

# DAIRY USES:

milk, cheese, yogurt, ice cream, butter, sour cream, cream cheese, cottage cheese, coffee creamer, baby formula

## WHAT IS DAIRY?

Dairy cows are amazing animals. They can turn grass and grains into milk! Heifers are female dairy cattle and after two years, they give birth to their own calves. Once a heifer gives birth, it is called a cow. All female dairy cows must have a calf to produce milk. The gestation (pregnancy) period for cows is nine months. Newborn calves weigh about 80-100 pounds. Male dairy cattle are called bulls and do not produce milk.

Milk provides your body with calcium, which is needed for healthy bones and teeth. Calcium also helps our muscles and nerves work properly, and helps blood to clot. Milk products also provide us with carbohydrates, protein and Vitamin D. You should have 3 servings of nonfat or low fat milk and milk products each day. One serving of dairy is equal to 1 cup of milk, yogurt or ice cream and 1-2 ounces of cheese.



## VOCABULARY

**BULL:** a male cow used for breeding.

**CALCIUM:** a mineral found in dairy products and is needed for healthy teeth and bones.

**CALF:** a baby cow.

**COW:** a female cow that has given birth to a calf.

**DAIRY:** food group containing milk and milk products.

**HAY:** grass, clover or alfalfa that is cut, dried and baled and fed to cattle.

**HEIFER:** a female cow that has not had a calf.

**HOMOGENIZE:** process where milk fat is broken into tiny particles that are evenly spread throughout the milk.

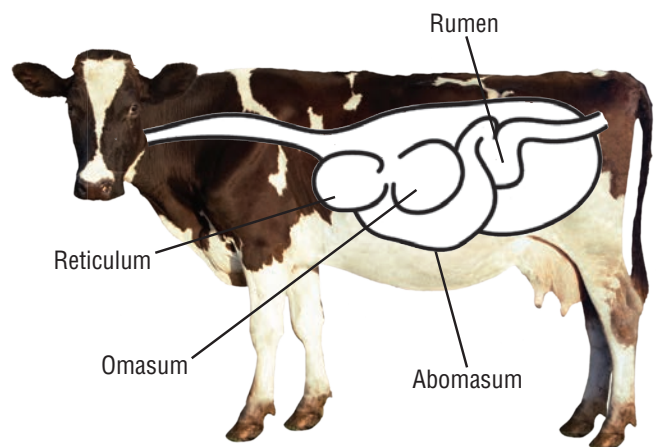
**PASTEURIZE:** process of heating and cooling milk to kill bacteria and protect its purity and flavor.

**SILAGE:** fermented corn, wheat or hay with the stalks and leaves that is chopped and fed to cattle.

**UDDER:** part of a dairy cow that produces, stores and dispenses milk.

## DO A DOUBLE TAKE

Dairy cattle are called ruminants because they have multiple compartments in their stomach. Ruminant animals first chew their food to soften it, swallow it and then return it to their mouth for continued chewing. This is called chewing the cud. After chewing the cud, it is swallowed a second time, broken down further and digested. Cows will spend up to eight hours a day chewing their cud. Cows have a four-compartment stomach which includes the rumen, reticulum, omasum and abomasum.



