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Texas Department of Agriculture
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FARM FACTS



**Texas FFA Association
2015 Senior FFA Quiz
2015-16 Officer Candidate Testing Program**

2015 Texas Farm Facts

WHO'S WHO IN AGRICULTURE

Six agricultural policy makers Texans ought to know

U. S. Secretary of Agriculture: Tom Vilsack	
Chairman, U.S. Senate Agriculture, Nutrition and Forestry Committee: Senator Pat Roberts, R-Kansas	
Chairman, U.S. House of Representatives Agriculture Committee: Mike Conaway, R-Texas	
Texas Commissioner of Agriculture: Sid Miller, (Republican)	
Chairman, Texas Senate Committee on Agriculture and Rural Affairs Senator Charles Perry, R-Lubbock	
Chairman, Texas House of Representatives Agriculture and Livestock Committee: Rep. Tracy O. King, D-Batesville	

WHERE DOES YOUR Food Dollar Go?

81¢ OFF-FARM ...

Costs (marketing expenses associated with processing, wholesaling, distributing and retailing of food products) account for 81 cents of every retail dollar spent on food.

19¢ FARMERS & RANCHERS ...

Receive only 19 cents 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 America.

Texas Farm Bureau Graphic



Include property taxes & insurance; accounting & professional services; promotion; bad debts; and many miscellaneous items.

* *The American Farmer*

Did You Know?

- 97% of American farms are still family farms.
- Farmers and ranchers make up less than 2% of the population.
- One farmer can feed 155 people.
- The average size of a U.S. farm is approximately 450 acres.

What is produced on America's farms? (Billions of pounds)

- Grains (Corn, Wheat, Oats, Rice, Barley, Rye, Sorghum and Millet) – **798.2**
- Hay and Silage – **522.2**
- Oilseeds (Soybeans, Sunflowers, Peanuts, Canola, Cottonseed, Mustard Seed, Flaxseed, Rapeseed and Safflower) – **211.9**
- Dairy Products – **177.0**

- Horticulture (Vegetables, Citrus, Non-citrus Fruits and Nuts) – **138.9**
- Cotton, Tobacco, Sugarbeets, Sugarcane – **120.9**
- Potatoes, Sweet Potatoes, Coffee, Ginger Root, Hops, Peppermint Oil, Spearmint Oil and Taro – **44.0**
- Poultry (Turkeys and Broilers) – **40.8**
- Beef and Veal – **24.8**
- Pork – **20.7**
- Eggs – **9.6**
- Dry Beans, Peas, Lentils – **4.8**

Total Annual Production: **2,114,961,425,000 pounds**

Major Uses of Land in United States:

- Cropland – 20%
- Grassland, pasture and range – 26%
- Forest-use land – 29%
- Special Uses – 13%
- Miscellaneous Land – 10%
- Urban Land – 3%

Top Texas Crops

Rank in TX	Commodity	Cash Receipts	Percent of Total
1.	Cattle and Calves	\$10.5 billion	46.4
2.	Cotton, Lint, and Seed	\$2.3 billion	9.8
3.	Dairy Products, Milk	\$1.8 billion	7.9
4.	Broilers	\$1.7 billion	7.7
5.	Greenhouse and Nursery	\$1.3 billion	5.6
6.	Corn	\$1.2 billion	5.1
7.	Sorghum Grain	\$594 million	2.6
8.	Wheat	\$538 million	2.4
9.	Chicken Eggs	\$439 million	1.9
10.	Hay	\$357 million	1.6
11.	Peanuts	\$204 million	0.9
12.	Rice	\$163 million	0.7
13.	Hogs	\$144 million	0.6
14.	Potatoes	\$127 million	0.6
15.	Pecans	\$75 million	0.3
All Others	Others	\$1.4 billion	5.9

2. BEEF

* Beef Production

Top Counties – All Beef Cows (thousand head)

1. Lavaca	60,000
2. Gonzales	57,000
3. Fayette	54,000
4. Milam	48,000
5. Colorado	44,000
Texas Top 5 Total	263,000

Top Counties- Cattle/Calves (thousand head)

1. Deaf Smith	570,000
2. Castro	470,000
3. Parmer	460,000
4. Hartley	290,000
5. Hansford	270,000
Texas Top 5 Total	2, 060, 000 million

Top States – All Cattle and Calves

1. Texas	11.3 million
2. Nebraska	6.3 million
3. Kansas	5.9 million
4. California	5.3 million
5. Oklahoma	4.2 million
U.S. Total	96.05 million

Top States-Value of all Cattle and Calves (billion dollars)

1. Texas	11.8
2. Nebraska	7.9
3. Kansas	6.8
4. Iowa	6.0
5. Colorado	5.3
Top 5 States Total	\$37.8 billion

Top 5 States-Cattle on Feed (million head)

1. Texas	2.7
2. Nebraska	2.6
3. Kansas	2.2
4. Iowa	1.3
5. Colorado	1.0
Top 5 States Total	7.6 million

*** Beef Choices**

Beef producers offer a variety of beef choices to meet the changing lifestyles and nutritional needs of consumers. While each offers something different, they all share three common values: taste, nutrition and safety.

Grain-fed Beef – The most widely produced and tends to be less expensive. The cattle spend most of their lives eating grass in a pasture before moving to a feedlot where they are fed a high-energy, grain diet.

Grass-finished Beef – The cattle are raised on grass pastures their entire lives. Producing in large volumes is difficult in North America where few regions have the growing season to make it possible.

Certified Organic Beef – The cattle must be fed 100% organic feed and must be certified through the USDA's Agricultural Marketing System. In addition, these cattle can not be given hormones to promote growth or antibiotics. If antibiotics are needed they are not withheld but the animal must be permanently removed from the program.

Natural/Branded Beef – By definition, most beef is natural. According to the USDA "natural" may be used on a beef label if the beef does not contain artificial flavoring, coloring, chemical preservatives or any other

artificial or synthetic ingredient. Producers raising cattle for beef marketed with a “natural” label may follow different production practices in order to brand their beef.

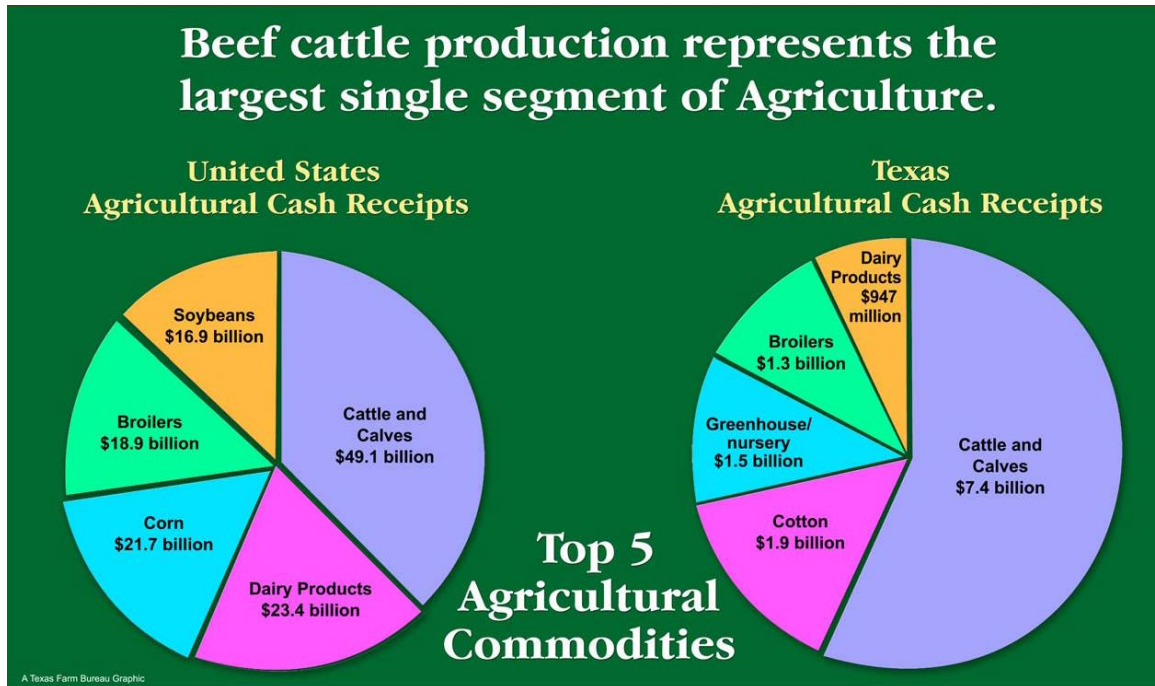
* Beef Cattle Production Systems

Cow-calf- Ranchers produce the cattle for the stocker market or feedlot (commercial operations) or other breeding herds (purebred operations).

