

Welcome Readers!

Where does our food come from and who grows it? Food and Farm Facts helps to answer these questions as it explores topics about agriculture in the U.S.

Food and Farm Facts can be used in a variety of ways to help increase agricultural literacy. Several suggested uses include: in a classroom, at fairs and events, and with student leadership organizations. Explore specific suggestions online at **agfoundation.org.**



AMERICAN FARM BUREAU FOUNDATION FOR AGRICULTURE

FOOD AND FARM FACTS is produced by the American Farm Bureau Foundation for Agriculture®

EDITOR: **CYNDIE SHEARING**, Director of Internal Communications, American Farm Bureau Federation® EDUCATIONAL REVIEW: **JULIA RECKO**, Director of Education Outreach, American Farm Bureau Foundation for Agriculture® STATISTICAL RESEARCH: **VERONICA NIGH**, Economist, American Farm Bureau Federation® DESIGN: **PHILIP GERLACH**, Senior Graphic Designer, American Farm Bureau Federation®

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Farming & Ranching is MUCH MORE than a Job

The achievements of modern farmers and ranchers are worthy of tribute, but most of us aren't very good about blowing our own horns. We quietly go about our work. Agriculture is a vast undertaking, from producing a bounty of food for consumers, to growing the wood that frames our homes, the fiber in our clothes and even the renewable fuel in our cars.

We are dedicated to an important mission—feeding Americans so we don't have to depend on other nations for our most basic need. We enjoy working to be more productive and sustainable. We love the land. We love helping our rural communities stay economically vibrant. We love carrying on our farms and traditions whether we started them or they've been in our family for tens or hundreds of years. We work to make sure that when it is our turn to pass along the legacy, our farms and ranches are in better shape than when we started. All of those things make farming and ranching so much more than "a job."

Farmers and ranchers are focused on continuous improvement, growing more food using fewer resources, while agriculture's environmental footprint is shrinking, as quantified and reported by both independent and government research.

The best way to learn about how farmers and ranchers grow, process and bring food to market is to ask one in person. Not yet acquainted with a farmer or rancher but have questions about food production? A number of options are open to you.

CONNECT on Social Media

Facebook posts from the farm, tweets from the tractor seat and blogs from the "back 40" make it easier than ever to connect to farmers and ranchers.

CHECK IN with Farm Bureau

All state Farm Bureau affiliates maintain websites with useful information on such things as farm tours and what foods are in season. Learn more at **fb.org/about/join**.

WATCH a SMART Farm Video

Farm tour videos created by the U.S. Farmers & Ranchers Alliance show how all types of farms and ranches use technology to be more sustainable and productive. Watch at **fooddialogues.com/smartfarm**.

Food and Farm Facts provides you with the opportunity to learn more about the many ways modern farmers produce food to meet the needs of today's consumers. It is my hope that it also puts into perspective how blessed we are to be Americans.

Zippy Duvall President, American Farm Bureau Federation[®] Chairman, American Farm Bureau Foundation for Agriculture[®] Beef Cattle and Poultry Farmer from Georgia



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About the FOUNDATION

AMERICAN FARM BUREAU

Building awareness, understanding and a positive public perception of agriculture through education

We believe everyone should have an understanding of where their food comes from. To reach that goal, we offer a variety of standards-based programs and activities at all grade levels for educators, volunteers and families. In addition to Food and Farm Facts, our premier resources and programs include:



American

Using science, technology, engineering and math resources, the **Purple Plow Maker Space Challenge** encourages students to research scenarios related to food, hunger and sustainability and build their own prototypes to solve the defined problem. **purpleplowchallenge.org**

My American Farm educates about agriculture in a fun way through 24 interactive computer games, e-comics, videos, free lesson plans and activities. myamericanfarm.org

Accurate Ag Resources is a curated list of publications, Foundation lesson plans and Ag Mags searchable by reading level, topic and type.

My American Farm and The Purple Plow Challenge are made possible through the generous support of title sponsor, DuPont Pioneer. Learn more at **agfoundation.org.**

OTHER GREAT RESOURCES

AGRICULTURE IN THE CLASSROOM, agclassroom.org

Classroom resources and historical information (Growing a Nation, The Story of American Agriculture, etc.)

GMO ANSWERS, gmoanswers.com

GMO Answers is dedicated to creating an open dialogue on the topics of biotechnology and GMOs in food and modern agriculture.

FARMLAND DOCUMENTARY, farmlandfilm.com

A firsthand glimpse inside the lives of six young farmers and ranchers – streaming on Netflix and available at Walmart retail locations or on **walmart.com**.

USDA

Visit ARS (**ars.usda.gov**) to learn how scientists are working to find solutions to agricultural problems that affect Americans every day; ERS (**ers.usda.gov**) for info on food expenditures in the U.S. and other countries, the food dollar series, farm production expenses, etc.; the National Agricultural Library (**nal.usda.gov**), one of the world's largest agricultural information collections; and NASS (**nass.usda.gov**) for the U.S. Census of Agriculture (conducted every five years) and other statistics.

NATIONAL 4-H COUNCIL, 4-h.org

4-H is delivered by Cooperative Extension, a community of more than 100 public universities across the nation. Kids complete hands-on projects in areas like health, science, agriculture and citizenship, in a positive environment where they receive guidance from adult mentors and are encouraged to take on proactive leadership roles.

NATIONAL FFA, ffa.org

FFA is an intracurricular student organization for those interested in agriculture and leadership. It is one of the three components of agricultural education.

