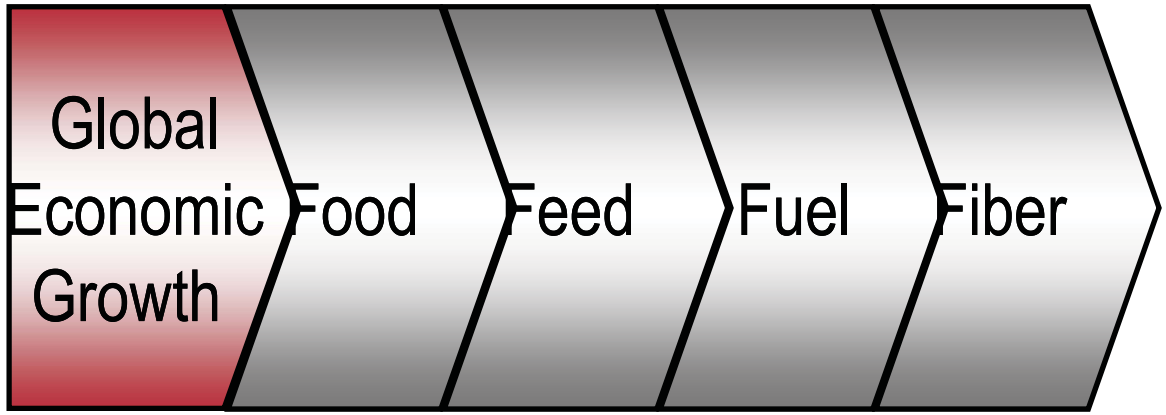
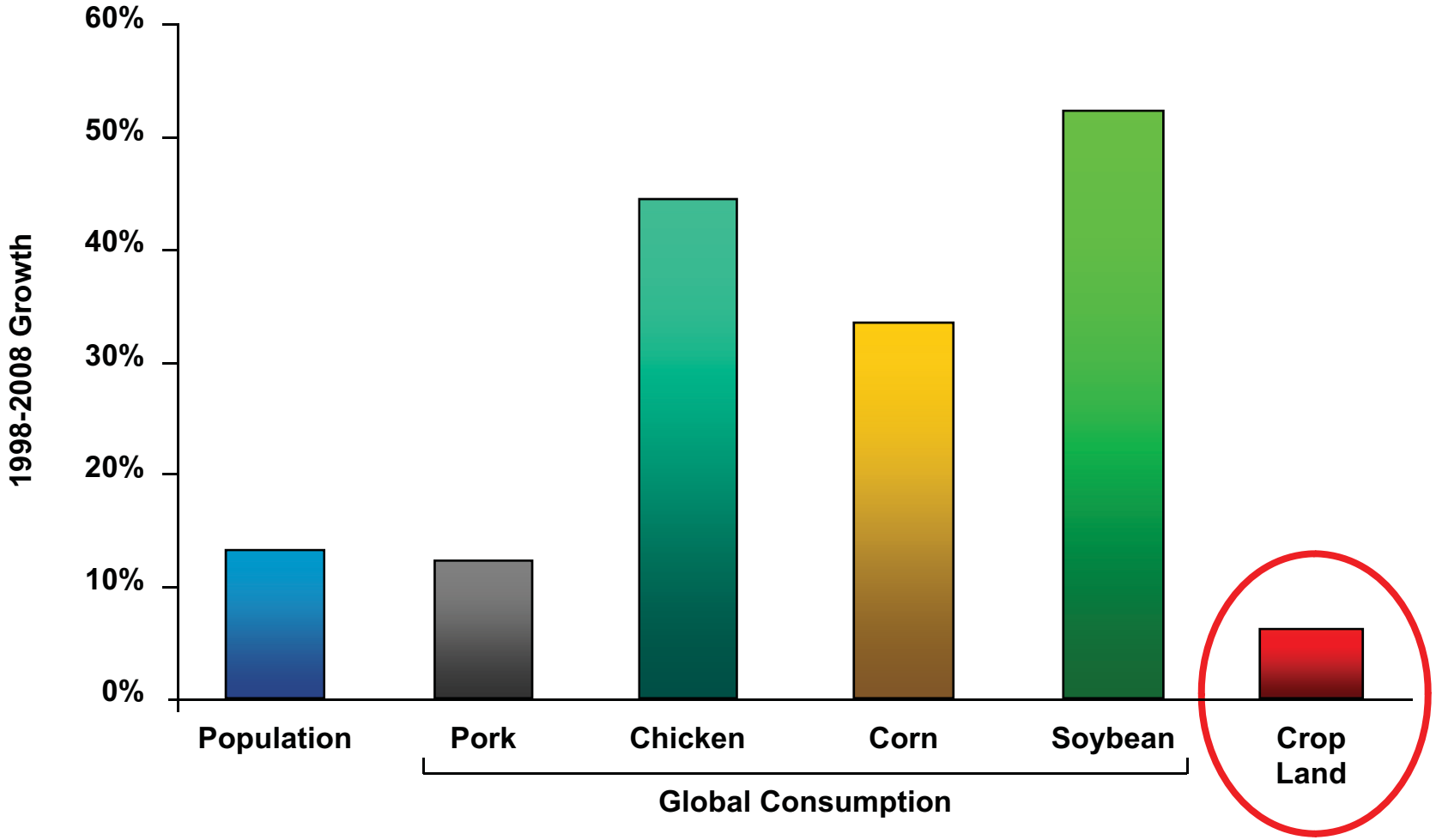
Fertilizer Outlook and Technology Conference

Dean Oestreich
Pioneer Hi-Bred Chairman and DuPont Vice President
November 2008

Global Economic Growth
Increasing the Demand for Commodities



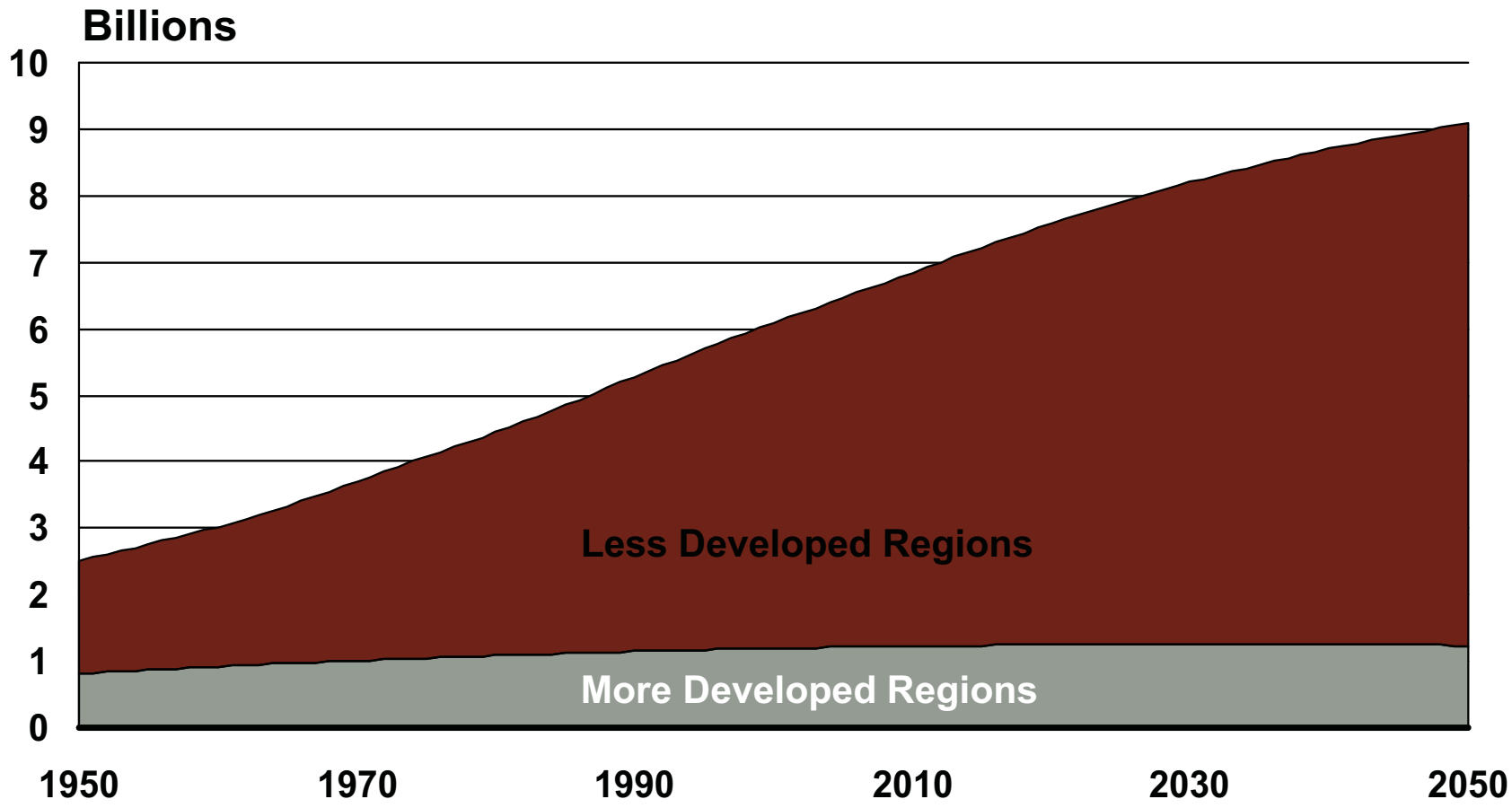
Increasing Global Demand for Corn and Soy