Feedlot – Raises calves until they weigh 900 to 1,400 pounds and market them to packer operations.

Stocker – Ranchers graze weaned calves until they weigh as much as 900 pounds, and then market them to the feedlots.

* Cash Receipts



Each year, over 5 million calves are born on more than 130,000 cow-calf operations in Texas.

The nearly 1 million beef cattle operations in the United States produce over 24 billion pounds of beef which generates about \$80 billion in retail beef sales.

Increased productivity is the main contributor to growth in U.S. agriculture.

- Beef production per cow has increased from about 400 pounds in the mid-1960s to almost 600 pounds today.
- This means more business opportunities for the producers and cost saving for consumers.

*Addressing Misconceptions of Beef Production

Myth: Beef production uses outrageous amounts of water, feed and land that should be used for something else.

Truth: It takes 2.6 pounds of grain and 435 gallons* of water to produce a pound of beef in the U.S. 85% of the nation's grazing lands are not suitable for farming. Cattle eat forages that humans cannot consume and convert them into a nutrient-dense food. (*Considers all factors including direct consumption, irrigation of pastures and crops, and carcass processing.)

*Beef Production Quick Facts

- Most cattle farms and ranches are family owned. For many producers, cattle raising is a family tradition passed down through generations.
- Cattle have a nine-month gestation period.

- Calves are weaned from cows at six to 10 months of age.
- According to the USDA, there are about 815 fixed auction facilities in the United States.
- Weanling cattle are typically “backgrounded” in stocker cattle operations before going to a feedlot at 12-18 months of age
- Growth promotants are often administered in the form of a small pellet placed under the skin behind the animal’s ear. Most growth promotants are naturally occurring hormones like estrogen. These products are approved by the Food and Drug Administration after rigorous scientific tests, similar to those required to approve human medications.
- Cattle spend four to six months in a feedlot. Feedlot pens typically allow about 125 to 250 square feet of room per animal. Rations are 70 to 90 percent grain.
- Cattle are usually slaughtered at 18 to 20 months of age and weigh between 1,100 and 1,250 pounds.
- The Humane Slaughter Act (passed in 1958 and updated in 1978 and 2002) dictates strict animal handling and slaughtering standards for packing plants. These facilities are under continuous federal inspection, with Food Safety and Inspection Service (FSIS) personnel present in plants to ensure compliance with all regulations.
- The Food Safety and Inspection Service (FSIS), a public health agency in the U.S. Department of Agriculture, is responsible for ensuring compliance with slaughter regulations and that the nation's commercial supply of meat, poultry, and egg products is safe, wholesome, and correctly labeled and packaged.
- The Agricultural Marketing Service of the USDA grades the carcasses by evaluating characteristics including marbling (distribution of internal flecks of fat, contributing to tenderness and taste) and the age of the animal. Grading is voluntary.
- Ultimately, consumers dictate the actions of the beef production chain, from pasture to plate, by determining what kinds of beef they will buy and at what price. Beef producers read demand signals from the meat case and customers throughout the production chain. For instance, beef cattle are now much leaner than just a decade ago as a result of the consumer demand for products with less fat. Consequently, there are now 29 cuts of beef that meet government guidelines for lean, such as the tenderloin, sirloin and 95% lean ground beef.
- The hide from one beef animal can be made into: 20 footballs or 12 basketballs or 18 soccer balls or 12 baseball gloves or 18 volleyballs or 144 baseballs
- Beef byproducts allow 99% of every beef animal to be utilized.

3. CORN

* Corn Production

Top Texas Corn Counties-(million bushels)

County	Production (bushels)
1. Hartley	19.6
2. Castro	17.3
3. Dallam	16.0
4. Sherman	14.8
5. Hansford	9.8
Texas Top 5 Total	77.5 million bushels

State Corn Production Facts (NASS 2012)

Acres Planted	1.9 M
Acres Harvested	1.6 M
Average Yield	130.0 bu.
Total	201.5 M bu.
Worth	\$1.4 B

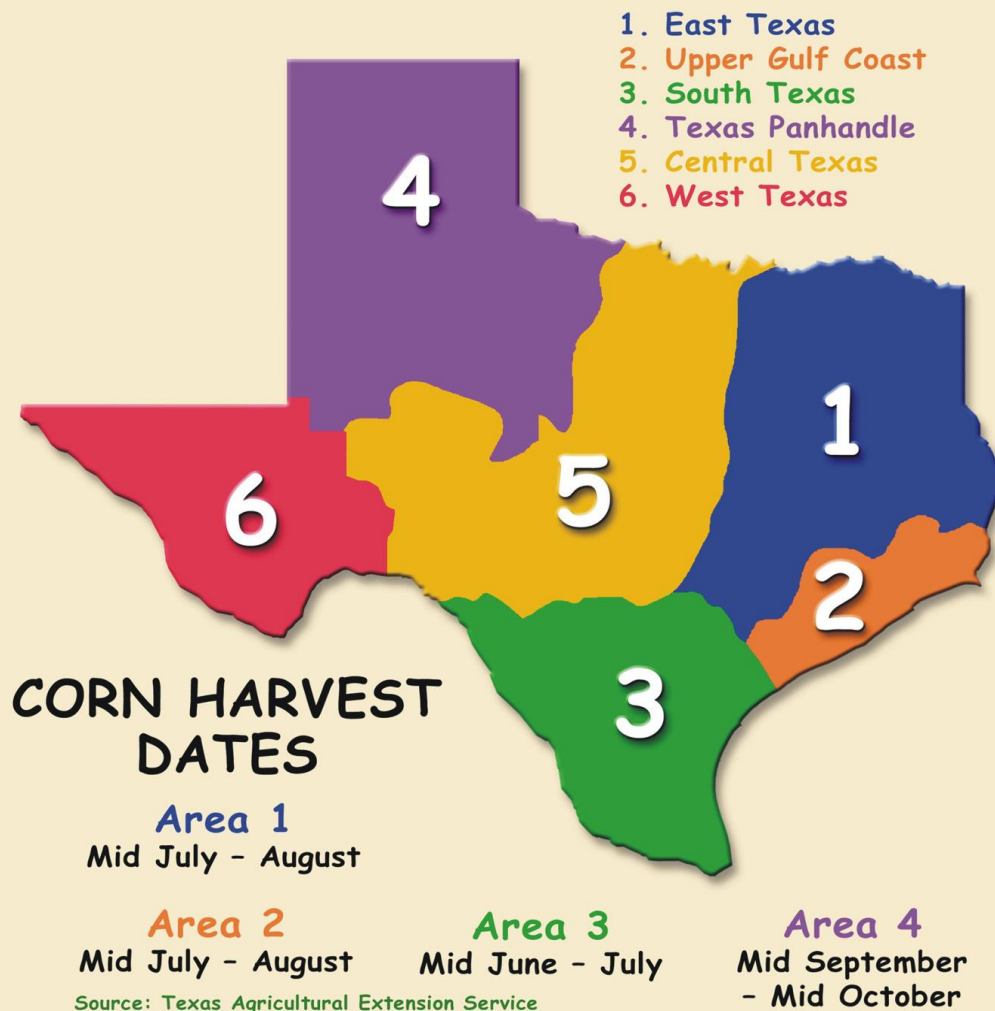
Top Corn Producing States- for Grain and Silage Production

