

American Agriculture: It's About People Making it Work!!





Population: 323 million
1/3 in Eastern Time Zone

Greatest East-West
Distance (excluding
Alaska and Hawaii:
2,807 miles
4,517 kilometers

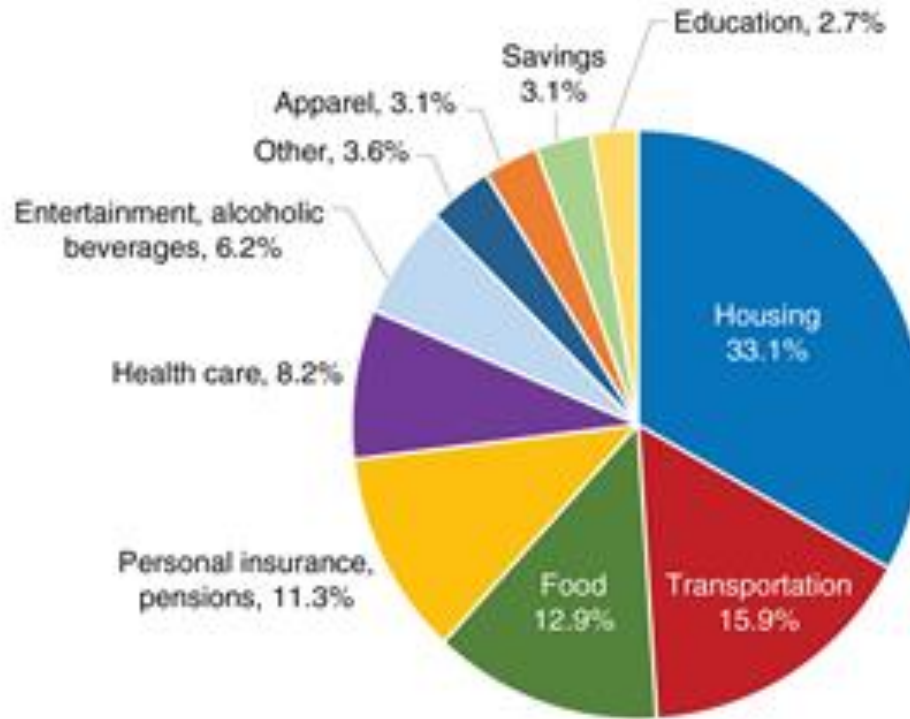
How do American Households Spend their Money --



ad from
time.com



Share of U.S. household consumer expenditures by major categories, 2017



Note: "Other" includes personal care products, tobacco, and miscellaneous expenditures.
Source: USDA, Economic Research Service using data from the U.S. Bureau of Labor Statistics, Consumer Expenditure Survey, 2017.





U.S. Grocery Stores – 42,000 stores, \$822 billion sales/year

Consumer Interests

Cost
Convenience
Taste, but moving to
Health & Wellness

1.5 visits/week
\$100 - \$120/week

Emerging Value Concerns

Locally produced
Environmentally Sensitive
Animals Humanely Treated
Organic
Is it GMO?

2017 Organic Food Market: \$ 45 BILLION

2017 Total Food Market: \$822 BILLION

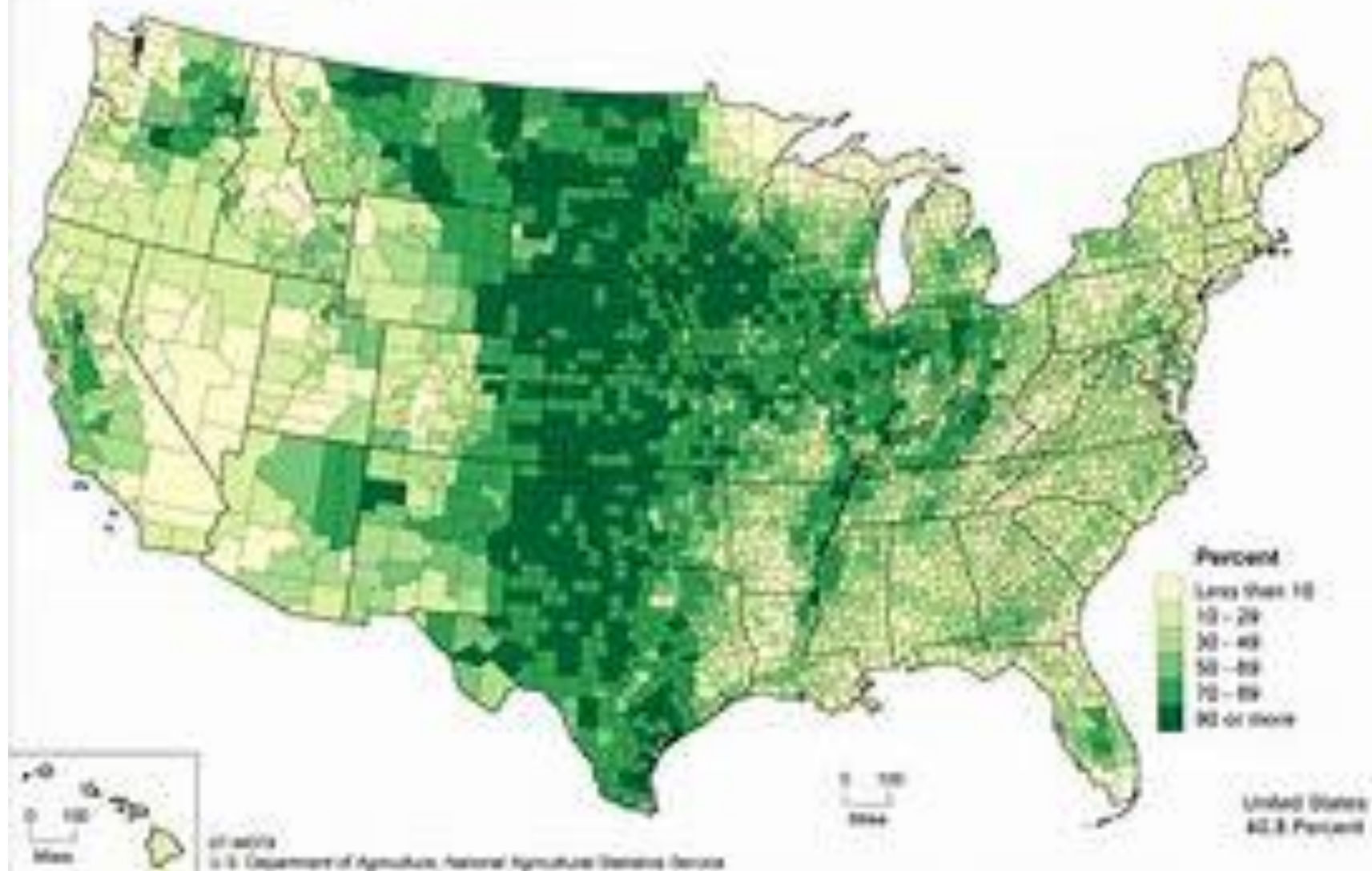
- ORGANIC: 6.4% growth year over year - down from the 9% growth in 2016
- Organic food now accounts for 5.5% of retail food sold in the U.S.

