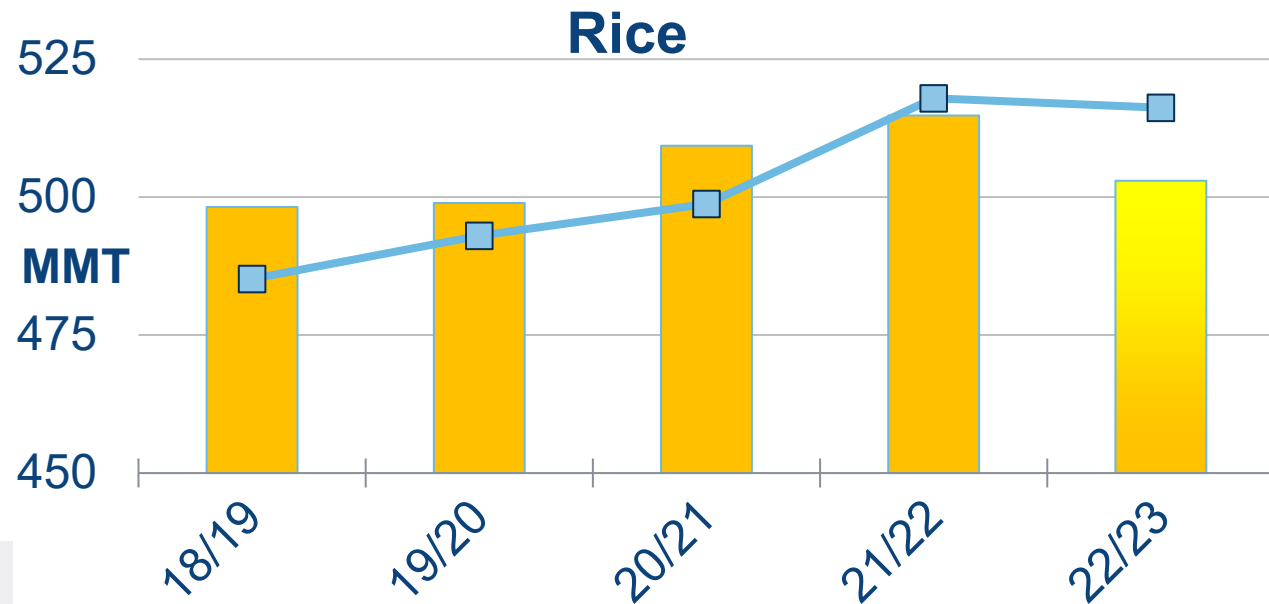
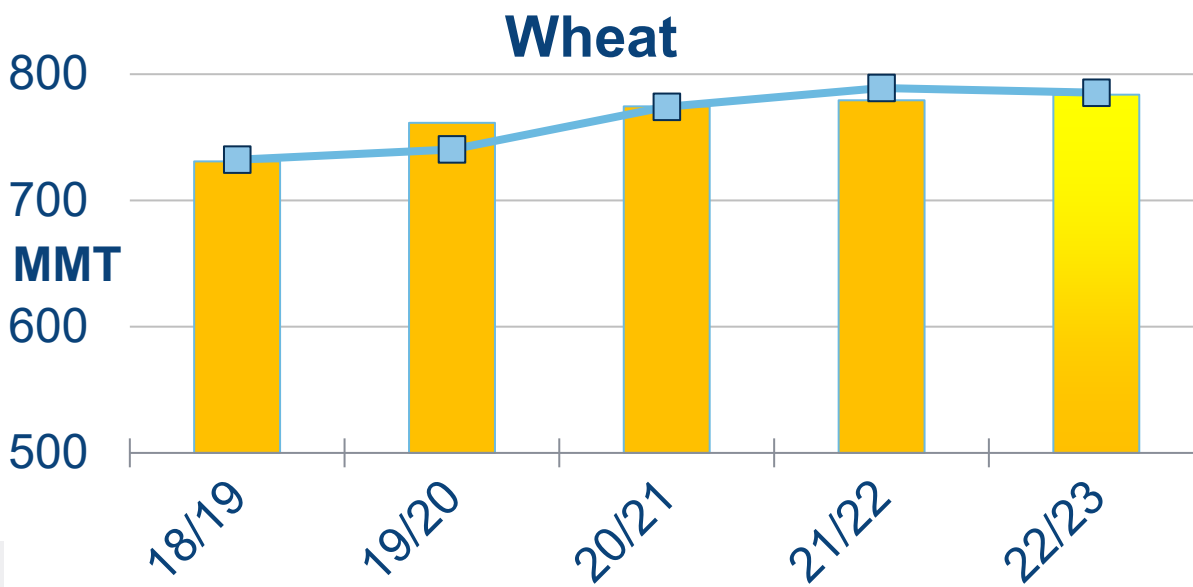
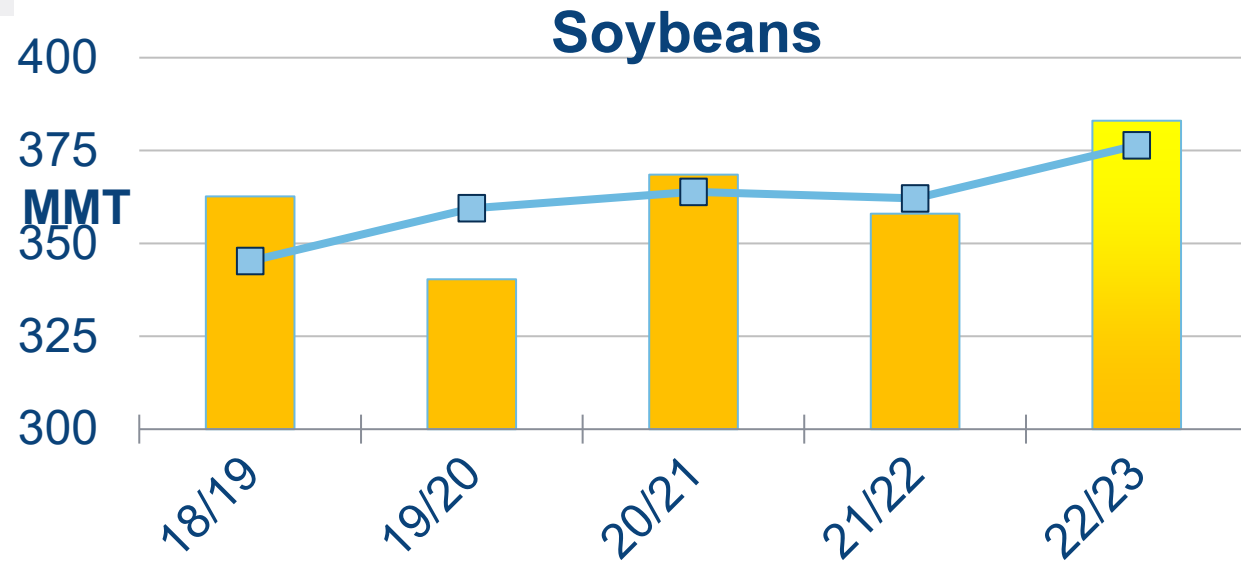
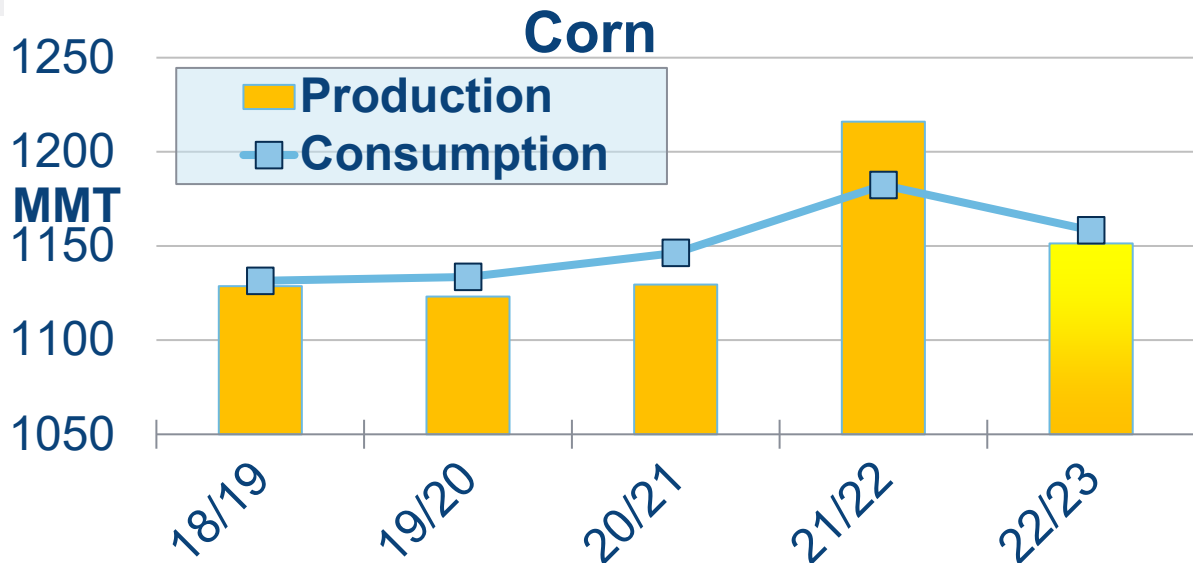
The Food Availability Index declined in vulnerable regions