SELECTED ACRONYMS USED IN THIS BOOK

American Farm Bureau Federation (AFBF); Agricultural Research Service (ARS); Economic Research Service (ERS); Food and Agriculture Organization (FAO); Foreign Agricultural Service (FAS); Foreign Agricultural Trade of the United States (FATUS); National Agricultural Statistics Service (NASS); Natural Resources Conservation Service (NRCS); and U.S. Department of Agriculture (USDA).

America's Farmers & Ranchers are **DIVERSE**

Farm and ranch families make up less than **2 PERCENT** of the U.S. population. They are diverse, growing conventional, biotech and organic crops. They also raise traditional and specialized livestock for meat, milk and eggs. Whether their businesses are big or small, today's farmers strive for continuous improvement in food production.

Over time, the tools and methods of farming have changed. So too has consumer interest in food and transparency about how it is produced. The intersection of these two trends is what drives much of the interaction that takes place today between farmers and consumers.



Americans Pay the LEAST for Food

U.S. consumers spend just **10 PERCENT** of their disposable income on food each year, while those in other countries spend much more.¹



MOST POPULAR FOODS

Average per capita annual food expenditures equal \$4,576 in the U.S. Of the 10 percent of disposable income Americans spend on food each year, 50 percent is for food eaten at home and 50 percent is for food eaten away from home.

USDA tracks how much of different types of food we eat on average annually (annual per capita consumption).

1 U.S. figure is for food consumed at home and away from home. Figures for all other countries are for food consumed at home. As food consumed at home is less expensive, the gap between these countries and the U.S. would be even greater if food consumed away from home was not included in the total.

©2017 American Farm Bureau Foundation for Agriculture[®] Source: USDA–ERS

Flour (White & Whole Wheat)	94.8 lbs
Chicken	87.7 Urs
Beef	51.5 Urs
Potatoes	46.7 lbs
Tomatoes	31.4 lbs
Cheese	21.9 lbs
Apples	11.6 lbs
Bananas	11.3 lbs

5

How do Farmers & Ranchers CARE for Farm Animals?

Through social media, America's farmers and ranchers explain why they do certain things when raising animals for food.

OUR ANIMALS DEPEND ON US

"Our animals depend on us to keep them safe and healthy. This is particularly critical in extreme winter conditions, when we take special action to ensure cows stay safe and healthy. We give the cattle a larger portion of feed so they have plenty to eat in case we're unable to get to them right away for the next feeding. We also make sure the electric water heaters are running so they always have access to water.



Also, before a blizzard starts, we bring the cows that are close to giving birth into the barn. It's crucial that we keep the new calves warm so they stay healthy.

We put out extra straw for bedding so the cows have an insulated bed and can lie down and stay warm and comfortable. We also set up wagons to create temporary windbreaks. The little ones get under the wagon beds for shelter, and the rest of the herd will surround one side to prevent the wind from getting through. Our animals' health and safety is our top priority. Even though it can be challenging in the winter, we always want to do what's right for the animals."

—Excerpted from a CommonGround blog post by Hilary Maricle, a family farmer and Farm Bureau member from Nebraska, commongroundnebraska.com/author/hilary-maricle/

WE KEEP OUR COWS COMFORTABLE

"On our modern dairy farm cows sleep in various places. Some of our cows sleep in individual stalls in a barn and are free to come and go as they please. The stalls are cleaned daily, leveled several times a week and new bedding is added every two weeks. Cows that sleep in barns also have access to outside corrals in appropriate weather. Some of our cows and younger heifers sleep outside in corrals, which are groomed at least three times weekly to keep the bedding soft, smooth and dry. Our pregnant cows rest on a clean, bedded pack filled with almond shells. We also have some cows that sleep in a pasture."

> -Excerpted from a blog post by Ray Prock, a family farmer and Farm Bureau member in California, facebook.com/raylindairy/

MY HOGS ARE ON A HEALTHCARE PLAN

"On our farm, it's normal for us to have entire groups of pigs that have never had any antibiotics when they go to market. I like to explain our antibiotic use like this: Our hogs do not carry health insurance, and all medications are expensive. We cannot afford to use antibiotics unless absolutely necessary to improve the quality of health for our animals. And we always use antibiotics under the guidance of our veterinarian. He decides what medication will be used when necessary and what dose will be used.

We have a healthcare plan for our hogs that is designed by our veterinarian. This means when we detect a hog might be sick or a hog isn't behaving normally, we follow our vet's advice on how to protect that animal and keep it healthy. As a mom, this is one of the most important jobs I will ever have and I take that responsibility very seriously."

—Excerpted from a blog post by Chris Chinn, a family farmer and Farm Bureau member who serves as director of the Missouri Department of Agriculture; the full post appeared on CNN's Eatocracy Blog, bit.ly/ChrisChinnEatocracy

©2017 American Farm Bureau Foundation for Agriculture[®] Source: AFBF





Social Media CONNECTS Farmers & Consumers

Finding common ground between farm families and consumers is easier than ever thanks to social media.



FOOD AND AGRICULTURE BLOGS TO FOLLOW



Fill Your Plate Blog Food Dialogues Blog Food Insight Food Integrity Blog **GMA Blog**

Best Food Facts bestfoodfacts.org fillyourplate.org/blog fooddialogues.com/blog foodinsight.org/blogs foodintegrity.org/news-blog/cfi-blog gmaonline.org/blog

> ©2017 American Farm Bureau Foundation for Agriculture® Sources: AFBF; USDA-ERS

DID YOU KNOW?

