

Commodity Fact Sheet

Beef

Information compiled by the California Beef Council

How Produced – There are approximately 660,000 beef cattle on about 11,000 ranches in California. In addition, there are 1.78 million dairy cows, which also play an important role in the state's beef industry. Cattle are ruminants, which means they have a four-chambered stomach. Most beef cattle in California graze on land that cannot be used for raising other crops. There are four types of cattle operations; cow-calf, seed stock, stocker, and feedlot. Many producers have a combination of these operations.

Cow-calf producers make up the largest segment of California cattle operations. These ranchers have a herd of breeding cows, replacement heifers (young cows), and bulls. The cows are bred to calve in the spring or fall. Calves are usually sold after they are weaned, at about seven months. After weaning, cattle are sent to feedlots for approximately 120 days where they are fed a high-energy ration of grain and hay. Nineteen percent of cropland in the nation is used to raise feed grains for livestock. Cattle are good recyclers and are often fed waste by-products such as almond hulls or rice straw.

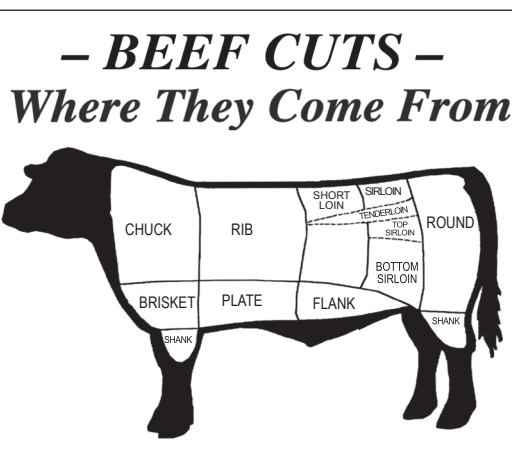
Once cattle weigh approximately 1,200 to 1,400 pounds, they are processed. Ninety-eight percent of each animal is used, but less than half is eaten as beef. Cattle provide a multitude of by-products that consumers use every day, including photographic film, soap, tires, leather, and pharmaceuticals.

Breeds – There are 275 recognized breeds of cattle throughout the world. Most breeds in California originated from Europe or have a Brahman influence. Brahman cattle from India are known for their tolerance to heat.

Cattle brought to the Western Hemisphere by the early Spanish explorers were the ancestors of the Texas Longhorns. While extremely hardy, these cattle did not produce a palatable product. As a result, nineteenth century cattle producers imported purebred cattle, including European Angus and Hereford, to improve the quality of their herds. During the twentieth century, breeds such as Charolais, Limousin, and Gelbvieh became more prevalent due to their leaner meat characteristics.

Commodity Value – The sale of cattle and calves accounted for \$3.19 billion in cash receipts in 2018 and was fourth in terms of value in the state's top 10 commodities in 2018. Nationally,

California ranks fourth in total cattle numbers behind Texas, Nebraska, and Kansas. Beef and beef products are in the top 20 of California exports, bringing in \$414 million in 2018.



Top Producing Counties – Beef cattle are raised in every county in California except San Francisco. Tulare is the leading county in California cattle production at 17.9%, followed by Fresno at 11.9%, Imperial at 11.1%, Kern at 8.9% and Merced at 6.6%.

History – The introduction of cattle to North America mirrors the exploration and settlement of the continent by Europeans. Columbus introduced cattle to the Western Hemisphere on his second voyage to the New World

in 1493. Spanish explorer Hernando Cortez took offspring of those same cattle to Mexico in 1519. In 1773, Juan Bautista de Anza brought 200 head of cattle to California to supply the early California missions.

The hide and tallow trade sustained the California economy while it was still under Mexican rule and hides were used as currency to buy supplies from Boston trading ships. When James Marshall discovered gold in 1848, the beef business boomed, feeding the fortune seekers who came to the gold fields. Many of the miners soon realized there was more money to be made in cattle than in prospecting.

Nutritional Value – Beef is a nutritionally dense food that is an excellent or good source of 10 essential nutrients. A three-ounce serving of lean beef contributes more than 10% of the Daily Value for protein, zinc, vitamin B12, selenium, phosphorous, niacin, vitamin B6, iron, and riboflavin. Beef is the number one food source of protein, zinc, and vitamin B12. The U.S. Department of Agriculture's Nutrient Database shows that more than 34 cuts of beef meet government standards for lean or extra lean and that many cuts of beef are 20% leaner than they were 15 years ago. Half of the fatty acids found in beef are monounsaturated, the same "good fat" found in olive oil.