U.S. Organic Food vs. Total Food Sales, Growth and Penetration, 2011-2017

| Category | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 |
|--------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Organic Food | \$25.1 | \$27.9 | \$31.4 | \$35.1 | \$39.1 | \$42.5 | \$45.2 |
| Growth (%) | 9.5% | 11.25% | 12.2% | 11.9% | 11.1% | 9.0% | 6.4% |
| Total Food | \$711,985 | \$740,450 | \$760,486 | \$787,575 | \$807,998 | \$812,907 | \$822,160 |
| Growth (%) | 5.4% | 3.7% | 2.7% | 3.6% | 2.6% | 0.6% | 1.1% |
| Organic % of total | 3.5% | 3.8% | 4.1% | 4.5% | 4.8% | 5.2% | 5.5% |

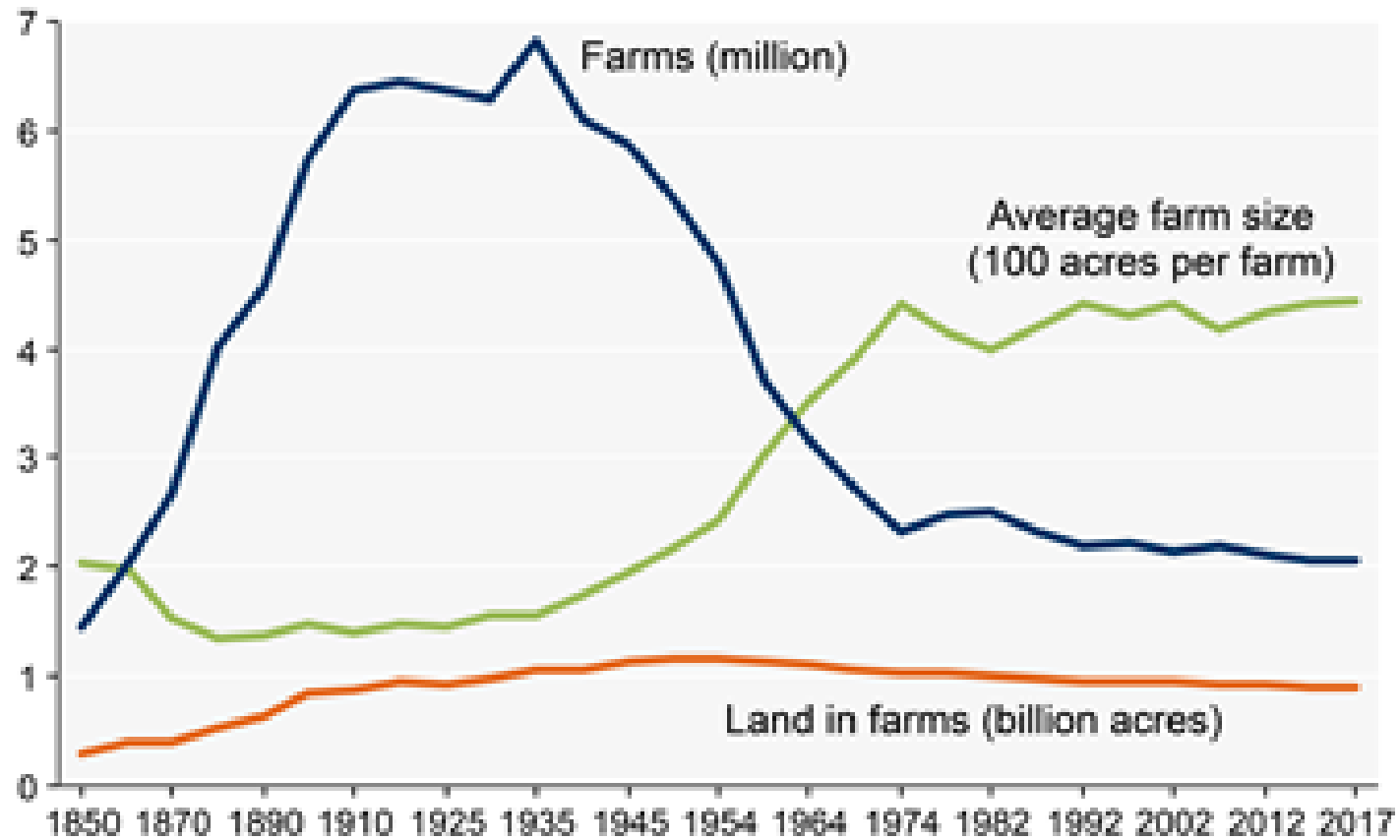
Source: Organic Trade Association's 2018 Organic Industry Survey – Consumer Sales

Acres of Land in Farms as Percent of Land Area in Acres: 2007



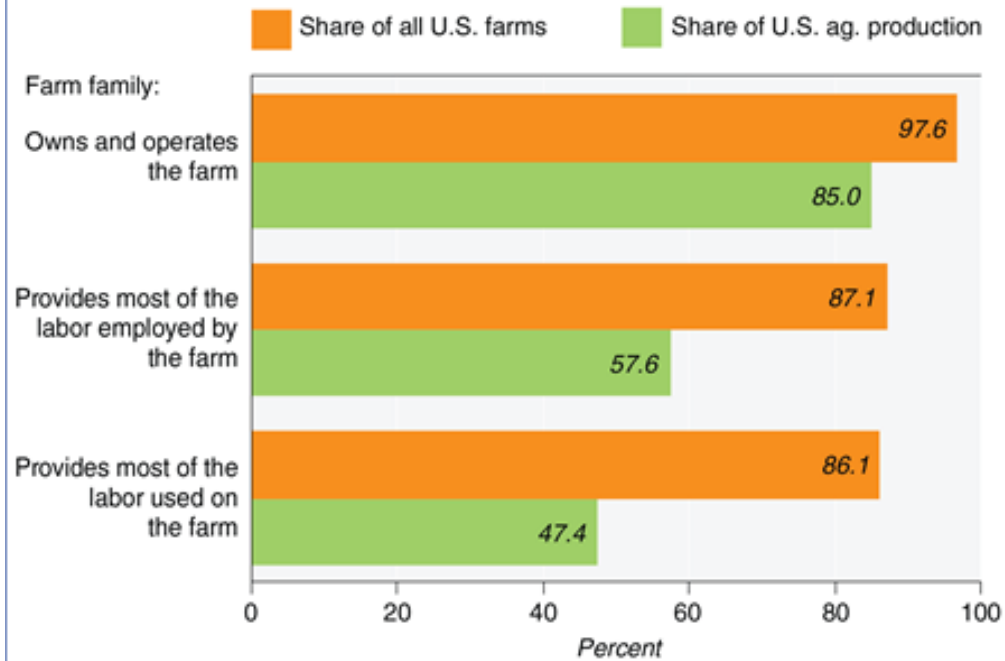
Farms, land in farms, and average acres per farm, 1850-2017

Million farms, billion acres, or 100 acres per farm



Source: USDA, Economic Research Service using data from USDA, National Agricultural Statistics Service, Census of Agriculture (through 2012) and *Farms and Land in Farms: 2017 Summary*.

Share of U.S. farms/share of agricultural production by the role of the farm family, 2011



Source: USDA, Economic Research Service and National Agricultural Statistics Service, 2011 Agricultural Resource Management Survey.



Farming in the U.S. is a Family Enterprise



WOMEN – KEY ROLE FOR GENERATIONS



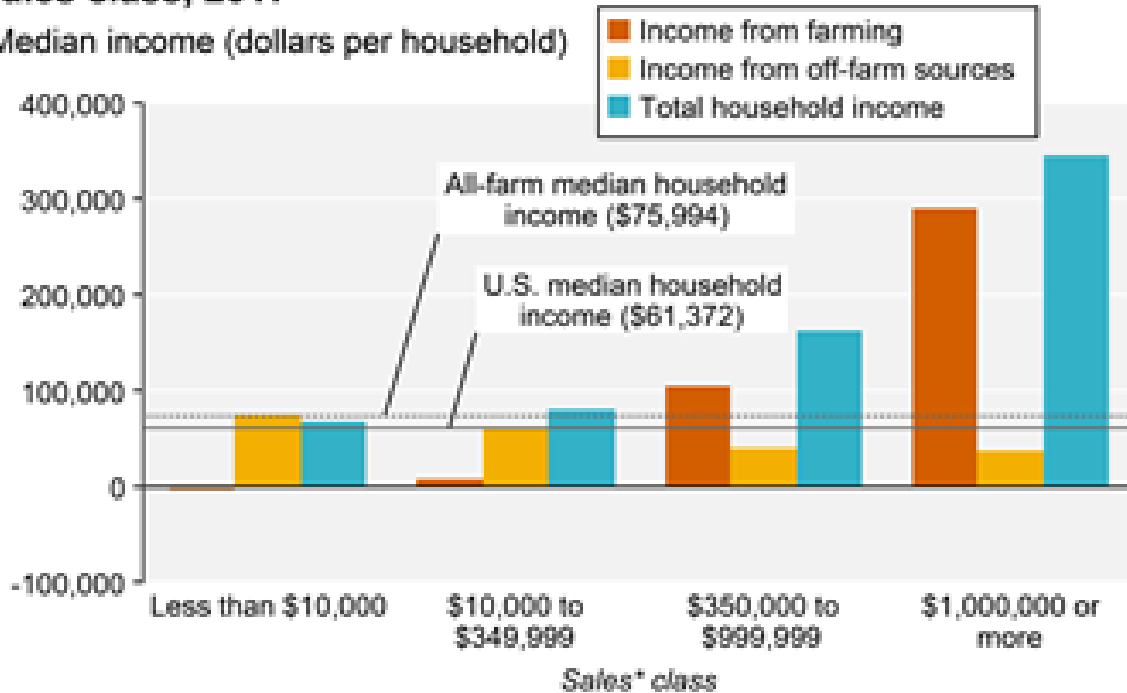
At the University of Delaware
College of Agriculture – 70% of
the Undergraduate Students
are
WOMEN





Median household income of farm operators by source and sales class, 2017

Median income (dollars per household)



*Sales = Annual gross cash farm income before expenses (the sum of the farm's crop and livestock sales, government payments, and other cash farm-related income).
 Source: USDA, Economic Research Service and National Agricultural Statistics Service, Agricultural Resource Management Survey and U.S. Census Bureau, Current Population Reports. Data as of November 30, 2018.