For example, Africa and the Middle East are heavily dependent on wheat imports from Russia & Ukraine

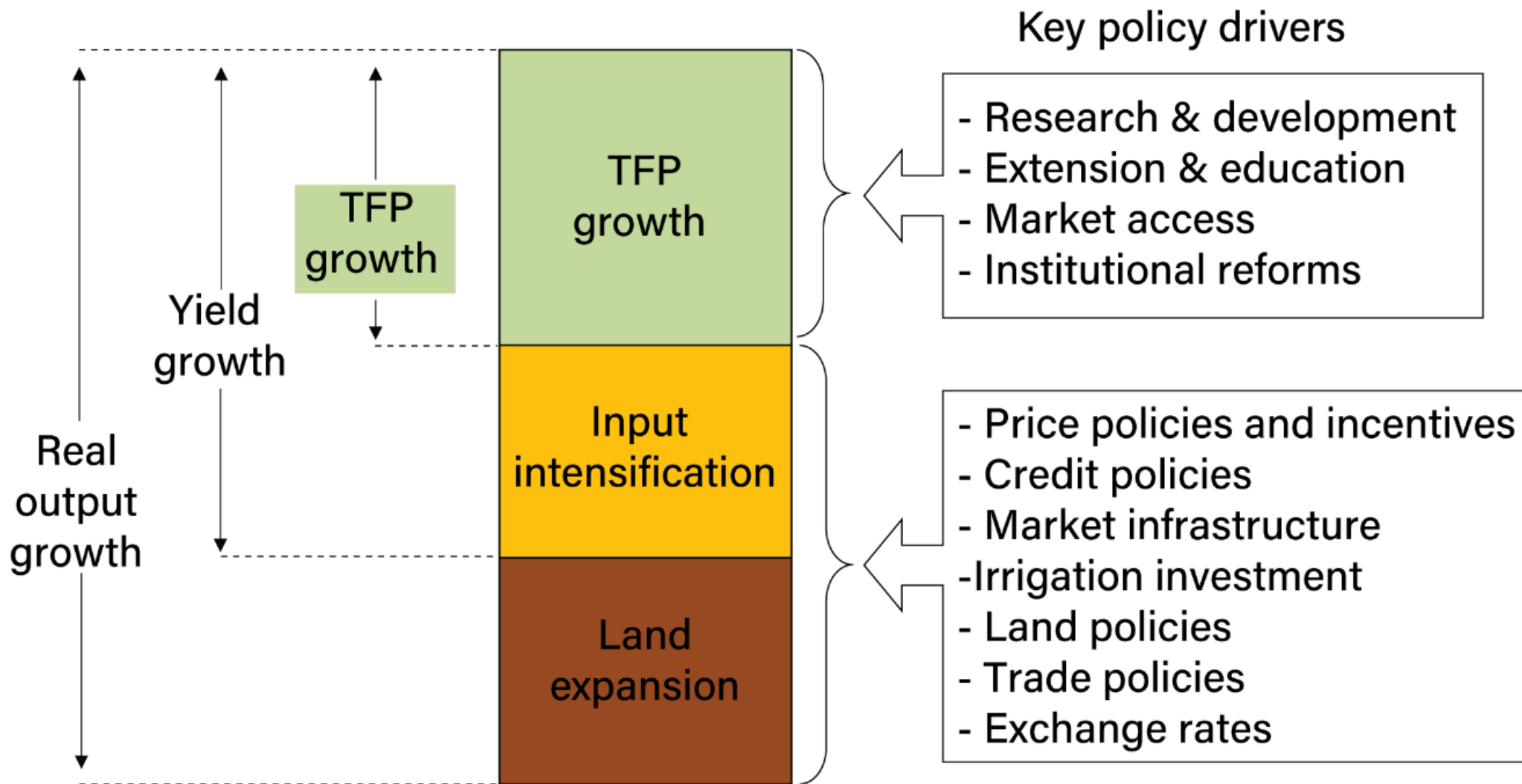




# 2023 Global Grains and Soybean Outlook



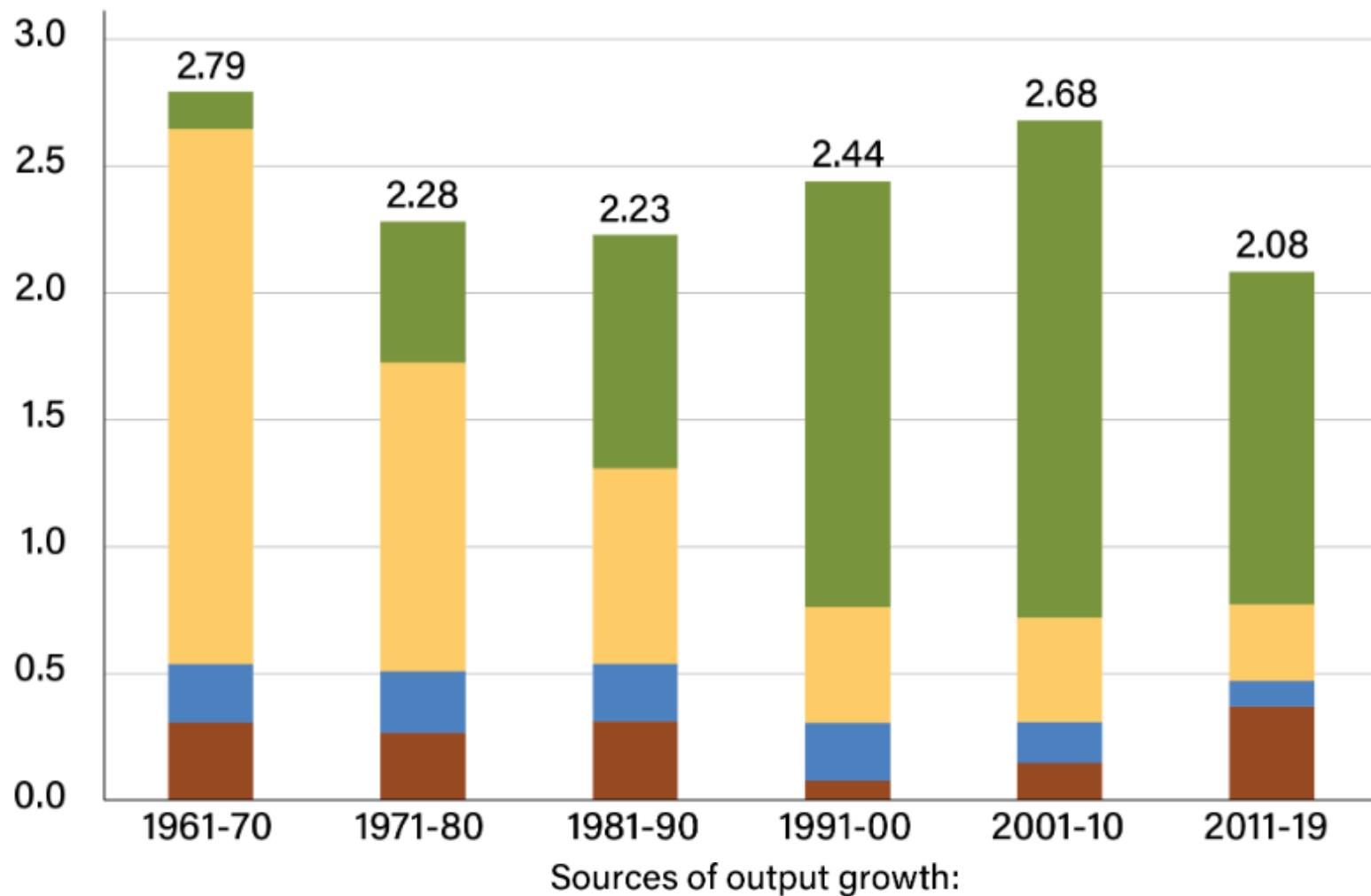
# Total Factor Productivity (TFP) and Ag Output Growth