Source: Pioneer World Agricultural Forecast

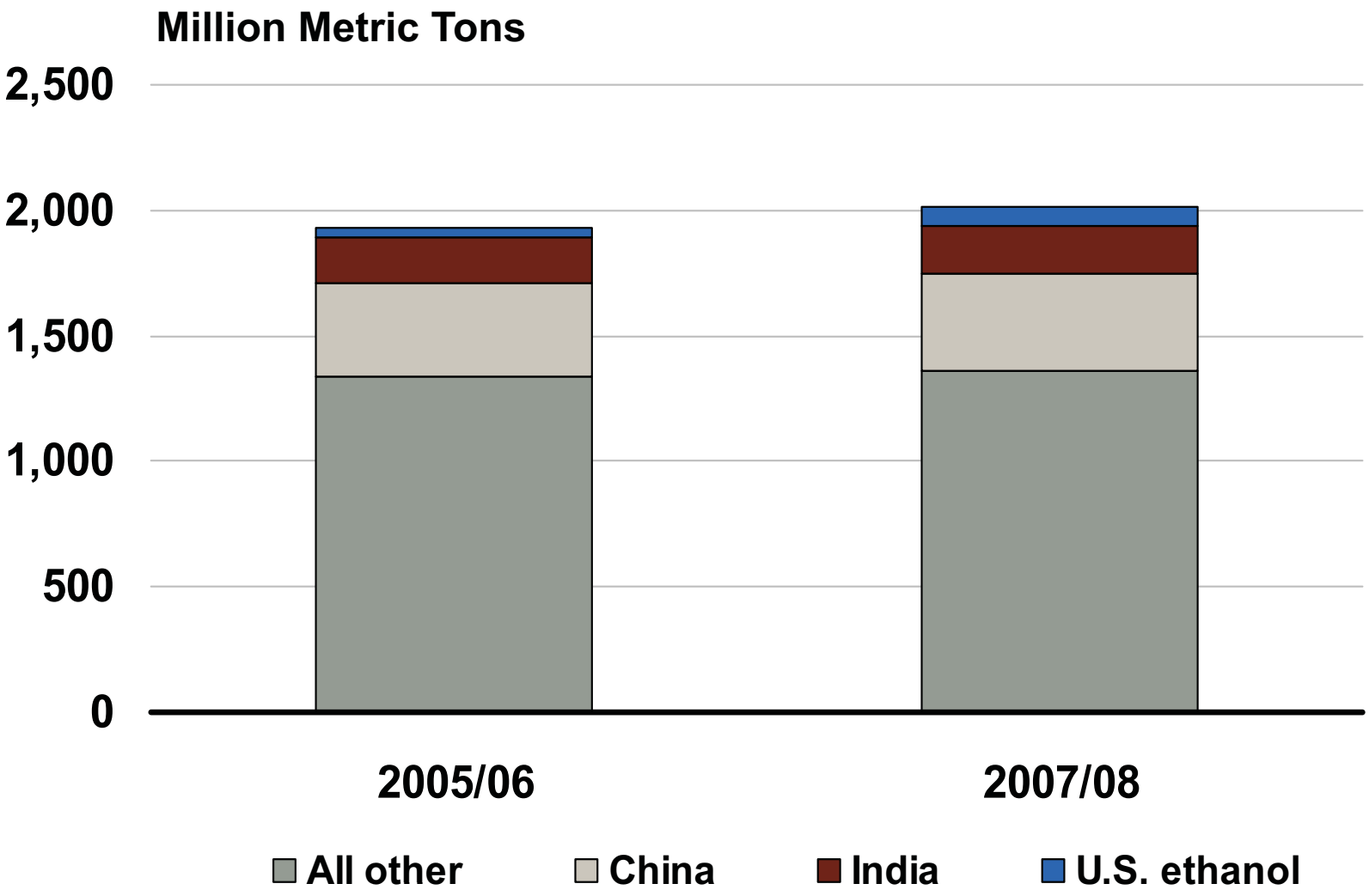
Meeting Demand With Minimal Acreage Increases

Population Growth in Countries with Developing Economies

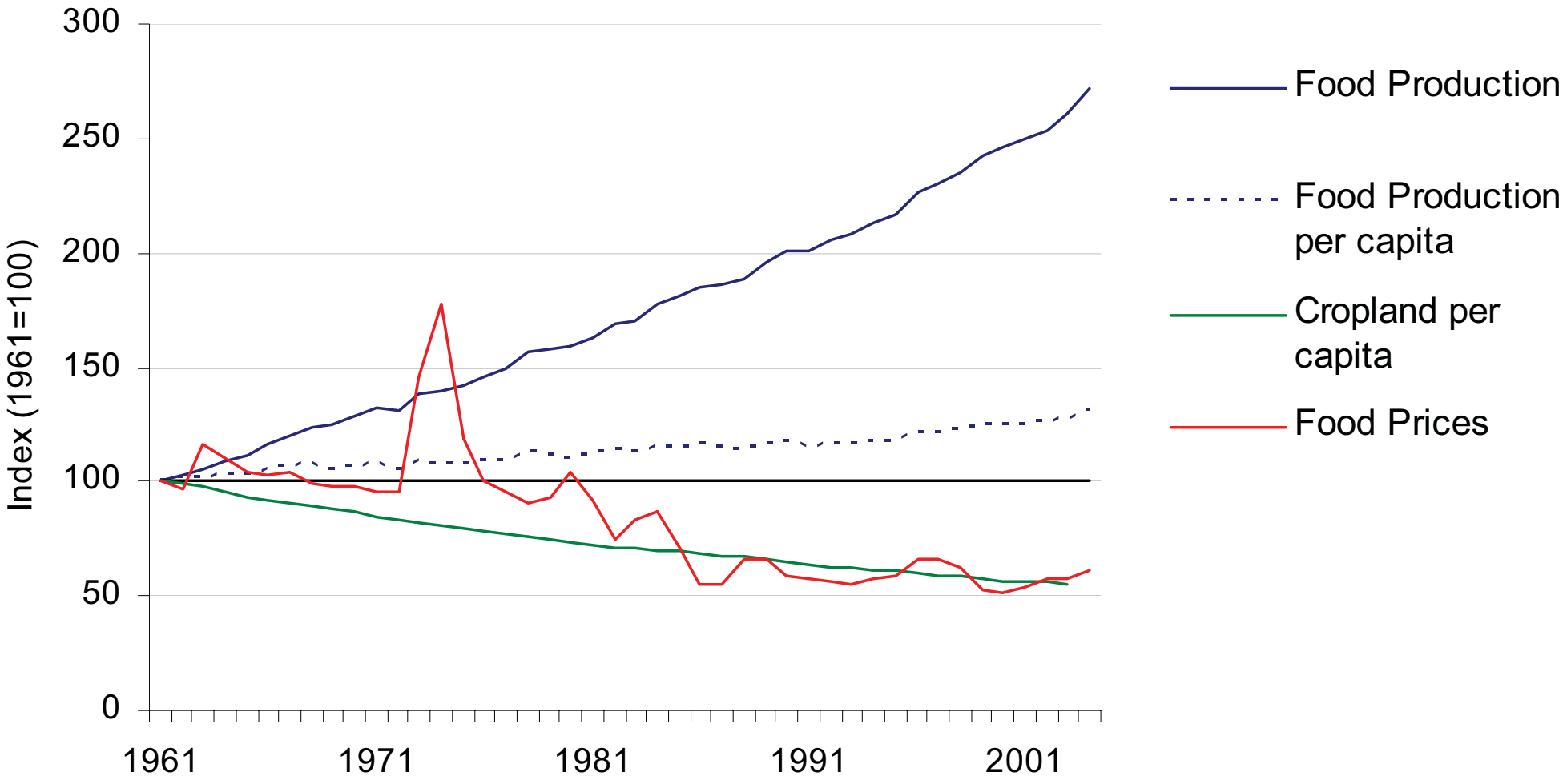


Source: United Nations, *World Population Prospects: The 2004 Revision* (medium scenario), 2005 [www.prb.org].