Nearly 60% of all farm families have some significant level of “off-farm” income

Small Farms – those < \$350,000 of Gross Cash Farm Income (GCFI)

- 90% of all US Farms
- 50% of all Farmland
- 23% of the Value of all Production

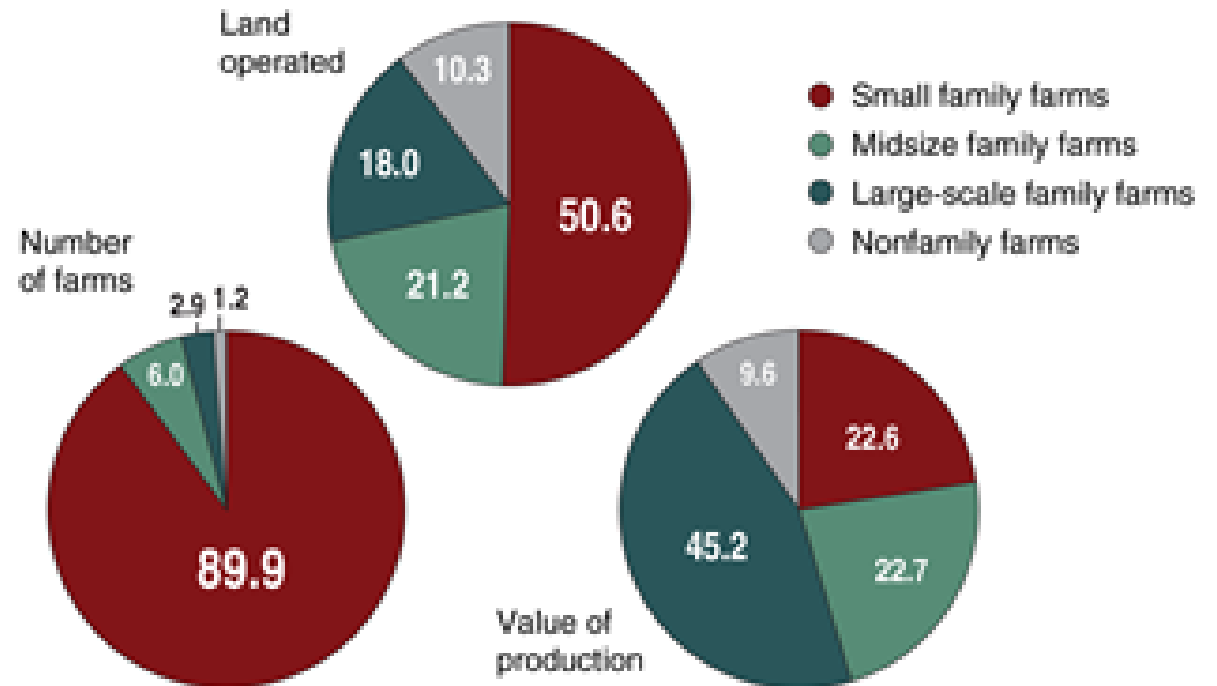
Large Scale Farms – those > \$1 million GCFI

- 3% of all US Farms
- 18% of all Farmland
- 45% of the Value of Production

Non-Family Farms – Partnerships of nonrelated partners or Corporations

- 1% of US farms
- 10% of the Value of Production
- Top 19% of this category with a GCFI of > \$1 million account of 88% of all Non-Family Value of Production

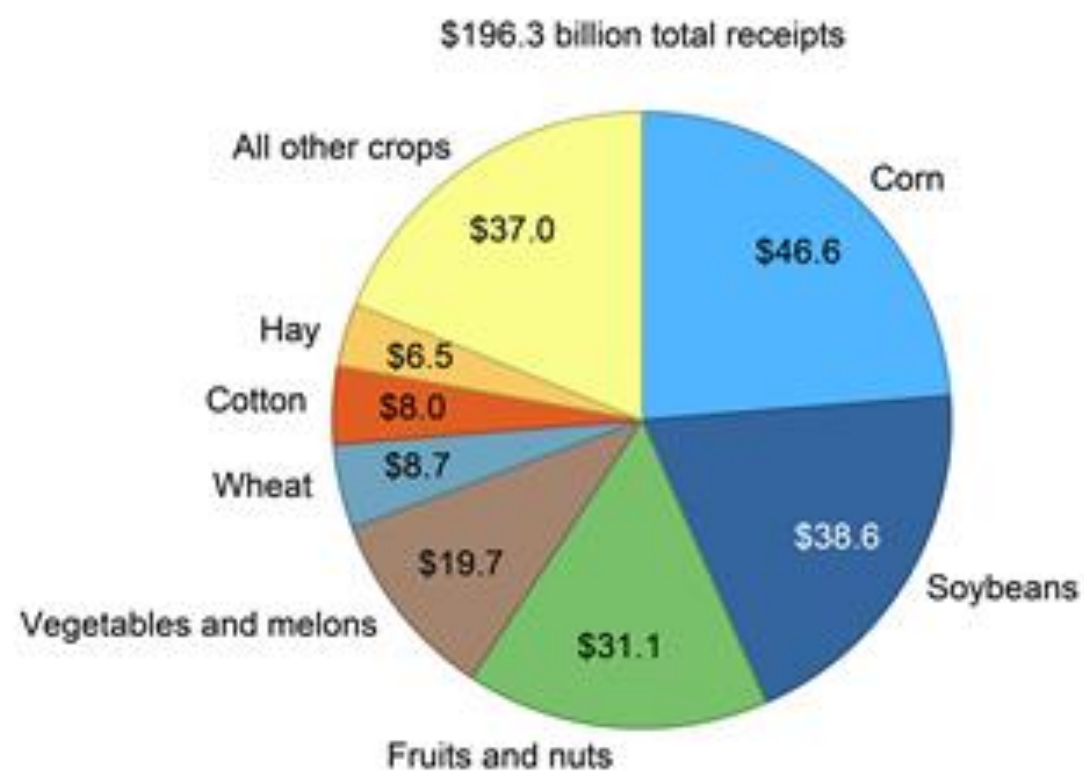
Distribution of U.S. farms, value of production, and land operated by farm type, 2016



Note: Totals may not add up to 100 percent due to rounding. Family farms are those where the principal operator or individuals related to the operator own a majority of the business. Small family farms have annual gross cash farm income before expenses (GCFI) under \$350,000. Midsize family farms have GCFI of \$350,000 to \$999,999. Large-scale family farms have GCFI of \$1 million or more. Nonfamily farms are those where the majority of the business is not owned by the operator and/or relatives of the operator.