About 8 percent of U.S. farms market foods locally, through direct-toconsumer or intermediated sales (farmers' markets, farm stands, Community Supported Agriculture, food hubs, etc.). Buying local provides the opportunity to talk to those who grow or produce fresh fruits and veggies, flowers, meats, cheeses, baked goods and other value-added foods. Learn more at www.ams.usda.gov/services/ local-regional/food-directories.

Married Toronto

FOOD SAFETY at Home & School

Farmers and ranchers take seriously their obligation to grow safe, wholesome food. Thanks to strict government monitoring, the incidence of foodborne illness has dropped dramatically in the past 100 years. But we all still need to do our part to prevent foodborne illness at home and school!

- \checkmark Cook foods to proper temperatures.
- ✓ Use separate cutting boards for uncooked meat and ready-to-eat foods.
- Store leftover food in shallow containers and refrigerate within two hours.
- Wash hands often in hot, soapy water.

©2017 American Farm Bureau Foundation for Agriculture® Source: Partnership for Food Safety Education

Choose MYPLATE

MyPlate illustrates the five food groups that are the building blocks for a healthy diet using a familiar image — a place setting for a meal. Before you eat, think about what goes on your plate or in your cup or bowl.

Strive for a healthy eating pattern that includes nutrient-dense foods and beverages — vegetables, fruits, whole grains, fat-free or low-fat milk and dairy products, seafood, lean meats and poultry, eggs, beans and peas, soy products and nuts and seeds.

What foods, flavors and recipes is your state known for, and how do they fit into a healthy eating style? Visit **choosemyplate.gov/myplate-mystate** to find out.

Fruits Vegetables Vegetables Protein Choose My Plate.gov

©2017 American Farm Bureau Foundation for Agriculture[®] Source: Dietary Guidelines for Americans, 2015-2020

One U.S. FARM Feeds 165 PEOPLE

America's farms and farmers are the world's most productive. Today, each farm produces food and fiber for 165 people annually in the United States and abroad. Of those 165 people, 106 are in the U.S. and 59 are outside the U.S. The global population is expected to increase by 2.3 billion by 2050, which means the world's farmers will have to grow about **70 PERCENT** more food than what is now produced.

In 1935, the number of farms in the United States peaked at 6.8 million. By 1975, there were 2.5 million U.S. farms. Today, there are 2.1 million farms dotting America's rural landscape.

HOW MANY PEOPLE DOES ONE U.S. FARM FEED ANNUALLY?





©2017 American Farm Bureau Foundation for Agriculture[®] Sources: AFBF; Census of Agriculture (2012); FAO; USDA-NASS

DID YOU KNOW?

Total U.S. corn yield (tons per acre) has increased more than 360 percent since 1950.

See what FARMERS & RANCHERS GROW

Farming accounts for about **1PERCENT** of the U.S. gross domestic product, but has economic significance beyond the farm gate. The manufacturing of farm machinery and fertilizer is mostly done in metro counties, while farm services and food processing are disproportionately located in non-metro counties. Even in many counties that are dependent on manufacturing or services, farming can be an important component of local communities.

TOTAL ANNUAL PRODUCTION: 2.5 TRILLION POUNDS

ROPS = 87 %	LIVESTOCK = 13%
BILLION	COMMODITY
1,049.2 lbs	Grains (Corn, Wheat, Oats, Rice, Barley, Rye, Sorghum & Millet)
529.2 lbs	Hay & Silage
281.5 lbs	Oilseeds (Soybeans, Sunflowers, Peanuts, Canola, Cottonseed, Mustard Seed, Flaxseed, Rapeseed & Safflower)
208.6 lbs	Dairy Products
148.5 lbs	Cotton, Tobacco, Sugarbeets & Sugarcane
139.7 lbs	Horticulture (Vegetables, Citrus, Non-citrus Fruits & Nuts)
48.3 lbs	Potatoes, Sweet Potatoes, Mushrooms, Hops, Peppermint Oil, Spearmint Oil & Maple Syrup
47.4 lbs	Poultry (Turkeys & Broilers)
24.5 lbs	Pork
23.8 lbs	Beef & Veal
12.7 lbs	Eggs
7.0 lbs	Dry Beans, Peas & Lentils

©2017 American Farm Bureau Foundation for Agriculture® Sources: USDA-ERS; USDA-NASS; WAOB



Exploring Farm DEMOGRAPHICS

There are **3.2 MILLION** U.S. farm operators who work on **2.1 MILLION** farms. They run the farm, making decisions about planning, harvesting, feeding, marketing and so on. Operators may be owners, members of the owner's household, a hired manager, a tenant, a renter or a sharecropper. The average age of principal farm operators has been steadily increasing over the past three decades and is now 58.



The number of farm operators of **SPANISH**, **HISPANIC** or **LATINO** origin is **HIGHER** than ever, **UP 21 PERCENT** to 99,734. There also are **MORE AFRICAN AMERICAN** (44,629, up 12 percent) and **AMERICAN INDIAN** (58,475, up 5 percent) farm operators.

WOMEN make up 30 percent (969,672) of the total number of farm operators.

The **MILLENNIAL GENERATION** (people age 34 and under) includes 257,454 farmers.

More than 20 percent of all farmers are **BEGINNING FARMERS** (in business less than 10 years).

TEXAS has the **MOST FARMS** (248,809), followed by Missouri (99,171), lowa (88,637), Oklahoma (80,245) and California (77,857).

Total land in farms was estimated at 915 million acres in 2012, a decrease of 1 million acres since 2007.

Farms are getting **BIGGER.** The average farm size was 434 acres in 2012, compared to 418 acres in 2007.

