Mobile Science Lab ~ Links to Agriculture

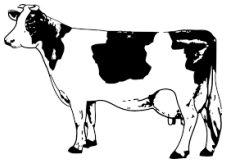
The Art of Making Cheese

Cheese is a healthy, tasty food that is made from milk. The cows on a farm are milked using suction cups to pump the milk from the cow into huge storage tanks. These storage tanks cool the milk until a refrigerated truck comes to the farm to pick up the milk. The milk can be pasteurized, homogenized, and bottled to produce the milk you drink, or it can be turned into a variety of other products such as ice cream, butter, yogurt, or cheese.

History of Cheese

Many historians believe cheese was first made between 8,000 and 10,000 years ago. One popular legend says a nomadic trader created it by accident while carrying a saddlebag full of milk on his camel or horse. The hot sun and galloping movement caused the milk to ferment, turning it into simple curds and whey.

Milk



Milk is the main ingredient used to make cheese. Milk can come from cows, sheep, goats, water buffalo, and even camels and reindeer. Milk is high in calcium and vitamin D and a good source of protein, which is a building block of your bones, skin, blood, and muscle.

Steps in Cheese Making

There are four basic steps in making cheese. The first step is **curdling**. This step separates the solid part of milk known as curds from the liquid part known as whey. Cheese makers add a “starter” or “rennet” to begin this process. What they add depends on the kind of cheese they are making.

The second step is **draining** and involves separating the curds from the whey. Some curds may be stretched and kneaded in hot water to make stringy, pulled cheeses like Mozzarella and Provolone.

Step three involves **pressing** which determines the final shape and size of the cheese. The amount of time cheese is pressed is determined by what kind of cheese is being produced. Most cheeses get their final shape and size when the curds are pressed into forms or molds. These molds are designed to press out moisture, so cheeses subjected to more pressure turn out drier and firmer.

Once a cheese has been curdled, drained, and pressed, the final process of **ripening** can begin. Expert cheese-agers closely watch the moisture, temperature, and oxygen in the cheese which will create its texture, flavor, and aroma. Some cheeses ripen for a few hours, but others may ripen for months or even years.

No matter how cheese is used (on a grilled cheese sandwich or pizza), all cheese begins on a farm. Cheese makers often work near the center of a dairy region because they can benefit from fresher milk, lower milk prices, and lower shipping costs. Think of these hardworking makers, farmers, and

What Did You Learn?

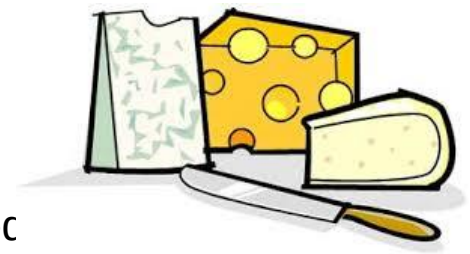
Choose or write the best answer after reading about cheese on the front.

1. Milk can come from
   - cows, pigs, chickens
   - cows, reindeer, goats
   - cows, camels, pigs

2. The four basic steps in correct order for cheese making are:

_____ _____ _____ _____

3. Which step in the cheese making process determines the final size and shape of the cheese?
   - pressing
   - draining
   - ripening
   - curdling



4. During the draining step, what is separated
   - solids and liquids
   - curds and whey
   - all of the above
   - none of the above

5. Cheese makers often live in a dairy region because of
   - lower milk prices
   - fresher milk
   - lower shipping costs
   - all of the above

Make Your Own Cheese!

Ingredients:

- 4 cups whole milk *(Milk that is "ultra-pasteurized" is not recommended here. Regular milk will work best)*
- 1 cup heavy cream
- ½ teaspoon kosher salt
- 3 tablespoons white vinegar or lemon juice

Cooking Directions:

1. Line a strainer with a few layers of damp paper towels or cheesecloth. Set the strainer inside a large bowl.
2. In a saucepan, combine heavy cream, milk, and salt.
3. Bring just to a boil and remove from heat.
4. Immediately stir in vinegar or lemon juice. Let the mixture sit without additional stirring for 2 minutes.
5. Pour mixture into strainer lined with damp paper towels or cheesecloth. Let sit and drain for 20 minutes without touching.
6. Pour off the liquid from the bowl and remove cheese from cheesecloth.
7. Season with additional salt, to taste, if needed. Enjoy!
8. Cover and store in the fridge for up to 2 weeks!

Note: Because there are no stabilizers, liquid may pool around the mixture. Just stir it back in when you're ready to eat.

Circle the ways you want to enjoy your new ricotta cheese:

Layered in lasagna

Spread on toast with jam or berries

Scoop with crackers

Dollop on your favorite pasta

Eat on pancakes with syrup

Have you ever eaten these?

These are **fried cheese curds**. To make them, the curds are dipped in a batter and deep fried. In some states, this snack is sold at state and county fairs. Fried cheese curds are a favorite snack in Wisconsin and Minnesota.

Cheese Trivia

- The making of cheese dates back more than 4,000 years.

- The making of cheese quickly spread in the New World, but it wasn't until 1851 that the first cheese factory in the United States was built by Jesse Williams in Rome, New York.

- Consuming certain cheeses including aged Cheddar, Swiss, Blue, Monterey Jack, Brie, Gouda and processed American cheese—immediately after meals or as a between-meal snack has been shown to help prevent tooth decay.

Did You Know...?

- It takes about 10 pounds (5 quarts) of milk to make 1 pound of whole milk cheese.
- Cheese can be made from whole, 2% low-fat, 1% low-fat or fat-free milk, or combinations of these milks.
- About one-third of all milk produced each year in the United States is used to make cheese.
- In 2018, about 5.91million metric tons of cheese was produced in the United States.
- Whey can be dried and made into whey powder, which can then be used in high protein drinks, infant formula, and bakery products.
- There are over 2,000 varieties of cheeses!

Joke Time

1. Why does a milking stool have only three legs?
2. How does a farmer count a herd of cows?

Joke Answer:

1. Because the cow has the udder
2. With a Cow-culator

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