



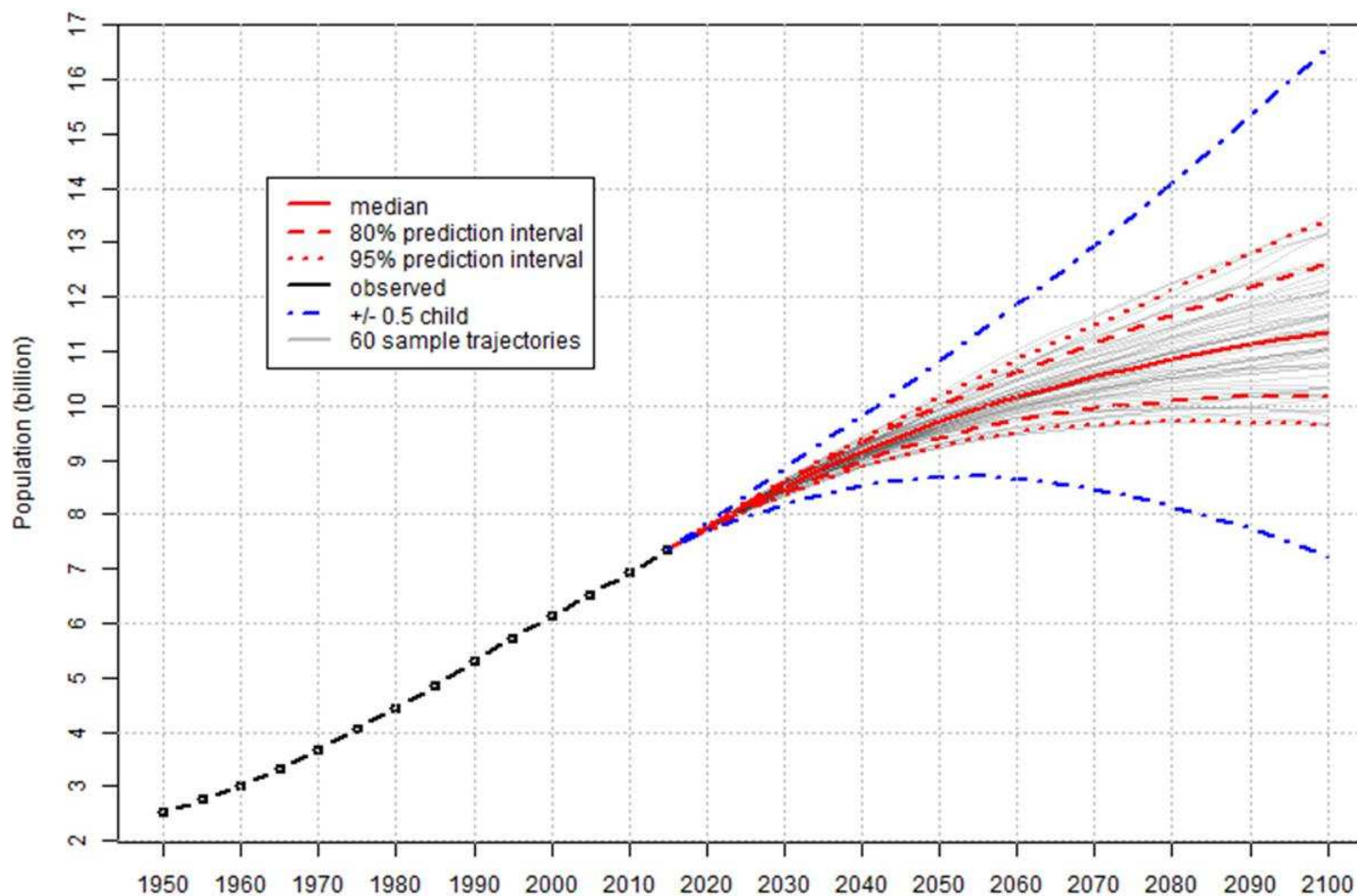
United States Department of Agriculture

Global Agricultural Outlook *2050 Vision*

Warren P. Preston
Deputy Chief Economist
U.S. Department of Agriculture

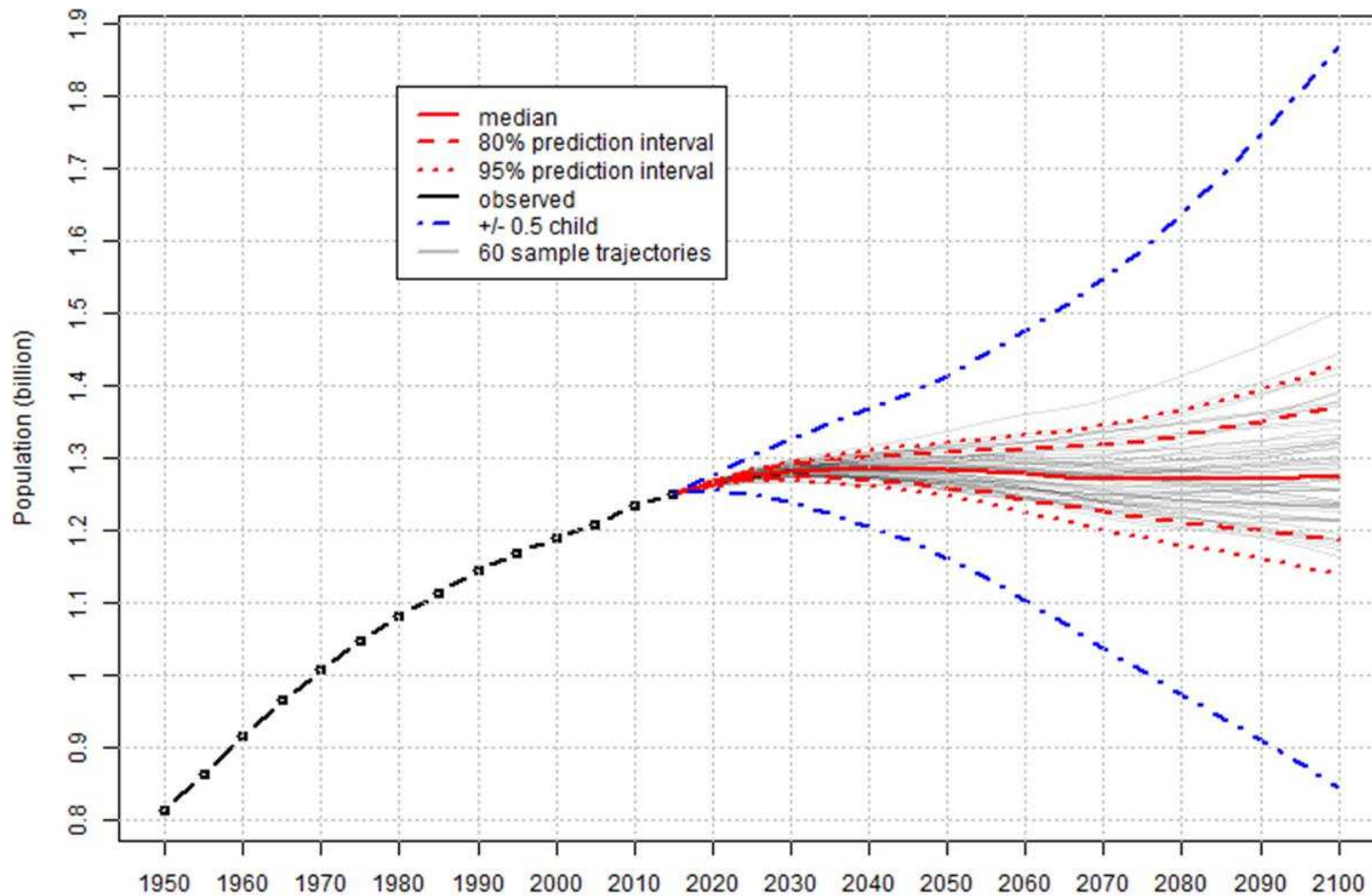
Global Agribusiness Forum 2016 • July 5, 2016