# DAIRY

## BREEDS:

Ayrshire, Brown Swiss, Guernsey, Holstein, Jersey, Milking Shorthorn

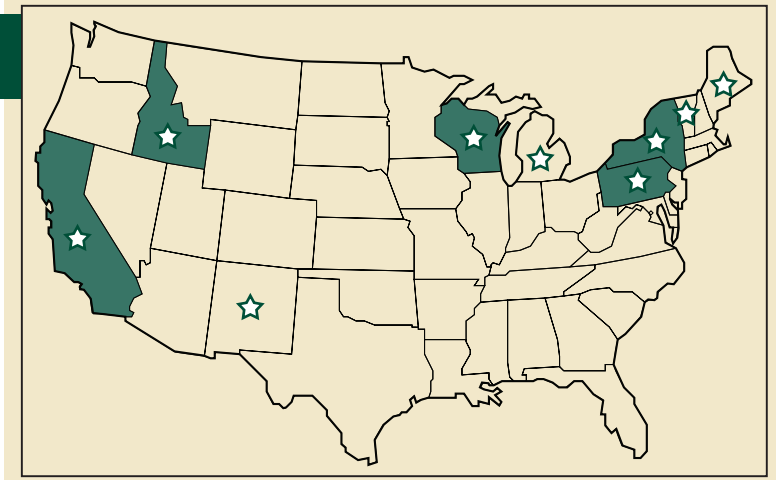
### UNITED STATES MILK PRODUCTION

#### ■ Top 5 milk producing states.

1. California
2. Wisconsin
3. Idaho
4. New York
5. Pennsylvania

#### ☆ States with dairy as their number one agricultural business.

1. California
2. Wisconsin
3. New York
4. Pennsylvania
5. Idaho
6. Michigan
7. New Mexico
8. Vermont
9. Maine



### IMPORTANT DATES IN DAIRY HISTORY

- |   |  |   |  |
|---|--|---|--|
| <b>1611</b><br>Cows arrive for Jamestown Colony.                              | <b>1861</b><br>Louis Pasteur establishes basis for pasteurization.                             | <b>1899</b><br>Milk homogenizer patent obtained by Auguste Gaulin.                | <b>1948</b><br>Ultra high temperature pasteurization introduced.   |
| <b>1624</b><br>Cows reach Plymouth Colony.                                    | <b>1878</b><br>First continuous centrifugal cream separator invented.                          | <b>1914</b><br>The first tank trucks for transporting milk were put into service. | <b>1964</b><br>Plastic milk containers used commercially.  |
| <b>1776</b><br>The first ice cream parlor in America opened in New York City. | <b>1884</b><br>First glass milk bottle was patented by Dr. Henry Thatcher.                     | <b>1932</b><br>Plastic-coated paper milk cartons were introduced commercially.    | <b>1974</b><br>Nutrition labeling on fluid milk begins.  |
| <b>1810</b><br>First cooperative creamery built.                              | <b>1886</b><br>Automatic bottle filler and capper invented.                                    | <b>1942</b><br>Every other day home milk delivery began.                          | <b>1993</b><br>"GotMilk?" advertising campaign launched. It is considered one of the most important and successful campaigns in history. |
| <b>1841</b><br>First regular shipment of milk by rail.                        | <b>1895</b><br>Commercial pasteurizing machines for milk were introduced in the United States. |   |  |

UDDERLY  
COOL

Most dairy cows are milked 2-3 times per day.

On average, one dairy cow can produce about 6.5 gallons of milk per day.

One dairy cow produces enough milk each day to fill about 99 school milk cartons.

One dairy cow produces enough milk to fill almost 50 milk chugs each day.

It takes 12 pounds of whole milk to make one gallon of ice cream.

The average American consumes 23.2 quarts of ice cream a year.

Most milk only travels about 100 miles to get from the dairy to your local grocery store.

On average, it takes only 48 hours for milk to travel from the farm to the store.

The average American eats over 31 pounds of cheese each year.

# DAIRY

## CAREERS:

dairy farmer, nutritionist, veterinarian, truck driver, salesperson, scientist

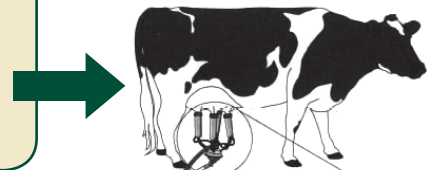
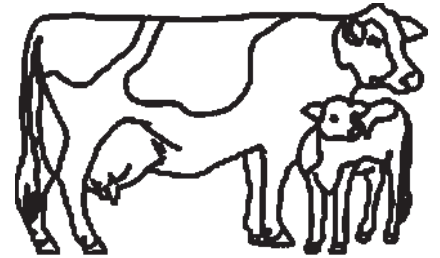
## SPOTLIGHT ON CAREERS:

**NUTRITIONIST** — A **Dairy Nutritionist** studies the nutritional requirements of animals and advises producers about improved products and techniques that could enhance their animal production efforts. They also study the effects of management practices, processing methods, feed, or environmental conditions on quality and quantity of animal products, such as milk.

**VETERINARIAN** — A **Veterinarian** consults with farm or ranch owners and managers on animal production, feeding, and housing issues. They provide preventative care in order to keep animals safe and healthy. Veterinarians work with farm and ranch owners to identify their individual risk factors and then help tailor a health and security program to fit their needs.

## MOO-VING MILK

All female dairy cows must have a calf to produce milk.



Calves are separated from their mothers and bottle fed.