State	Corn for Grain Production (million bushels)	State	Corn for Silage Prod.(Million Tons)
1. Iowa	1,877	1. Wisconsin	16.2
2. Minnesota	1,374	2. California	11.1
3. Nebraska	1,292	3. New York	8.5
4. Illinois	1,286	4. Pennsylvania	7.8
13. Texas	202 mil	11. Texas	3.8
U.S. Total	10.3 bil	Top 4&TX Total	47.4

*** Corn Planting Areas in Texas**

- Area 1 and 5 (March – mid April) - East Texas and Central Texas
- Area 2 (late February – March) - Upper Gulf Coast
- Area 3 (February – mid March) - South Texas
- Area 4 (mid April – mid May) - Texas Panhandle
- Area 6- West Texas
- Depending on conditions, around 22,000 to 25,000 individual corn plants are grown on one acre of land.
- The majority of corn grown in Texas is “dent” corn used for animal feed.
- Texas corn farmers plant around two million acres of corn each year.
- One acre of corn is the size of a football field.
- A single corn seed produces a plant that yields about 800 kernels of corn per ear.
- Depending upon the type equipment used, Texas farmers plant 150-300 acres of corn per 12-14 hour day.

CORN HARVESTING AREAS IN TEXAS



* Corn grown in Area 5 will typically follow the timeline of Area 1. Corn is not typically grown in area 6.

Where does Texas corn end up?

- The great majority of Texas corn production goes to feed livestock.
- Nearly all the feed corn produced on the High Plains goes to local feed yards.
- Low Plains and Cross Timbers feed corn is sold to elevators for merchandising or fed locally to livestock.
- Elevators handle most of the feed corn produced in the Blacklands and Edwards Plateau.
- East Texas and South Texas feed corn is marketed through grain elevators with some used by local livestock and poultry feeders.
- Local and port elevators are the primary destinations of the feed corn produced in the Upper Coast, Coastal Bend and Lower Valley.

Texas Corn Harvest Niblets

- The Northern High Plains accounts for almost two-thirds of the total Texas corn production.
- The statewide average yield for corn is around 140 bushels per acre.

- Texas corn farmers produce over 230 million bushels of corn each year.
- The value of the Texas corn crop is around \$600 million annually.

* Corn Plant Growth

Germination and Emergence

Seedling reaches the surface in 8 to 12 days, at which time it splits open revealing the first leaves of the corn plant. Within approximately 72 days all leaves, ears, buds, and tassel which will be present in a mature plant are established. (Number of days depends upon location, seed variety, weather, and other conditions)

Tasseling

At about 75 days the last branch of the tassel is completely visible, the plant has reached full height, and the pollen shed begins. (Number of days depends upon location, seed variety, weather, and other conditions.)

Silking

Silks are visible at about 81 days and pollination is completed by the pollen shedding tassels in two to three days. Kernel development begins immediately after pollination. (Number of days depends upon location, seed variety, weather, and other conditions.)

Dent

At approximately 114 – 119 days nearly all kernels are dented or denting (drying process leaves actual dent in kernel). Kernels at this stage have about 55% moisture. (Number of days depends upon location, seed variety, weather, and other conditions.)

Physiological Maturity (Harvest)

At 145 to 160 days after planting, all kernels have attained maximum dry weight and maturity. At grain harvest, corn is ready to be harvested at 13-15% moisture. (Number of days depends upon location, seed variety, weather, and other conditions.)

4. COTTON

* Cotton Production

Texas- Top Cotton Counties

Rank	County	Production (Bales)
1.	Lubbock	251,000
2.	Hale	251,000
3.	Gaines	245,000
4.	Crosby	214,000
5.	Floyd	214,000

Upland Cotton Production-Top 5 States

Rank	State	Production (M bales)
1.	Texas	5
2.	Georgia	2.9
3.	Arkansas	1.3
4.	N. Carolina	1.2
5.	Mississippi	0.9

Exports of Cotton and Cotton Products-Top 5 States (Million bales)

State	Exports (million bales)
1. Texas	1,546.6
2. Georgia	968.5
3. California	750.1
4. Mississippi	493.9
5. Arkansas	462.6

State Cotton Production Facts (NASS 2012)

Acres Planted	6.6 M
Acres Harvested	3.9 M
Average Yield	623.0 lbs.
Total	5.0 M bales
Worth	\$1.7 B

*Cotton Gin

“Gin” is short for engine.

Before the cotton gin, it took 20 hours of hard work to produce 1 kilogram of cotton.

The first cotton gin was created in 1793. It consisted of cranks, pulleys and hooks and maintained an output of 50 pounds per day.

The cotton gin increased cotton production and lowered costs, resulting in cotton becoming the cheapest and most widely used textile fabric in the world.

Improvements of the gin were made for removing trash, drying, moisturizing, sorting, cleaning, and baling in 480 pound bundles.

* Cotton Gin – How it works

Unloading System

This is the first stage in the ginning process. Modules are unloaded and fed into the unloading system where air is used to blow the raw cotton through a series of pipes into the cotton gin.

First Stage Drying and Precleaning System

In the first stage of drying, heated air moves the cotton through a series of shelves for 15-20 seconds. The cotton is precleaned to remove foreign materials such as leaves, trash and dirt. From here, the cotton will move on to additional cleaning and drying.

Second Stage Drying and Precleaning System

The second process of drying and precleaning will remove larger foreign matter from the cotton, such as sticks and burs.

Feeding and Ginning System

The cotton is then fed into the ginning system, where the actual ginning process of separating the cotton lint from the cottonseed begins. Rotating saws pull the cotton fibers through ribs—removing the seeds, which are too large to pass between.

Lint Cleaning System

The cotton lint moves on to the lint cleaning system. This is an extremely precise system that can often improve the grade by cleaning and blending lightly spotted cotton to produce a more valuable product. Ginners determine the number of lint cleaners that will give maximum bale value.

Condensing and Moisture Restoration System

After the lint cleaning system, the cotton lint will move on to the condensing and moisture restoration system. Here, the cotton fiber will receive back the moisture that was taken away during the drying process.

Press and Bale Handling System

At the last stage of the gin, the cleaned cotton is compressed into 480 pound bales. These bales must then be covered to protect them from contamination during transportation and storage. The bales will now be distributed to textile mills and made into fabrics.

* Cotton Facts

Did you know...

- Cotton is a fiber, feed and food crop.
- In the U.S., cotton is regulated as a food crop.
- About 2/3 of a harvested cotton crop is composed of the seed, which is crushed to separate its three products—oil, meal and hulls.
- Cotton can be grown continuously without hurting the soil.
- Cotton is produced on more than 8,500 farms in Texas.
- The cotton industry accounts for more than \$25 billion in products and services annually.
- After leaving the farm, cotton is processed and handled by gins, cottonseed mills, warehouses, shipping companies, textile manufacturers and retailers.
- The cotton industry in the United States provides jobs for more than 440,000 Americans.
- The first T-shirts were elbow and hip length undershirts issued to sailors in the U.S. navy in 1880. The shirt resembled a perfect “T” when laid out on a flat surface...which is how it got its name.