Slowing productivity reduced growth in global ag output over the last decade

Improved ag productivity requires development, adoption, and diffusion of new agricultural technologies and management practices.

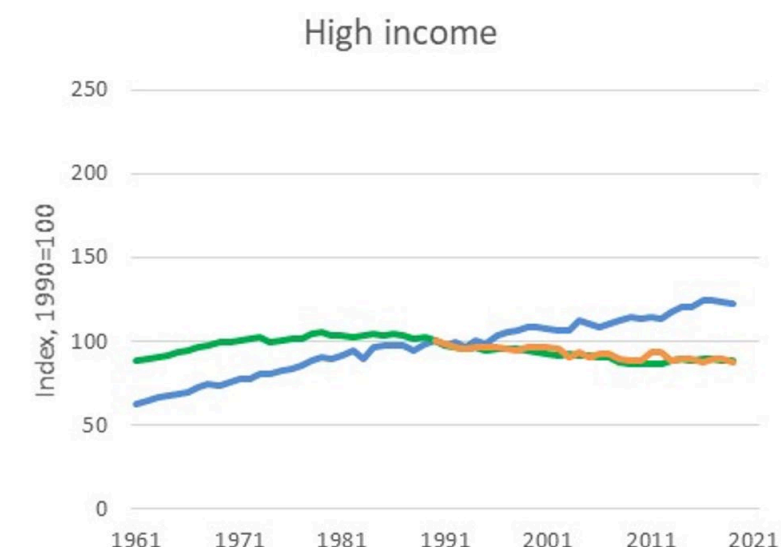
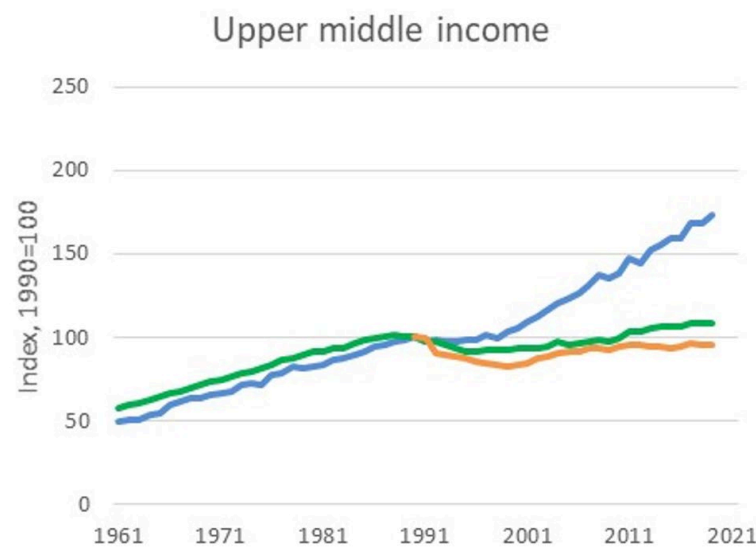
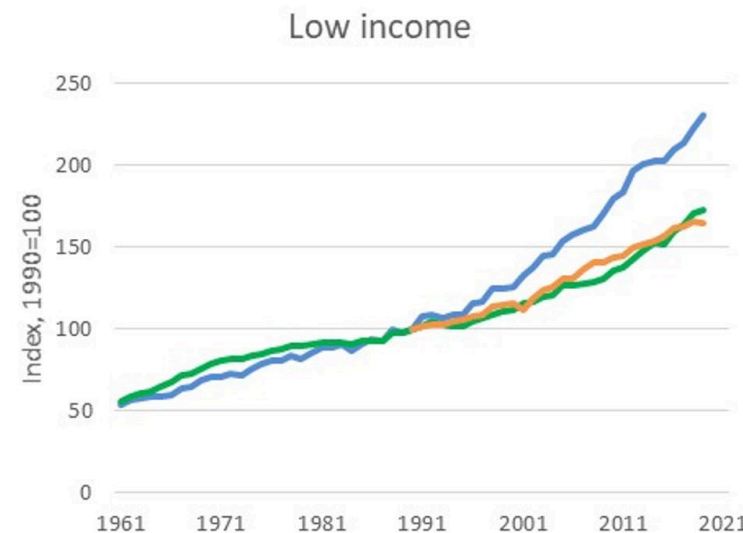
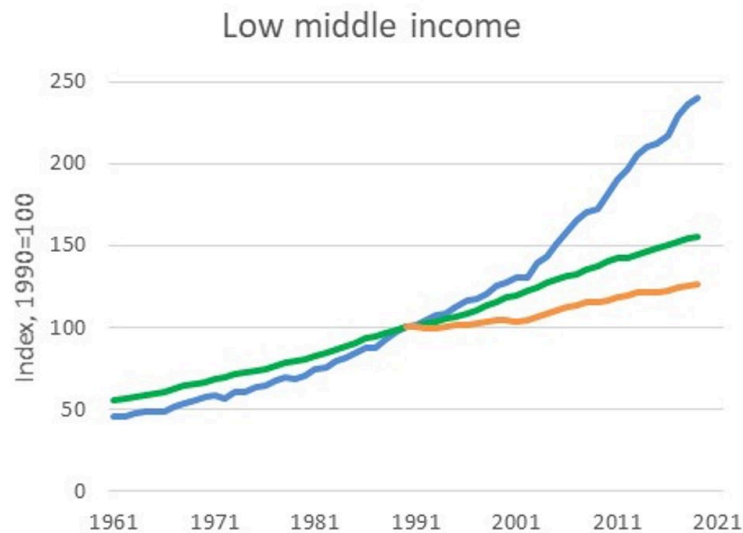
Average annual output growth (percent)



# Improved Productivity Reduces GHG Emissions

— output-MIU  
— input-MIU  
— ghg-MIU

When productivity growth declines, farmers increase use of inputs and land resulting in a larger environmental footprint