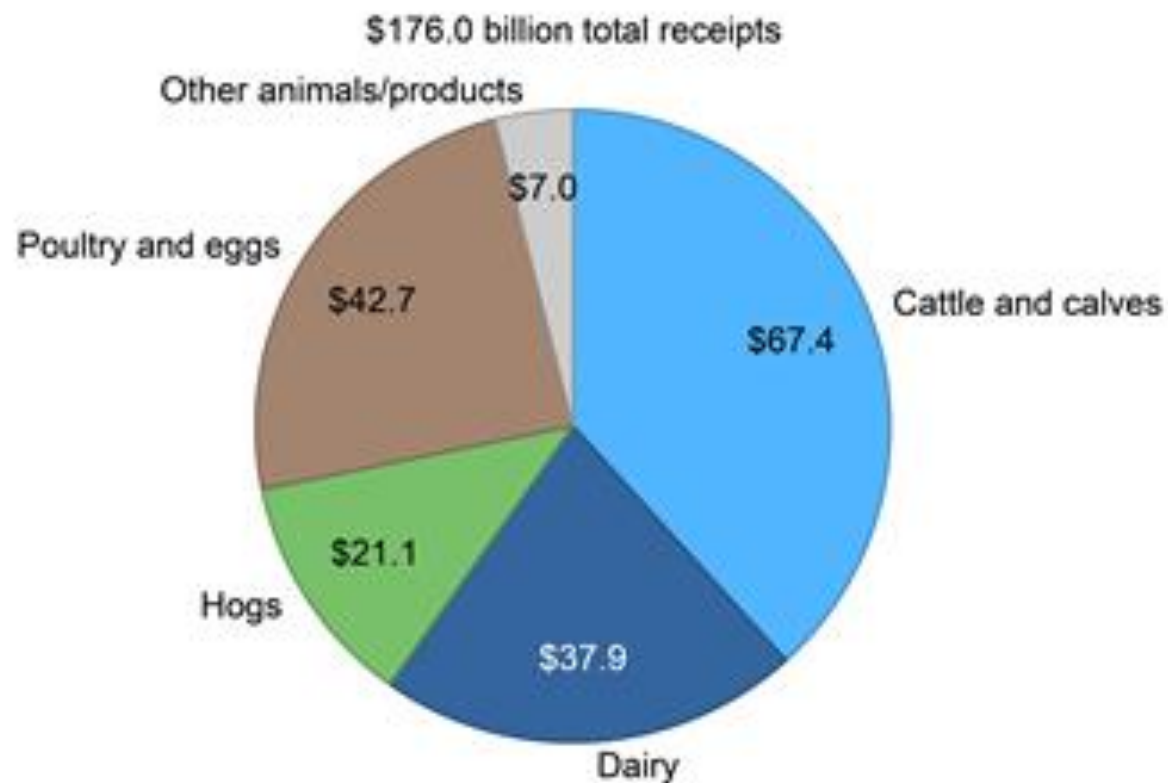
Source: USDA, Economic Research Service and National Agricultural Statistics Service, 2016 Agricultural Resource Management Survey.

2017 crop cash receipts (\$ billion)



Data as of November 30, 2018.
Source: USDA, Economic Research Service, Farm Income and Wealth Statistics.

2017 animals and products cash receipts (\$ billion)



Data as of November 30, 2018.
Source: USDA, Economic Research Service, Farm Income and Wealth Statistics.

Major Crop Acreage – U.S.



| | <u>Acres</u> | <u>Hectares</u> |
|---------------------------|-------------------|-------------------|
| Corn (Maize) | 97,000,000 | 39,000,000 |
| Soybeans | 76,000,000 | 30,400,000 |
| <u>Wheat</u> | <u>49,000,000</u> | <u>19,600,000</u> |
| <u>Cotton</u> | <u>9,378,000</u> | <u>3,751,200</u> |
| ALL Vegetables & Fruit | 5,463,000 | 2,185,200 |

AGRICULTURE IN THE U.S.



BIG - DIVERSE – FOUR REGIONS

2,000,000 FARMERS, 1% OF POPULATION
900,000 TILL 60% ACREAGE

80% Domestic – 20% Exports

**SINCE 1950 – 170% INCREASE IN
PRODUCTIVITY**

**26% LESS LAND – 22,000,000 LESS FARM
WORKERS**

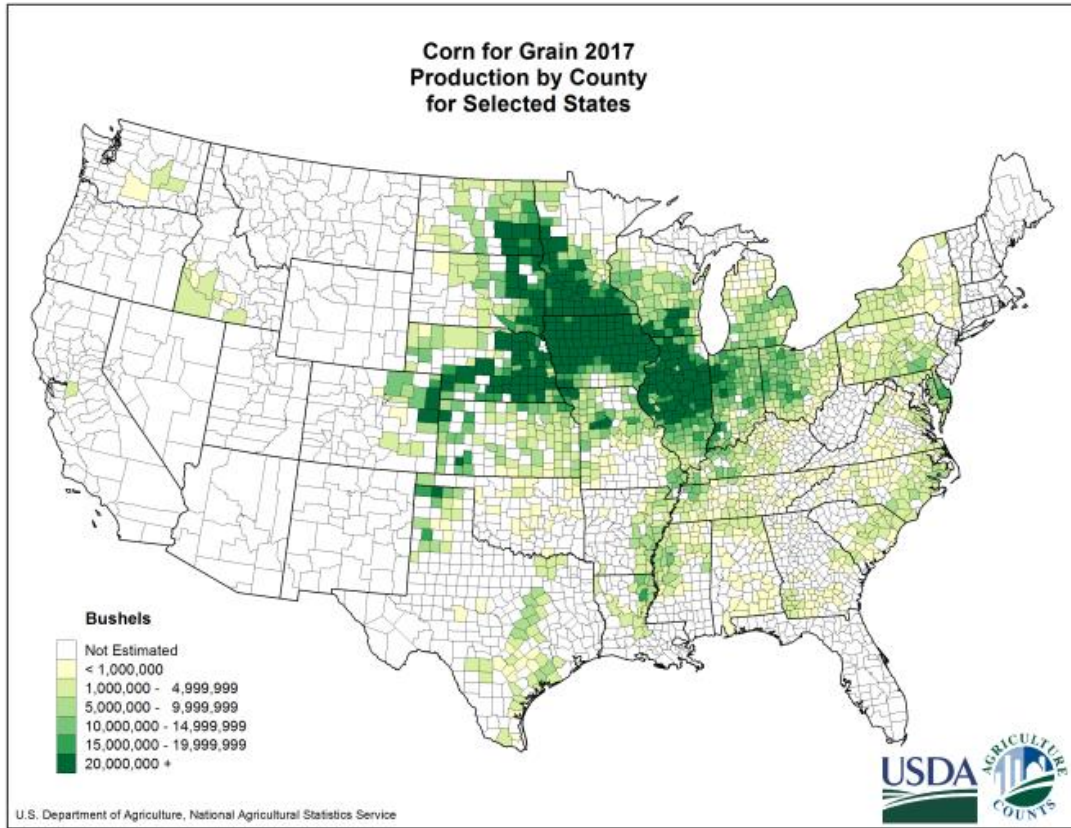
DELAWARE

SMALL STATE, but 40% of land mass is in Ag
500,000 acres – 2,500 farmers
800 till 65% of acreage/40% irrigated

Corn, Soybeans, Poultry
Strong Vegetable Industry

**Within 10 hours of 1/3 of US Population or
110 million people**





Iowa – the Heartland of the Heartland – 30 million acres in farmland – 87% of Land Mass







U.S. Seafood – Landed 9.9 Billion Pounds of Fish and Shellfish
Import 5.9 Billion Pounds



Aquaculture - \$1.5 billion of sales

MULTI-GENERATIONAL: TODAY'S FARM FAMILIES RELATE TO THEIR FAMILY STORIES – FAMILY HERITAGE – STRUGGLES OF THOSE WHO WENT BEFORE THEM