World population growing



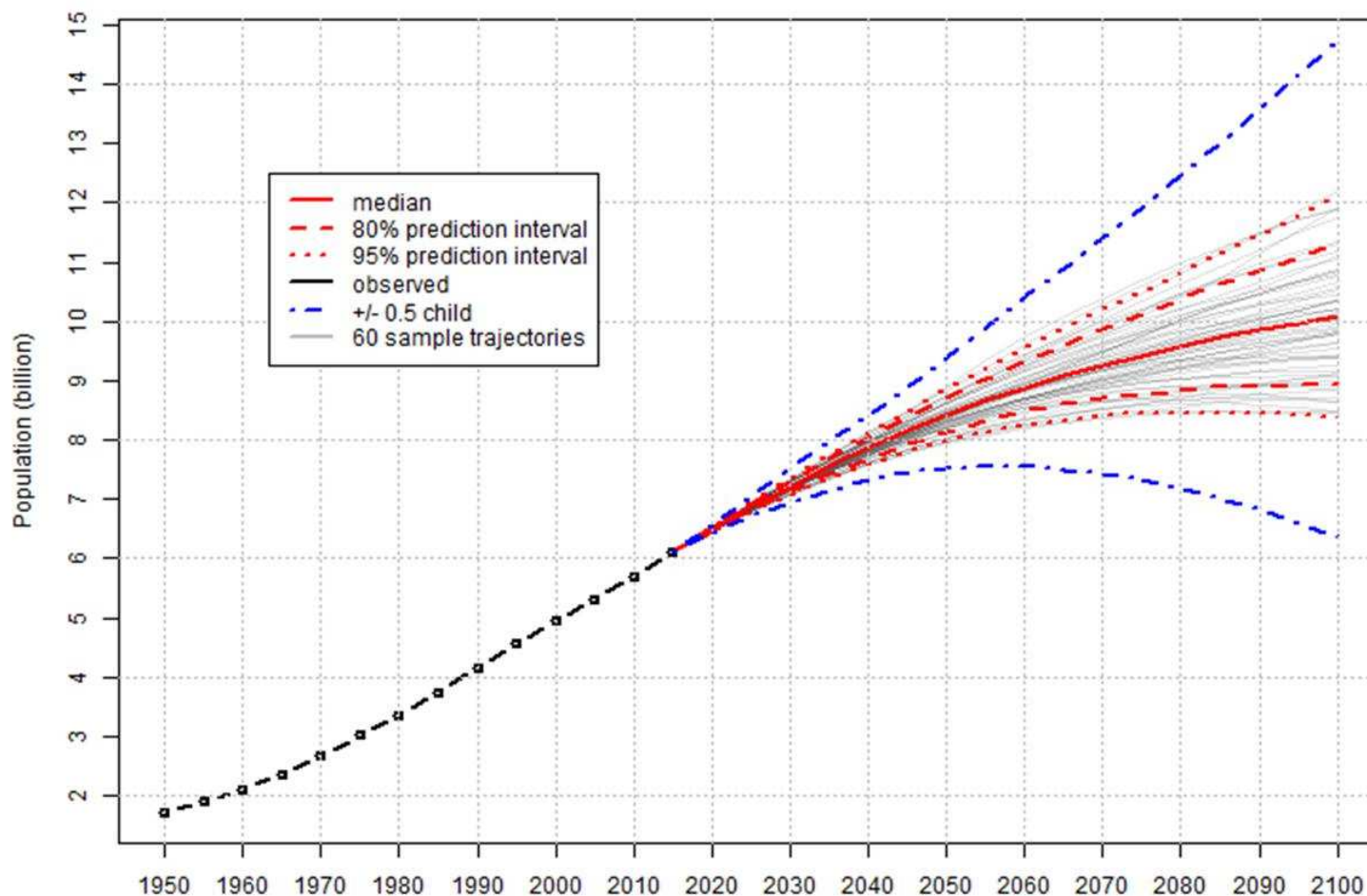
Source: United Nations, Department of Economic and Social Affairs, Population Division (2015).
World Population Prospects: The 2015 Revision. <http://esa.un.org/unpd/wpp/>

Population change flat in more developed regions



Source: United Nations, Department of Economic and Social Affairs, Population Division (2015).
World Population Prospects: The 2015 Revision. <http://esa.un.org/unpd/wpp/>