Consumption of 5 Major Grains – 2005/06 and 2007/08



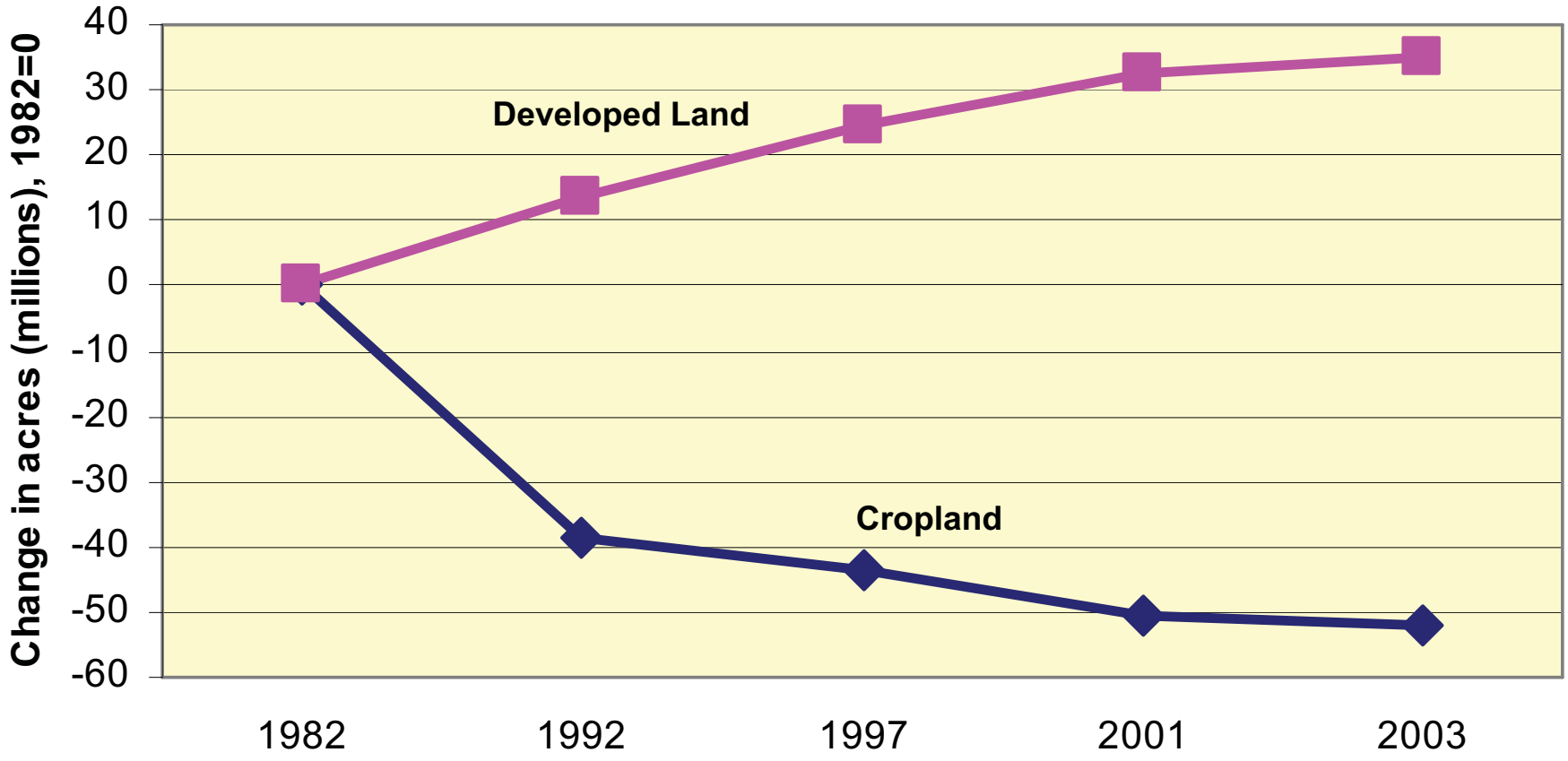
Global Food Production, Food Prices and Cropland



Source data from The World Bank, as reported in
The World Development Report 2008 by CGIAR

During The Last 40+ Years, Global Food Production Has Increased Dramatically

Change in U.S. Land Use



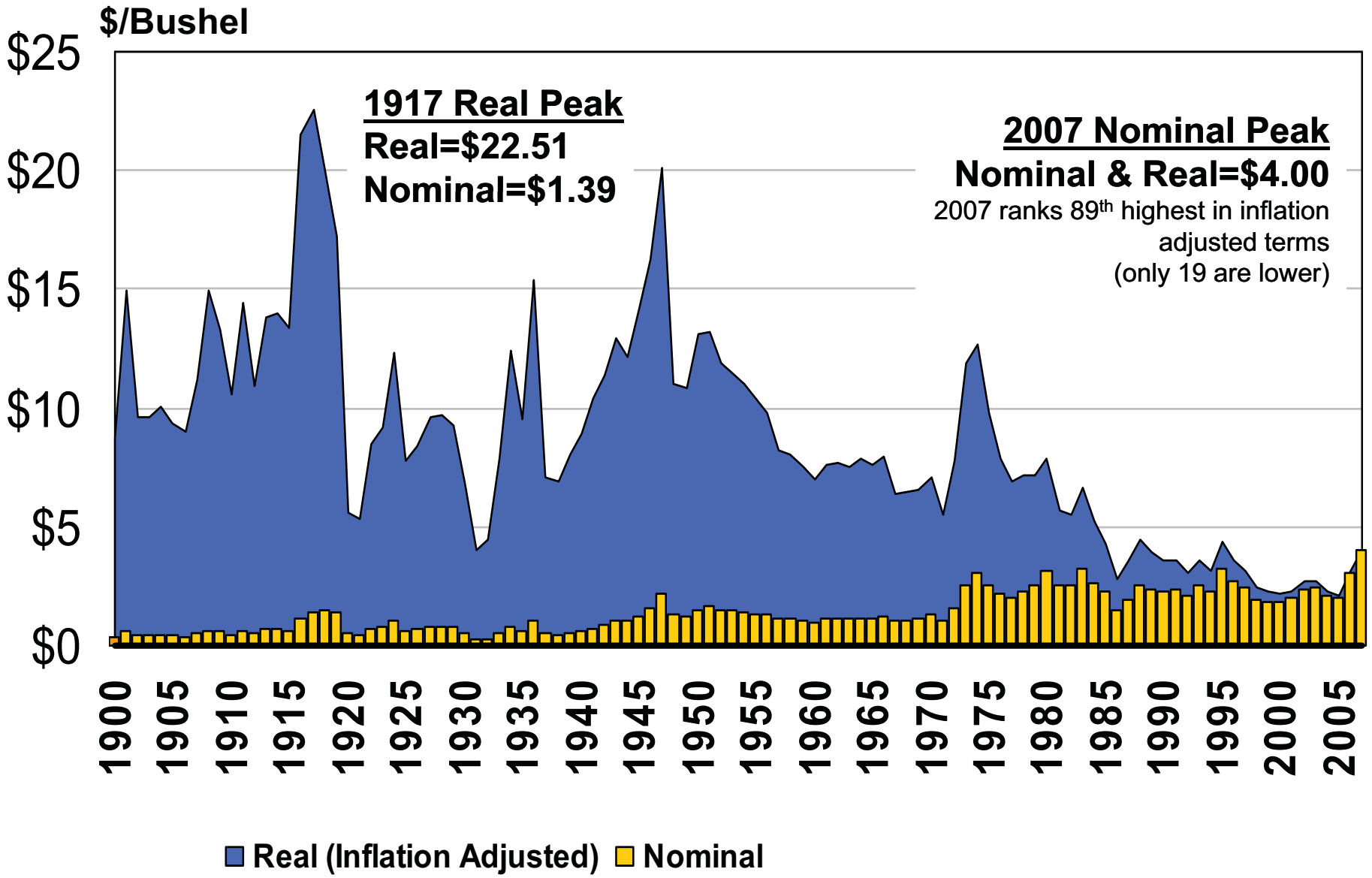
Source: NRCS National Resources Inventory (2003)

In 1982, 420 million acres were cropland and 73 million acres were developed.
By 2003, cropland acres decreased to 368 million acres and development increased to 108 million acres.

