FOOD and FARM Facts
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.
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.

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
About the Foundation

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:

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

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).

**MOST POPULAR FOODS**

<table>
<thead>
<tr>
<th>Food</th>
<th>Quantity (lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flour (White &amp; Whole Wheat)</td>
<td>94.8</td>
</tr>
<tr>
<td>Chicken</td>
<td>87.7</td>
</tr>
<tr>
<td>Beef</td>
<td>51.5</td>
</tr>
<tr>
<td>Potatoes</td>
<td>46.7</td>
</tr>
<tr>
<td>Tomatoes</td>
<td>31.4</td>
</tr>
<tr>
<td>Cheese</td>
<td>21.9</td>
</tr>
<tr>
<td>Apples</td>
<td>11.6</td>
</tr>
<tr>
<td>Bananas</td>
<td>11.3</td>
</tr>
</tbody>
</table>

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.

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Source: USDA–ERS
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/
“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

- Best Food Facts: bestfoodfacts.org
- Fill Your Plate Blog: fillyourplate.org/blog
- Food Dialogues Blog: fooddialogues.com/blog
- Food Insight: foodinsight.org/blogs
- Food Integrity Blog: foodintegrity.org/news-blog/cfi-blog
- GMA Blog: gmaonline.org/blog

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Sources: AFBF; USDA–ERS

DID YOU KNOW?

About 8 percent of U.S. farms market foods locally, through direct-to-consumer 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.
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!

✓ 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.

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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?

DID YOU KNOW?

Total U.S. corn yield (tons per acre) has increased more than 360 percent since 1950.
Farming accounts for about 1 percent 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**

**CROPS = 87%  LIVESTOCK = 13%**

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

©2017 American Farm Bureau Foundation for Agriculture* 
Sources: USDA–ERS; USDA–NASS; WAOB
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), Iowa (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.

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Sources: Census of Agriculture (2012); USDA–ERS
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.
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.

<table>
<thead>
<tr>
<th>IMPORT MARKET</th>
<th>BILLION</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHINA</td>
<td>$21.4</td>
</tr>
<tr>
<td>CANADA</td>
<td>$20.5</td>
</tr>
<tr>
<td>MEXICO</td>
<td>$17.9</td>
</tr>
<tr>
<td>JAPAN</td>
<td>$11.1</td>
</tr>
<tr>
<td>EU-28</td>
<td>$11.6</td>
</tr>
<tr>
<td>SOUTH KOREA</td>
<td>$6.2</td>
</tr>
<tr>
<td>HONG KONG</td>
<td>$3.8</td>
</tr>
<tr>
<td>TAIWAN</td>
<td>$3.2</td>
</tr>
<tr>
<td>INDONESIA</td>
<td>$2.7</td>
</tr>
<tr>
<td>VIETNAM</td>
<td>$2.7</td>
</tr>
</tbody>
</table>

**U.S. SHARE OF WORLD PRODUCTION**

- Corn: 36%
- Soybeans: 34%
- Beef & Veal: 18%
- Milk: 16%
- Cotton: 13%
- Wheat: 8%
- Apples: 6%

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Source: USDA, FAS Online, 2017
Agriculture has a **POSITIVE** Trade Balance

### U.S. Ag Exports Equal $135.5 Billion

<table>
<thead>
<tr>
<th>BILLION</th>
<th>TOP EXPORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>$22.9</td>
<td>Soybeans</td>
</tr>
<tr>
<td>$16.2</td>
<td>Beef, Veal, Pork &amp; Poultry</td>
</tr>
<tr>
<td>$13.4</td>
<td>Fresh &amp; Processed Fruits &amp; Vegetables</td>
</tr>
<tr>
<td>$9.9</td>
<td>Corn</td>
</tr>
<tr>
<td>$7.9</td>
<td>Tree Nuts</td>
</tr>
<tr>
<td>$7.5</td>
<td>Feeds &amp; Fodder</td>
</tr>
<tr>
<td>$5.3</td>
<td>Wheat</td>
</tr>
<tr>
<td>$4.7</td>
<td>Dairy Products</td>
</tr>
<tr>
<td>$4.0</td>
<td>Cotton</td>
</tr>
<tr>
<td>$1.9</td>
<td>Rice</td>
</tr>
</tbody>
</table>

### U.S. Ag Imports Equal $115.0 Billion

<table>
<thead>
<tr>
<th>BILLION</th>
<th>TOP IMPORTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>$15.3</td>
<td>Fresh &amp; Processed Fruits</td>
</tr>
<tr>
<td>$13.3</td>
<td>Fresh &amp; Processed Vegetables</td>
</tr>
<tr>
<td>$11.1</td>
<td>Coffee &amp; Cocoa</td>
</tr>
<tr>
<td>$11.1</td>
<td>Grains &amp; Feeds</td>
</tr>
<tr>
<td>$10.6</td>
<td>Wine &amp; Malt Beverages</td>
</tr>
<tr>
<td>$7.7</td>
<td>Beef, Veal &amp; Pork</td>
</tr>
</tbody>
</table>

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
Ag Programs EQual 16% of the USDA BUDGET

TOTAL USDA BUDGET IN 2017

- Food Assistance & Nutrition Programs: 71%
- Ag Programs: 16%
- Conservation & Forestry: 7%
- Other1: 6%

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.