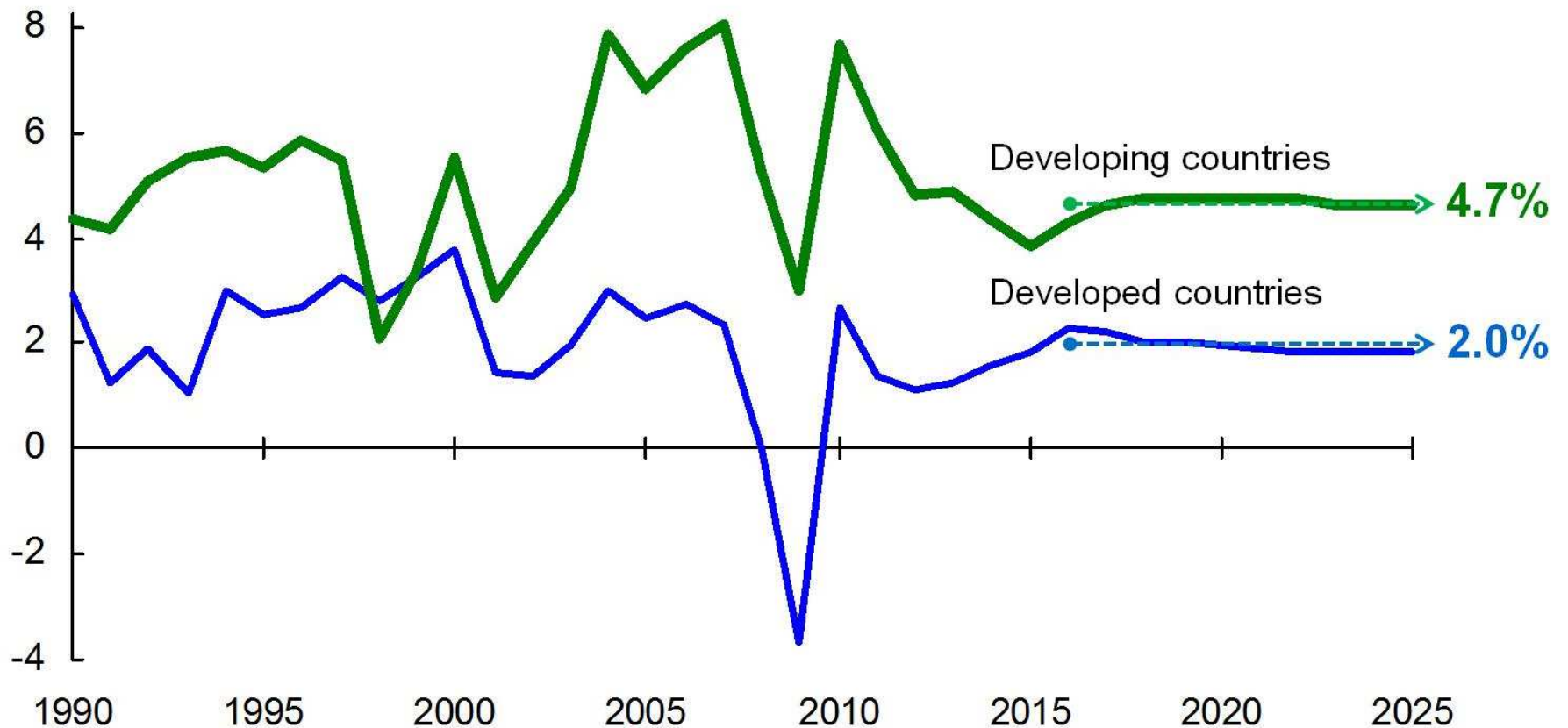
Population growth slowing in less developed regions



Source: United Nations, Department of Economic and Social Affairs, Population Division (2015).
World Population Prospects: The 2015 Revision. <http://esa.un.org/unpd/wpp/>

Gross domestic product (GDP) growing faster in developing countries

Percent

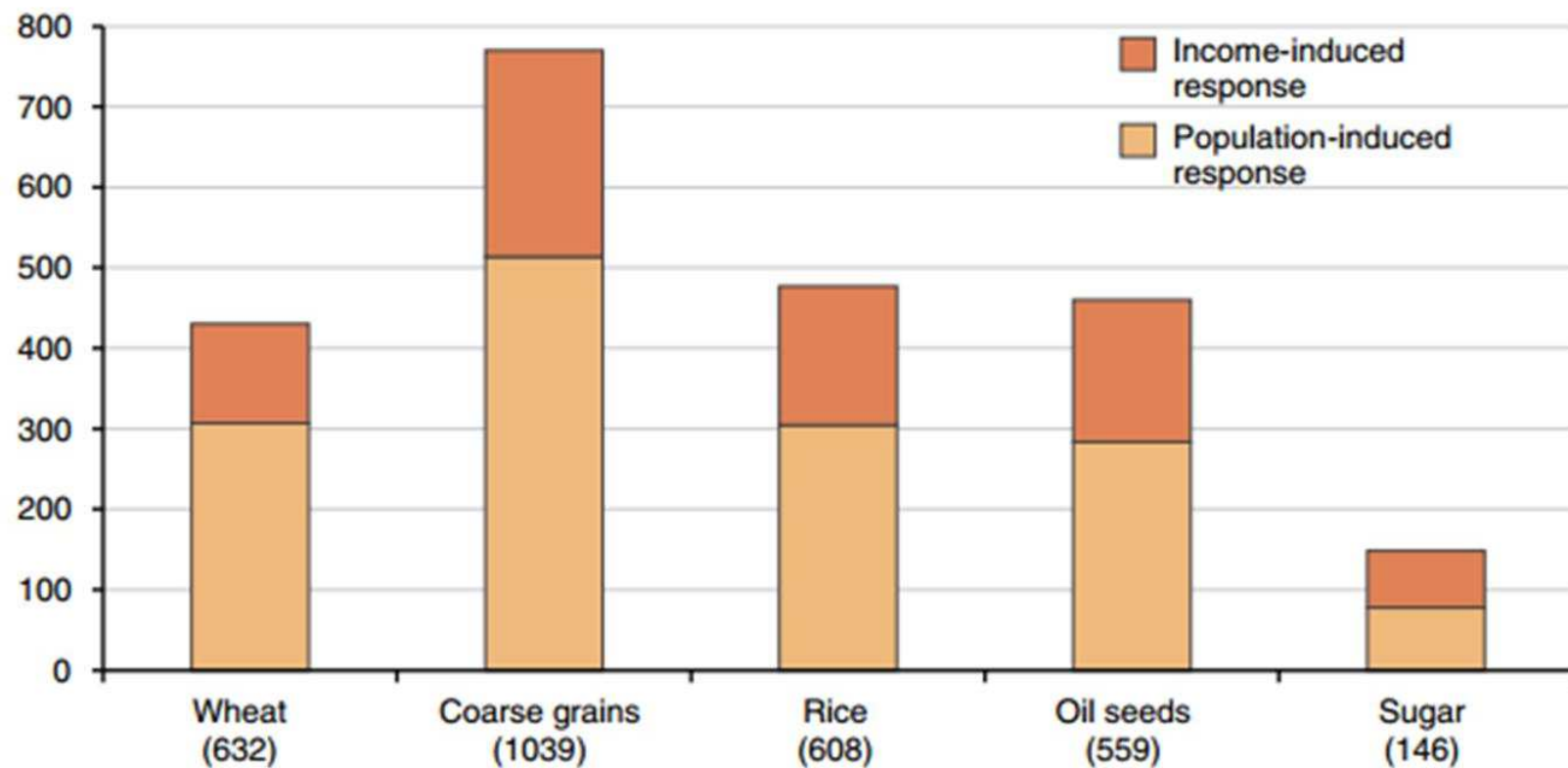


Growing role for developing countries in the global economy and for food demand

- Rising incomes in developing countries leads to growth in the middle class
 - More diversified diets
 - Increased consumption of meat, dairy, and processed foods
- Implies move in import demand toward feedstuffs and high-value food products

