



KIDS CONNECTION

More than Milk

Grades 3rd - 5th

What is Dairy?

Dairy cows are amazing animals! Like other cattle, they are ruminants – animals that have a four-compartment stomach – and are cloven (split) hooved. As mammals, all cows produce milk for their calves. Almost one thousand years ago, people began developing specific breeds of cattle for milk production for human consumption. The most popular breed in the United States is Holstein – the black and white cows. Other dairy breeds include Jersey, Brown Swiss and Guernsey. Dairy cows provide us with milk and dairy products like cheese, butter, ice cream and yogurt!

Jersey



Guernsey



Holstein

- Key: 1. Homogenize
- Across: 2. Breed
- 3. Yogurt
- 4. Calcium
- 5. Cow
- 6. Udder
- 7. Calf
- 8. Pasteurize

Fun Fact

On average, one dairy cow produces enough milk to fill 90 glasses of milk a day! That's about 6-8 gallons!

Dairy Definitions



- Across:
- 3. a creamy fermented milk product sometimes sweetened or flavored with fruit.
 - 5. a mature female that has had at least one calf
 - 6. the bag-like organ of a dairy cow that produces, stores and discharges milk through teats
 - 7. a young male or female less than one year of age
 - 8. to apply heat to a liquid to destroy harmful bacteria.
- Down:
- 1. to break fat globules into tiny particles, preventing the cream from separating and rising to the top of the milk
 - 2. a group of animals having a common origin and specific inherited characteristics
 - 4. a mineral found in dairy products that is needed for healthy teeth and bones

The nutrients that a cow consumes through feed are absorbed through the rumen, one of the four compartments of a cow's stomach. After a calf is born, those nutrients are carried to the udder where the cow's body produces and stores milk. The amount of milk that a cow produces naturally decreases after 10 months. A dairy cow will give birth to a calf every 12-14 months. Dairy calves are raised in a healthy environment apart from the dairy cows.

From Farm to Glass

01

Dairy farmers use milking machines to milk their cows 2 to 3 times a day. It only takes about 5 to 7 minutes for a cow to be milked.



02

Fresh milk is automatically pumped from the milking machines through sanitized pipes and cooled in a refrigerated stainless steel bulk tank, where it is stored at 39 °F



03

Milk is transported from the dairy in a tanker truck with an insulated, sterilized stainless steel tank. It is tested for purity and quality on the farm before it is pumped into the milk truck, before it is unloaded at the processing facility, and throughout processing.



04

At the processing facility, the milk is pasteurized and homogenized before being bottled or made into other dairy products such as yogurt, cheese and butter.



05

Refrigerated trucks transport milk and dairy products to grocery stores, schools and restaurants for you and your family to enjoy!



What Does a Dairy Cow Eat?

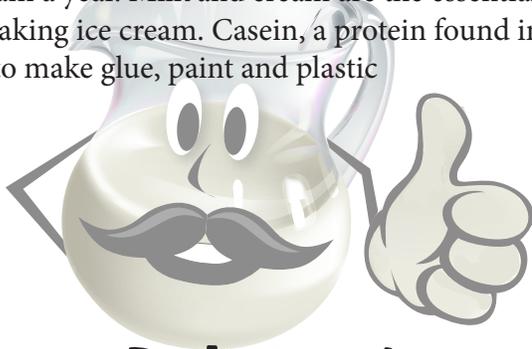
A dairy cow eats a lot! In one day, she will eat about 100 pounds of nutritious feed, and will drink between 30 and 50 gallons of water. The feed consists of a combination of hay, grain, silage and proteins like soybean meal and other vitamins and minerals specifically formulated to meet the needs of the dairy cows. Well nourished cows produce high-quality milk.



Dairy Products and Coproducts

More Than a Milk Mustache

Each year, U.S. dairy farmers provide milk to make more than one billion pounds of butter, seven billion pounds of cheese and one billion gallons of ice cream. The average American consumes 24 pounds of ice cream a year. Milk and cream are the essential ingredients for making ice cream. Casein, a protein found in milk, can also be used to make glue, paint and plastic



Nutritious is Delicious!

Milk is packed with nine essential nutrients, including calcium, potassium and Vitamin D, which are all needed to help build strong bones and healthy teeth. Chocolate and other flavored milks contain the same nine essential nutrients as white milk. You would need to eat three cups of broccoli to equal the calcium in one cup of milk!

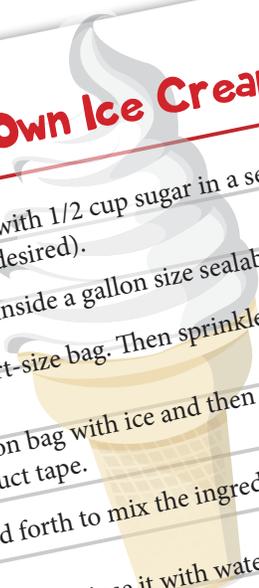
FUN FACT

ONE DAIRY COW
PRODUCES ENOUGH
MILK EACH DAY
TO FILL ABOUT
99 SCHOOL MILK
CARTONS!



Make Your Own Ice Cream!

1. Mix 1 pint of half and half with 1/2 cup sugar in a sealable quart-size bag (add 1/2 teaspoon vanilla and fruit if desired).
2. Seal the bag and place it inside a gallon size sealable bag.
3. Pack ice around the quart-size bag. Then sprinkle 2 tablespoons of rock salt on the ice.
4. Fill the rest of the gallon bag with ice and then seal the gallon-size bag and secure it with duct tape.
5. Toss the bag back and forth to mix the ingredients. It will take about 10 minutes for ice cream to form.
6. Remove the small bag and rinse it with water before opening. Enjoy!



Technology on the Farm

The Milking Machine

A cow's udder has four teats through which milk is discharged. After the teats are cleaned, the cups of the milking machine are attached to the teats. The milking machine creates a pulsating vacuum around each teat, causing the milk to be released from the udder. When the udder is empty, the milking cups are removed and the teats are disinfected before the cow exits the milking parlor.



The Milking Parlor

Dairy cows are milked in a separate area called the milking parlor. After entering the milking parlor, the cows stand on an elevated platform. The individual stations (stalls) are angled so that the cows face away from the operator area, allowing the cows to be milked from the side or rear. Human hands never touch the milk, which is piped from the milking machines to a cooling tank in another area.



Rotary (Carousel) Parlor

In a rotary parlor, the milking stalls are on a raised circular platform that rotates continuously. As a cow steps onto the moving platform, it enters a stall and faces outward. The operators work in the center of the moving carousel. By the time the cow's udder is empty and the milking machine has been removed, the carousel has completed its rotation and the cow exits the platform without assistance.



Robotic Milking Systems

Robotic milking systems use automated milking system (AMS) units as stalls. Cows are trained to enter an AMS unit one at a time. A computer identifies each cow and dispenses feed specifically suited for that individual cow. All steps of the milking process are completely automated. When milking is completed, the cow exits the robotic unit. Computers record data on each individual cow and the milk produced by that cow. An operator monitors the operations and the data to identify situations that might need attention.



Kansas Dairy Farms



97% of all U.S. dairy farms are family-owned and operated. There are about 51,000 dairy farms in the United States.



Kansas is recognized as one of the top dairy growth states. Our dry climate and ability to obtain feed and water has contributed to the State's dairy growth. There are nearly 400 dairy operators in Kansas.

In 2014 Kansas was home to 143,000 dairy cows that produced more than 2.9 billion pounds of milk.



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