PLANTING & Harvesting



- * Planting begins as early as February 1 in South Texas and as late as June 1 in the northern areas of the Cotton Belt.
- * Harvesting begins in July in South Texas and extends to late November in more northern climates.

	Planting	Harvesting
AREA 1	April	Aug-Sept
AREA 2	March	July-Aug
AREA 3	Feb-March	July-Aug
AREA 4/5	May-June	Nov-Dec
AREA 6	May	Oct-Dec

Facts on Cotton Production

The Cotton Belt spans the southern half of the United States, stretching from Virginia to California.

Cotton production covers more than 14 million acres or about 22,000 square miles of the United States.

Texas is the leading cotton-producing state, producing about 4.5 million bales of cotton a year.

Cotton contributes over \$1 billion to the Texas economy, ranking only behind the beef industry in total cash receipts. Texas produces about 25% of the entire U.S. crop and plants over 5 million acres annually. That's over 8,000 square miles of cotton fields!

Water Resources

Cotton is a very efficient water user.

- In the United States, only 35% of the cotton crops are produced on irrigated land.
- New irrigation systems and strategies used today are more water efficient. These include things like:
 - On/off options on irrigation equipment so that only the sections that need water, receive it.
 - Drip irrigation that is buried below the surface of the entire field and delivers water directly to the roots of the plants.
- Tools, like thermometers for the leaves of the plants and moisture-measuring probes in the soil, which help farmers decide when to irrigate.

* Costs

Each year it costs farmers more than \$5.3 billion worth of supplies and services to produce our country's cotton crop.

After harvest, farmers receive only \$4.68 billion for their cotton and labor.

*Exports

About 31% of the U.S. cotton supply is exported.

Every year our cotton industry exports 6 to 9 million bales of raw cotton.

The annual value of that cotton exceeds \$3 billion.

* What is produced from a bale?

One Bale of Cotton can make:

- 215- Jeans or
- 249 - Bed Sheets or
- 690 - Terry Bath Towels or
- 765 - Men's Dress Shirts or
- 1,217 - Men's T-Shirts or
- 1,256 - Pillowcases or
- 2,104 - Boxer Shorts or
- 3,085 - Diapers or
- 4,321 - Mid-calf socks or
- 313,600 - \$100 Bills

* Texas Gins

There are 244 active cotton gins in Texas. Of those gins, approximately 65% are in West Texas, 20% are located along the Texas coast and the remaining gins are in Central Texas.

* What is a module?

Once cotton is harvested, it is stored in modules for protection against the weather.

A module builder hydraulically compresses the cotton from the picker into a module of cotton which is usually stored in the field or in the gin yard until the cotton is ginned.

A module holds about 13 to 15 bales.

* What is a Bale?

At the cotton gin, the cotton fiber is separated from the cottonseed. The cotton fiber is compressed into bales.

A bale weighs about 480 pounds.

Every year, approximately 8 to 9 million bales are used by U.S. textile industries.

* By-products

There are three primary products derived from cotton production: cotton lint, linters, and cottonseed.

Cotton Lint

- Cotton lint is the raw fiber from the cotton plant which is pressed into bales at the cotton gin.
- The bales are purchased by textile mills and processed in stages into yarn and cloth.
- Cotton lint is also found in products such as shoe strings and dollar bills.
- Textile mills use about 7.6 million bales of cotton a year. 57% is made into apparel, 36% into home furnishings and 7% into industrial products.

Linters

- Linters are short fibers that cling to the seed.
- They provide cellulose for making items like plastics, paper products and cosmetics.

Cottonseed oil

- The oil is the cottonseed's most valuable by-product.
- It is used in cooking oil, shortening, salad dressing, and in preparation of snack foods like chips, crackers and cookies.
- Products such as soaps, cosmetics, pharmaceuticals and textile finishes also contain cottonseed oil.

Hulls

- Cotton hulls are used for feed, fertilizer, fuel and packing.

Meal

- Meal is the second most valuable by-product of cottonseed.
- The meal is high in protein and used to feed all classes of livestock and poultry.
- It is also a great natural fertilizer for lawns, gardens and flower beds.

Cotton and U.S. Currency

United States paper currency is made up of 75% cotton and 25% linen. This means that there is three-fourths of a pound of cotton in each pound of dollar bills.

* Cottonseed

Annual cottonseed production is about 6.5 billion tons.

Only about 5% of the total seed crop is kept for planting. The other 95% is used in by-products like cosmetics, fertilizer or livestock feed.

The farm value of cottonseed has averaged about 15 percent of the total farm value of the cotton crop.

5. DAIRY

Production

The United States has more than 9 million milk cows and produces approximately 171 billion pounds of milk annually.

Top States	Milk Cows (Million hd.)	Top States	Milk Production (Billion lbs.)
1. California	1.8	1. California	41.8
2. Wisconsin	1.3	2. Wisconsin	27.2
3. New York	0.6	3. Idaho	13.6
4. Idaho	0.6	4. New York	13.2
6. Texas	0.4	6. Texas	9.6

Top Counties	Milk Cows (Thousand hd.)
1. Erath	52.0
2. Deaf Smith	42.0
3. Castro	36.5
4. Parmer	36.5
5. Hartley	25.0

* Common Misconceptions

Myth: Dairy cows are kept in cramped, dirty quarters without access to the outdoors.

Fact: Cow comfort is very important to dairy farmers. Ensuring that clean, dry bedding is available to cows at all times, in addition to providing healthy living conditions, are top priorities to dairy farmers.

Myth: Milk contains antibiotics.

Fact: All milk is carefully tested for antibiotics. Any milk that tests positive is disposed of immediately, and does not enter into the food supply.

Myth: The reason milk prices are going up at the grocery store is so that dairy farmers can get rich.

Fact: On average, dairy farmers receive 30 cents of every retail dollar. Today's recent price increases for dairy, and all foods, beverages and other goods, are tied to dramatic increases in energy, transportation, feed and other supply costs.

Myth: Dairy cows are treated like nothing more than milk machines.

Fact: Dairy cows must be healthy and well cared for in order to produce pure, wholesome milk.

* Fun Facts

- In an average day, a dairy cow will eat about 90 pounds of feed, drink a bathtub full of water and produce 5 to 6 gallons of milk. That's about 80 glasses of milk!
- Cows spend up to 8 hours of their day eating.
- There are more than 200 varieties of cheese produced in the U.S and more than 1,400 varieties in the world. !
- Historians estimate that ice cream evolved sometime during the century in Italy, perhaps from a recipe Marco Polo brought from the Orient.
- How much MILK does it take?
 - 1 pound of butter—39 cups of milk
 - 8 oz. of yogurt—1 cup of milk
 - ½ gallon of ice cream—11 cups of milk

* Environmental Issues

Water Conservation

- Dairy farmers use water responsibly in their milking parlors, manure management and storage. For example, wastewater is recycled to flush feed alleys and irrigate fields.
- When manure is used as a soil treatment, the water-holding capacity of soil is increased by 20 percent, resulting in reduced groundwater needed to grow crops.

Air Quality

- Dairy farmers protect air quality by following proper manure storage practices and maintaining clean facilities.
- University researchers and industry manufacturers continually work with dairy farmers to identify new ways to control odor.

Farm Management Practices

- Dairies work with the Environmental Protection Agency (EPA), Natural Resources Conservation Service (NRCS), state departments of agriculture and local governments to ensure our nation's natural resources are protected.
- As part of the regulation process, dairies are regularly inspected by state and federal employees to ensure clean water and minimize environmental impacts in years to come.

Sustainability

- Methane digesters convert manure into methane-rich biogas, a renewable fuel that generates electricity. Farms can generate enough electricity to run their operations and can sell the excess energy back to local utility companies.
- Dairy producers spend millions of their own dollars each year, in partnerships with land grant universities, to identify new strategies to protect the natural resources of dairies across the country.