Components of change in world crop demand 2004-2049 reference scenario

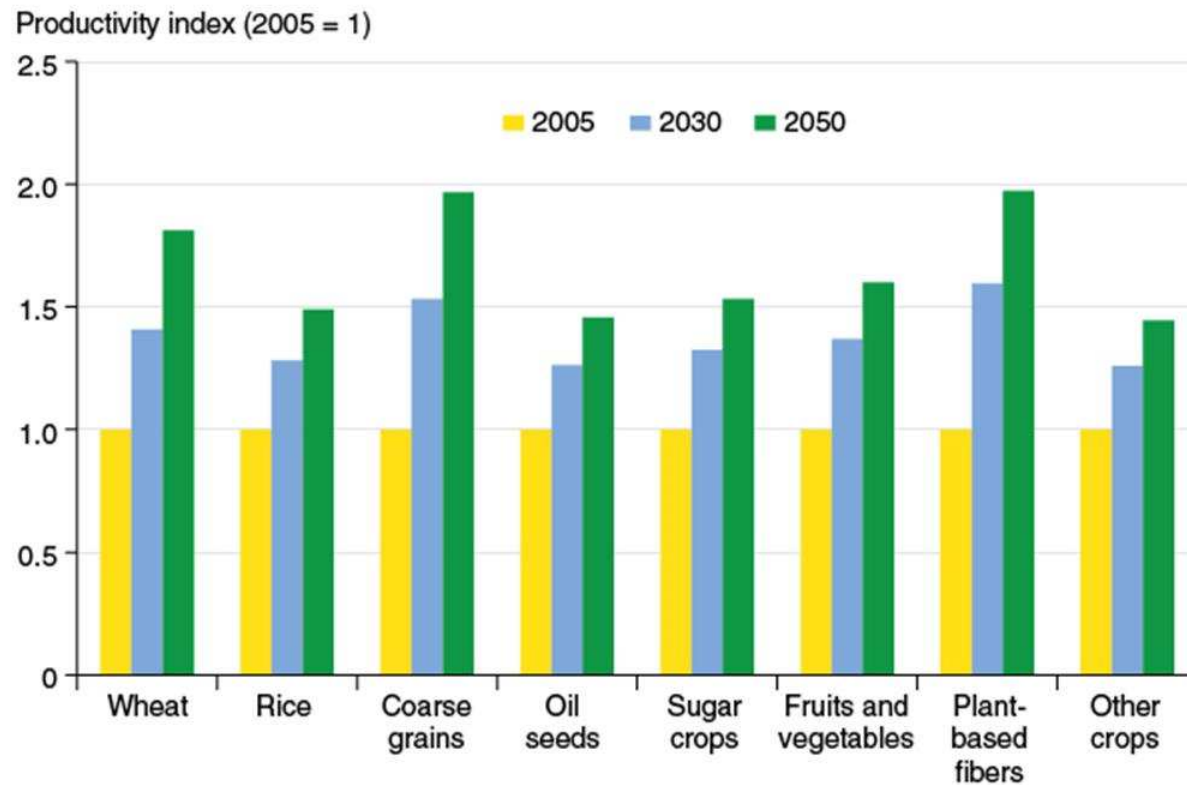
Million metric tons



Note: Numbers in parentheses are 2004 world production levels in million metric tons.

Sources: USDA, Economic Research Service using GTAP 7 database; Future Agricultural Resources Model reference scenario.

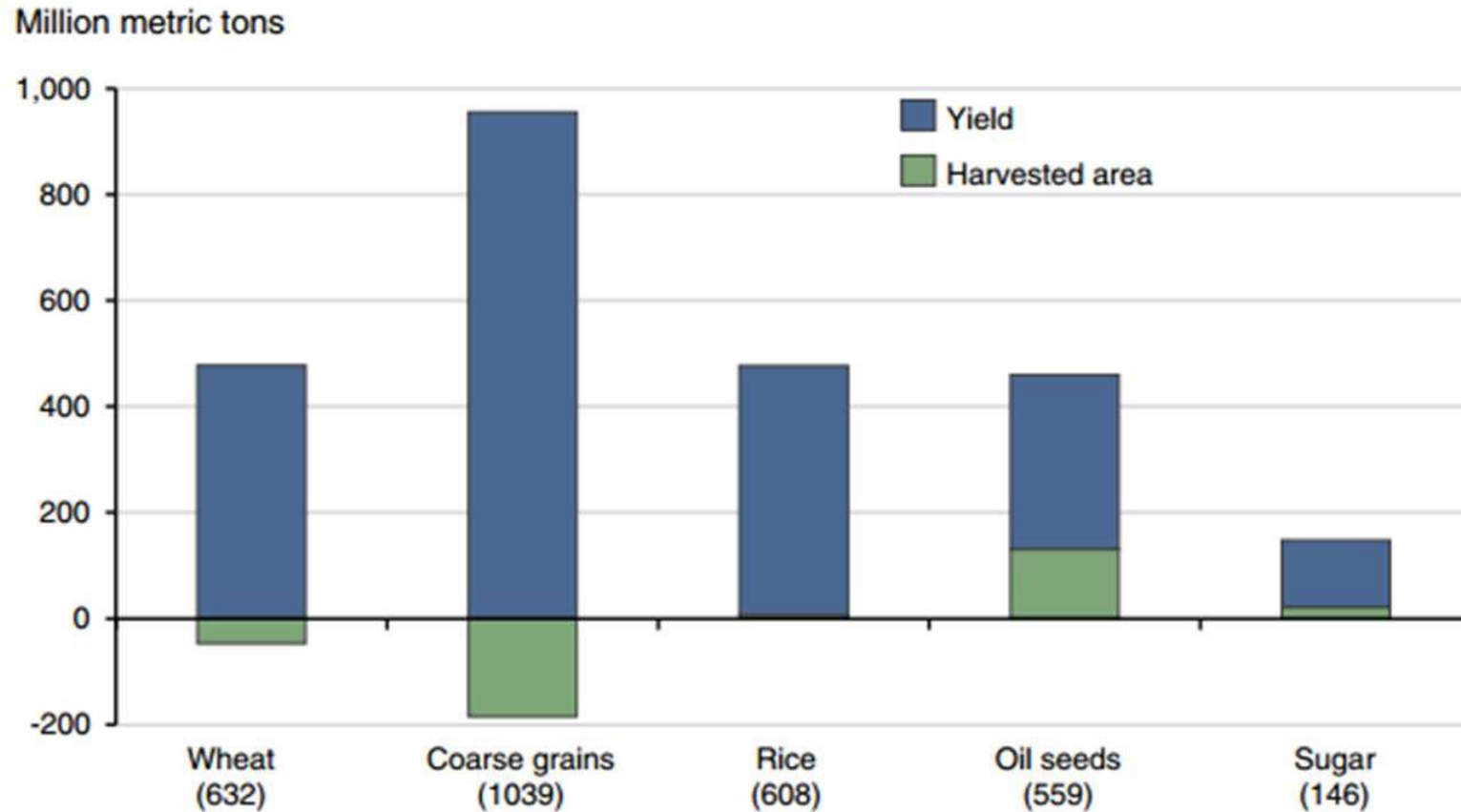
Land-augmenting agricultural productivity varies by commodity and over time



Source: USDA, Economic Research Service using data from International Food Policy Research Institute.