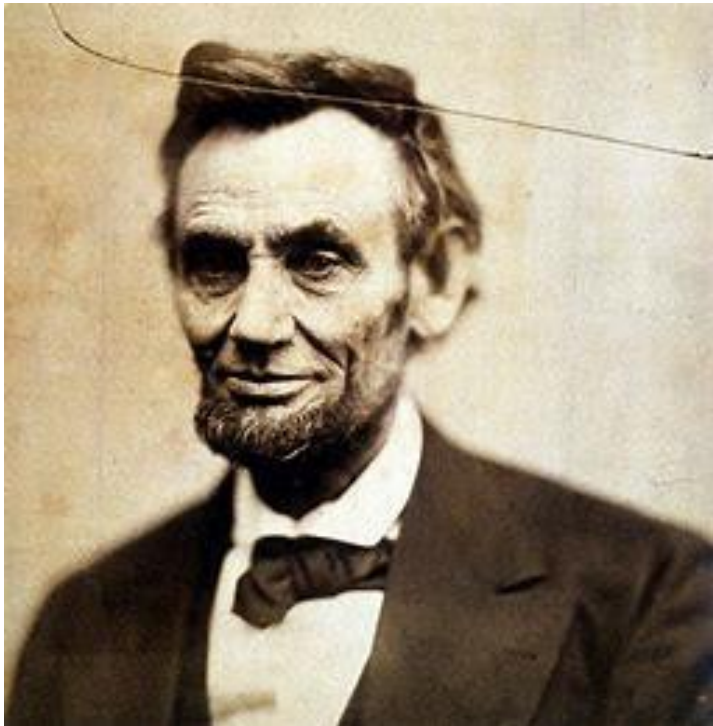
Federal Government and Agriculture

Infrastructure & Safety Net

- 3 Pieces of Landmark Legislation in 1862
- Hatch Act of 1887
- Legislation to “Reclaim” land in the Arid West in 1894, 1902 and 1907
- Smith-Lever Act of 1914

- Response to the Great Depression of the 1920s and 1930s
- Farm Bills beginning in 1933 and renewed and revised every five years since then
- Food & Nutrition Safety Net for lower income people

1862 – 3 Legislative Acts to Serve the Interests of the Family Farmer - Signed by President Abraham Lincoln



3 laws passed in 7 weeks that changed Agriculture Forever!

Founding - U.S. Department of Agriculture - May 15

The Homestead Act – May 20

Free Land – 160 acres/family – stay 5 years, build home, farm
-- Federal or Government Owned Land

270 Million Acres or
110 Million Hectares granted to
600,000 family farmers
1862 to 1910

The Morrill Act – Land Grant Universities – July 2

Federal Land Given to States to be sold to establish a College



USDA today

100,000 Employees

Presence in every county in every state

Congress Legislates the Farm Bill
The USDA administers the Farm Bill

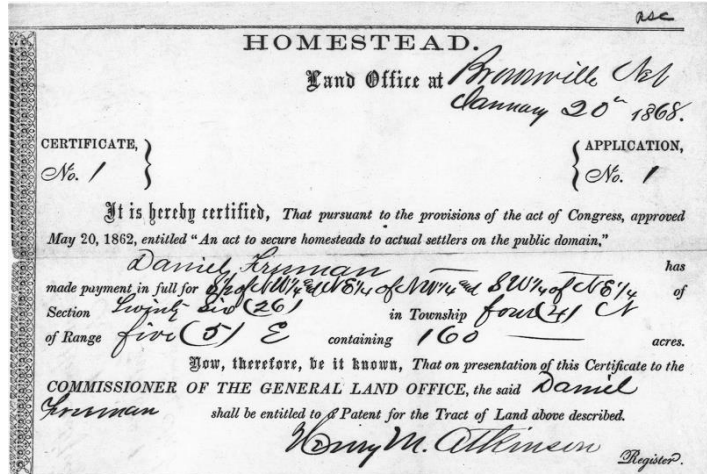
Titles or Sections of the Farm Bill

1. Farm Production & Conservation
2. Trade & Foreign Agriculture Affairs
3. Food and Nutrition Services – (69% of Budget)
4. Marketing and Regulatory Programs
5. Food Safety and Inspection
6. Research, Education and Economics
7. Rural Development
8. National Resources and Environment (Forestry)
9. Management of USDA

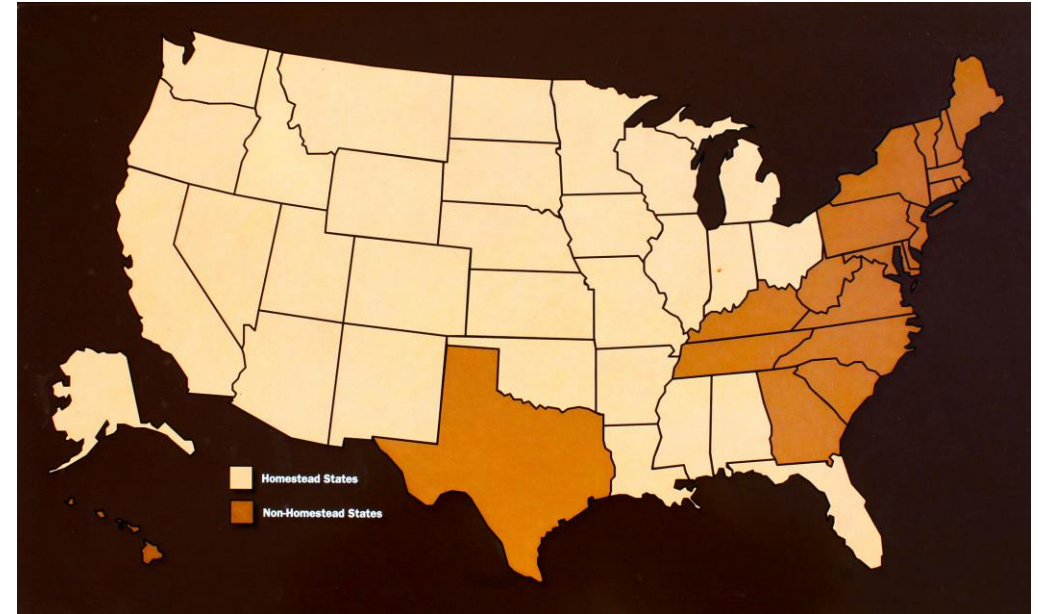


Katrina Sasse, 2017 Nuffield Scholar, Australia
Sonny Perdue, U.S. Secretary of Agriculture

The First Homestead Family - 1868



Homestead States in Lighter Color



Again – 600,000 families on 270 million acres (110 million hectares) 1862 - 1910

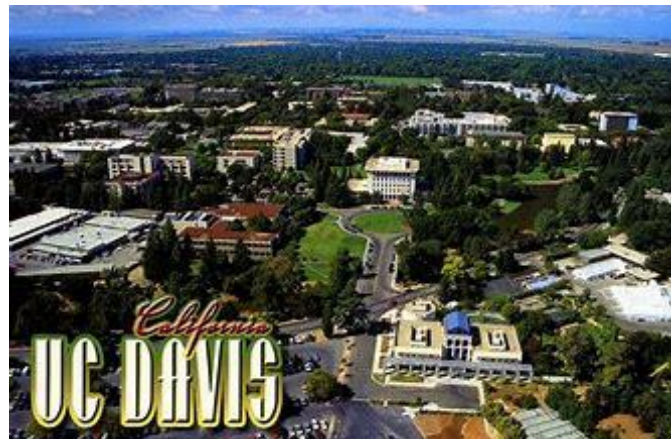
Universities for the People



Land Grant Universities

At Least one in Each State

105 Institutions across the US



Land Grant Universities: A Resource for Nuffield Scholars

- **Teaching** > “without excluding other scientific and classical studies, . . . To teach such branches of learning as are related to agriculture and engineering
- **Research** > Hatch Act of 1887 – federal funding for agricultural research
- **Extension** > Extend the University our to the People, Smith-Lever Act of 1914
- **The Three Legged Stool** was complete – Unique and rarely duplicated

Land-Grant Colleges and Universities



Western States - Irrigation

Series of Legislative Acts in 1894, 1902 and 1907 dedicated to “Reclaiming” Land in the Western Arid States by Developing Irrigation

Those States typically receive 20 inches (500 mm) or less annually



A family owned cattle ranch that raises cows and calves on the Oregon and Idaho border. The ranch is comprised of private and federal lands which the Brackett family manages with their own resources and time. By ranching on public lands, this family is helping preserve water and plants, controlling fires, and protecting wildlife habitat.

Animals graze on non-irrigated land, maybe 35 to 50 acres/animal. Irrigate and Harvest Hay from Irrigated land.