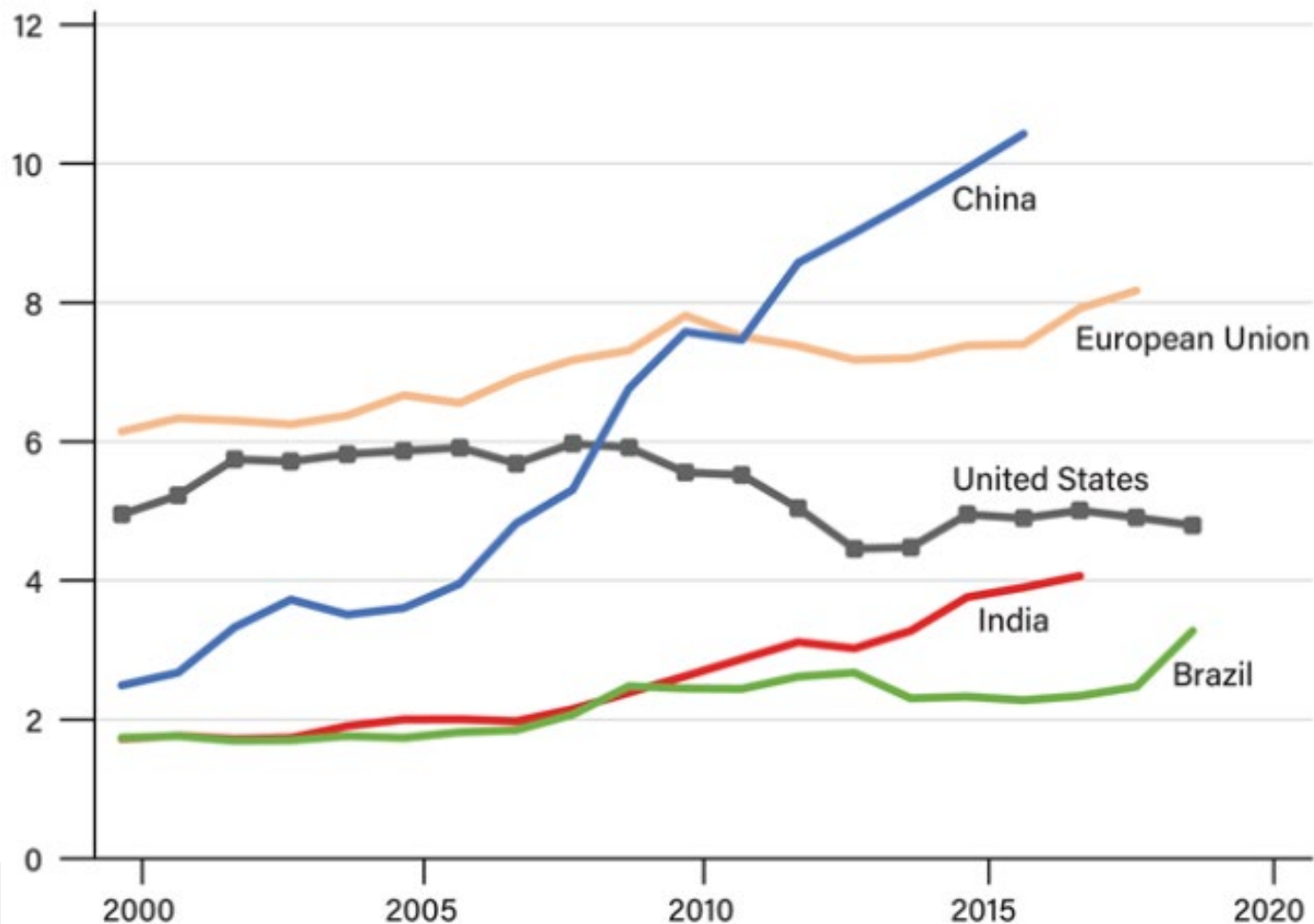


# Growing Challenges Require Greater R&D Investment

Investment in public agricultural research and development, 2000-19

USDA Economic Research Service  
U.S. DEPARTMENT OF AGRICULTURE

Inflation-adjusted 2015 U.S. dollars, billions



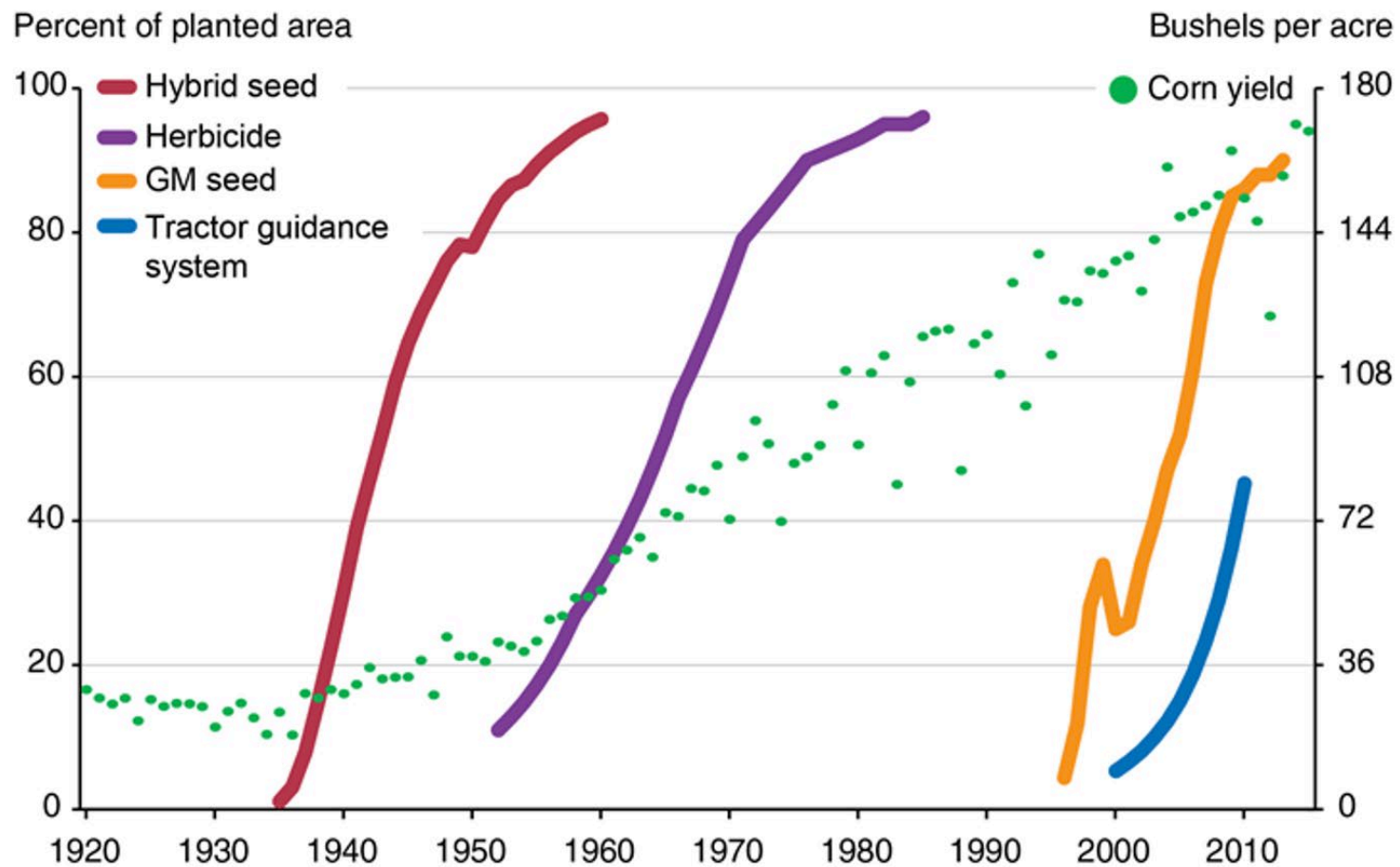
Public agricultural R&D funding in the United States has trended downward over the last decade.