Since 1982, Land Used For Development Has Risen Sharply at The Expense of Agricultural Land

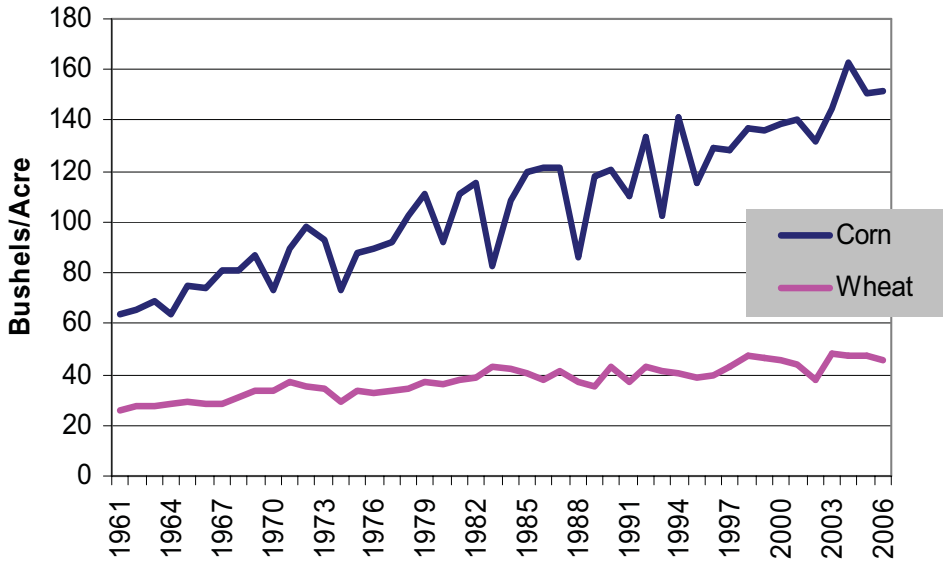
U.S. Corn Price – 1900-2007

(Nominal & Inflation Adjusted to 2007$)



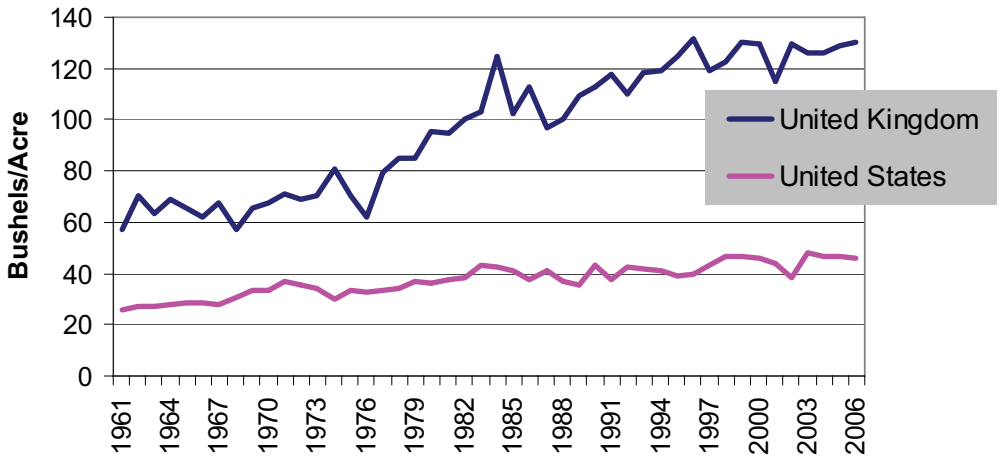
Corn and Wheat Yields

U.S. Corn and Wheat Yields



Source: FAOStat

Wheat Yields: U.S. vs. U.K.

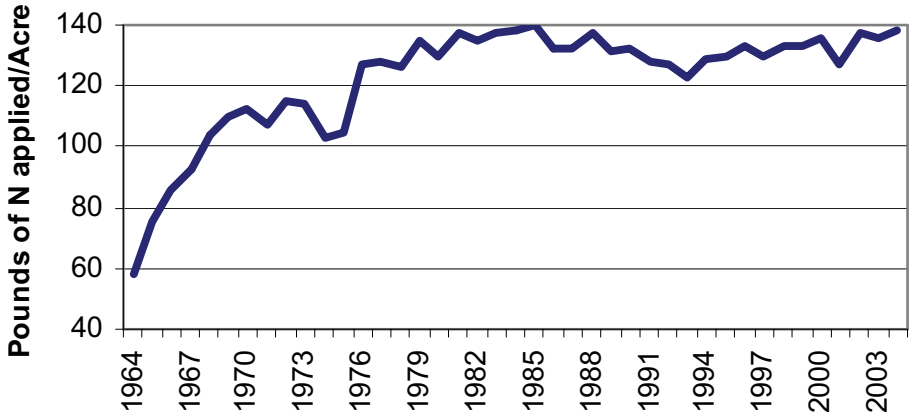


Source: FAOStat

Little Research Has Been Conducted in Wheat in The U.S. Compared to Corn and The U.K.

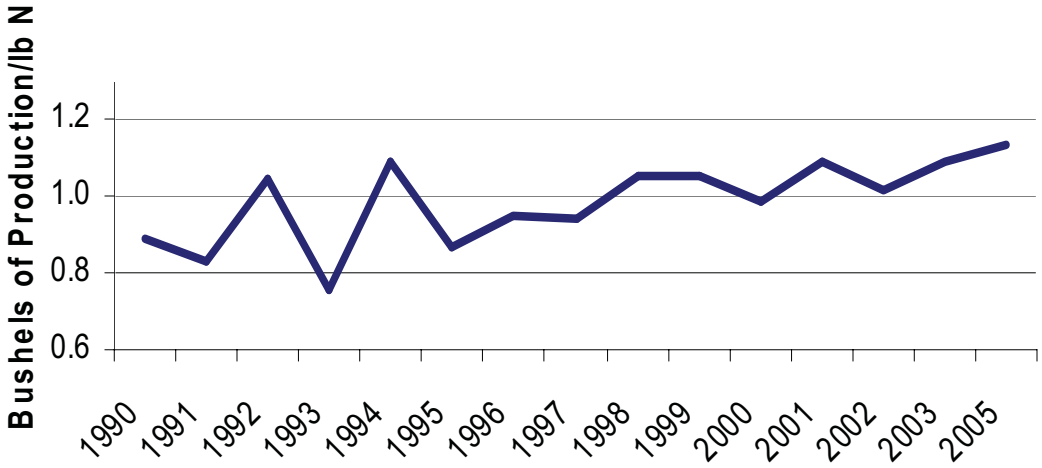
U.S. Nitrogen Use and Corn Yields

Average U.S. Corn Nitrogen Use



Source: USDA ERS – Taylor (1964-1993),
OSS Agricultural Chemical Usage (1994-2005)

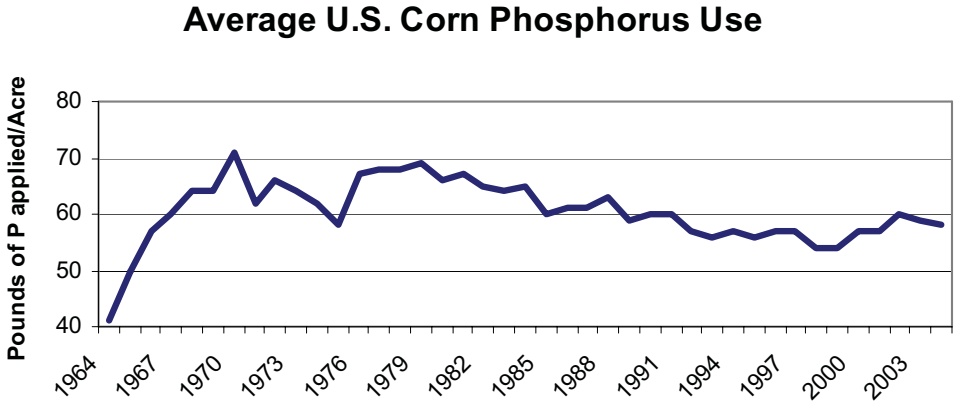
Bushels of Corn Production/Pound of N (IL, IN, IA, MN, NE)