* What's In Your Milk?

- Bovine somatotropin, also referred to as bST or bGH, is a naturally occurring protein hormone in cows. A trace amount of this hormone is present in all milk, including organic products, and is digested just like other proteins.
- The FDA, as well as the American Medical Association, American Cancer Society, National Institutes of Health, U.S. Surgeon General's Office and the World Health Organization have studied and confirmed the safety of milk from cows supplemented with rbST.
- Preliminary studies suggest that conjugated linolenic acid or CLA, a healthful fatty acid naturally found in milk, may play an important role in preventing many serious cancers, including breast cancer.

6. GRAIN SORGHUM

Grain Sorghum, also called milo, is a member of the grass family. The round starchy seed's tolerance for heat and drought plays a critical role in agriculture production throughout the state of Texas. Not only is it an important grain crop, it is also very important as a forage, hay, and silage crop generating more than **\$1 billion** for Texas annually.

Top Texas Sorghum Counties (Million Bushels)

County	Sorghum Produced (Million Bushels)
1. Willacy	9.2
2. Cameron	7.6
3. Hidalgo	7.5
4. San Patricio	6.8
5. Nueces	4.7

State Sorghum Production Facts (NASS 2012)

Acres Planted	2.3 M
Acres Harvested	1.9 M
Average Yield	59.0 bu.
Total	112.1 M bu.
Worth	\$703 M

United States Sorghum Production-Top 5 States in Grain and Silage

State	Grain Sorghum Prod. (million bushels)	State	Sorghum Silage Prod. (million tons)
1. Texas	112.1	1. Texas	2.0
2. Kansas	81.9	2. Arizona	0.5
3. Louisiana	12.3	3. Kansas	0.5
4. Arkansas	11.3	4. New Mexico	0.3
5. S. Dakota	5.9	5. S. Dakota	0.2

* History

- Grain Sorghum is one of the oldest known grains originating in Africa and India.
- Benjamin Franklin is credited with introducing the first crop to the United States in the 1700s.
- Before the 1940s, most grain sorghums were 5 to 7 feet tall, which created harvesting problems.
- Today, sorghums have two or three dwarfing genes in them and are 2 to 4 feet tall.

* Varieties

- Grain Sorghum is a drought-tolerant, versatile grain with many varieties.
- Some varieties can be used in the cereal, snack food, baking and brewing industries.
- These varieties contain a white berry, and tan glumes on a tan plant.
- Other varieties are used in the U.S. for livestock feed, pet food, industry and ethanol.
- These may include yellow, red and bronze sorghums.

Growing Grain Sorghum in Texas

Grain Sorghum is well suited for Texas because it does not require much water and it grows well during the long, hot summers. Most grain sorghum is not irrigated.



Grain Sorghum seeds are planted in rows during the spring, March to April, when soil temperatures exceed 65 degrees F.

The plant begins to produce leaves and the stem begins to grow.

Growth is not very rapid until the plant is about 10 inches tall. This is because the plant is establishing a root system and taking up nutrients rapidly.



The production of the head that holds the round seeds begins to develop at the top of the plant.



The new leaves are a brilliant green and the seeds darken to a color depending on variety, usually red in Texas. Other varieties may be white, yellow, or bronze.

When the grain sorghum plant reaches maturity and is ready for harvest, it is approximately four feet high, the leaves have turned to a light brown, and the seeds have hardened.



The grain is loaded onto trucks and stored at the farm in a grain bin to sell later or delivered to a local grain elevator where it is then sold to many different industries.

Farmers use combines to harvest their sorghum. The combine cuts the seed head off and threshes or removes the seed from the head.



Grain that is stored in bins must be stored at specific temperatures and moisture content until it is used for seed, animal feed, or sold to industries for food and non-food uses, or to export to another country.

While most other grains are sold by the bushel, grain sorghum is commonly sold by the hundred weights (cwt - increments of 100 pounds).

Texas Farm Bureau Graphic

* Sorghum's Food Characteristics

Health Food

- Gluten Free
- Antioxidant Dense

Attributes

- Absorbs & Enhances Flavors
- Environmentally Friendly

Processing Possibilities

- Baked Goods
- Popped
- Malting
- Grits & Couscous
- Chips

*** Grain Sorghum Uses**

Livestock Feed

- The seed can be ground or mixed into feed for dairy cattle.
- The entire plant can be made into high-moisture grain silage when cut at 25-30% moisture.
- After grain has been harvested, livestock can be pastured on sorghum stubble utilizing both roughage and dropped seed heads.
- Pet food manufacturers include this highly digestible carbohydrate grain to their feed formulations.
- Distillers grain, an ethanol by-product, is a valuable feed for both feedlot cattle and dairy cows.

Industry

- Used as a substitute for wood to make wallboard for the housing industry.
- Used in biodegradable packaging material that does not conduct static electricity. This is beneficial for the shipping of electronic equipment.

Fuel

- About 15% of the U.S. grain sorghum crop currently is used for ethanol production with one bushel producing the same amount of ethanol as one bushel of corn.
- Sorghum is the only crop that can effectively be utilized into starch, sugar, and cellulose ethanol production.

Human Consumption

- Worldwide, sorghum is a food grain for humans.
- Used in snack foods in the U.S. and Japan such as granola bars and cereals, baked products, dry snack cakes, and more.
- Replaces wheat flour with a gluten-free flour for use in a variety of baked goods.

Worldwide, about 49% of the sorghum consumed is for food. Sorghum provides an important part of the diet for many people in the world in the form of unleavened breads, boiled porridge or gruel, malted beverages, and specialty foods such as popped grain and beer.

7. EQUINE

*** Activities**

Horse Racing

A competition for horses ridden by jockeys within a given area and over a prescribed distance, under the control of appointed officials. Thoroughbreds are the most popular horse breed in the racing industry, but other breeds also race on Texas racetracks such as: Quarter Horses, Paint Horses, Arabians, and Appaloosas. There are currently five racetracks in Texas and more than 950,000 industry participants.

Therapeutic Riding

An equine-assisted activity that improves balance, joint mobility, coordination, muscle tone and posture. It can ease symptoms of a wide variety of disabilities including brain injuries, multiple sclerosis, hearing or visual impairments, muscular dystrophy, cerebral palsy, learning disabilities, Down syndrome, and cardiovascular disease. Plus, it's great for helping students improve motor skills, self-esteem, concentration and problem-solving abilities.

Ranching

Cattle have been raised and herded in Texas by men on horseback since the Spanish conquistadors introduced cows and horses to the area around 1541. Today they are still used on ranches to gather and work cattle, check

fences, and various other labor intensive jobs. A good ranch horse must be versatile and perform activities such as herding, cutting, roping, and reining. They should have keen cow sense, high endurance, and a gentle disposition. Most of the competitive sports performed on horseback today are based on activities that are performed on a working ranch.

Recreational Riding

A popular pastime that strengthens your body and mind while exploring the great outdoors on the back of your horse. Almost 4 million horses are used for recreation—more than any other use. Trail riding is an ever growing industry with many of our state and federal parks, forests, and wilderness areas becoming available to be explored on the back of a horse for a unique adventure. It has also become a potential income for landowners who may want to diversify their ranching operation by allowing trail riders to come in and ride and experience the country.