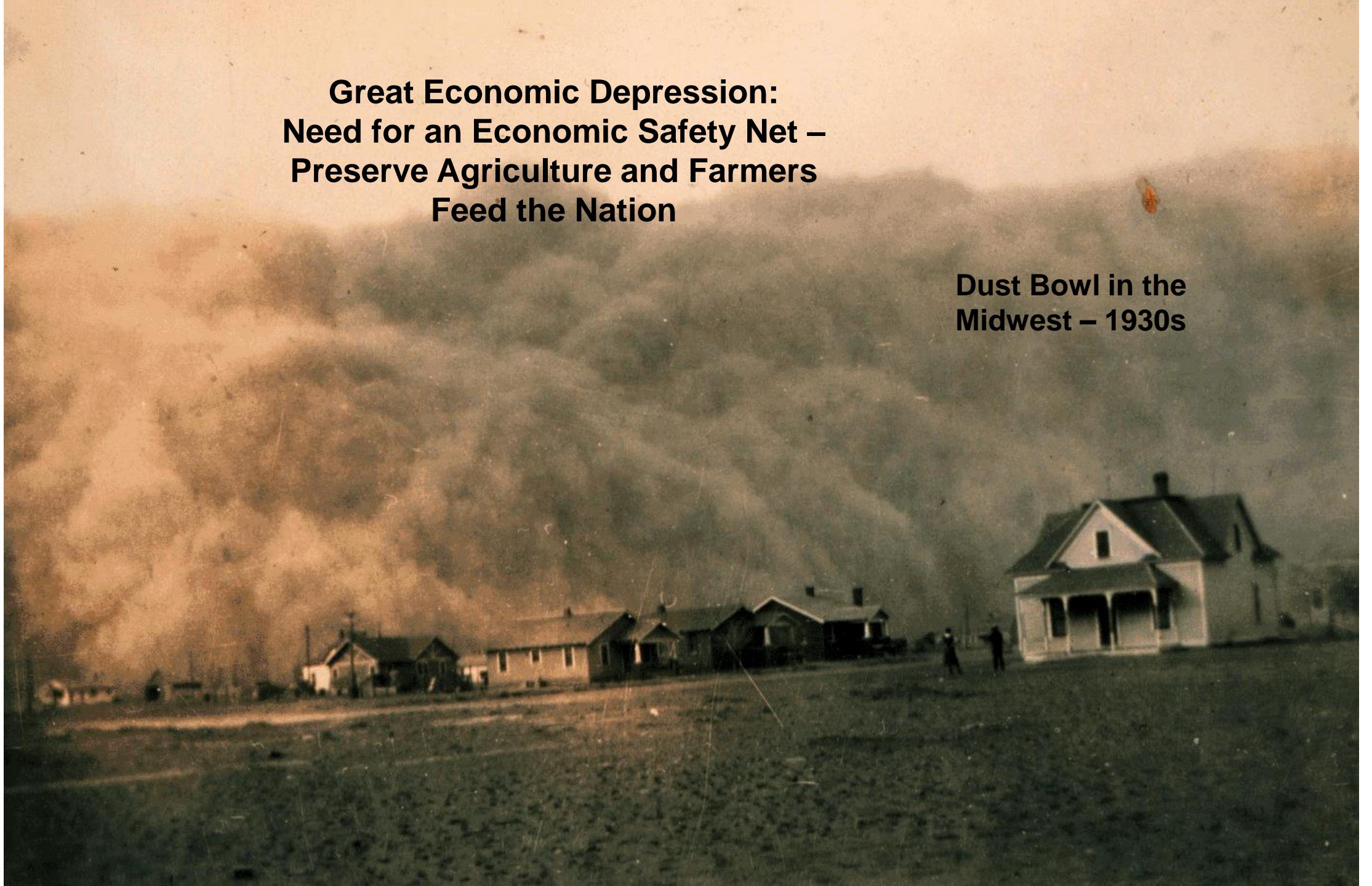






**Great Economic Depression:
Need for an Economic Safety Net –
Preserve Agriculture and Farmers
Feed the Nation**

**Dust Bowl in the
Midwest – 1930s**



Henry A. Wallace

- Secretary of Agriculture, 1933-1940
- Coped with Great Depression Crisis for Agriculture
- Today's Farm Legislation can be traced back to his Programs and Precedents

- Founded Pioneer Hybrid Seed Company
- HyLine Poultry - genetics
- His International work led to Norman Borlaug's work in Mexico and ultimately Borlaug's Nobel Peace Prize in 1970
- Vice-President of the United States, 1940-44



A Native of Iowa

The U.S. Farm Bill

Since 1933 – 18 “Farm Bills”

- **Safety Net** for economic viability of Farmers: **Income Support for farmers Also, Trade is emerging as a key part of the safety net**
- **Safety Net** to provide food for lower income people and school lunch nutrition programs. Food Stamps or SNAP (Supplemental Nutrition Assistance Program (Since 1960s)
This created the urban:rural coalition
- **Conservation**
- **Research & Education – USDA and Land Grant Universities**

Major Farm Safety Net (**Income Support**) Management Goals:

- Influence Supply (primarily 1933-1950, still exists but evolving to risk management)
Increase Demand (1950-now)
- **Risk Management --- Crop Insurance**
1990s to today

Farm Bill – Safety Net

Components or “Titles”

- Nutrition – 40 Million People (9.2%)
- Crop Insurance
- Conservation
- Commodity Support
- Other
 - Research
 - Renewable Energy
 - Miscellaneous

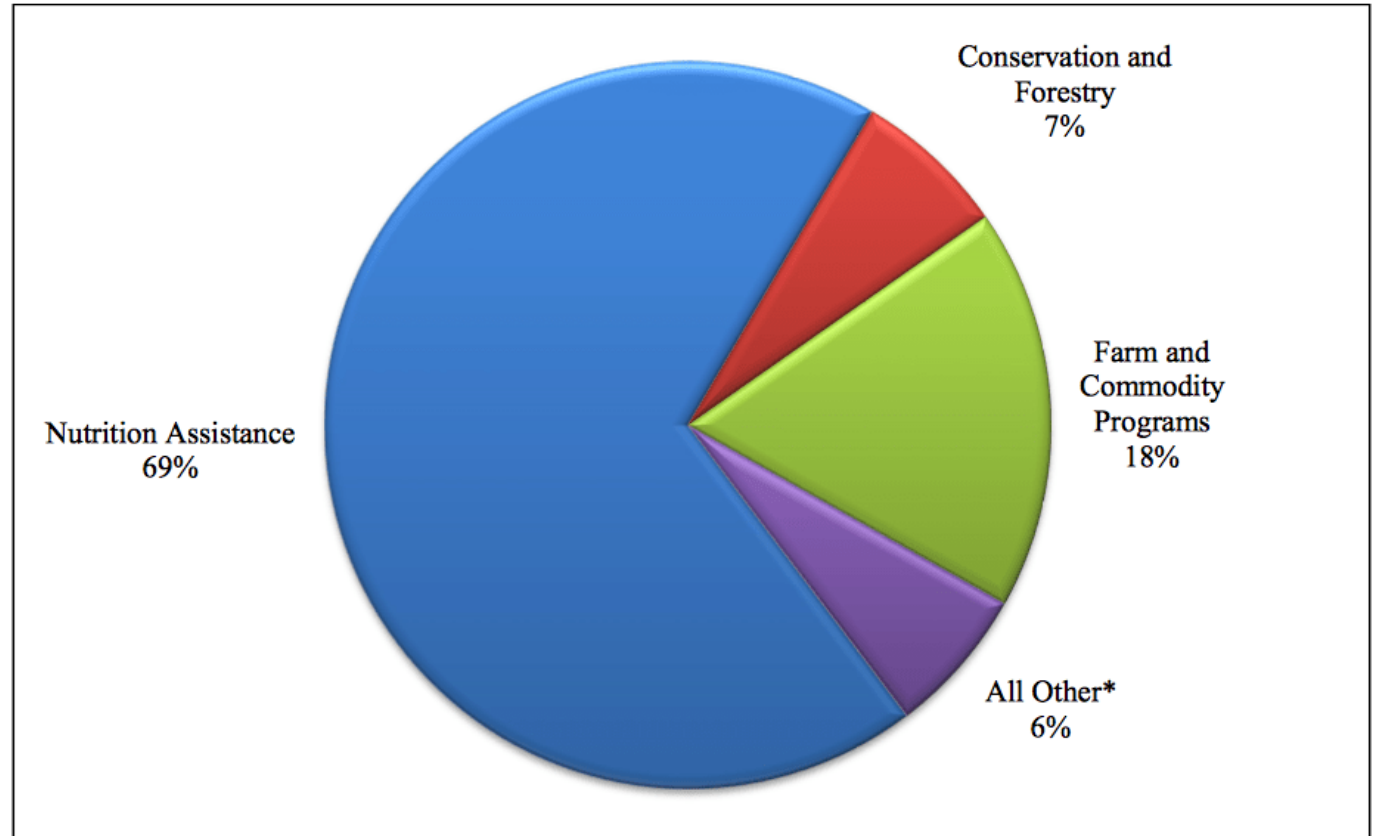


Figure OV-3. 2018 Outlays (All Other includes Rural Development, Research, Food Safety, Marketing and Regulatory, and Departmental Management.)