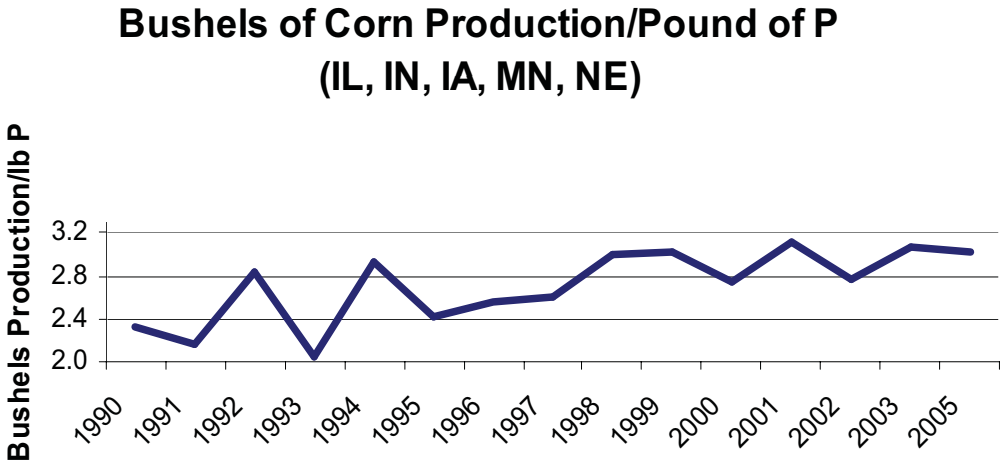
USDA NASS Ag Chemical Usage Reports 1990-2006
No data available for 2004 or 2006

N Application Rates Have Plateaued; But Corn Yields Per Pound of N is Increasing

U.S. Phosphorus Use and Corn Yields



Average is average of state's application rates, weighted by state's planted acres receiving fertilizer.
Source: Taylor (1964-93), NASS' Agricultural Chemical Usage (1994-2006)

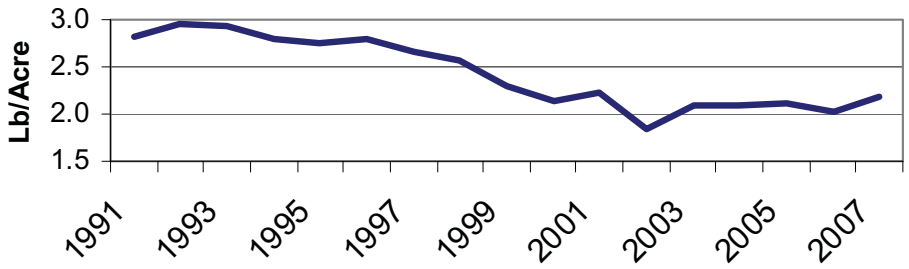


USDA NASS Ag Chemical Usage Reports 1990-2006
No data available for 2004 or 2006

P Application Rates Have Declined; But Corn Yield Per Pound of P is Increasing

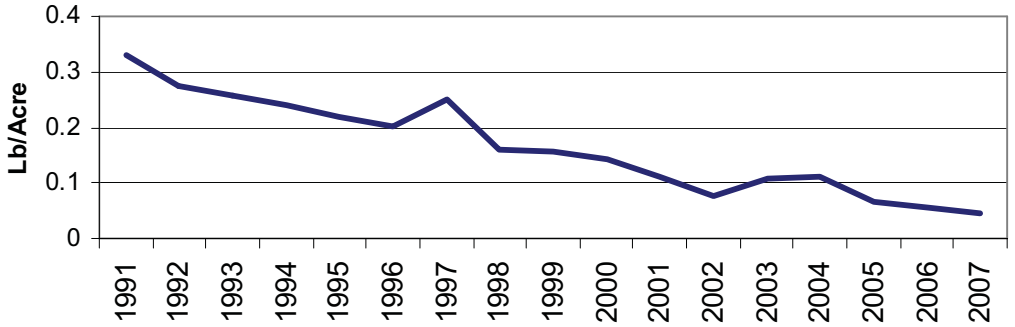
U.S. Corn Herbicide and Insecticide Rates

Pounds of Herbicide/Acre Corn
(IL, IN, IA, MN, NE)



USDA NASS Agricultural Chemical Usage Reports 1991-2005,
Doane's data for 2004, 2006 and 2007 data

Pounds of Insecticide/Acre Corn
(IL, IN, IA, MN, NE)



USDA NASS Agricultural Chemical Usage Reports 1991-2005,
Doane's data for 2004, 2006 and 2007 data

Year	Total Acres (IA, IL, IN, NE, MN)	Herbicides (lbs)	Insecticides (lbs)
1991	44,200,000	125,055,000	14,644,000
2006	45,700,000	92,477,100	2,529,900
Difference	1,500,000	(32,577,900)	(12,114,100)

Herbicide and Insecticide Rates Have Declined Due to Lower AI Products and Biotechnology

Delivering Superior Corn Performance

New 2008 Class is Robust

23 new genetic platforms

59 new hybrids

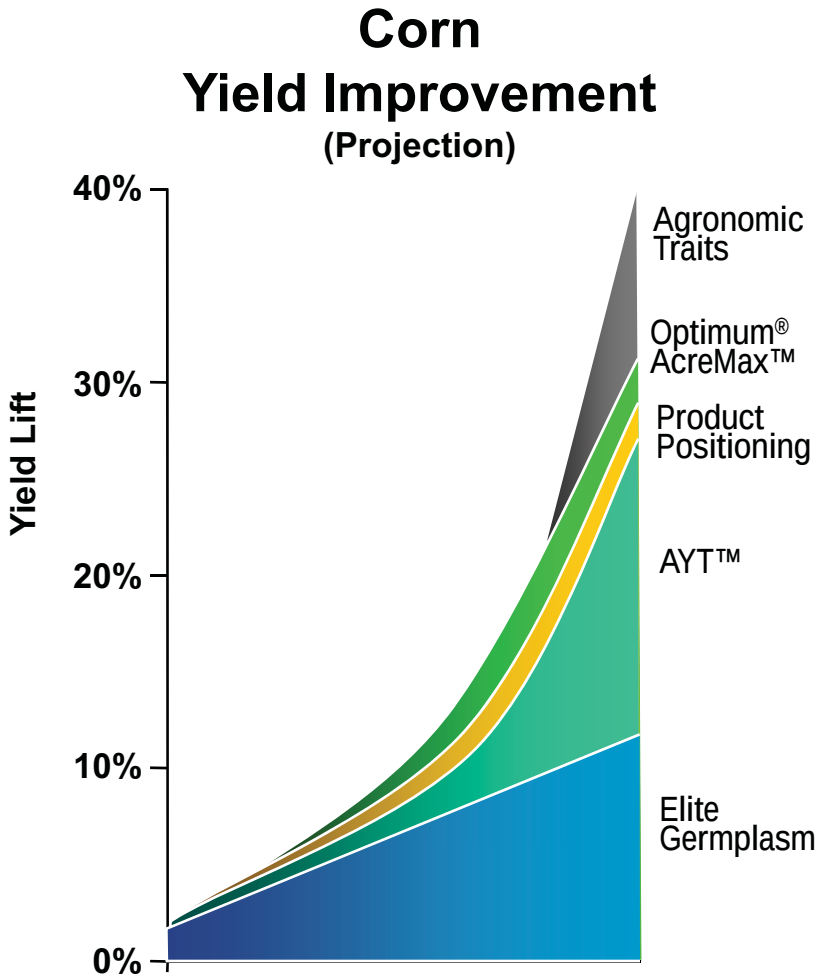
- 22 new HXX/RR2 products
- 15 new HX1/RR2 products

Advanced Technologies Build on Leadership Position

Accelerated Yield Technology™ (AYT™) and molecular markers for yield, agronomic and disease traits

