

Dairy

Information compiled by the Dairy Council of California

How Produced – California produced 39.5 billion pounds of milk in 2009. Approximately 1.8 million dairy cows produce milk on approximately 1,750 dairies located throughout the state. California’s available land, mild climate, and plentiful feed supply make it a desirable and productive location for dairies.

A dairy cow must give birth to a calf to produce milk. A female calf is called a heifer and a male is called a bull. After nine months gestation, a mature two-year old heifer gives birth and is called a “fresh cow.” She produces milk (lactation) for 10 months during which time she is bred again. Her milk production then decreases until she produces no milk (dry) for two months. She will produce milk again after she has her next calf. Cows have a production cycle of four to seven years.



Dairy cows are milked two (sometimes three) times each day. A cow will produce six to seven gallons of milk each day which is more than 2,000 gallons of milk each year.

Cows are ruminant animals, which have four stomach compartments, and efficiently digest many different commodities such as hay, silage (fermented corn, wheat or hay including the stalks and leaves), and grain (corn, oats and barley). Cows also consume many different agricultural by-products including cottonseed, almond hulls, sugar beet pulp, and blemished vegetables. Cows drink approximately 35 gallons of water each day.

History – Anthropologists suggest that Ancient Egyptians, Romans and Greeks made cheese and yogurt as early as 600 B.C. Missionaries brought the first dairy cows to California in 1770. During the Gold Rush, immigrants brought cows, cheese presses and churns to California along with their own recipes for making dairy products.

In 1882, David Jacks, a Scotsman from Monterey, named his cheese Monterey Jack. He was the first person to sell cheese commercially in California. The early 1900s brought changes to the dairy industry including centralized manufacturing and distribution. As California’s population increased, the dairy industry focused on improving sanitation, increasing production, and mechanization.

Today, California’s dairy industry utilizes technology and advanced food processing systems to provide safe, quality

products for California, the United States, and the world.

Breeds – There are five dairy breeds in California. The black and white Holstein is the most common. The Jersey is a smaller cow whose milk is often used for cheese production. The Brown Swiss, Guernsey and Ayrshire are other breeds used for milk production.

Commodity Value – California has been the nation’s leading dairy state since 1993 when it surpassed Wisconsin in milk production. Sales of milk and cream contributed \$4.5 billion in 2009 to California’s economy. California’s production accounts for 21 percent of the nation’s milk supply. California’s cheese production ranks second in the nation, with approximately 40 percent of all the Golden State’s

milk used to make cheese.

Top Producing Counties – Although during 2009, 35 counties contributed to the state’s total milk production, a handful of counties continued to be responsible for the bulk of the production. Tulare, Merced, Stanislaus, Kings, and Kern counties accounted for 71 percent of the state’s market milk production.

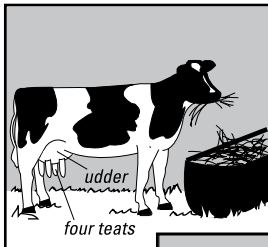
Nutritional Value – Dairy products such as milk, yogurt, and cheese contain numerous essential nutrients including calcium, potassium, phosphorus, magnesium, and protein. This “package of nutrients” is critical for the development of strong bones and teeth, maintaining a healthy weight, and reducing the risk of high blood pressure, osteoporosis, and certain cancers. Whether it’s protein to help build and repair muscle tissue or vitamin A to help maintain healthy skin, dairy products are a natural nutrient powerhouse.

For additional information:

Dairy Council of California
1101 National Drive, Suite B
Sacramento, CA 95834
(877) 324-7901
Website: www.HealthyEating.org

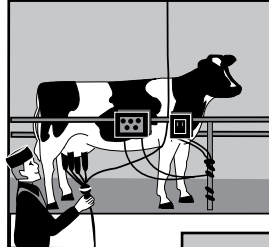
California Milk Advisory Board
Website: www.realcaliforniacheese.com

Dairy Activity Sheet



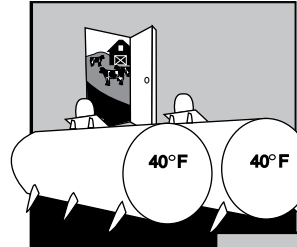
◀ #1

Dairy cattle convert feed energy to milk production. A cow produces milk in her udder. Milk is released through the udder's four teats.



◀ #2

Cows are milked in a milking parlor where the teats are cleaned and attached to a milking machine.



◀ #3

The milk is piped immediately to refrigerated storage tanks.

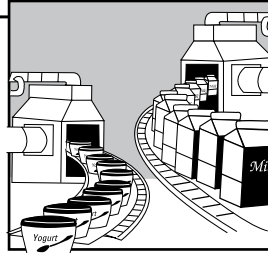
#4 ▶

The milk is transported daily, in large stainless steel tanker trucks, to processing facilities.



#5 ▶

The milk is pasteurized, homogenized and processed into many products such as milk, yogurt, cheese and ice cream.



#6 ▶

A variety of dairy products are available to meet the tastes and nutritional needs of consumers.



Lesson Ideas

- Explore different dairy breeds including their characteristics, history and geographic location.
- Compare a cow's diet and digestive process to a human's diet and digestive process. Diagram ruminant and monogastric digestive systems.
- Study places in the world where milk and dairy products are produced.
- Make butter by shaking heavy whipping cream in baby food jars.
- Create a picture collage of products made from milk.
- Visit a dairy or milk processing facility.
- Taste test different cheese and dairy products.
- Make homemade ice cream.
- Research the nutrients found in dairy products.

Fantastic Facts

1. How many stomach compartments do cows have?
 2. Name three agricultural by-products eaten by cows.
 3. How did Monterey Jack cheese get its name?
 4. What is silage?
 5. On the average, how many years does a cow produce milk?
 6. What is the most common dairy breed in California?
 7. Name three dairy products other than milk.
 8. What essential nutrient is contained in milk?
- 1) Four 2) Cottonseed, almond hulls, sugar beet pulp, blemished vegetables 3) The Jacks family developed it in Monterey, California 4) Partially fermented grains and grain by-products 5) Four to seven years, having a calf each of those years 6) Black and white Holstein 7) Yogurt, ice cream, cheese, butter 8) Calcium

Lesson Plan: Milk-From the Farm to the Family Class Book

Introduction: Dairy products have been around since 600 B.C. However, today's milk production and the production of dairy products is very scientific and technical. This activity allows your students to perform independent research on one aspect of milk and dairy product production. The final product of this activity will be a class book that depicts this highly technical and mechanized process.

Materials: Index cards, resources including Internet access, books and encyclopedias, 12" x 18" paper, markers.

Procedure:

1. Write key words or phrases on index cards. These should be one card per student or pair of students. Example words include ruminant, lactation, cow diet, pasteurization, homogenization, etc.

2. Distribute one card to each student or partnership.
3. Have the students research, on the Internet and in libraries, the meaning of their word or phrase and learn how it relates to milk production.
4. Have the students write and roughly illustrate their findings using a standard format and a standardized piece of paper.
5. Have the students each read their page to the class. As a class, sequence the information and have the students create a professional looking page about their findings so that it blends with the work of other classmates.
6. Title the book "Milk: From the Farm to the Family." Bind the book and share it with other classes or at Open House.