Note: These productivity indexes are ratios of productivity in 2050 or 2030 to productivity in 2005 (they are not annual percentage growth rates).

Components of change in world crop supply 2004-2049 reference scenario



Note: Numbers in parentheses are 2004 world production levels in million metric tons.

Sources: USDA, Economic Research Service using GTAP 7 database; Future Agricultural Resources Model reference scenario.



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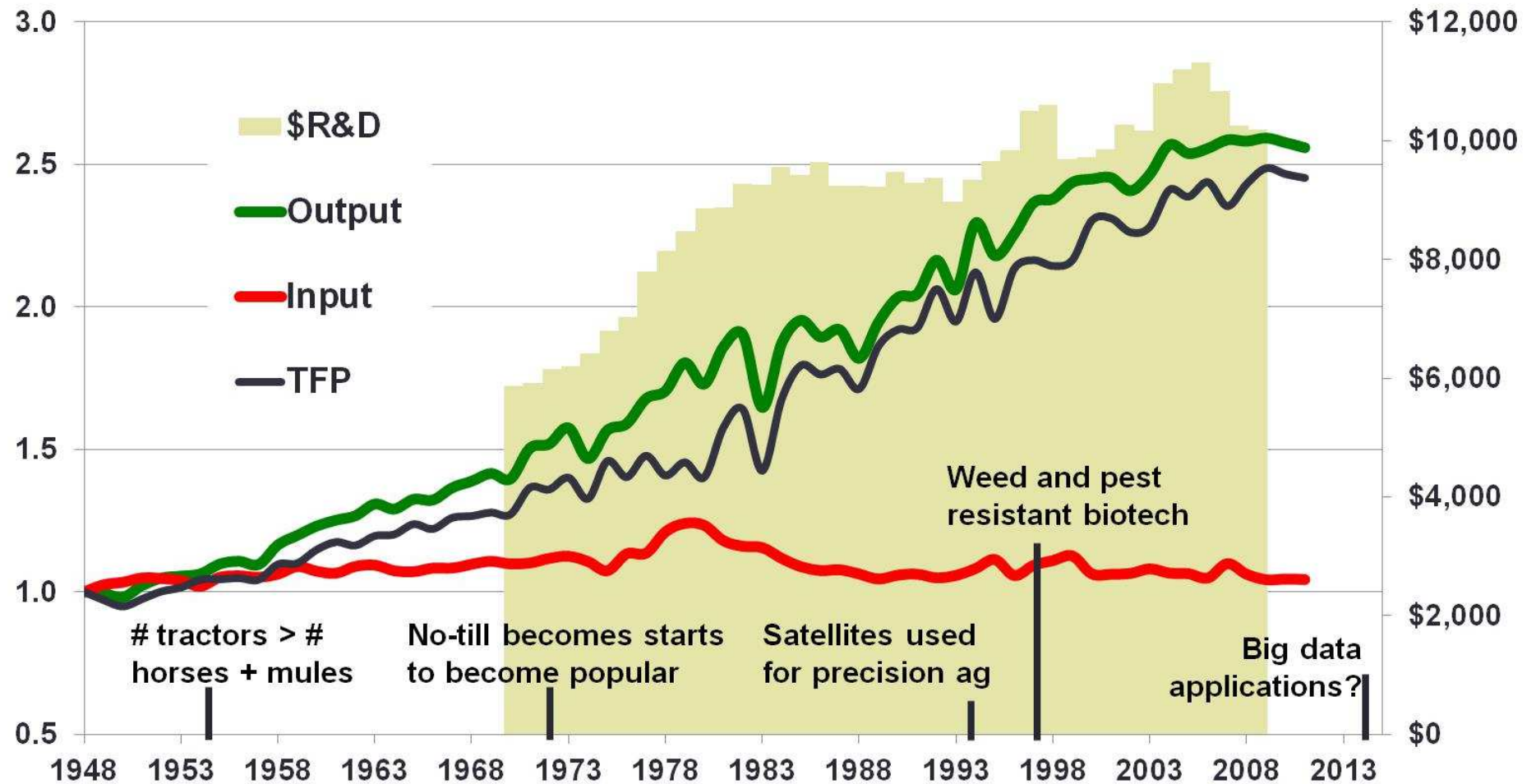
Challenges and opportunities on the horizon



Next boost to productivity: Big Data?

Index: 1948 = 1.0

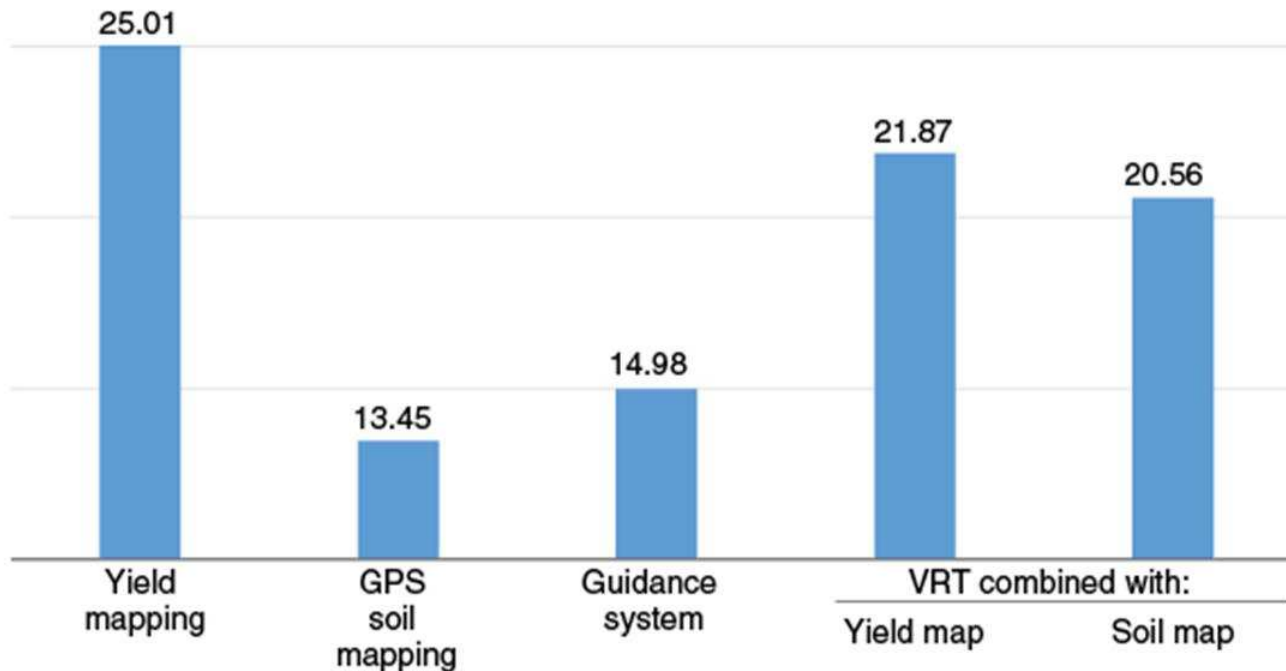
\$million (2006 dollars)



Source: USDA-ERS.

