

Cream To Butter

Dairy cows spend six hours eating each day. Cows eat **20 pounds** of grain and concentrated feed as well as **35 pounds** of hay and/or silage each day. (Silage is fermented corn, wheat, or hay with the stalks and leaves.) Dairy cows drink about **35 gallons** of water each day. A dairy cow turns this food and water into over **100 glasses** of milk a day. Cows spend an additional eight hours chewing their cud, or ruminating. Most cows chew at least **50 times** per minute. With eating all this food, the typical dairy cow weighs about 1,400 pounds. The average American eats about **4 pounds** of food a day. If people ate and drank as much as cows, they would have to eat about **360 cheeseburgers** and drink **400-800 glasses** of water each day.

Dairy cows come in many colors. They can be black and white, tan, brownish gray, reddish brown, or shades of these colors. However, one of the easiest to recognize is the Holstein with its black and white spots. A Holstein's spots are like a fingerprint or snowflake - no two cows have the same pattern of spots. **Ninety-five percent** of the dairy cows in the United States are Holsteins. Other dairy breeds are Jerseys, Brown Swiss, Guernsey, Ayrshires, and Milking Shorthorns. Some breeds produce a lot of milk and some breeds produce milk with a lot of butterfat. Farmers consider this when choosing which type of dairy cow to raise. Farmers can choose to raise cows that produce more milk, or cows that have a higher butterfat content in their milk, or a combination of several breeds of cows.



Long ago when people traveled and wanted milk, they had to take their cows with them. Today, thanks to refrigerated trucks and tanks, milk and milk products are available almost everywhere.

In **1884**, people began to store milk in glass bottles. Before that, they used jars, pails, and cans. People would leave their glass bottles on the porch with a note letting the milkman know how many bottles of milk they wanted delivered. The glass bottles were returned to the dairy, cleaned, and reused.



Paper containers for milk are now so commonplace that it is hard to imagine a time when we didn't have them. John Van Wormer is responsible for paper milk cartons. He got the idea for paper milk cartons after dropping a glass milk bottle one morning. The bottle broke, the milk went everywhere, and he found it an annoying way to start the day. After much hard work, Wormer got a patent for a paper carton. Paper cartons were introduced in **1906**. It wasn't until **1964** that plastic jugs were used.



Milk, Butter, and Now Ice Cream

You were able to explore the states of matter when you took the liquid milk and turned it into solid butter. Now explore the states of matter again by making ice cream!

Materials you will need:

- ⇒ One pint zipper bag
- ⇒ One gallon zipper bag
- ⇒ ½ cup of whole milk or half & half
- ⇒ 2 tsp. of sugar
- ⇒ ¼ tsp. of vanilla
- ⇒ Ice cubes
- ⇒ 2 Tbs. of rock salt



Procedure:

1. Place the milk, sugar, and vanilla in the pint bag.
2. Carefully seal the bag.
3. Place 3 cups of ice cubes and 2 Tbs. of rock salt in the larger gallon bag.
4. Place the smaller bag into the larger bag. Seal carefully.
5. Shake the bag for about 10 minutes, until you see the ice cream form.
6. Carefully remove the small bag from the large bag.
7. Get a spoon and enjoy your treat!



Career Corner



Dairy Farmer - Dairy Farmers act as the caretakers of nature's second best mother, the Dairy Cow. This special farmer works to provide healthy diets for their animals and needs to dual as a businessman to sell their milk produced from the cow.

How Dairy Farmers Benefit Agriculture:

- Supplier of the world's milk
- Stewards of the land and dairy animals

Dairy Farmers Study:

- Agribusiness
- Biology



Farm Facts

- ◆ Pennsylvania ranks 7th in the United States for milk production
- ◆ One gallon of milk weighs 8.6 pounds
- ◆ In one day, a cow can produce 7 gallons of milk
- ◆ It takes 22 pounds of whole milk to produce one pound of butter.



Cow-culations

1. How many hours a **week** does a cow spend eating?
2. How many **pounds of dry food** does a cow eat in one day?
3. How many gallons of water does a cow drink in **one week**?
4. How many gallons of water would **100 cows** drink in **one day**?
5. If the average child weighs 50 pounds, how many children would it take to **equal the weight** of one cow?
6. Number the containers for holding milk from **oldest** (1) to **newest** (4).

- ___ Plastic jug
- ___ Pail
- ___ Glass bottle
- ___ Paper carton

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