©2017 American Farm Bureau Foundation for Agriculture® Sources: Census of Agriculture (2012); USDA–ERS

Family Farmers & Ranchers FEED AMERICA

Today, **99 PERCENT** of all U.S. farms are owned by individuals, family partnerships or family corporations. Just **1 PERCENT** of America's farms and ranches are owned by non-family corporations.

In addition, **89 PERCENT** of U.S. ag products sold are produced on family farms or ranches. Non-family corporations account for only **11 PERCENT** of U.S. ag product sales.

©2017 American Farm Bureau Foundation for Agriculture® Source: USDA-ERS – America's Diverse Family Farms, 2016 Edition Photo Credit: PastureBird LLC

B



FARM EXPORTS HELP the Economy

In 2016, **\$135.5 BILLION** worth of American agricultural products were exported around the globe. The top five customers (in red) accounted for **61 PERCENT** of all exports.

China and Canada are the United States' largest trading partners. Together, they account for 31 percent of all U.S. agricultural exports.

	IMPORT MARKET	BILLION			
	CHINA	\$21.4			
	CANADA	\$20.5	U.S. SHARE	OF	
	MEXICO	\$17.9	WORLD PR	ODUCTION	
	JAPAN	\$11.1	Corn	36%	
	EU-28	\$11.6	Soybeans	34%	
	SOUTH KOREA	\$6.2	Beef & Veal	18%	
	HONG KONG	\$3.8	Milk	16%	
	TAIWAN	\$3.2	Cotton	13%	
	INDONESIA	\$2.7	Wheat	8%	
1	VIETNAM	\$2.7	Apples	6%	

©2017 American Farm Bureau Foundation for Agriculture[®] Source: USDA, FAS Online, 2017

Agriculture has a POSITIVE Trade Balance

U.S. AG EXPORTS EQUAL \$135.5 BILLION

\$22.9Soybeans\$16.2Beef, Veal, Pork & Poultry\$13.4Fresh & Processed Fruits & Vegetables\$9.9Corn\$7.9Tree Nuts\$7.5Feeds & Fodder\$5.3Wheat\$4.7Dairy Products\$1.9Rice	BILLION	TOP EXPORTS
\$16.2Beef, Veal, Pork & Poultry\$13.4Fresh & Processed Fruits & Vegetables\$9.9Corn\$7.9Tree Nuts\$7.5Feeds & Fodder\$5.3Wheat\$4.7Dairy Products\$1.9Rice	\$22.9	Soybeans
\$13.4Fresh & Processed Fruits & Vegetables\$9.9Corn\$7.9Tree Nuts\$7.9Feeds & Fodder\$5.3Wheat\$4.7Dairy Products\$4.0Cotton\$1.9Rice	\$16.2	Beef, Veal, Pork & Poultry
\$9.9Corn\$7.9Tree Nuts\$7.5Feeds & Fodder\$5.3Wheat\$4.7Dairy Products\$4.0Cotton\$1.9Rice	\$13.4	Fresh & Processed Fruits & Vegetables
\$7.9Tree Nuts\$7.5Feeds & Fodder\$5.3Wheat\$4.7Dairy Products\$4.0Cotton\$1.9Rice	\$9.9	Corn
 \$7.5 Feeds & Fodder \$5.3 Wheat \$4.7 Dairy Products \$4.0 Cotton \$1.9 Rice 	\$7.9	Tree Nuts
\$5.3Wheat\$4.7Dairy Products\$4.0Cotton\$1.9Rice	\$7.5	Feeds & Fodder
\$4.7 Dairy Products\$4.0 Cotton\$1.9 Rice	\$5.3	Wheat
\$4.0 Cotton \$1.9 Rice	\$4.7	Dairy Products
\$1.9 Rice	\$4.0	Cotton
	\$1.9	Rice

U.S. AG IMPORTS EQUAL \$115.0 BILLION

BILLION	TOP IMPORTS
\$15.3	Fresh & Processed Fruits
\$13.3	Fresh & Processed Vegetables
\$11.1	Coffee & Cocoa
\$11.1	Grains & Feeds
\$10.6	Wine & Malt Beverages
\$7.7	Beef, Veal & Pork



About **25 PERCENT** of all U.S. agricultural products by value are exported yearly, including:

- 148.5 million tons of corn, coarse grains, distillers grains, soybeans, soybean meal and feed & fodder
- 3.6 million tons of poultry meats
- 3.0 million tons of fresh fruit

©2017 American Farm Bureau Foundation for Agriculture[®] Source: USDA–ERS, FATUS RADE & ECONOMICS

Ag Programs EQUAL 16% of the USDA BUDGET



Food Assistance & Nutrition Programs	71%
Ag Programs	16%
Conservation & Forestry	7%
Other ¹	6%



DID YOU KNOW?

President Abraham Lincoln established the USDA in 1862. USDA's budget focuses on creating jobs and building a foundation for future economic growth, particularly in rural America. It also provides stability for farmers and ranchers, in addition to making targeted investments in bio-based product manufacturing, local and regional food systems, and specialty crops and organic production. Food Assistance and Nutrition Programs—including the Supplemental Nutrition Assistance Program or SNAP (formerly

known as Food Stamps); Women, Infants and Children or WIC; and school lunch/ breakfast programs—account for nearly three-quarters of the Agriculture Department's 2017 budget. In contrast, ag programs equal just **16 PERCENT.**

1 Includes Food Safety, Rural Development, Research and Marketing/Regulatory programs.

©2017 American Farm Bureau Foundation for Agriculture® Sources: Office of Management and Budget; USDA

TRADE & ECONOMIC



Where does Your FOOD DOLLAR Go?