Generation of Annual Taxes

	United States	Texas
Federal	\$588 million	\$41 million
State	\$1 billion	\$43 million
Local	\$275 million	\$26 million
Total	\$1.9 billion	\$110 million

Source: American Horse Council Foundation, 2005

Generation of Employment

	United States	Texas
Direct	453,600	32,200
Indirect	957,700	64,100
Total	1,411,300	96,300

Source: American Horse Council Foundation, 2005

Indirect Impact of Equine by Category

	United States	Texas
Horse-related Goods (feed, tack, etc.)	\$13.5 billion	\$595 million
Horse-related Services (boarding, training)	\$18.2 billion	\$649 million
Horse-related Transportation (trailer)	\$5.0 billion	\$266 million
Overhead (utilities, office supplies, etc)	\$6.2 billion	\$258 million
Capital Expenses (equipment & structures)	\$16.5 billion	\$330 million
Other Expenses	\$3.3 billion	\$86 million
Total Indirect Expenditures	\$62.7 billion	\$2.2 billion

Indirect Impacts are purchases made by industry suppliers to support the manufacturing and delivery of their respective products.

Economic Impact of Equine by Activity

	United States		Texas	
Activity	Direct & Indirect Impact Total	Direct Impact	Direct & Indirect Impact Total	Direct Impact
Racing	\$26.1 billion	\$10.7 billion	\$848 million	\$506 million
Showing	\$28.8 billion	\$10.8 billion	\$1.9 billion	\$1.1 billion
Recreation	\$32.0 billion	\$11.9 billion	\$1.5 billion	\$900 million
Other	\$14.7 billion	\$5.5 billion	\$898 million	\$518 million
TOTAL	\$101.6 billion	\$38.9 billion	\$5.2 billion	\$3 billion

Direct Impacts are purchases made by individuals directly in the horse industry on goods and services required specifically for the horse industry.

Did you know...

- There is \$13 billion invested in barns, towing vehicles, trailers, and other related horse equipment. About \$2.1 billion is spent annually maintaining horses.
- There are almost 300,000 horse owners in Texas.
- There world's horse population is estimated at 75,000,000.
- Annual cash receipts for horse sales in Texas top \$354 million.
- Horses can drink up to ten gallons of water a day.
- The quarter mile is the most popular distance for racing American Quarter Horses, usually taking 21 seconds or less.

8. NURSERY/GREENHOUSE PRODUCTION

Top States in Nursery/Greenhouse Production

State	Number of Farms	State	Cash Receipts Sales (\$million)
1. Pennsylvania	700,000	1. California	\$985.4
2. Florida	634,000	2. Florida	\$811.8
3. California	612,000	3. Michigan	\$375.7
4. New York	577,000	4. Texas	\$281.7
9. Texas	251,000	5. N. Carolina	\$264.1
U.S. Total	56,070 M	U.S. Total	\$14.7 billion

Top Texas Counties in Nursery/Greenhouse Production

County	Number of Farms	County	Cash Receipts Sales (\$million)
1. Harris	53	1. Van Zandt	\$31.4
2. Cameron	44	2. Smith	\$24.2
3. Hidalgo	42	3. Bexar	\$23.4
4. Montgomery	35	4. Montgomery	\$17.7
5. Van Zandt	32	5. Harris	\$11.6
Texas Total	2,137		\$704.7 million

9. PORK

Pork Production

- The United States produces approximately 21,077,595 pounds of pork a year.
- The U.S. is the third top pork producing country in the world.

State	All Hogs & Pigs (Million Head)	State	Hogs Slaughtered per Year (Million Head)
1. Iowa	20.6	1. Iowa	30.2
2. N. Carolina	9.0	2. N. Carolina	11.4
3. Minnesota	7.7	3. Minnesota	10.8
4. Illinois	4.6	4. Illinois	10.7
15. Texas	0.8	16. Texas	0.4

Top Texas Hog Raising Regions

Region	Number of Hogs (Thousand Head)
1. Upper Coast	4,200
2. S. Central	3,400
3. Blacklands	1,400

State Hog Production Facts (NASS 2012)

Inventory	820 K
Farrowed Sows	178K
Pigs per litter	8.6
Price per Cwt.	
Cash Receipts	\$143.9M

Texas Stock Shows

- Pigs are a popular show animal for youth in Texas.
- In 2013-14, 24,600 swine were validated for major livestock shows.

* Facts

Did you know...

- The pork industry supports more than 800,000 jobs in the U.S.
- Pork is the world's most widely eaten meat.
- Pigs do not have sweat glands, so they use water or mud to cool off.

* Pharmaceutical Facts

Pig pancreas glands are an important source of insulin hormone used to treat diabetes. Pig insulin is especially important because its chemical structure most nearly resembles that of humans.

Specially selected and treated hog skin, because of its similarity to human skin, is used in treating massive burns in humans, injuries that have removed large areas of skin and in healing persistent skin ulcers.

Hog heart valves, specially preserved and treated, are surgically implanted in humans to replace heart valves weakened by disease or injury. Since the first operation in 1971, tens of thousands of hog heart valves have been successfully implanted in human recipients of all ages.

10. POULTRY

* Poultry Production in Texas and United States

Turkey's Produced

- Texas—7.3 million head
- U.S.—256 million head (7.1 billion lbs.)

Broilers Produced

- Texas—4.7 billion head
- U.S.—8.9 billion head (46.8 billion lbs.)

Table Eggs Produced

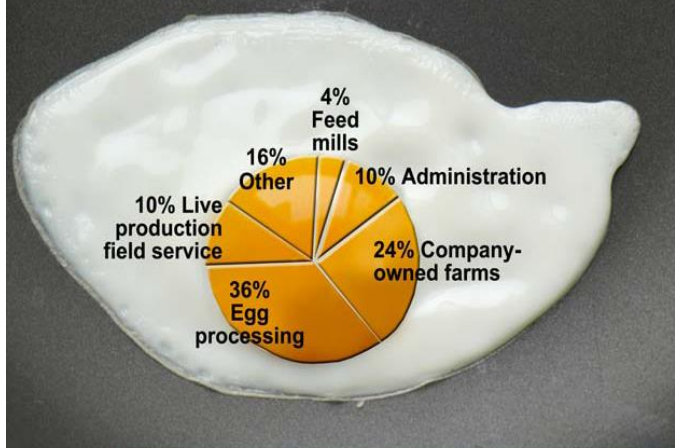
- Texas—5 billion

* Economic Impact to Texas and United States

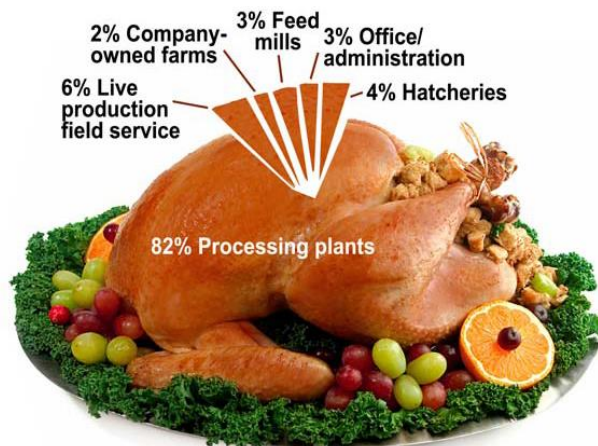
State	Exports of Poultry and Poultry Products (\$million)	State	Broilers Produced (Million Head)
1. Georgia	705	1. Georgia	1,403
2. Arkansas	533	2. Alabama	1,224
3. N. Carolina	525	3. Arkansas	918
4. Alabama	519	4. N. Carolina	817
6. Texas	323	6. Texas	638
State	Total Egg Production (Billion Eggs)	State	Hens & Pullets of Laying Age (Million Head)
1. Iowa	14.4	1. Iowa	51.8
2. Ohio	7.6	2. Ohio	28.0
3. Pennsylvania	7.1	3. Indiana	24.8
4. Indiana	6.8	4. Pennsylvania	24.6
6. Texas	5.0	6. Texas	18.5

Poultry Related Employment in Texas

Employment in the Texas Egg Industry



Employment in the Texas Broiler and Turkey Industry



The Texas poultry industry employs more than 11,500 people and produces jobs for more than 47,000 Texans outside the poultry industry.