U.S Crop Insurance Summary -2015

| | | |
|-------------------|--------------------|------|
| Policies | 1,203,549 | |
| Acres | 298,204,110 | |
| Liability | \$ 102,096,955,365 | |
| Total Premium | \$ 9,714,408,068 | |
| Subsidy from Gov. | \$ 6,054,375,282 | 62%* |

•Overall average subsidy as percentage of total premium across 2015 U.S. crops, coverage levels, and policies.

•Subsidy paid to insurance companies to reduce subsidy cost to farmers

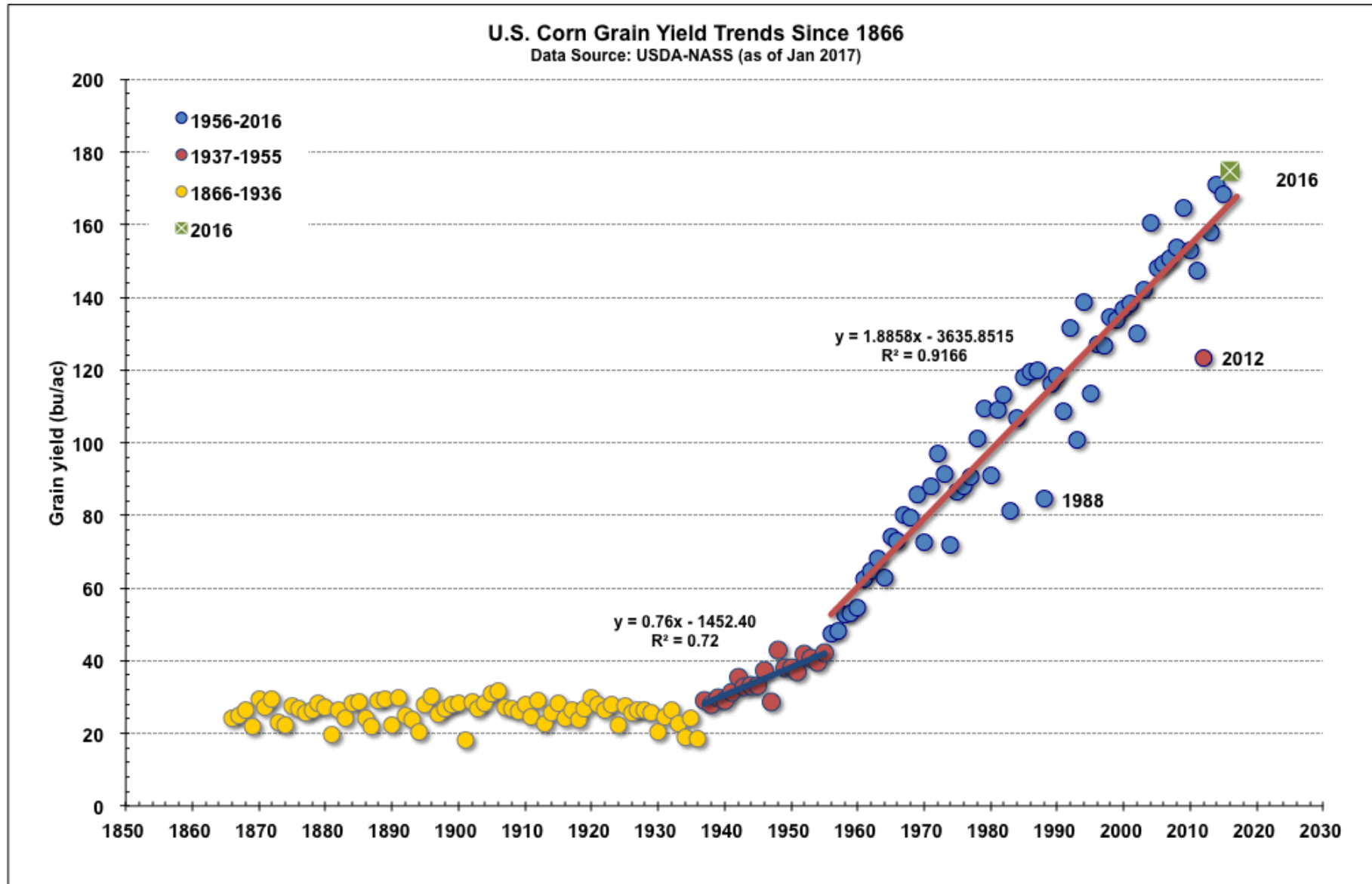
Summary of Government & US Agriculture

- Legislation in 1862, 1887, 1894, 1902 and 1907 and 1914 set up the infrastructure for:
 - USDA
 - Free Land
 - Irrigation of the West
 - Education, Teaching and Research
 - 1933 – beginning of the Farm Bills
-
- State Departments of Agriculture
 - Local Regulations
 - Cooperate/Contract with USDA for certain Regulatory & Inspection Services
 - Advocate for Agriculture in the State

RESULTS:

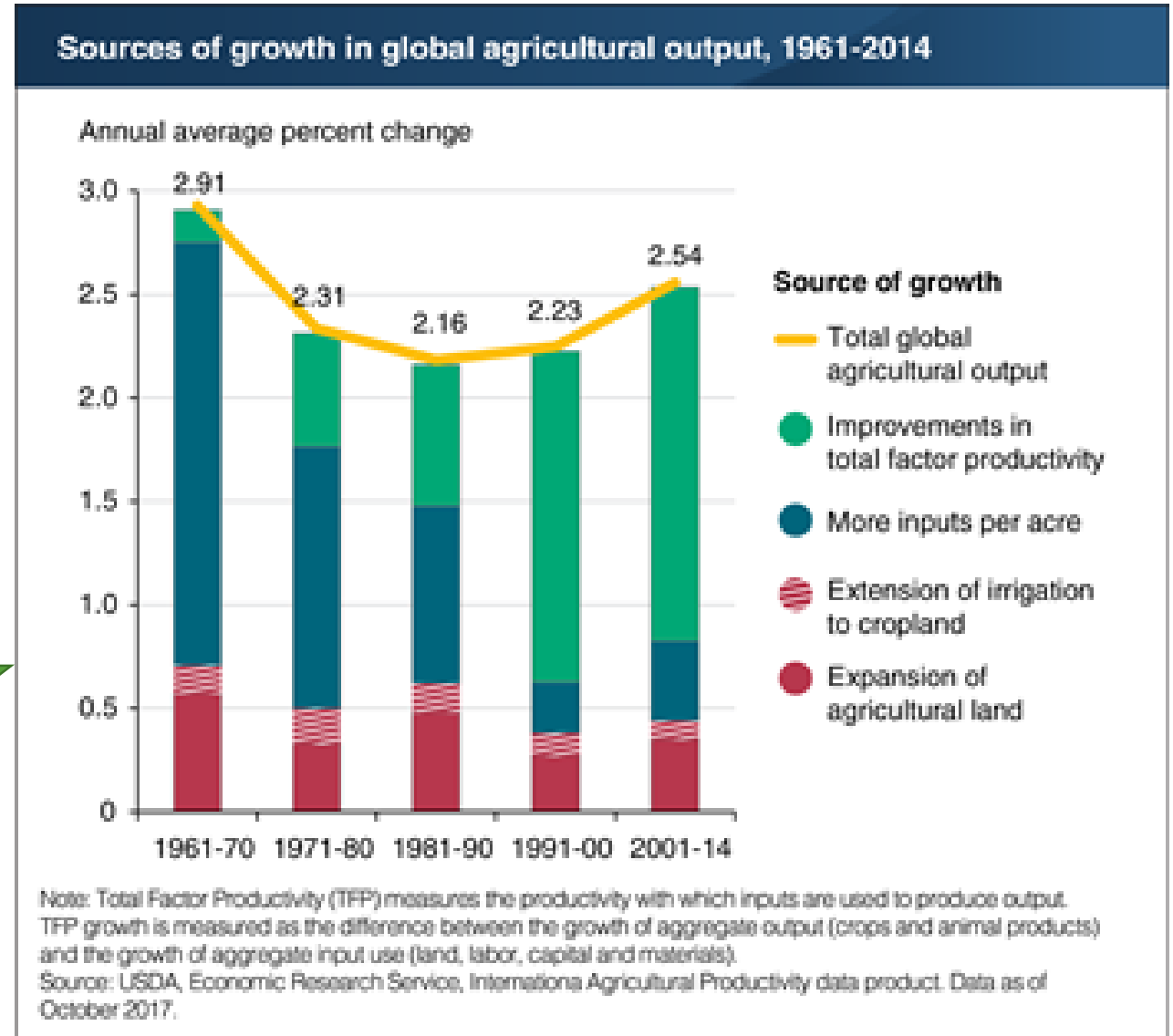
- ✓ SCIENCE AND TECHNOLOGY
 - ✓ EDUCATION
 - ✓ PUBLIC/PRIVATE SECTOR INVESTMENTS
- 157 YEARS - 1862-2019:
- ✓ ABILITY TO FEED THE WORLD
 - ✓ FARMERS STRIVE FOR PROFITABILITY
 - ✓ MEET THE CHALLENGE OF FEEDING THE WORLD IN 2015