Optimum® AcreMax™

Pipeline of drought tolerance, increased yield and nitrogen use efficiency genes



Optimum® and GAT® are trademarks of Pioneer Hi-Bred

Delivering Superior Soybean Performance

New 2008 Class is Strongest in History

Several new varieties yield 10% over current leaders

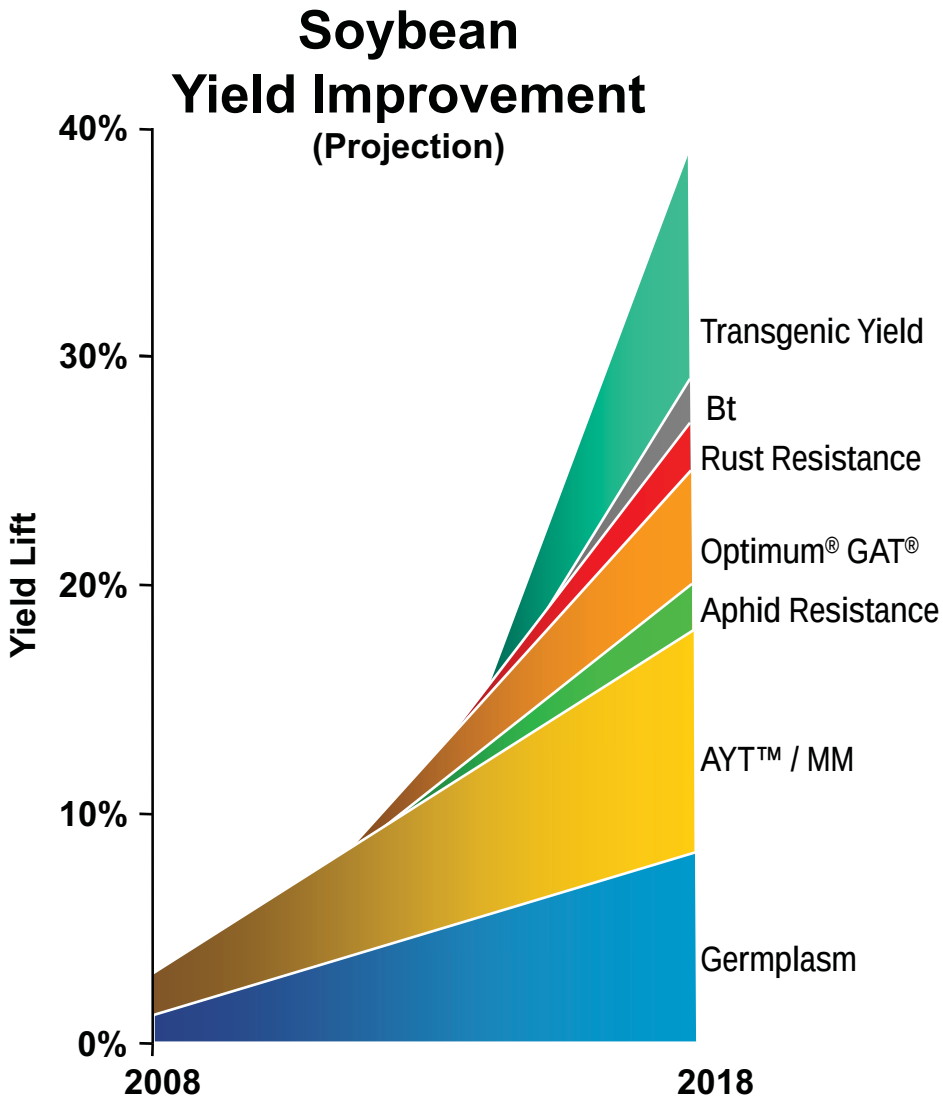
Advanced Technologies Build on Leadership Position

Accelerated Yield Technology™ (AYT™) and molecular markers for defensive traits

Optimum® GAT® trait

Yield genes

High Oleic



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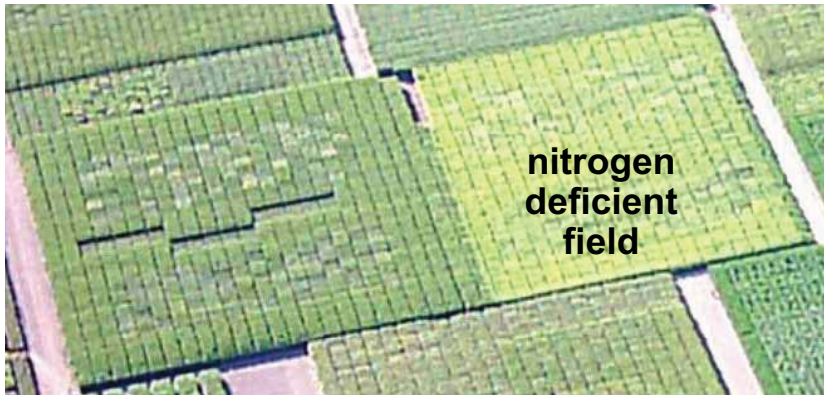
Nitrogen Utilization Efficiency (NUE)

Product Concept:
- Maintain current yield potential with 30% less N application
- Achieve 10% higher yield at current levels of N application



To test hybrids with improved nitrogen traits, nitrogen-deficient environments are created.

Impact:
- For the last 20 years, U.S. corn farmers applied an average of 130-140 pounds of N per acre
- Between 2005-2007, farmers paid an average of about $43 per acre for N
- N costs have doubled in 2008 to over $80 per acre
- N run-off contributes to water pollution, including hypoxia (the “dead zone”) in the Gulf of Mexico

Non-transgenic control (left); Transgenic event (right).

First Transgenic Hybrids With Improved NUE are Expected in The Next 10 Years

DUPONT

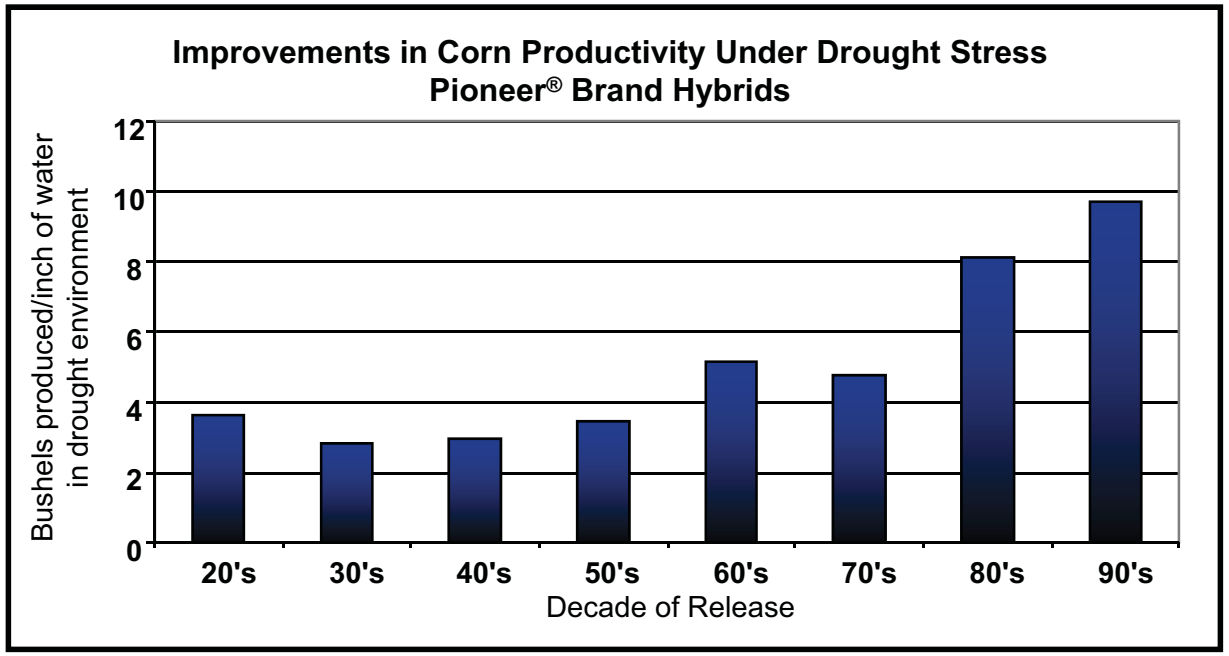
Pioneer Research Efforts To Enhance Drought Tolerance

Product Concept:

Prevent 25% of the yield loss under transient water stress while maintaining yield parity under optimal conditions.