Transporting, processing and packaging farm–grown foods so they're ready to be enjoyed on our tables costs significantly more today compared with the recent past. The farmer's share of the retail food dollar is as low as **2 PERCENT** to **4 PERCENT** for bread and cereal, and as much as **35 PERCENT** for some fresh market products.



Off-Farm

On-Farm

FARMERS AND RANCHERS receive only 16 cents (on average) out of every retail dollar spent on food that is eaten at home and away from home. In 1980, farmers received 31 cents out of every retail dollar spent on food in the United States. The farm share in a dollar food purchase is higher for food consumed at home, compared to food consumed away from home — 24 cents vs. only 5 cents.

OFF-FARM COSTS — marketing expenses associated with processing, wholesaling, distributing and retailing of food products — account for 84 cents of every retail dollar spent on food.



TRADE & ECONOMIC

FARMERS' EXPENSES Continue to Rise

For 2016, farm-level production expenses were down slightly from the record-high level of 2014, but were still **50 PERCENT** higher than expenses in 2006. This is how those expenses break down:

- 16.5% **Purchased Feed**
- 16.0% **Capital Upkeep and Replacement**
- 15.4% Fertilizer, Seed, Crop-Protecting Chemicals
- 11.7% Farm Labor and Custom Hire
- 9.8% Interest, Property Taxes, Other Taxes/Fees
- 6.4% Purchased Livestock
- 5.8% **Net Rental Payments**
- 5.4% Fuel, Electricity
- 2.5% Marketing, Storage, Transportation
- 10.5% **Miscellaneous**

FARM PRODUCTION EXPENSES







2011 \$306.9

2016

©2017 American Farm Bureau Foundation for Agriculture Sources: ERS, Farm Production Expenses and Food Dollar Series

\$349.9



Farmers Take CONSERVATION SERIOUSLY

Careful stewardship by America's food producers has spurred a **44 PERCENT** decline in erosion of cropland by wind and water since 1982.

SOIL EROSION BY WIND & WATER



Through the farm bill, funding is provided to farmers and ranchers for conservation programs that prevent soil erosion, preserve and restore wetlands, clean the air and water, and enhance wildlife.

Crop rotation, the practice of growing different crops in succession on the same land, is another way farmers take care of the land.

For contour farming, farmers plant crops across the slope of the land to conserve water and protect soil.

DID YOU KNOW?

Sand, silt and clay are basic mineral particles that make up soil, which also contains organic matter, water, microorganisms and (sometimes) worms. Farmers often test soil before planting to determine composition, pH and balance of nutrients such as nitrogen, phosphorus and potassium. Results are used to determine the proper type and amount of fertilizer to apply.

©2017 American Farm Bureau Foundation for Agriculture® Sources: AFBF; USDA National Resources Inventory (2012)

Farmers PROTECT NATURAL RESOURCES

No-till or conservation tillage — a way of farming that reduces erosion (soil loss) while using less energy—is used on more than twice as many cropland acres compared to conventional tillage. Advanced conservation practices are used on more than **50 PERCENT** of cropland acres.

Farmers, ranchers and other landowners have enrolled a total of 24 million acres in the Conservation Reserve Program to protect the environment and provide habitat for wildlife. Since its inception in 1986, the program has reduced soil erosion by 8 billion tons, annually cut sediment leaving fields by more than 300 million tons and has restored more than 2 million acres of wetlands.

Two important CRP initiatives included in the farm bill are introduction of native grasses and installation of conservation buffers. Buffers improve soil, air and water quality, enhance wildlife habitat, and create scenic landscapes.



Sources: Census of Agriculture (2012); USDA-NRCS

CROPLAND USE PRACTICES

No-till **Conservation Tillage Conservation Easement** Planted to a Cover Crop **USDA** Conservation Programs **Conventional Tillage** Other

TOTAL CROPLAND

ACRES 96,476,496 76,639,804 13,186,093 10,280,793 27,485,000 105,707,971 59,914,257 389,690,414

DID YOU KNOW?

Each year, hundreds of thousands of trees are planted on farmland. More than half of America's farmers intentionally provide habitat for wildlife. Deer, moose, fowl and other species have shown significant population increases for decades.

BIOTECHNOLOGY Benefits Consumers

Biotechnology applied to medicine, agriculture and environmental management solves problems or enhances products through cellular and molecular processes.

Improved crop disease protection through biotechnology provides a more reliable harvest. This means food is consistently available and more affordable.

Oils from some biotech crops contain fewer saturated fats and trans fats after processing; others are higher in Omega-3 fatty acids, which are associated with improved heart health. Lower-fat beef and pigs with a higher meat-to-fat ratio also are possible thanks to biotechnology.

Non-bruising and non-browning apples and potatoes reduce food waste.

Biotech salmon contribute to more sustainable aquaculture systems by rapidly reaching market weight while consuming **25 PERCENT** less food compared to conventionally raised salmon.

Biotechnology saved the Hawaiian papaya industry after the papaya ringspot virus nearly wiped the crop out.

Scientists are exploring how biotechnology may someday expand choices for people with common food-related allergies, improve the flavor of food and enhance freshness.

BIOTECH CROPS GLOBALLY

- TOP FIVE countries in terms of acreage United States, Brazil, Argentina, Canada and India
- Grown by 18 million farmers, 90 PERCENT of whom live in developing countries
- Reduced herbicide and insecticide use by 19 PERCENT

DID YOU KNOW?