* Feed Consumption in Texas

Broilers & Turkeys

- 3.32 million tons of feed milled
- 64% from grain, 23% from soybeans

Layers for Egg Production

- 521,000 tons of feed milled
- 61% from grain, 19% from soybean meal

* U.S. Consumption of Poultry Products

Chicken

- 85.9 lbs. per person

Turkey

- 16.7 lbs. per person

Eggs

- 254 eggs per person

* Food Safety

- All poultry products found in retail stores are inspected by the USDA for evidence of illness.
- Turkeys and chickens are hormone and steroid free, only antibiotics are provided to the birds to prevent disease to ensure that consumers receive a healthy product. A withdrawal period is required therefore assuring that no residues are present in the bird's system at time of processing.

* Egg Facts

- Most popular chicken breed raised for egg production is the White Leghorn.
- Eggs are used as ingredients in such foods as cakes and cookies, or they can be scrambled, fried, poached, or hard-boiled.
- A hen requires 24 to 26 hours to produce an egg. Thirty minutes later, she starts the process over again.
- The egg shell may have as many as 17,000 tiny pores over its surface. Through them, the egg can absorb flavors and odors. Storing them in their cartons helps keep them fresh.
- Eggs age more in one day at room temperature than in one week in the refrigerator.
- Eggs are included in the meat group on the food pyramid because they are the highest quality protein available after mother's milk.
- The average laying hen begins producing eggs at 5 to 6 months of age and can produce between 250 and 300 eggs per year.

11. RICE

Top 5 Texas Counties for Rice Production

County	Production (million cwt)
1. Wharton	2.4
2. Brazoria	1.6
3. Chambers	1.1
4. Jefferson	0.9
5. Liberty	0.4
Texas Total	1.4 bil

State Rice Production Facts (NASS2012)

Acres Planted	135 K
Acres Harvested	134 K
Average Yield	8,370 lbs.
Total	11.2 M
Worth	\$167M

Top 5 States for Rice Production

State	Total Production (Million Cwt.)	State	Exports of Rice and Products (\$Million)
1. Arkansas	96.0	1. Arkansas	862.7
2. California	45.1	2. California	618.7
3. Louisiana	25.5	3. Louisiana	262.8
4. Missouri	12.4	4. Texas	119.1
5. Texas	11.2	5. Missouri	99.5
U.S. Total	21.6 bil	3,241,400	6,674

* Rice - A Global Staple

- Rice is the primary staple for more than half the world's population, with Asia and Africa being the largest consuming regions.
- Developing countries have long depended on its versatility and high caloric value.
- The United States is the second largest exporter of rice, (first is Thailand). The United States now exports about half of all the rice it grows.

There are four major types of rice produced and traded worldwide:

- **Indica** - Long-grain rice grown mostly in tropical and subtropical regions; accounts for more than 75 percent of global trade. Cooks dry, with separate grains.
- **Japonica** - Medium or short-grain rice, typically grown in regions with cooler climates; accounts for more than 10 percent of global rice trade.
- **Aromatic** - Primarily jasmine from Thailand and basmati from India and Pakistan; accounts for more than 10 percent of global trade and typically sells at a premium in world markets.
- **Glutinous** - Grown mostly in Southeast Asia; used in desserts and ceremonial dishes; accounts for most of the remainder.

* Rice – From Field to Plate

- Rice has been produced commercially in America for more than 300 years.
- The United States is the 12th largest rice producer in the world.
- Although rice is produced over vast areas of the world, the physical requirements for growing rice are limited to certain areas. Production typically requires high average temperatures during the growing season, a plentiful supply of water applied in a timely fashion, a smooth land surface for uniform flooding and drainage, and a subsoil hardpan that prevents water loss.
- Producers in the U.S. can apply seed aerially in dry or flooded fields, or drill or broadcast seed into dry fields. Planting typically begins in early March in Texas.
- All U.S. rice is produced in irrigated fields. Gravity guides fresh water, pumped from deep wells, nearby rivers, canals or reservoirs to provide constant water depth on the field of 2 to 3 inches during the growing season.
- When the rice plant matures, the levees are opened, the water is drained and the soil is given time to dry. Harvest begins in early or mid-July using a combine to cut the rough rice from the straw. After rice has been harvested, it is threshed to loosen the hulls. Some producers are able to reflood their fields after harvest and achieve a partial second crop, called a "ratoon," from the stubble of the first.
- Except for rough (unmilled) rice exports and domestic seed sales, virtually all U.S. rice is marketed as a whole-kernel milled product. Once sold, the rice is screened to remove stones, loose chaff and stalks. The rice is then slowly dried by warm air to reduce any moisture and then screened to remove dust particles.
- Five different products can be produced from rough rice: hulls, bran, brown rice, whole-kernel milled rice or white rice, and broken (broken-kernel milled rice).

• Four regions produce almost the entire U.S. rice crop:

- Arkansas Grand Prairie
- Sacramento Valley of California
- Gulf Coast (Texas and Southwest Louisiana)
- Mississippi Delta (parts of Arkansas, Mississippi, Missouri, and Louisiana)

Each of these regions specializes in a specific type of rice referred to by length of grain – long, medium, and short

Long-grain Rice

- Grown almost exclusively in the South
- Accounts for more than 70% of U.S. rice production
- Commonly used in frozen dinners, canned soup, and seasoned packaged products

- Typically cooks dry and grains remain separate, not sticky
- Preferred by most of the U.S. population

Medium-grain Rice

- Grown both in California and Arkansas
- Accounts for more than 25% of U.S. rice production
- Used in cereal manufacturing
- Typically cooks moist and clingy

Short-grain Rice

- Grown almost exclusively in California
- Accounts for 1 to 2 % of U.S. rice production
- Used in puddings and desserts
- Cooks moist and sticky

In the United States, rice growing regions also serve as an important habitat for waterfowl and migratory birds and is an example of how properly managed agriculture can enhance the environment.

* Rice Facts

- Rice is cultivated in more than 100 countries and on every continent except Antarctic.
- 96% of the world's rice is eaten in the area in which it is grown.
- Wild rice is not true rice but an aquatic grass variety from a different genus.
- There are more than 40,000 varieties of cultivated rice said to exist.

12. SHEEP & GOATS

* Sheep and Wool Production

Texas-TOP 5 COUNTIES

Counties	Number of Head-Sheep and Lamb (Thousand)	Counties	Wool Produced (Thousand lbs.)
Crockett	64.0	Crockett	285.0
Val Verde	58.0	Val Verde	230.0
Tom Green	42.5	Pecos	175.0
Pecos	41.5	Tom Green	165.0
Gillespie	36.5	Gillespie	120.0

TOP 5 STATES-All Sheep and Lamb and Total Wool Production

State	Number of Head-Sheep and Lamb (Thousand)	State	Total Wool Production (Million Pounds)
1. Texas	700.0	1. California	2.6
2. California	570.0	2. Wyoming	2.6
3. Colorado	435.0	3. Utah	2.5
4. Wyoming	375.0	4. Texas	2.1
5. Utah	295.0	5. Colorado	2.1

Top 5 States- Value of All Sheep and Lambs (Million Dollars)

State	Value (\$million)
1. California	100.3
2. Texas	99.4
3. Wyoming	69.8
4. Colorado	69.2
5. Utah	60.5

Texas

- Sheep and lambs – 700,000 head
- Wool Produced – 2.1 million pounds/year

United States

- Sheep and lambs – 6.3 million head
- Wool Produced – 38 million pounds/year



Sheep and Goats

There are over 7,000 sheep and lamb operations in Texas and over 68,000 in the United States. They produce over 194 million pounds of lamb and mutton (meat) per year worth nearly \$175 million. The value of Mohair Production

- Texas – \$3.5 million
 - United States – \$3.9 million
- The value of Wool production

- Texas – \$4.9 million
 - United States – \$26.2 million
- United States goat inventory by type (3-year average)
- **Angora** – 260,000 head
 - **Milk** – 290,000 head
 - **Meat** – 2,300,000 head

* Predators

Predators are animals such as coyotes, mountain lions, bobcats, dogs and other types of meat-eating animals that hunt for food.