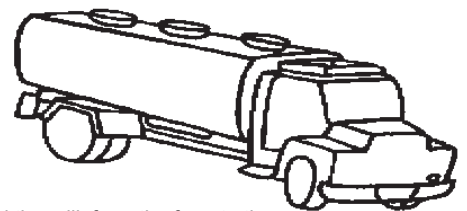


Receiver Tank



Shell and Claw

A healthy diet is important for a dairy cow. Dairy cows eat hay, silage and grain. Silage is fermented corn, wheat or hay with the stalks and leaves. Cows eat 50 pounds of silage as well as 40 pounds of feed and hay each day for a total of 90 pounds of food. They also drink 25-50 gallons of water each day. Most dairy cows are milked by machines.



Special trucks haul the milk from the farm to the dairy plant. The trucks keep the milk cold—like a giant thermos on wheels. The truck drivers take samples of the milk to make sure it meets certain standards before they deliver it.



At the dairy plant, milk is tested for butterfat content, flavor, odor, and bacteria. Then it is standardized and mixed with milk from other dairy farms so that it all tastes the same and has the same amount of cream. Homogenization and pasteurization take place before automated machines package the milk, and seal and stamp the expiration date on each milk carton or jug. It is then refrigerated until it is ready to be shipped.



# DAIRY FUN FACTS:

A typical dairy cow weighs 1,100 to 1,400 pounds.

A gallon of milk weighs 8-1/2 pounds.

## MILK CONSUMED AROUND THE WORLD

**COWS** — Nine out of every ten glasses of milk consumed by people come from cows.

**WATER BUFFALO** — Water buffalo produce half of the milk consumed in India. Ghee, a kind of liquid butter, is made from water buffalo milk.

**GOAT** — Some people find goat's milk easier to digest than cow's milk. Fat globules in goat's milk are smaller than in cow's milk.

**REINDEER** — The fat content of reindeer milk is 22%, six times as much as cow's milk. It is the only source of milk for Laplanders in northern Scandinavia, because no other dairy animal can survive in such a cold, hostile environment. It takes two people to milk a reindeer - one to do the milking and the other to hold the reindeer's horns.

**HORSE** — Over 700 years ago, Mongolian warriors made a dried-out concentrated paste from horse milk. When they were on the march, they added it to water and drank it.

**SHEEP** — Milk from sheep has twice the fat content of cow's milk. Sheep milk is used to make French Roquefort and chevre cheeses.

**CAMEL** — In the hot desert, camel milk lasts longer than other types of milk. It can last for seven days at 86 degrees Fahrenheit (30 degrees Celsius), and will last for three months when properly refrigerated.

**YAK** — In the cold mountains of Tibet, people make yak butter tea. It tastes like a salty, creamy soup that has been whipped to a froth.

## DAIRY STATISTICS

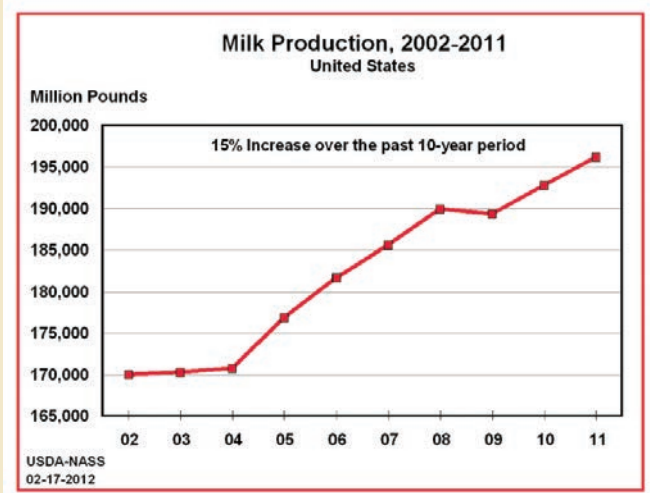
More than 60,000 U.S. dairy farms provide milk, cheese and yogurt to the U.S. and other countries.

About 99% of all U.S. dairy farms are family-owned.

Each year, U.S. dairy farmers provide milk to make more than:

- 1.5 billion pounds of butter
- 10.5 billion pounds of cheese
- 1 billion gallons of ice cream

## UNITED STATES MILK PRODUCTION



## SCIENCE AT HOME

### MAKE YOUR OWN BUTTER AT HOME!

1. Place a half-pint of room temperature whipping or heavy cream in a plastic or glass jar with a lid. One half-pint of cream will make about 1/4 pound of butter.
2. Shake the jar for 5-10 minutes.
3. When a lump of butter forms, pour the contents of the jar into a colander to separate the butter from the buttermilk.
4. A pinch of salt may be added.
5. Enjoy on bread or crackers.