U.S. corn production cost savings from technology adoption

Average production cost savings (dollars per acre) from technology adoption*



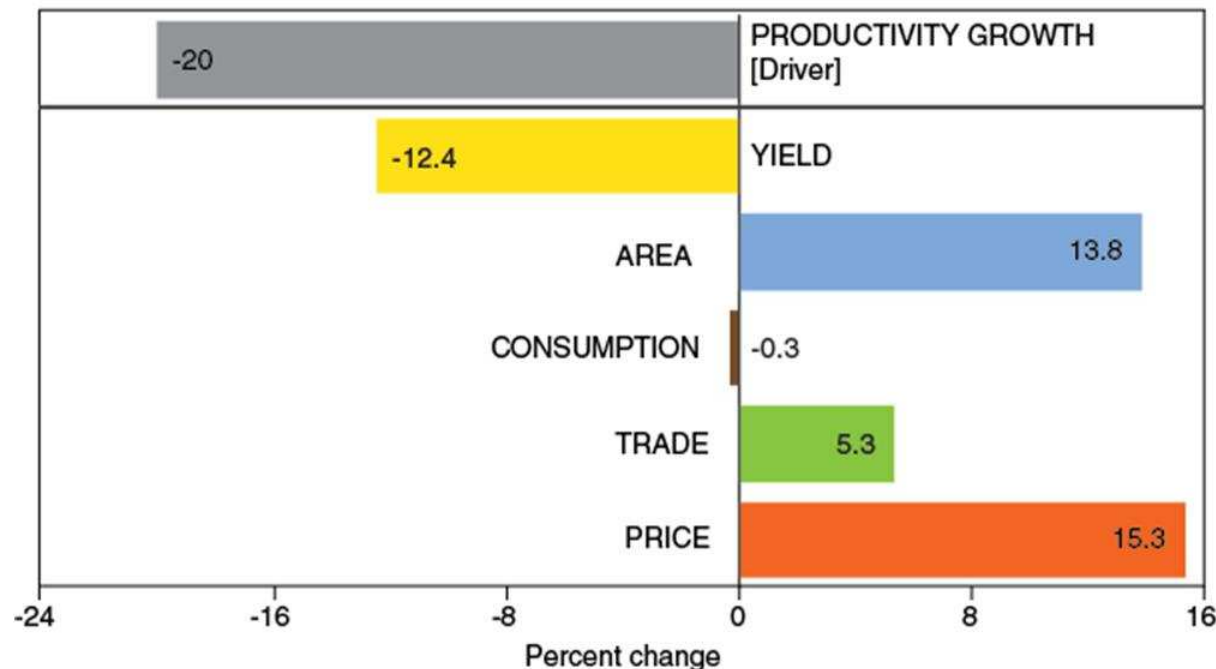
VRT = variable rate technology. GPS = global positioning system.

*Per acre production costs measured as costs for seed, fertilizer, pesticides, paid and unpaid labor, machinery expenses (not capital investments), fuel and repairs, and custom service expenses.

Source: USDA Economic Research Service estimates using data from USDA's 2010 Agricultural Resource Management Survey Phase II and Phase III.

If agricultural productivity growth slows, crop prices and area increase more

Percent change relative to reference scenario



Note: Responses cover five major field crops—rice, wheat, coarse grains, oil seeds, and sugar—relative to projections under a reference scenario that assumes global agricultural productivity increases on trend between 2004 and 2050. The driver is a change in PRODUCTIVITY (other drivers are examined in the report) measured as the change in yield, holding non-land inputs to production constant. YIELD = average yield in tons per hectare, allowing increases in non-land inputs to production; AREA = global planted area of major field crops; CONSUMPTION = global consumption, assumed to equal global production of major field crops; TRADE = global exports (imports) of major field crops; PRICE = price index across the major field crops.

Source: USDA, Economic Research Service using Future Agricultural Resources Model scenarios.

Agriculture and forestry: part of the climate solution



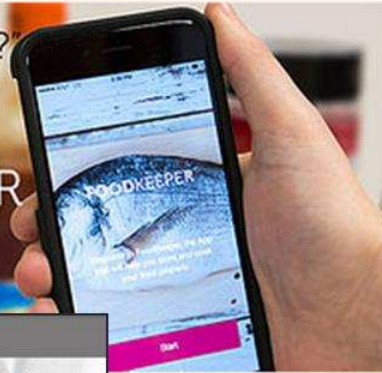


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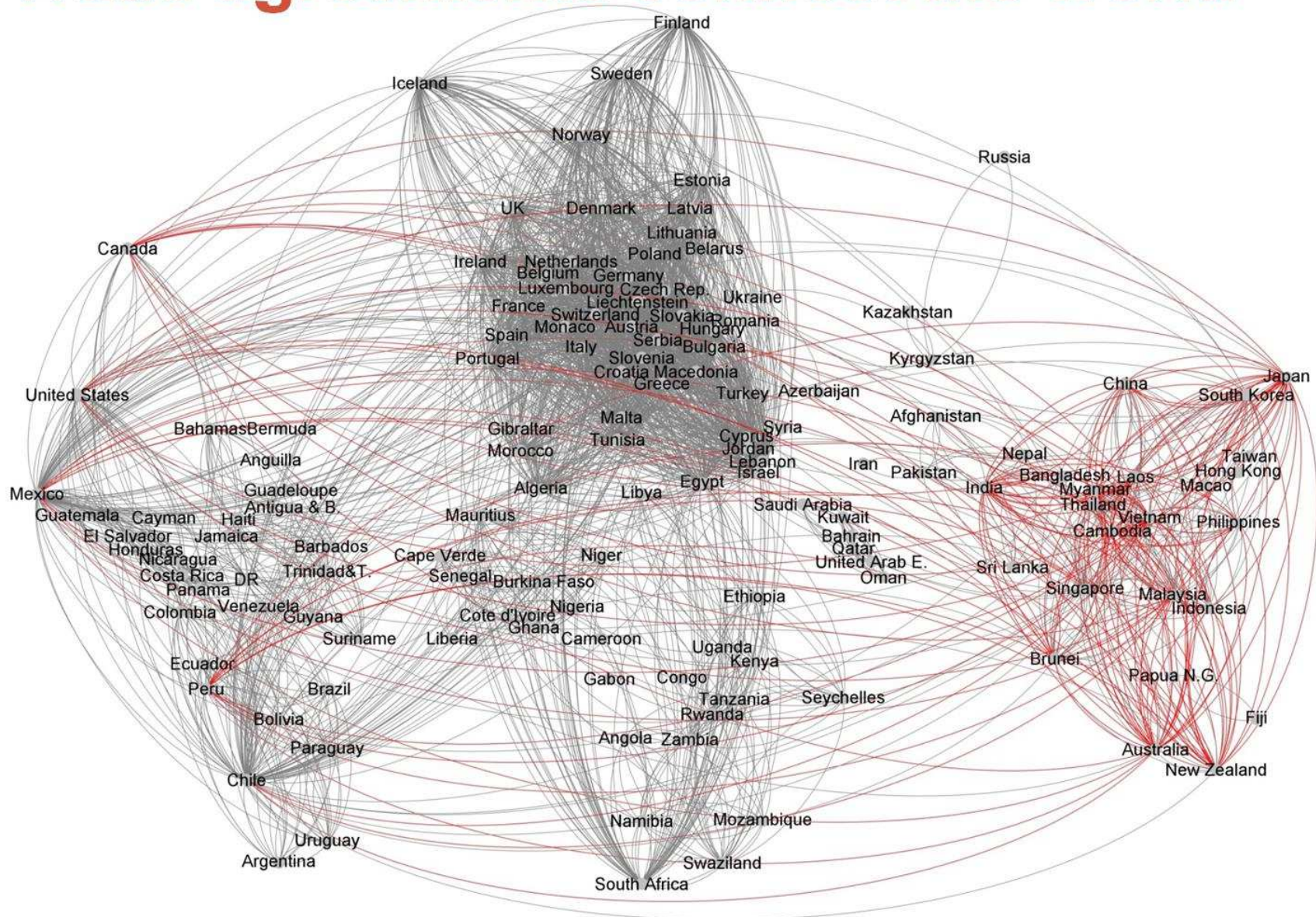
Reducing food waste