The European Union's expenditures have grown since 2000, as have the expenditures in India and Brazil.

However, none experienced as rapid an increase as China, which became the largest funder of agricultural R&D after 2011, surpassing the European Union.

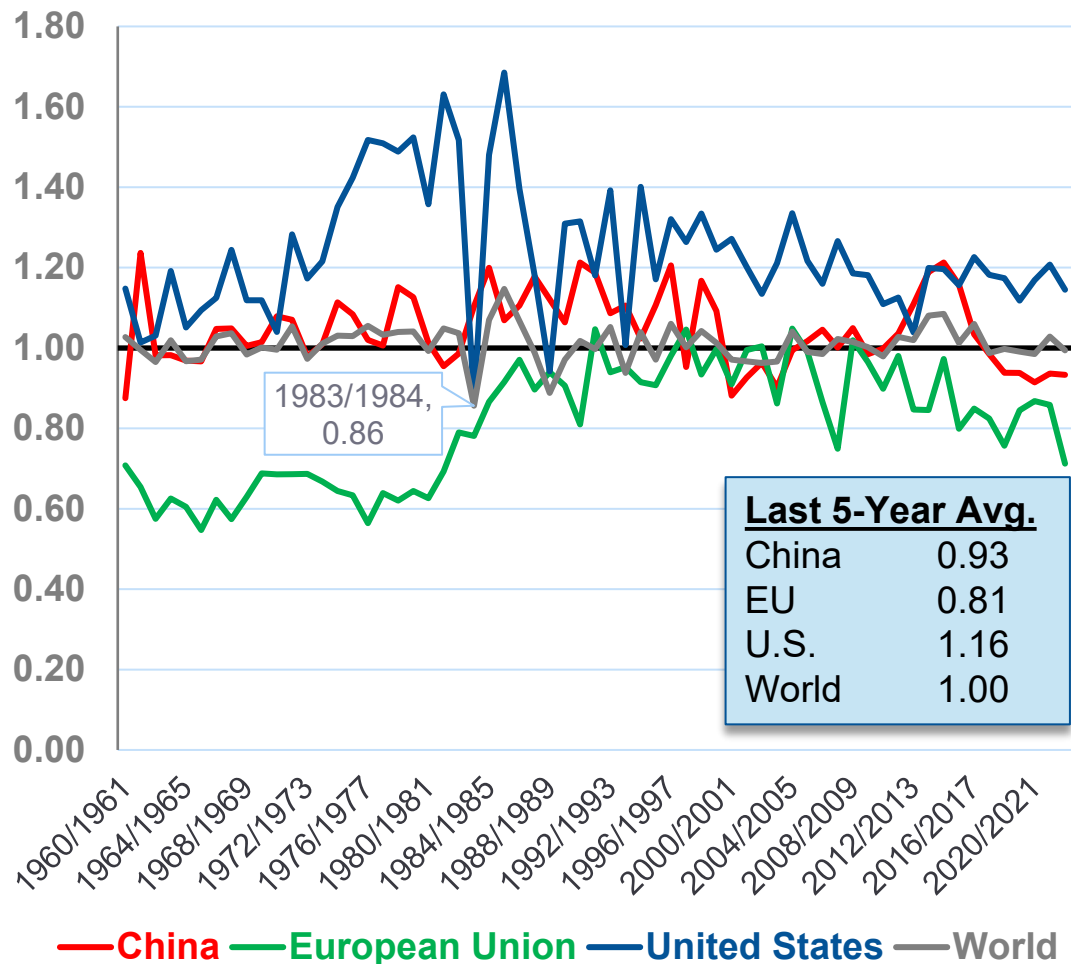


# Impact of Innovations on U.S. Corn Yields

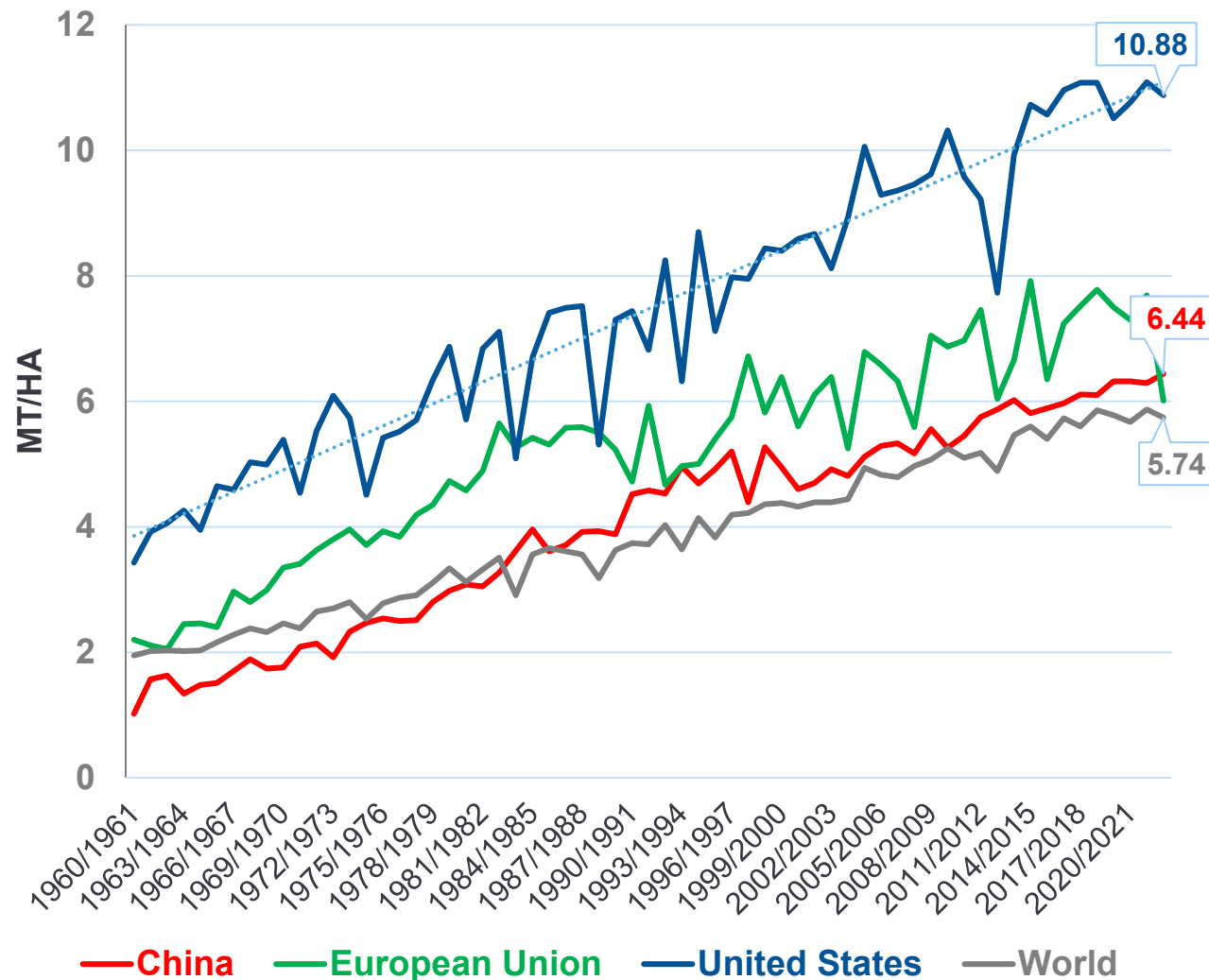


# Corn Yield Gap & Growth Comparisons

## Corn Production / Consumption Ratios MY 1960-2022

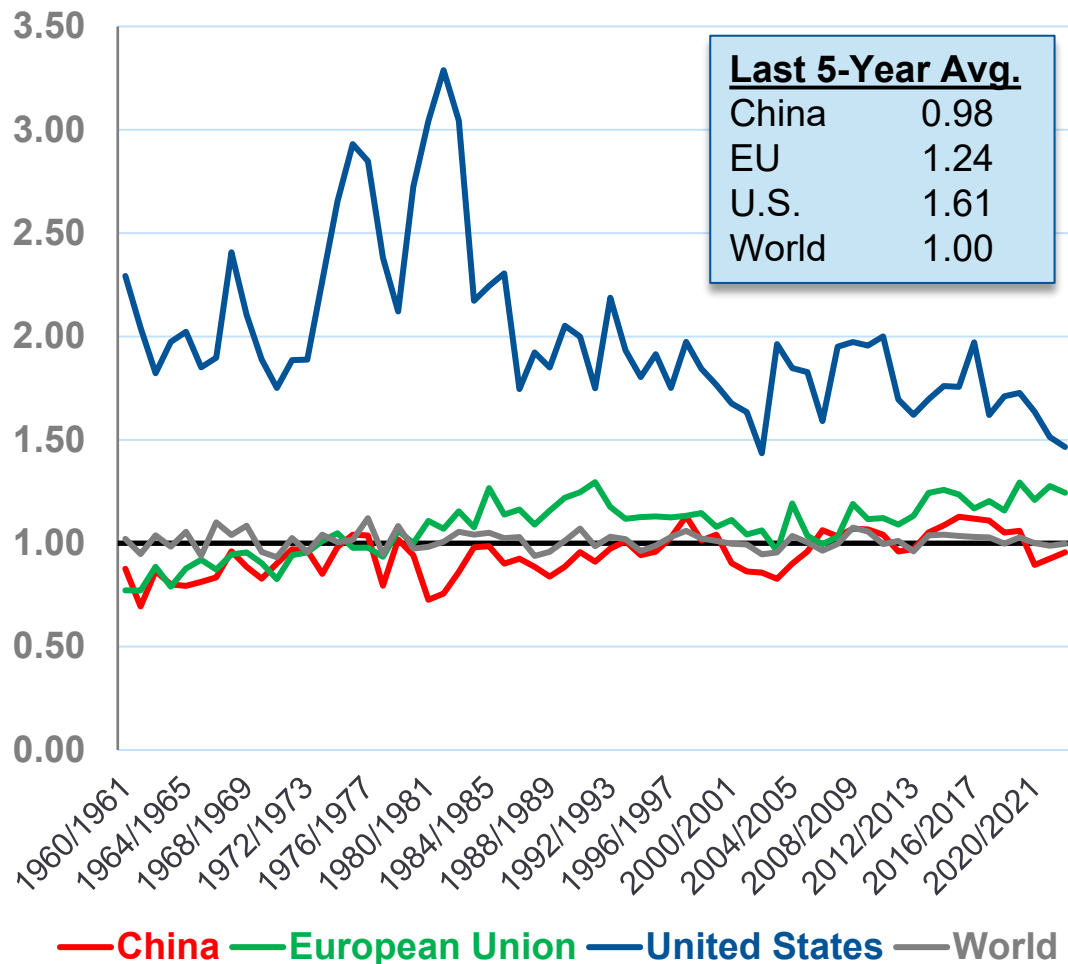


## Corn Yields MY 1960-2022

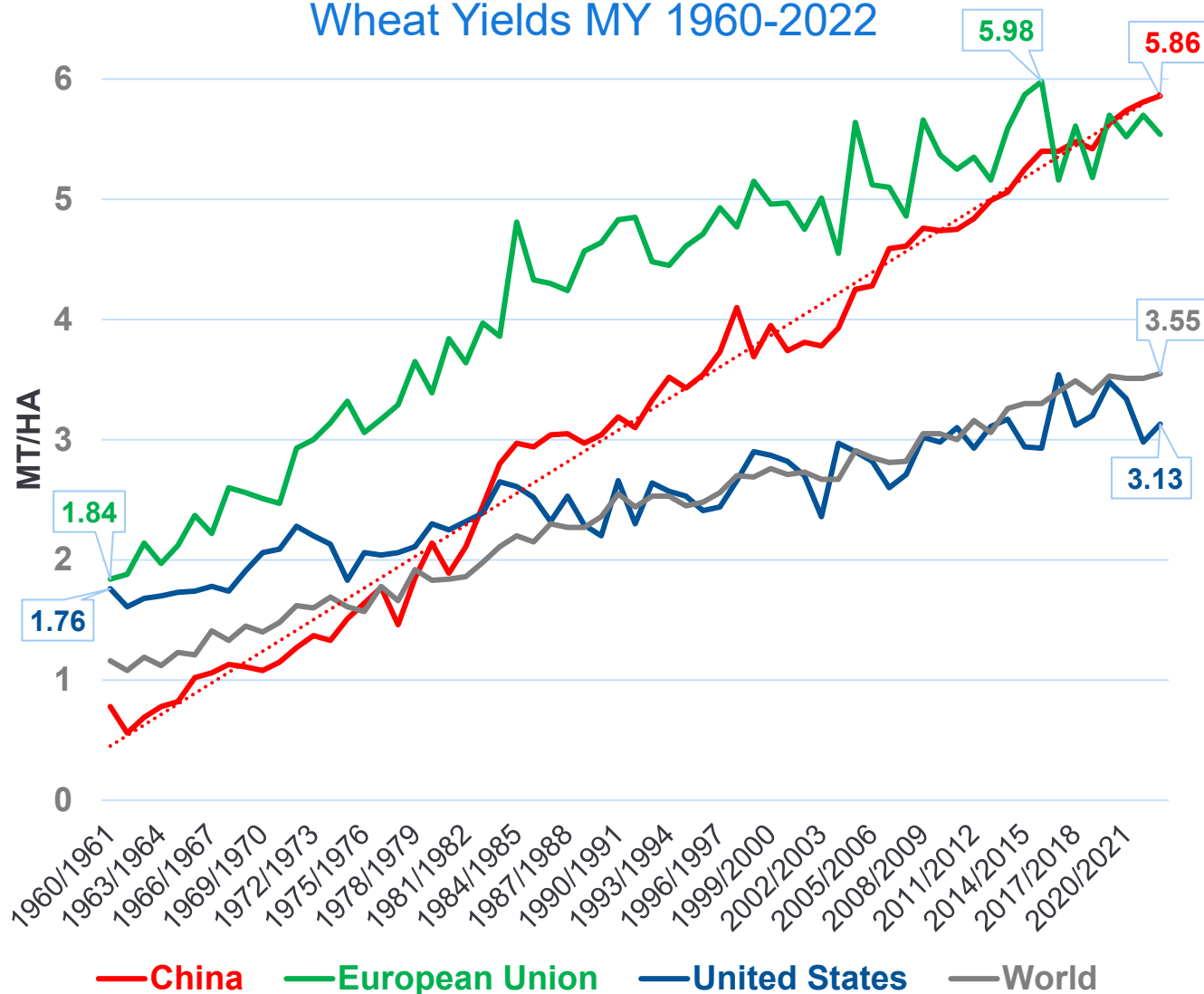


# Wheat Yield Gap & Growth Comparisons

## Wheat Production / Consumption Ratios MY 1960-2022

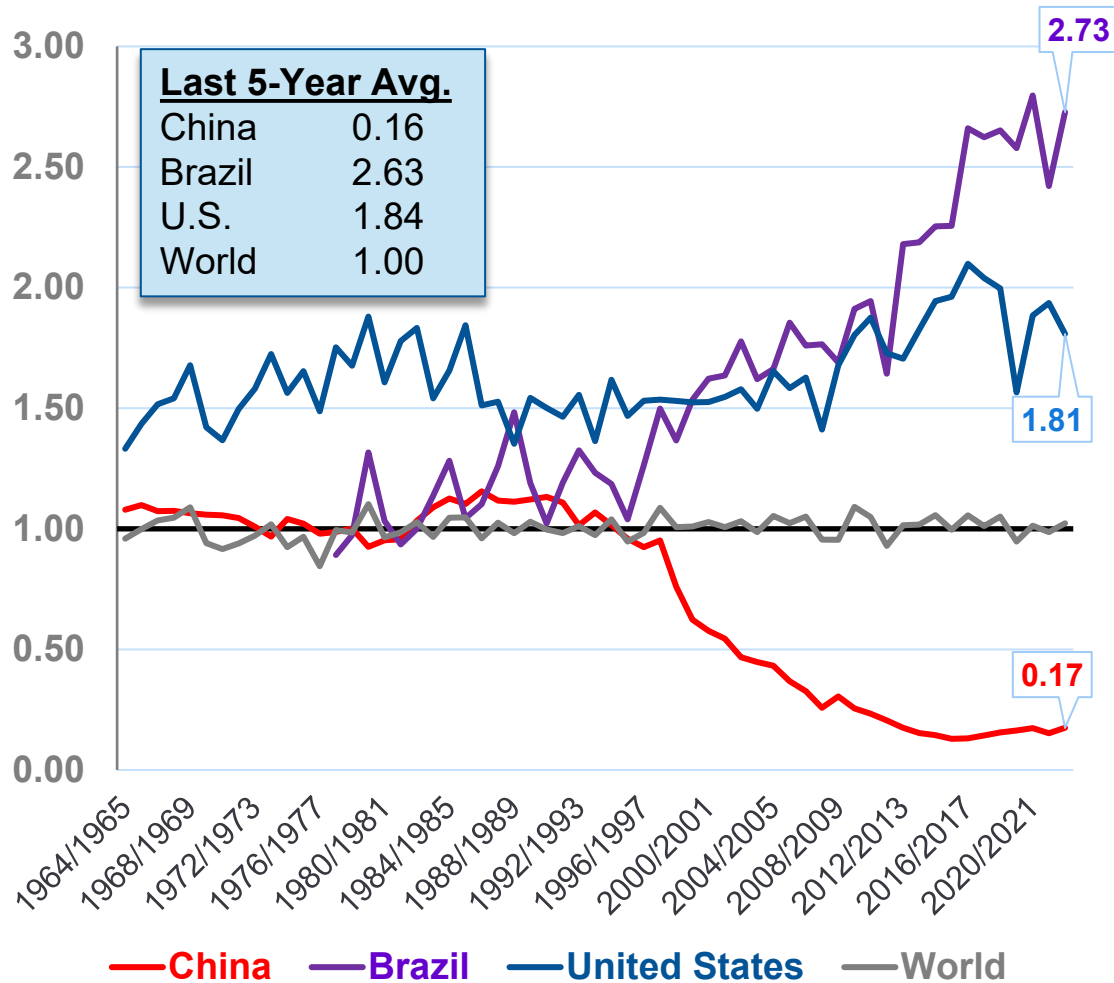