U.S. farmers grew biotech varieties of corn, cotton, soybeans, sugarbeets, papaya, alfalfa, canola, squash and potatoes on 180 million acres in 2016.

Help students understand biotechnology! **Download** Bringing Biotechnology to Life Lesson Plans available at **agfoundation.org/bringing-biotech-to-life**.

©2017 American Farm Bureau Foundation for Agriculture® Sources: International Food Information Council; Food Insight.org

RODUCTION

AQUACULTURE & SILVICULTURE are Important

AQUACULTURE is the production of aquatic animals and plants under controlled conditions for all or part of their life cycle. Louisiana has the most aquaculture farms (500) followed by Florida (393), Mississippi (244), Alabama (156) and North Carolina (146). The U.S. total is 3,093.

The **TOP FIVE** states for aquaculture sales by dollar value are: **Washington, Mississippi, Alabama, Louisiana** and **California.**

COMPARING TYPES OF AQUACULTURE FARMS

(Individual categories do not equal U.S. total, as some farmers raise multiple types of fish.)

Food Fish	Mollusks	Crustaceans	Ornamental Fish	Sport Fish	Bait Fish	Misc. Fish
1,296	756	566	285	282	166	235

Food fish = Catfish, Salmon, Trout, Tilapia, etc.

SILVICULTURE is a branch of forestry dealing with the management and cultivation of forest trees. About one-third of the U.S. (766 million acres) is covered with trees.

The U.S. Forest Service manages 193 million acres of forestland and grasslands which includes non-wildlife habitat and recreation areas as well as hydroelectric power plants and energy pipelines. The boundary lines of this natural resource total 276,100 miles, which equates to 11 trips around the Earth at the equator.

Careful forest management allows regular harvesting of timber without harming air and water quality and wildlife habitats. Replanting trees promptly after harvest ensures that new forests are in place to prevent soil erosion and protect water quality. U.S. forest plantings average about 2.1 million acres per year.

The **TOP FIVE** states for silviculture sales by dollar value are: **Georgia, Alabama, Mississippi, South Carolina** and **North Carolina.**



BEAUTIFUL AGRICULTURE Nursery & Greenhouse Production

The nursery and greenhouse industry is made up of thousands of small family businesses that grow, retail, install and care for plants and landscapes. Grower cash receipts from nursery and greenhouse sales to retail and distribution businesses totaled \$13.8 BILLION in 2014.

There are 23,221 nursery and greenhouse operations in the U.S. The **TOP-PRODUCING STATES** by value are: **California, Florida, Oregon, Michigan** and **Texas.**

TYPICAL NURSERY CROPS

- Cut and live Christmas trees
- Fruit and nut plants for outdoor/landscape use
- Ornamental plants and trees with woody stems
- Ornamental vines

PRODUCTIO

Turfgrass sod and other ground covers

TYPICAL GREENHOUSE CROPS

- Aquatic plants
- Floral, foliage and vegetable plants including tomatoes
- Mushrooms, herbs and seeds
- Transplant seedlings and bulbs

©2017 American Farm Bureau Foundation for Agriculture® Source: 2014 Census of Horticulture

Producing MORE MILK with LESS FEED

A typical Holstein dairy cow weighs 1,800 pounds and produces more than **60,000 POUNDS** of milk during her lifetime. A cow converts roughage and grains not consumed by people into high-energy foods.

ONE DAY'S PRODUCTION for a high-producing cow is **105 POUNDS** of milk that is **3.5 PERCENT FAT.** This yields:

4.8 POUNDS of butter or**8.7 GALLONS** of ice cream or**10.5 POUNDS** of cheese

FARM VALUE of 100 pounds of milk (about 12 gallons)¹ = \$ 18.90

FARMERS' COST:

Feed = \$ 6.62 Buildings/overhead = \$ 2.89 Labor = \$ 2.51 Supplies = \$ 1.81 **TOTAL = \$13.83**

FARMERS' RETURN = \$5.07

ONE DAY'S CONSUMPTION for a high-producing cow:

60 POUNDS of hay or silage
10-20 POUNDS of grain and concentrated feed
6-12 POUNDS of supplements (protein, fat, vitamins and minerals)
25-50 GALLONS of water

1 Based on 2016 costs and prices

©2017 American Farm Bureau Foundation for Agriculture[®] Sources: USDA–ERS; America's Dairyland; University of Illinois

DID YOU KNOW

RODUCTION

The pounds of feed (grain, forage, etc.) a cow needs to eat to produce 100 pounds of milk has decreased by more than 40 percent on average in the last 30 years.



Agriculture is MORE than FOOD

Many products we use in our everyday lives are plant and animal byproducts of foods produced by America's farmers and ranchers.