For additional information:
California Beef Council
(916) 925-BEEF
Website: www.calbeef.org

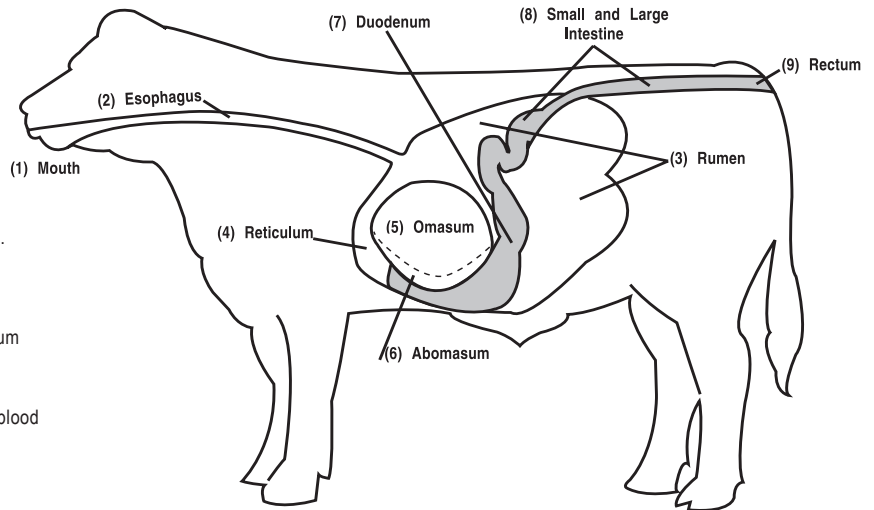


Beef Activity Sheet

Cattle are ruminants.

Ruminants are unique because they have four-chambered stomachs.

- 1) Cattle chew food in their mouths.
- 2) After the food is swallowed, it travels down the esophagus to the rumen.
- 3) In the rumen, the largest chamber of the stomach, the food mixes and softens with the aid of microorganisms.
- 4) Food travels from the rumen to the reticulum where further digestion occurs. Large food items are returned to the mouth for further chewing. This food is called cud.
- 5) When the food particles are small enough, they pass through the omasum where water is removed.
- 6) The food travels to another stomach chamber called the abomasum where stomach juices continue to digest the food.
- 7-8) From the abomasum, food moves through the duodenum and the small and large intestines where nutrients are absorbed into the blood stream and utilized by the animal.
- 9) Waste products are excreted through the rectum as manure.



Lesson Ideas

- Use a Venn diagram to compare and contrast monogastric and ruminant animals. How does their digestive system affect their nutritional needs?
- Given cattle weight at the time of processing, how many pounds of the animal is used? How many pounds are eaten as beef?
- Create a timeline depicting significant events within the beef cattle industry.
- Research the following breeds of cattle and locate their place of origin on a world map: Angus, Brahman, Charolais, Gelbvieh, Hereford, Limousin, Maine-Anjou, Nellore, Santa Gertrudis, and Shorthorn.

Fantastic Facts

1. Cattle have a four-chambered stomach.
2. 98% of beef cattle is used with less than half eaten as beef.
3. Hide, tallow, fat, and bones are examples of beef by-products that are used to make a wide variety of products.
4. People originally raised cattle for their hides and tallow.
5. The most popular form of beef served is ground beef.
6. Iron and zinc are examples of minerals in beef that are readily used by the human body.
7. The five most popular sports in the United States depend on by-products from cattle: Baseball, football, basketball, soccer, volleyball.

Lesson Plan: From Sun to Steak

Introduction: Cattle, ruminant animals, are able to digest plant cellulose—a substance indigestible by humans. This unique characteristic of ruminant animals assists in converting energy into forms that can be used by other animals including humans. Beef and dairy products result from the ruminant digestive process. In this activity the students will create a mural which depicts the energy flow from the sun to food people eat.

Objective: Students will create an energy flow mural depicting the steps from sun to decomposers.

California Standards: CCELA: SL.3-7.2, RST.6-10.7
NGSS: 4-LS1-1, 5-PS3-1, 5-LS2-1, MS-LS1-6, MS-LS2-3

Materials: Butcher paper, dictionary, glue sticks, index cards, lengths of yarn in a variety of colors, markers.

Procedure:

1. Have students find the definition for “ruminants” and list a variety of animals that fit into this category.
2. Discuss how students will create a mural showing the energy flow from the sun to the food people eat.
3. Divide students into pairs or trios. Distribute one of the listed

phrases to each group:

- cattle and sheep
 - plants get their energy from sun, water, and air
 - grazing animals live on land not suitable for crops
 - people eat fruits, vegetables, meat, dairy products, and grains
 - crops grow on fertile land
 - ruminant animals have a unique digestive tract
 - food from farms is processed, packaged, and sent to stores
 - bacteria, earthworms, and snails are types of decomposers
4. Have students draw a scenic background for their mural made of butcher paper. There should be hills, valleys, waterways, and an urban city with stores and houses.
 5. As a class, decide which phrase fits into which part of the mural. Have students create and add a scene that shows what their card indicates. Incorporate key sentences into the mural.