"Are these leftovers still good?"
There's an app for that.

FOODKEEPER



Trade agreements connect the world



Source: IDB Integration and Trade Sector based on INTrade.



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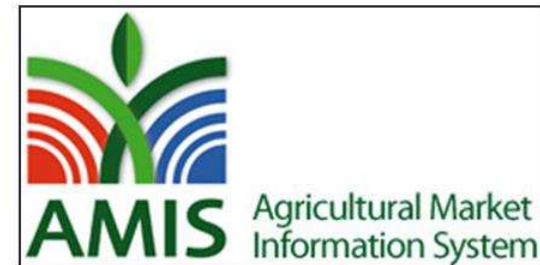
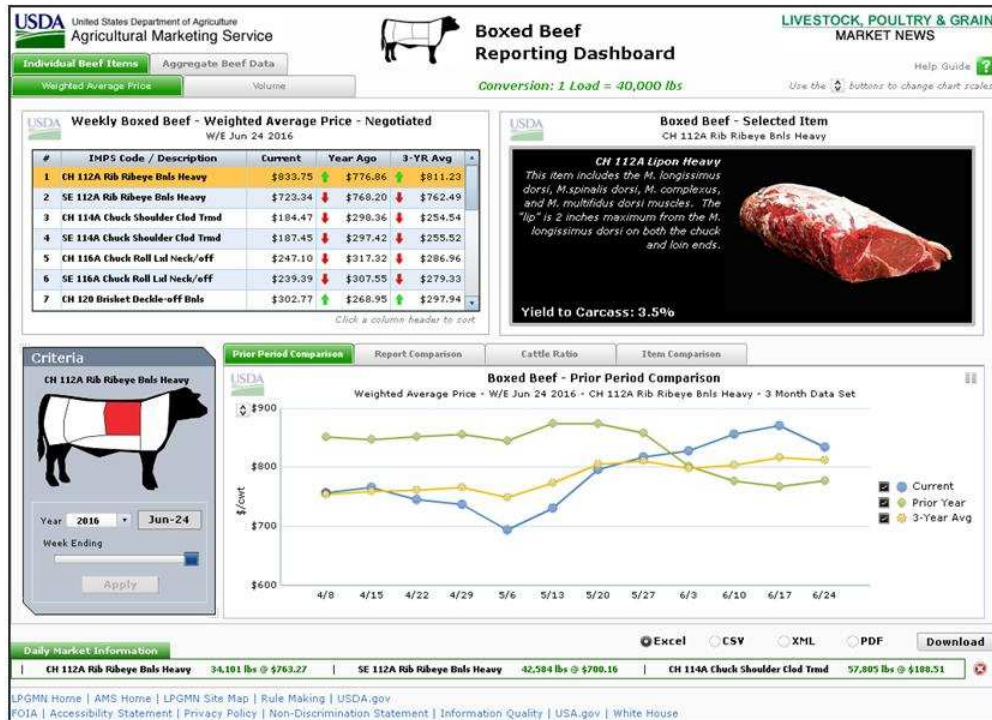
Production process methods and labeling requirements become marketing and trade issues