MANUFACTURING	Adhesives, lubricants, solvents, detergents, polymers Lumber, paints, brushes, tar paper, drywall, tool handles, particleboard		
CONSTRUCTION			
HEALTHCARE	Pharmaceuticals, surgical sutures, ointments, latex gloves, X–ray film		
PERSONAL CARE PRODUCTS	Shampoo, soap, cosmetics, lotions, fingernail polish, toothpaste		
TRANSPORTATION	Biofuels including ethanol and biodiesel, lubricants, antifreeze, tires, upholstery, packing materials		
SPORTS	Uniforms, baseball bats, leather equipment and balls, shoes		
PRINTING	Paper, ink		
EDUCATION	Crayons, textbooks, chalk, desks, pencils, paper		
ENTERTAINMENT	Strings for musical instruments		

©2017 American Farm Bureau Foundation for Agriculture® Source: USDA's Amber Waves Magazine

America's FARMS & RANCHES

TOP-PRODUCING STATES FOR PIZZA INGREDIENTS

ONIONS California, Colorado, Georgia

TOMATO SAUCE Florida, California (Fresh Tomatoes)

MUSHROOMS Pennsylvania, California

PIZZA DOUGH (Winter Wheat)

CHICKEN

Georgia, North Carolina, Alabama Iowa, Minnesota, North Carolina

California, Wisconsin, New York

California, Arizona

California, Florida

Kansas, Oklahoma, Washington

SAUSAGE (Hogs)

PINEAPPLE Hawaii

SPINACH

GREEN PEPPERS

MOZZARELLA CHEESE (Dairy Products)



PRODUCTION

©2017 American Farm Bureau Foundation for Agriculture[®] Sources: USDA—NASS; American Pizza Community

DID YOU KNOW?

Americans consume more than **3 BILLION** pizzas annually; the average family eats pizza at home 30 times each year.

Precision Agriculture on MODERN FARMS



GPS-based mapping, auto-steer guidance systems and variable-rate technology for applying crop inputs such as pesticides and fertilizer are used by farmers to increase yields, lower costs and reduce chemical use, which benefits the environment. Technology also helps farmers identify precisely where (and how many) seeds to plant.

GPS technology used by farmers is more precise than what's used by most consumers; accuracy within a few inches or less is typical. Several GPS-based technology systems serve farm and ranch customers.

Auto-steer on tractors is hands-free and allows farmers to drive in straight lines with less effort, thereby reducing fatigue. It also ensures consistency when different people take a turn in the driver's seat.

The United Nations estimates the world population will grow to 9.7 billion people by 2050. Precision agriculture will play a role in helping farmers increase productivity to meet the growing demand for food.

PRECISION AG ADOPTION RATES

(U.S. corn and soybean acres)

50%	Auto-steer
40%	GPS-based yield mapping
30%	GPS soil maps
3%-34%	Variable-rate input technology

©2017 American Farm Bureau Foundation for Agriculture[®] Source: USDA–ERS

ALTERNATIVE ENERGY helps Fuel America

Renewable fuels, also known as biofuels, include ethanol (from corn) and biodiesel (from soybeans) and contribute to a cleaner environment while reducing pollution and reliance on foreign oil. They also contribute to the stability of the rural farm economy by creating a commercial market for crops.

The use of ethanol in gasoline in 2016 reduced GHG emissions by 45.5 million metric tons — equivalent to removing nearly 9.3 million cars from the road for an entire year.

Cellulosic ethanol derived from grasses and agricultural waste, rather than corn, also offers great potential as a renewable energy source.



©2017 American Farm Bureau Foundation for Agriculture® Sources: Renewable Fuels Association; National Biodiesel Board; Census of Agriculture (2012)

DID YOU KNOW?

36,331 U.S. farms use solar panels to generate electricity. States with the most on-farm solar energy systems are California, 15 percent; Texas, 10 percent; and Colorado, 5 percent.

An ACRE of Land

An acre is about the size of a football field.

One acre of land can produce many different types of crops, depending on the fertility and type of soil, how much rain falls and how much the sun shines.

LOOK AT HOW MUCH CAN GROW ON ONE ACRE

Cotton | 821 lbs

A bale of cotton weighs about 480 pounds. One bale can be used to make 215 pairs of jeans or 313,600 \$100 bills.

Wheat | 2,784 lbs (46.4 bushels)

One bushel of wheat produces about 42 pounds of flour, which can be used to make 42 loaves of bread or 42 pounds of traditional pasta. One bushel of whole wheat yields even more: 64 pounds of flour to make 64 loaves of bread or 64 pounds of pasta.

Strawberries | 50,000 lbs

One serving of strawberries offers 160% of your daily vitamin C.

©2017 American Farm Bureau Foundation for Agriculture[®] Sources: California Strawberry Commission; National Cotton Council of America; North Dakota Wheat Commission

TOP STATES for PRODUCTION of Farm Products

U.S. FARM PRODUCTS

MILLION

U.S. FARM PRODUCTS

TOP 3 STATES BY VALUE OF CASH RECEIPTS (MILLION \$)

1	CATTLE & CALVES	\$78,229	Nebraska \$12,552	Texas \$11,364	Kansas \$ 8,839
2	CORN	\$ 47,204	lowa \$8,085	Illinois \$ 7,610	Nebraska \$ 5,763
3	DAIRY PRODUCTS	\$ 35,739	California \$ 6,293	Wisconsin \$5,121	New York \$ 2,558
4	SOYBEANS	\$ 33,184	Illinois \$ 4,761	lowa \$ 4,334	Minnesota \$ 2,767
5	CHICKENS (Broilers)	\$28,710	Georgia \$ 4,252	North Carolina \$ 3,452	Alabama \$ 3,321
6	HOGS	\$ 21,032	lowa \$ 7,512	Minnesota \$ 2,528	North Carolina \$ 2,284
7	CHICKEN EGGS	\$ 13,500	lowa \$ 1,534	Ohio \$ 1,212	Indiana \$1,066
8	WHEAT	\$ 9,473	North Dakota \$ 1,655	Kansas \$ 1,416	Montana \$919
9	HAY	\$ 6,955	California \$958	Idaho \$ 440	Washington \$ 410
10	TURKEYS	\$ 5,708	North Carolina \$ 885	Minnesota \$801	Indiana \$610

©2017 American Farm Bureau Foundation for Agriculture® Source: USDA–ERS RODUCTION

1493

1585

1607

1609

1731

1783

1784

1793

1798

1834

1837

1843

1850

South America.