## Wheat Yields MY 1960-2022

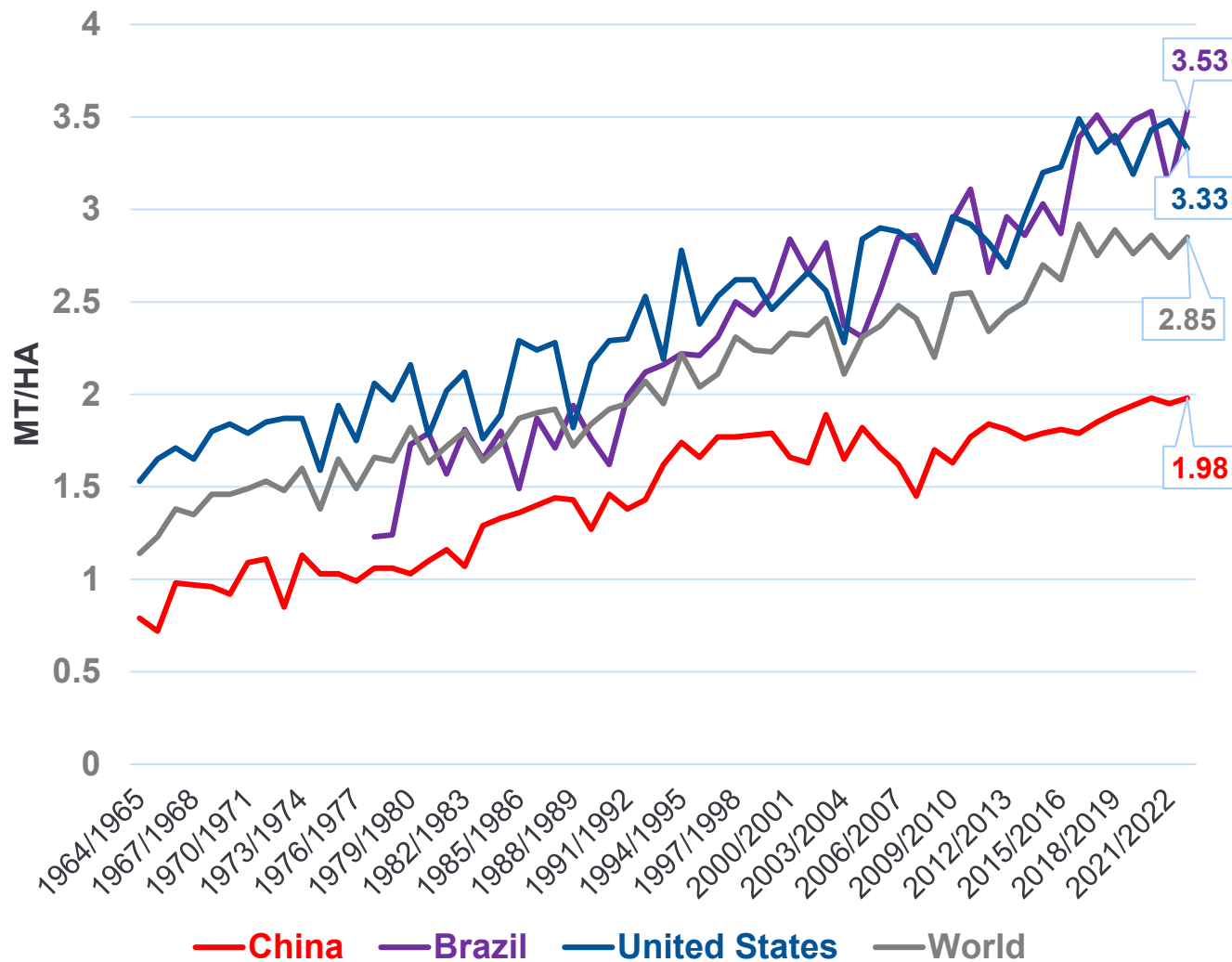


# Soybean Yield Gap & Growth Comparisons

## Soybean Production / Consumption Ratios MY 1964-2022

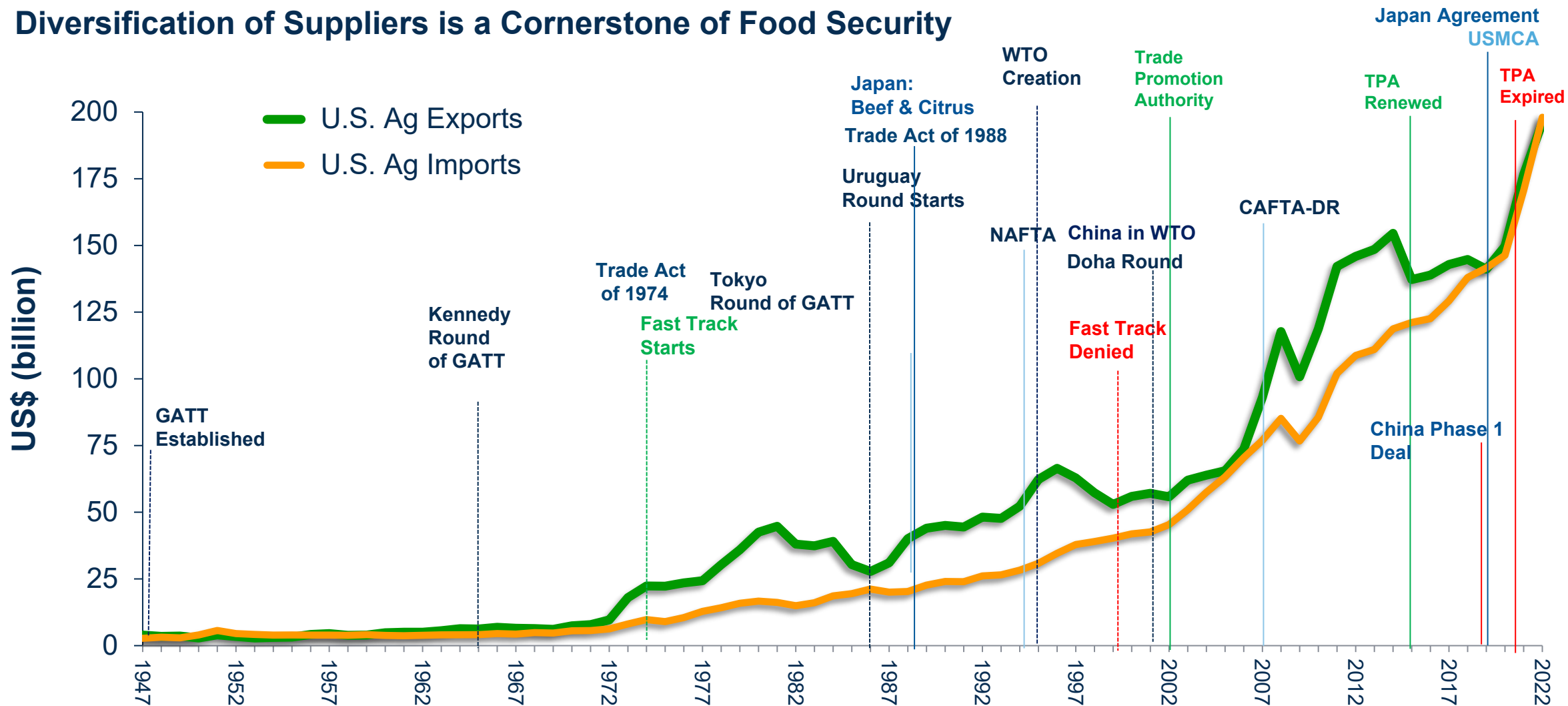


## Soybean Yields MY 1964-2022



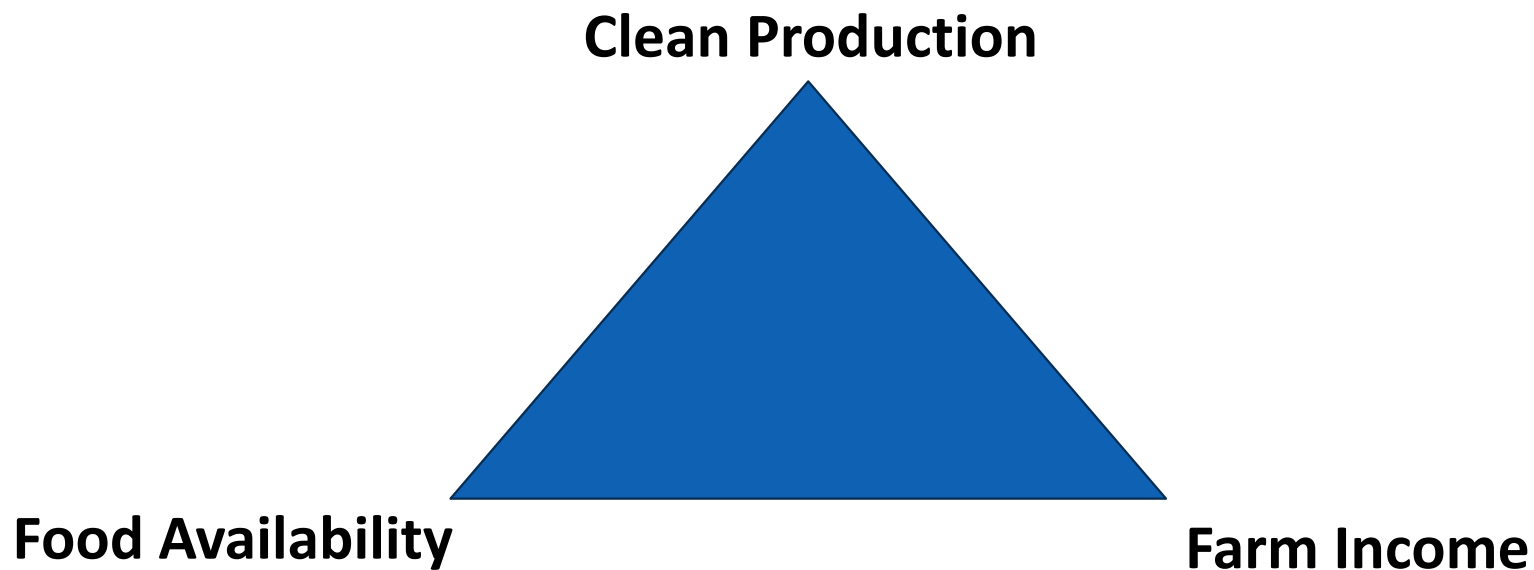
# Trade Agreements Foster Access to Affordable Food

## Diversification of Suppliers is a Cornerstone of Food Security





# A Better Way



- New ways of doing things (i.e., **technology**) can deliver increased productivity (**more output per input**) that is necessary to meet the need for more food at less environmental cost (**sustainability**).
- **Open markets** are fundamental to creating the enabling environment for **technology development and adoption** (If the fruit of the crop cannot be sold, the technology will not be commercialized or implemented).

# International Institutions

International Institutions lay the groundwork for maintaining an open and rules-based trading system;

- Science and risk-based approach
- Open, transparent, predictable data on agricultural stocks
- Biotechnology and other innovative technologies to address changing climate

Strengthening global food security requires cooperation between the largest agricultural producers.

## **Multilateral**

- Agricultural Innovation Mission for Climate
- Sustainable Productivity Growth Coalition
- Global Fertilizer Challenge
- Sanitary and Phytosanitary (SPS) Declaration for the Twelfth World Trade Organization Ministerial Conference: Responding to Modern SPS Challenges

Strengthening global food security requires cooperation between the largest agricultural producers.

## **European Union**

- Collaboration Platform on Agriculture

## **People's Republic of China**

- Engagements on Climate Smart Agriculture and Food Security
- Joint Committee on Cooperation in Agriculture

# Closing Remarks

- Leaders need to enact policies fostering innovation to meet growing demand
- Renewed engagement and revitalized international institutions