Impact:

- Drought causes losses in $8 billion annually
- Energy cost to irrigate an acre in Nebraska is ~$61
- Aquifer depletion has been documented in the Ogallala aquifer in U.S., the North China Plain, Punjab region in India Guanajuato state in Mexico



With Tolerance Trait

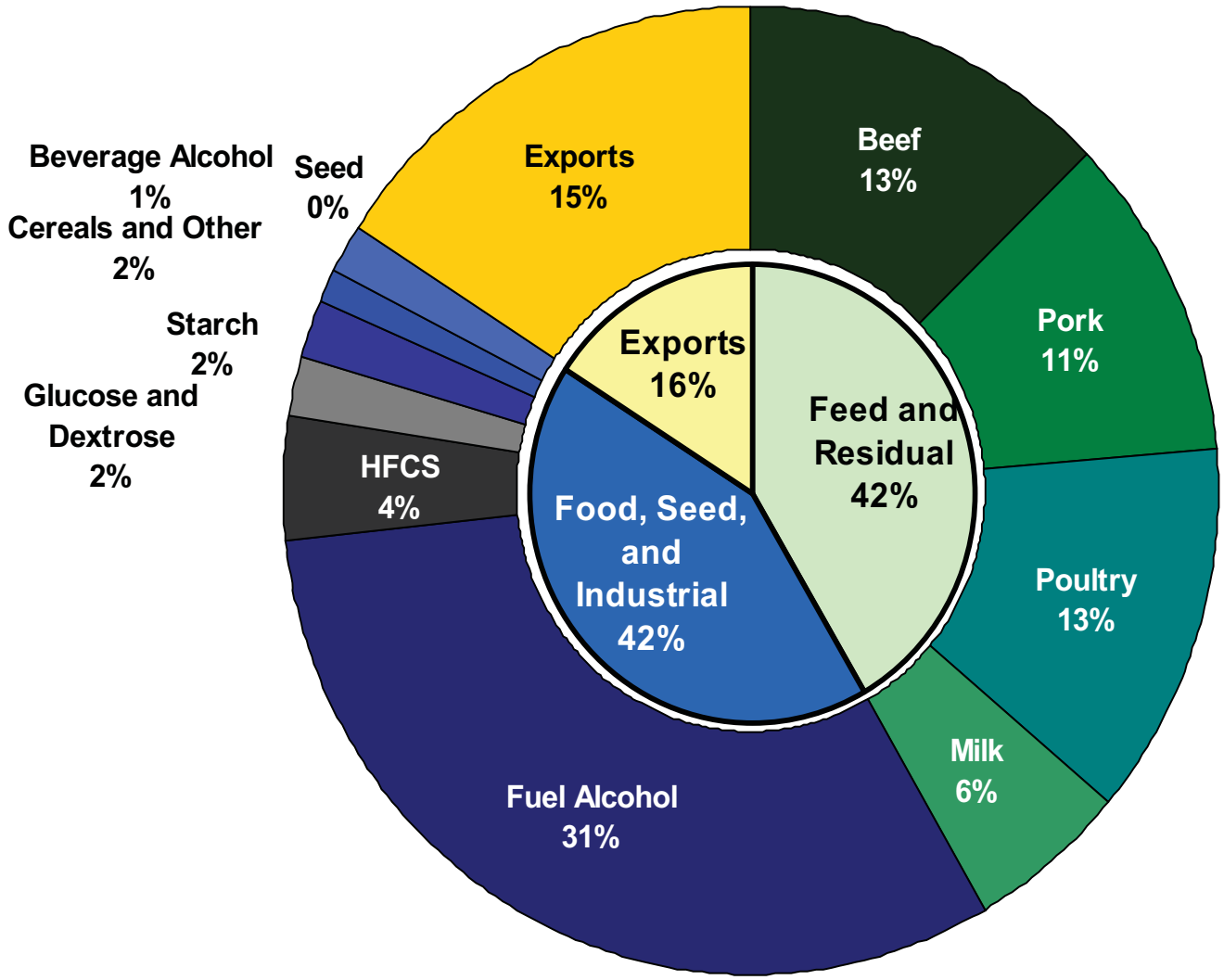
Check Hybrid

Drought Tolerance is a High Priority Project For Pioneer – Expect Transgenic Products in 5-7 Years

U.S. Corn Utilization: 2008/09

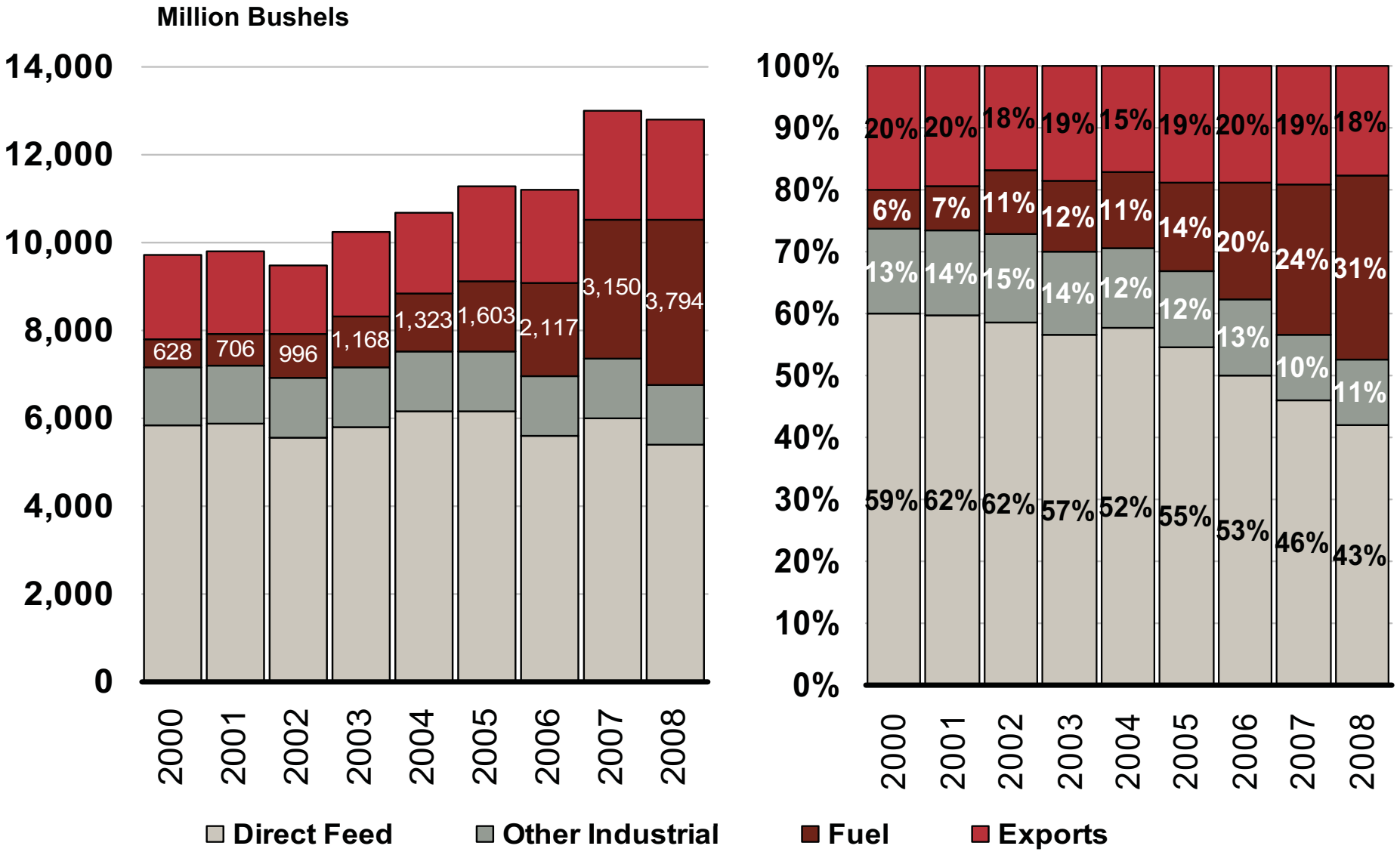
U.S. Corn Use 2008/09	
TOTAL USE	12,465
Domestic Use	10,499
Feed and Residual	5,208
Beef	1,608
Pork	1,337
Poultry	1,570
Dairy	694
Food, Seed, and Indust	5,291
Fuel Alchol	3,933
HFCS	508
Food and Other	826
Exports	1,966