AGRICULTURAL History



1854 Self-governing windmill perfected.

western Pennsylvania.

- 1855 Michigan and Pennsylvania established the first state agricultural colleges.
- 1856 A patent for condensing milk was issued to Gail Borden.
- 1858 Mason jars, used for home canning, were invented.
- 1862 President Abraham Lincoln signed legislation creating the first Department of Agriculture. Lincoln also signed the Morrill Land Grant College Act.
- 1867 Barbed wire for livestock fencing invented.

- Transcontinental railroad completed. Silos came into use. Georgia established the first state Department of Agriculture. The grain combine was patented. Hybridized corn was produced. The Hatch Experiment Station Act was passed, providing federal grants to states for agricultural experimentation. The first long-haul shipment of a refrigerated freight car was made from California to New York. The **first gasoline tractor** was built by Special work projects for farm youth were organized in Illinois; the name "4-H" was adopted in 1913. The amount of labor needed to produce 100 bushels of corn is down to 35–40 hours using a 2-bottom gang plow, disk and peq-tooth harrow and 2-row planter. Yields remain about the same as in 1850. Reclamation Act passed, leading to water projects for irrigation.
- The first rural electric line was constructed at Hood River, Oregon. The Pure Food and Drug Law was enacted.
- The first county Farm Bureau was formed in Broome County, New York.
- Establishment of the **federal-state** Extension Service was a major step in direct education for farmers.
- 1919 American Farm Bureau Federation formally organized in Chicago, Illinois.
- 1921 The first farm market news radio report was broadcast over KDKA, Pittsburgh. The Packers and Stockyards Act was enacted.
- 1922 Capper-Volstead Act exempts farm cooperatives from federal antitrust statutes. The Grain Futures Trading Act was enacted.
- 1928 Otto Rohwedder introduced his bread-slicing machine.
- 1928 Future Farmers of America established in Kansas City, Missouri.

- 1933 The Farm Credit Administration was established, creating specialized credit for agriculture.
- **1938** The **Agricultural Adjustment Act** was enacted, authorizing farm price supports and adjustment programs.
- 1945 Commercial fertilizer use helps increase yields. Corn yields now 50 bushels per acre. One farmer works 10–14 hours to produce 100 bushels of corn with a tractor, 3-bottom plow, disk, harrow, 4-row planter and 2-row picker. About 16 percent of the U.S. population is involved in production agriculture.
- **1946** The first **National School Lunch Act** enacted.
- 1947 Federal Insecticide, Fungicide and Rodenticide Act passed.
- **1948** The **General Agreement on Tariffs and Trade** was put in place. It provided the rules for much of world trade for the next 47 years.
- **1949** Agricultural Act of 1949 passed, incorporating the principle of flexible price supports and giving surplus food to the needy.
- **1954** Food for Peace Program enacted.
- **1959** Mechanical tomato harvester developed.
- **1964** National Food Stamp Act passed.
- **1967** The American Farm Bureau Foundation for Agriculture is founded.
- **1970** Plant Variety Protection Act passed.
- **1979 Grain embargo** imposed against the Soviet Union following its invasion of Afghanistan.
- **1981** Soviet grain embargo lifted.
- 1987 Less than three hours of labor and about one acre of land are required to produce 100 bushels of corn, with one farmer using a tractor, 5-bottom plow, 20-foot tandem disk, planter, 20-foot herbicide applicator, 12-foot self-propelled combine and trucks.
- **1988** U.S.–Canada free trade accord ratified.
- **1988** Future Farmers of America changed its name to the National FFA Organization to reflect the growing diversity of agriculture.

- Yeast for baking bread, introduced in Great Britain, is the **first biotech product available worldwide.**
- **1992** Food and Drug Administration declares biotech foods are "not inherently dangerous" and determines no special regulation is required.
- **1993** The North American Free Trade Agreement signed into law.

1990

- **1994** Farmers begin using satellite technology to track and plan farming practices. USDA approves rBST to improve milk production in dairy cattle.
- **1996** World Trade Organization, the principal international forum governing world trade, is created. Food Quality Protection Act enacted.
- **1997** The first weed- and insect-resistant biotech crops—soybeans and cotton—are available commercially. A sheep named "Dolly" is the first mammal cloned.
- **2000** USDA unveils organic standards for foods and the official organic seal.
- **2001** China admitted into the WTO.
- **2008** Food, Conservation and Energy Act enacted.
- 2009 American Farm Bureau Federation celebrates 90th anniversary and begins using social media.
- **2010** AgChat Foundation launched to empower farmers and ranchers to connect communities through social media platforms.
- 2010 The U.S. Farmers & Ranchers Alliance is formed to increase consumer trust in farmers and today's modern food system.
- 2012 Labor Department withdraws proposed labor rule that would have unnecessarily restricted youth from working in agriculture and on family farms.
- **2012** USDA celebrates 150th anniversary.
- 2014 Food and Agriculture Organization of the UN declares 2014 the International Year of Family Farms.
- **2014 2014 farm bill enacted.** Less than 2 percent of the U.S. population is involved in production agriculture.
- 2015 FDA approves some genetically modified potatoes and apples.
- 2016 Globally, 18 million farmers grow biotech crops;90 percent of them on small, resource-poor farms in developing countries.
- **2017** Agriculture Secretary Sonny Perdue, a farmer and veterinarian, takes the reins at USDA.



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