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Sources: Office of Management and Budget; USDA
What does 10-YEAR FEDERAL SPENDING look like? (2017–2027 • BIG BUDGET ITEMS)

TOTAL FEDERAL SPENDING

$42.5 Trillion

Healthcare, Social Security, Net Interest on Public Debt
$34.9 Trillion

National Defense
$6.7 Trillion

Agriculture Baseline

INCLUDING Food Assistance & Nutrition Programs
$1.1 Trillion

Agriculture Baseline

MINUS Food Assistance & Nutrition Programs
$147 Billion

©2017 American Farm Bureau Foundation for Agriculture®
Sources: AFBF; Congressional Budget Office January 2017 Baseline
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.

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.
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:

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

**FARM PRODUCTION EXPENSES**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>BILLION</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>$176.9</td>
</tr>
<tr>
<td>2001</td>
<td>$195.0</td>
</tr>
<tr>
<td>2006</td>
<td>$232.7</td>
</tr>
<tr>
<td>2011</td>
<td>$306.9</td>
</tr>
<tr>
<td>2016</td>
<td>$349.9</td>
</tr>
</tbody>
</table>

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

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.

**SOIL EROSION BY WIND & WATER**

<table>
<thead>
<tr>
<th>Year</th>
<th>Tons/Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982</td>
<td>7.1</td>
</tr>
<tr>
<td>1987</td>
<td>6.7</td>
</tr>
<tr>
<td>1992</td>
<td>5.6</td>
</tr>
<tr>
<td>1997</td>
<td>5.0</td>
</tr>
<tr>
<td>2002</td>
<td>4.8</td>
</tr>
<tr>
<td>2007</td>
<td>4.6</td>
</tr>
<tr>
<td>TODAY</td>
<td>4.6</td>
</tr>
</tbody>
</table>

**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.

CROPLAND USE PRACTICES

<table>
<thead>
<tr>
<th>Practice</th>
<th>Acres</th>
</tr>
</thead>
<tbody>
<tr>
<td>No-till</td>
<td>96,476,496</td>
</tr>
<tr>
<td>Conservation Tillage</td>
<td>76,639,804</td>
</tr>
<tr>
<td>Conservation Easement</td>
<td>13,186,093</td>
</tr>
<tr>
<td>Planted to a Cover Crop</td>
<td>10,280,793</td>
</tr>
<tr>
<td>USDA Conservation Programs</td>
<td>27,485,000</td>
</tr>
<tr>
<td>Conventional Tillage</td>
<td>105,707,971</td>
</tr>
<tr>
<td>Other</td>
<td>59,914,257</td>
</tr>
</tbody>
</table>

TOTAL CROPLAND

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.

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Sources: International Food Information Council; Food Insight.org
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.)

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food Fish</td>
<td>1,296</td>
</tr>
<tr>
<td>Mollusks</td>
<td>756</td>
</tr>
<tr>
<td>Crustaceans</td>
<td>566</td>
</tr>
<tr>
<td>Ornamental Fish</td>
<td>285</td>
</tr>
<tr>
<td>Sport Fish</td>
<td>282</td>
</tr>
<tr>
<td>Bait Fish</td>
<td>166</td>
</tr>
<tr>
<td>Misc. Fish</td>
<td>233</td>
</tr>
</tbody>
</table>

*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**.

### WHO OWNS AMERICA’S FORESTS?

<table>
<thead>
<tr>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>39%</td>
<td>Private Non-Corporate (citizens)</td>
</tr>
<tr>
<td>19%</td>
<td>Private Corporate (forest products industry)</td>
</tr>
<tr>
<td>42%</td>
<td>Federal, State &amp; Local Governments</td>
</tr>
</tbody>
</table>

©2017 American Farm Bureau Foundation for Agriculture® Sources: Census of Aquaculture (2013); U.S. Forest Service
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
- 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
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
- **8.7 GALLONS** of ice cream
- **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)
- **25–30 GALLONS** of water

\(^1\) Based on 2016 costs and prices

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Sources: USDA–ERS; America’s Dairyland; University of Illinois

**DID YOU KNOW?**

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.