Million Bushels



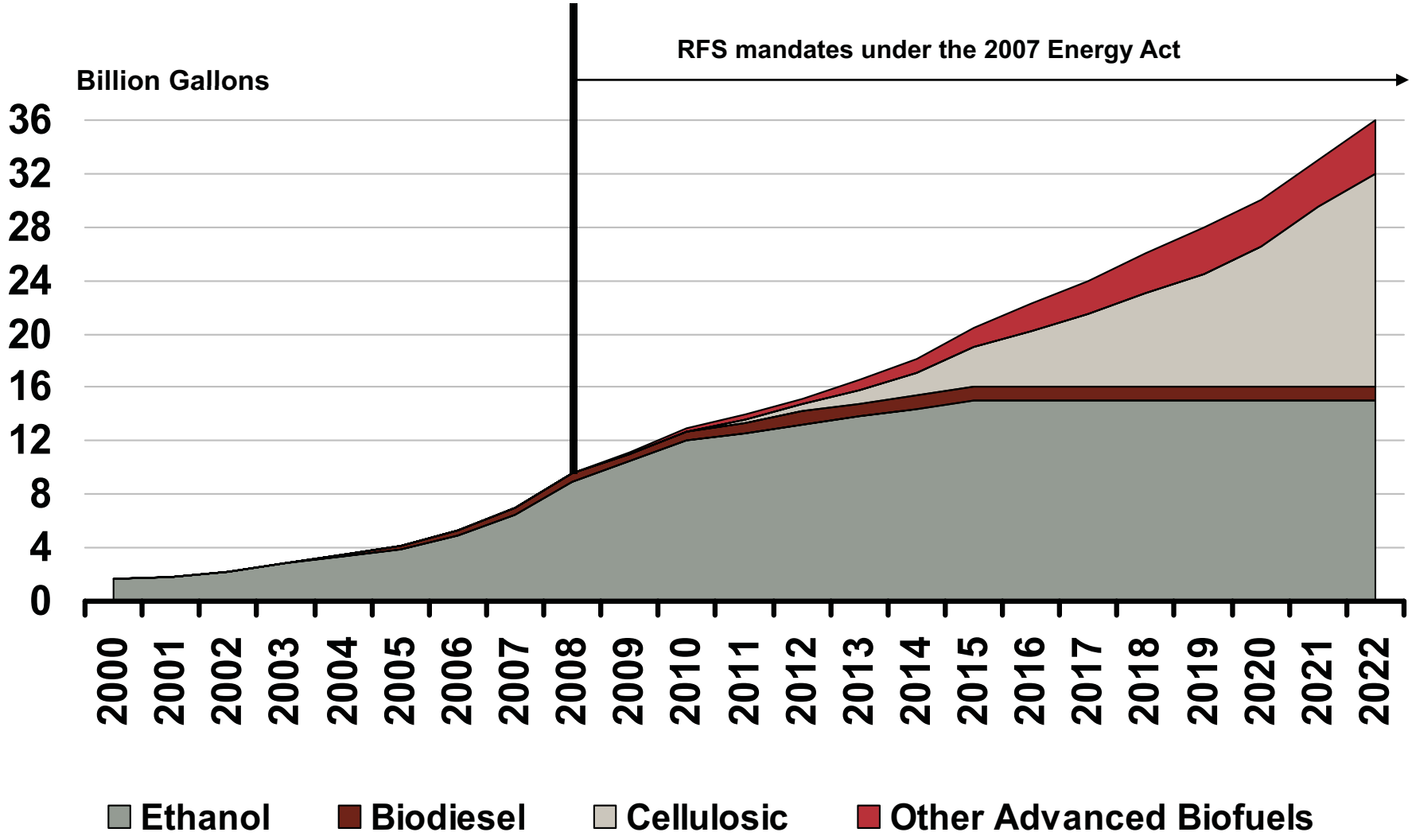
Source: USDA

United States Corn Utilization



Source: USDA

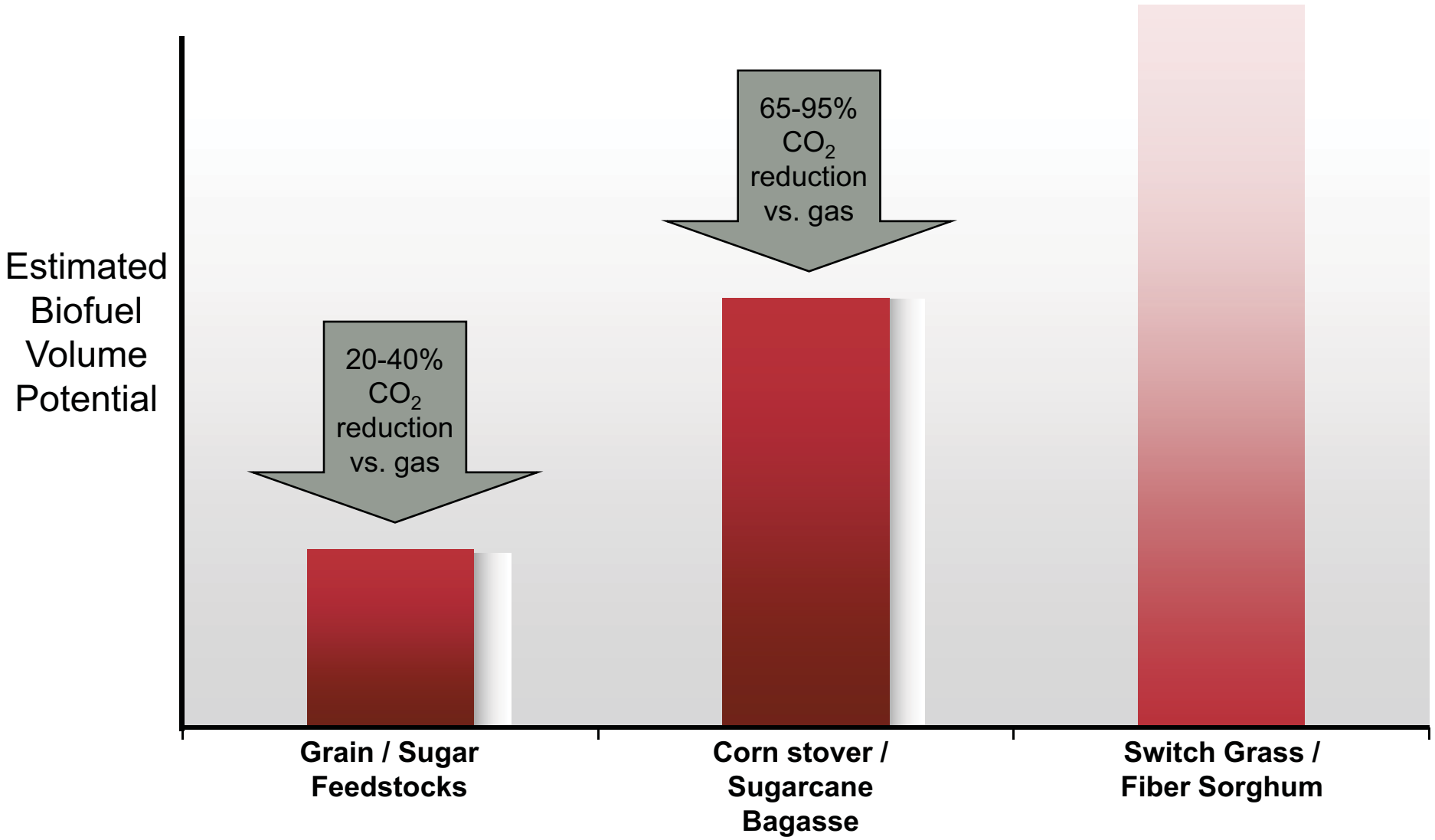
United States Biofuel Production



Source: USDA

Cellulosic Ethanol

Substantial market growth and CO_2 reduction



% Reduction in CO_2 equivalents per the International Energy Agency

DuPont Biorefinery Value Chain

Carbohydrates to Fuels and Chemicals

Agricultural Inputs → **Plant Feedstocks** → **Conversion to Sugars** → **Fermentation Processes** → **Biofuels Biochemicals**

Seed

Crop Protection

CO_2

Differentiated Products

Sugar

Starch

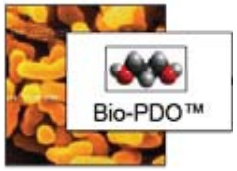
Cellulose

Ethanol

Biobutanol

Bio-PDO™

Sorona®



Biochemicals

biobutanol

Biofuels

“I believe there is no effective upper limit to the amount of cellulosic biofuels we can make. We have the land. We have crop production technology. We can do this. It is at least 100 billion gallons a year and upwards from there.”

– Professor Bruce Dale

Michigan State University