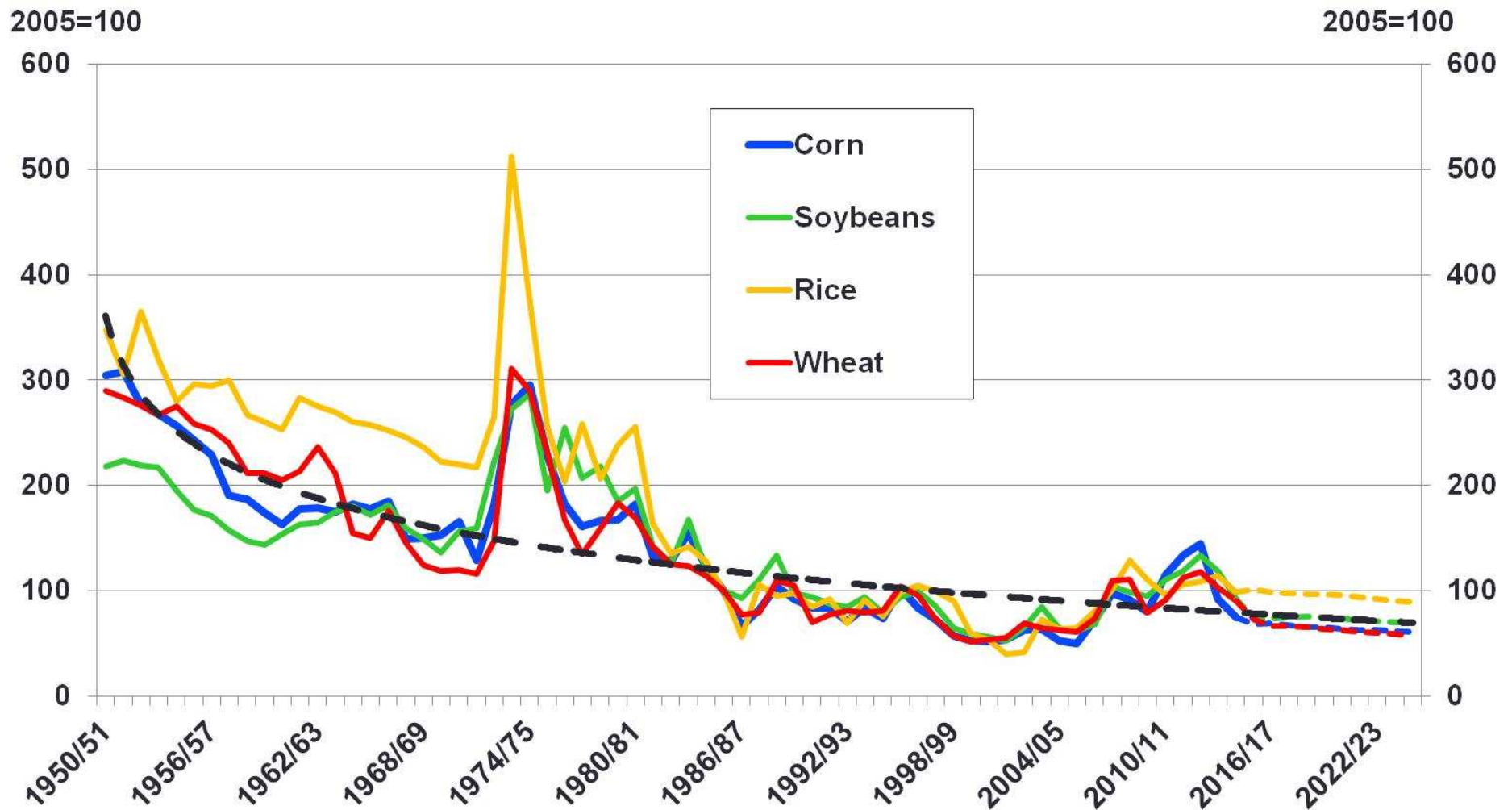
Nutrition Facts	
Serving Size 1/2 cup (about 82g)	
Servings Per Container 8	
Amount Per Serving	
Calories 200	Calories from Fat 130
% Daily Value*	
Total Fat 14g	22%
Saturated Fat 9g	45%
Trans Fat 0g	
Cholesterol 55mg	18%
Sodium 40mg	2%
Total Carbohydrate 17g	6%
Dietary Fiber 1g	4%
Sugars 14g	
Protein 3g	
Vitamin A 10%	Vitamin C 0%
Calcium 10%	Iron 6%
*Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.	
Calories:	2,000 2,500
Total Fat	Less than 65g 80g
Saturated Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300 mg
Sodium	Less than 2,400mg 2,400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g
Calories per gram:	
Fat 9	Carbohydrate 4 Protein 4



Market transparency is key

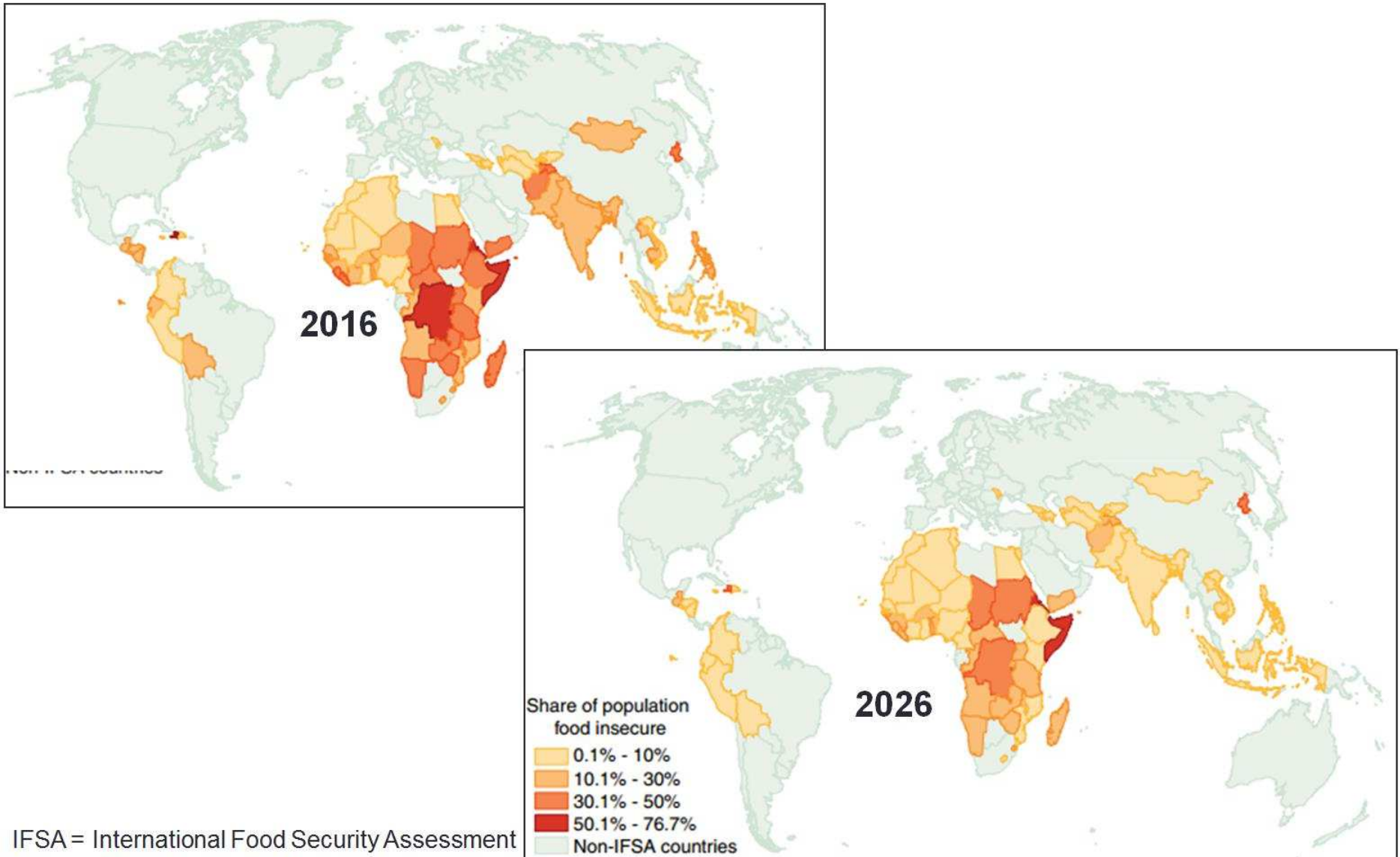


Real commodity prices have been trending down for the past 60+ years



Source: USDA Agricultural Projections to 2024 and OCE, February 2015

Global food insecurity projected to decline



IFSA = International Food Security Assessment
Source: USDA Economic Research Service



OBRIGADO! THANK YOU!

For more information:

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- Email: wpreston@oce.usda.gov
- Phone: 202-720-5955