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

©2017 American Farm Bureau Foundation for Agriculture®
Source: USDA's Amber Waves Magazine
**PIZZA comes from America's FARMS & RANCHES**

**TOP-PRODUCING STATES FOR PIZZA INGREDIENTS**

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>States</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONIONS</td>
<td>California, Colorado, Georgia</td>
</tr>
<tr>
<td>TOMATO SAUCE (Fresh Tomatoes)</td>
<td>Florida, California</td>
</tr>
<tr>
<td>MUSHROOMS</td>
<td>Pennsylvania, California</td>
</tr>
<tr>
<td>PIZZA DOUGH (Winter Wheat)</td>
<td>Kansas, Oklahoma, Washington</td>
</tr>
<tr>
<td>CHICKEN</td>
<td>Georgia, North Carolina, Alabama</td>
</tr>
<tr>
<td>SAUSAGE (Hogs)</td>
<td>Iowa, Minnesota, North Carolina</td>
</tr>
<tr>
<td>PINEAPPLE</td>
<td>Hawaii</td>
</tr>
<tr>
<td>SPINACH</td>
<td>California, Arizona</td>
</tr>
<tr>
<td>GREEN PEPPERS</td>
<td>California, Florida</td>
</tr>
<tr>
<td>MOZZARELLA CHEESE (Dairy Products)</td>
<td>California, Wisconsin, New York</td>
</tr>
</tbody>
</table>

©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.
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
- **28%–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.

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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

### Top 3 States by Value of Cash Receipts (Million $)

<table>
<thead>
<tr>
<th>U.S. Farm Products</th>
<th>Million</th>
<th>Top 3 States</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cattle &amp; Calves</td>
<td>$78,229</td>
<td>Nebraska</td>
</tr>
<tr>
<td>Corn</td>
<td>$47,204</td>
<td>Texas</td>
</tr>
<tr>
<td>Dairy Products</td>
<td>$35,739</td>
<td>Kansas</td>
</tr>
<tr>
<td>Soybeans</td>
<td>$33,184</td>
<td>California</td>
</tr>
<tr>
<td>Chickens (Broilers)</td>
<td>$28,710</td>
<td>Iowa</td>
</tr>
<tr>
<td>Hogs</td>
<td>$21,032</td>
<td>Minnesota</td>
</tr>
<tr>
<td>Chicken Eggs</td>
<td>$13,500</td>
<td>Ohio</td>
</tr>
<tr>
<td>Wheat</td>
<td>$9,473</td>
<td>North Dakota</td>
</tr>
<tr>
<td>Hay</td>
<td>$6,955</td>
<td>Idaho</td>
</tr>
<tr>
<td>Turkeys</td>
<td>$5,708</td>
<td>North Carolina</td>
</tr>
</tbody>
</table>

©2017 American Farm Bureau Foundation for Agriculture®
Source: USDA-ERS
8000 B.C. Animals and grain domesticated in the Middle East—the birth of agriculture.

1493 Christopher Columbus brought calves, goats, sheep, pigs, hens, citrus, melons and many kinds of vegetables to America.

1585 The potato was introduced in Spain from South America.

1607 English colonists in Jamestown, Virginia, planted grain, potatoes, pumpkins, melons, cotton, oranges and pineapples.

1609 Native Americans taught the Jamestown settlers how to grow corn.

1731 Jethro Tull introduced the horse-drawn cultivator and seed drill to English farming.

1783 Improved cattle, probably Shorthorns, were introduced to the U.S. from England.

1784 James Small invented the iron plow in England.

1793 Eli Whitney invented the cotton gin.

1798 John (Johnny Appleseed) Chapman planted some of his first apple trees in western Pennsylvania.

1834 Cyrus McCormick patented the grain reaper.

1837 John Deere began manufacturing steel plows.

1843 Sir John Lawes founded the commercial fertilizer industry by developing a process for making superphosphate.

1850 About 75–90 hours of labor required to produce 100 bushels of corn with walking plow, harrow and hand planting. Yields were about 40 bushels per acre.

1854 Self-governing windmill perfected.

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.

1869 Transcontinental railroad completed.

1870 Silos came into use.

1874 Georgia established the first state Department of Agriculture.

1879 The grain combine was patented.

1881 Hybridized corn was produced.

1887 The Hatch Experiment Station Act was passed, providing federal grants to states for agricultural experimentation.

1888 The first long-haul shipment of a refrigerated freight car was made from California to New York.

1890 Special work projects for farm youth were organized in Illinois; the name “4-H” was adopted in 1913.

1900 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 peg-tooth harrow and 2-row planter. Yields remain about the same as in 1850.

1902 Reclamation Act passed, leading to water projects for irrigation.

1906 The first rural electric line was constructed at Hood River, Oregon. The Pure Food and Drug Law was enacted.

1909 The first county Farm Bureau was formed in Broome County, New York.

1914 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.

1990 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.

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.

1999 USDA unveils organic standards for foods and the official organic seal.

2001 China admitted into the WTO.


2003 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.
Books, lesson plans, pocket guides and more online at:
dmsfulfillment.com/FarmBureau

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