Texas – Cost of Sheep & Lamb Losses

- Coyotes - \$2,800,000
- Bobcats - \$818,000
- Dogs - \$705,000
- Other - \$442,000
- Eagles - \$320,000

United States – Cost of Sheep & Lamb Losses

- Coyotes - \$11,100,000
- Dogs - \$2,400,000
- Other - \$1,300,000
- Mountain Lions, cougars, etc. - \$1,000,000
- Bobcats - \$910,000

Preventative Measures – ranchers often use guardian animals such as dogs, donkeys and llamas to protect their herds from predators.

* Grazing for Hire

- In Texas, landowners are using sheep and goats to control unwanted vegetation and brush, such as broadleaf weeds and cedar.
- This helps the environment by controlling wildfires, improving grass pastures, and adding fertility to the soil. Goats can be pastured with sheep and cattle because each species prefers different plants. Goats prefer brush, tree leaves, and rough browse plants, while cattle and sheep prefer grass.

Texas-Top 5 Goat Counties

County	Top Texas Counties Angora (Thousand Head)	County	Top Texas Counties Mohair (Thousand Head)
1. Edwards	21.5	1. Edwards	110.0
2. Val Verde	6.7	2. Val Verde	36.0
3. Crockett	3.2	3. Gillespie	20.0
4. Gillespie	2.8	4. Crockett	18.0
5. Kendall	2.5	5. Mills	16.3

United States-Top 5 Goats

State	Top Texas Counties Angora (Thousand Head)	County	Total Meat and Other Goats
1. Texas	85.0	1. Texas	855.0
2. Arizona	23.0	2. Tennessee	121.0
3. N. Mexico	11.5	3. California	96.5
4. California	3.5	4. Oklahoma	91.0
5. Oregon	2.4	5. Missouri	83.5

* Goat Breeds

In the United States, there are three primary breed types and over 60 recognized domestic breeds of goats in the world!

- **Angora** – Fiber
- **Nubian** – Milk
- **Boer** - Meat

* Separating the Sheep from the Goats

- *Two distinct species and genus*

- Sheep have 54 chromosomes
- Goats have 60 chromosomes

- *Look at their tails*

- Sheep tails hang down
- Goat tails point up

- *What do they eat?*

- Sheep are grazers, preferring to eat short, tender grass and clover. They like weeds and can graze very close to the soil surface.

- Goats are browsers, preferring to eat leaves, twigs, vines and woody shrubs. They will stand on their hind legs to eat vegetation.

- *Watch their behavior*

- Sheep have a strong flock mentality that provides the best defense against predators.

- Goats are very curious and independent. They are adaptable and can be raised successfully in any part of the U.S.

* Goat Facts

There are two kinds of goats raised for fiber. The Angora goat (mohair) and the Cashmere goat (cashmere).

While all goats have hair, the hair from these two breeds is particularly soft, warm, luxurious and woven into fine apparel.

- Goat meat is termed either cabrito or chevon, depending on the goat's age at harvest. The meat is unique in flavor and palatability. It is leaner than many other red meats and usually less tender, it is also very low in fat and cholesterol.

- Goat meat is the most highly consumed meat in the world; and more goats' milk is consumed worldwide than cow's milk!

* Wool Facts

Lamb is the meat of a sheep under one year of age. Mutton is the meat of a sheep over one year of age.

Wool is categorized into four major types: long wool, fine wool, medium wool and carpet wool.

Most medium wool breeds have been selected for meat production rather than wool quality.

Because sheep and goats are adaptable to a wide range of climates and management systems, they can produce food and fiber by utilizing land that is otherwise unsuitable for other types of agriculture.

Sheep also provide alternatives to traditional waste-handling methods, such as:

- Used to graze the non-usable portions of vegetable plants after harvest, saving expense of plowing.

- Sheep manure is used to clean up contaminated soil caused by leaking underground storage tanks. The microbes in the manure digest the petroleum product.

- Low grade wool is converted into absorbent brooms, pads, mats and other oil spill clean up items.

13. WHEAT

* Wheat Production

Texas TOP 5 COUNTIES –Wheat

County	Production (Million bushels)
1. Ochiltree	4.6
2. Wilbarger	3.7
3. Hansford	3.5
4. Sherman	2.9
5. Wichita	2.8
Texas Total	17.5 mil

U.S. Wheat Production TOP 5 STATES – Winter Wheat

State	Exports of Wheat & Wheat Products (\$M)	State	Total Winter Wheat Production (M bu.)
1. Kansas	1,304.6	1. Kansas	378
2. N. Dakota	1,111.0	2. Oklahoma	154.8
3. Montana	732.7	3. Washington	118.6
4. Washington	564.0	4. Texas	96.0
9. Texas	286.3	5. Montana	84.6
U.S. Total	1.4 bil		33.2 Billion

State Wheat Production Facts (NASS 2012)

Acres Planted	5.7 M
Acres Harvested	3.0 M
Average Yield	32.0 bu.
Total	96.0 M bu.
Worth	\$653 M

* Wheat Kernel

The wheat kernel is the seed from which the plant grows. Each tiny seed contains three distinct parts that are separated during the milling process to produce flour.

Germ – 2.5% of the kernel weight

- Embryo of the seed
- Separated from white flour
- Included in whole wheat flour
- Available separately

Endosperm – 83% of the kernel weight

- Source of white flour

Bran – 14.5% of the kernel weight

- Included in whole wheat flour
- Available separately
- Separated from white flour

* Varieties

• **There are two types of wheat planted in the U.S:**

1. Winter wheat – planted in September and harvested the following summer.
2. Spring wheat – planted in April or May and harvested in August or September.

Winter wheat is 70-80% of U.S. production

There are several hundred varieties of wheat produced in the United States, all of which fall into one of six recognized classes. Classes are determined by time of year they are planted and harvested, hardness, color and shape of kernels.

• **Hard Red Winter and Hard Red Spring** - Produces high-grade flour used to make bread, hamburger buns and biscuits.

• **Hard White and Soft White** - Soft wheat that produces flour used for cereals, cookies and cakes.

• **Durum** - Contains the most protein and produces a coarse, golden amber product called semolina that is used to make premium pasta products like spaghetti noodles and macaroni.

• **Soft Red Winter** - Produces flour that is desirable for baked goods that have a tender, flaky or crisp texture, like cakes, doughnuts, cookies and crackers.

Texas produces Hard Red Winter and Soft Red Winter Wheat

Hard Red Winter is the dominant class in U.S. exports and the largest class produced each year.

* 60 pounds of wheat (a bushel) produces...

- 60 pounds of whole wheat flour
- 42 pounds of white flour
- 42 commercial loaves of white bread
- 90 loaves of whole wheat bread
- 42 pounds of pasta
- 45 boxes of wheat flake cereal
- 210 servings of spaghetti

On average, in the U.S., one acre yields 37.1 bushels of wheat.

* Wheat and Livestock

- Much of the wheat used for livestock and poultry feed is a by-product of the flour milling industry.
- The green forage may be grazed by livestock or used as hay or silage.
- In many areas, wheat serves a dual purpose —grazed by livestock in the fall and early spring and then harvested as a grain crop when it matures.
- Wheat straw is used for livestock bedding.