PUBLIC/PRIVATE INVESTMENT IN AGRICULTURE: PRODUCTIVITY AND SECURITY



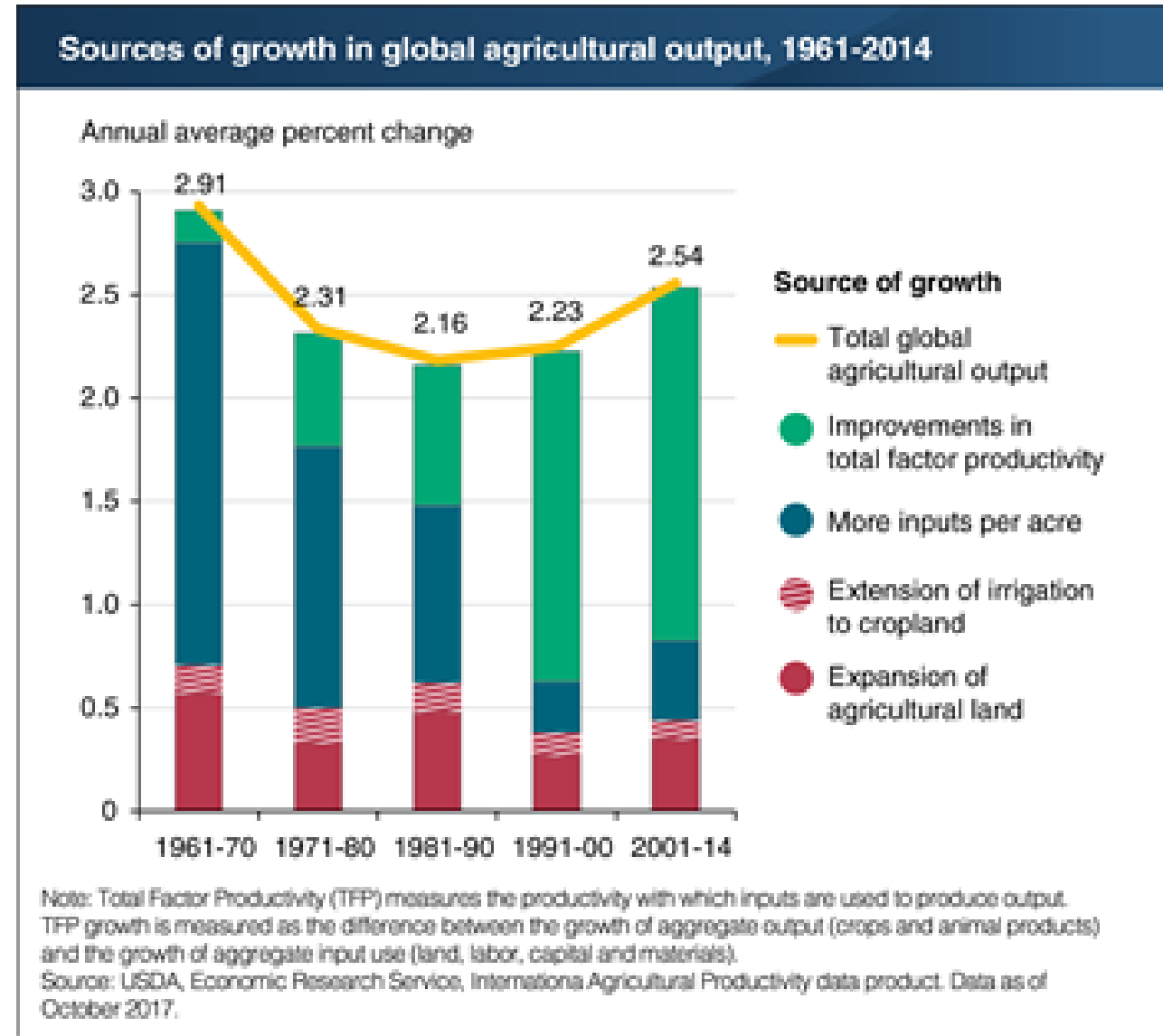
TOTAL FACTOR PRODUCTIVITY

- “Since the 1990s, productivity growth has driven the growth in global agricultural output in of total crop and livestock commodities”
- In 2000-2014 period, the global output expanded by an average rate of 2.5% per year
- Global Output Growth slowed in the 1970s & 1980s, but accelerated during the 1990s and 2000s
- Over the last two decades, the rate of growth from agricultural inputs (land, labor, capital, material inputs) has slowed, but improvements in Total Factor Productivity Growth have increased, accounting for 2/3s of Global Output growth since 2000>



Take Home Message from this Slide

- TFP growth reflects the use of new technology, efficiency improvement, and changes in management by agricultural producers around the world.
- Farmers and the Food Industry have invested, implemented and refined new science and technology
- This chart appears in the ERS topic page for [International Agricultural Productivity](#), updated October 2017.
- *For Nuffield Scholars – what will be the trend from 2020 to 2040??*



Demographic and consumption changes

Asia will drive the world's population growth through to 2050



Global population will grow from **6.9 billion** in 2010 to **9.3 billion** in 2050



42% or **1 billion** of that

growth will come from **Asia**

- *Supply chains will significantly alter*
- *There will be unprecedented pressures on infrastructures both hard and soft within these regions*
- *High potential for social and economic cost*

**CHALLENGES –
CHALLENGES**

ECONOMIC

CULTURAL

SOCIAL

GENERATIONAL

ENVIRONMENTAL

China Trade Tensions Hit Stocks

**Pressure Grows on U.S.,
China to Forge Trade Deal**

A blight in the fields

As farms hurt for labor, households could feel the pain

You Call That Meat? Cattle Ranchers

**and Lawmakers Beg to Differ
Farm Country Grows
Anxious Over Aid**

**Growers' New Clout
Tilts Farm Economy**

Powerful farmers push Cargill, ADM for
better prices, and may soon compete

China Buys U.S. Soybeans Day After Trade Talks

Characteristics of U.S. Farmers

(And – Perhaps Farmers Everywhere!)

Keen Observers



Resilient



Family Oriented



Independent



Innovative

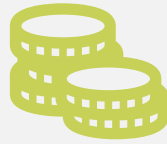
Strive to Prevail

Multi-Generational

**Secret of Survival -
Realistic**

Proud of What they do and who they are
THEY LOVE IT!!!!

On Line Resources



USDA Economic Research Service



College of Agriculture Websites
across the country



U.S. Agriculture Census – Google Ag
Census, look for Mann Library
Cornell University – Census data
back to 1790

THANK YOU!

