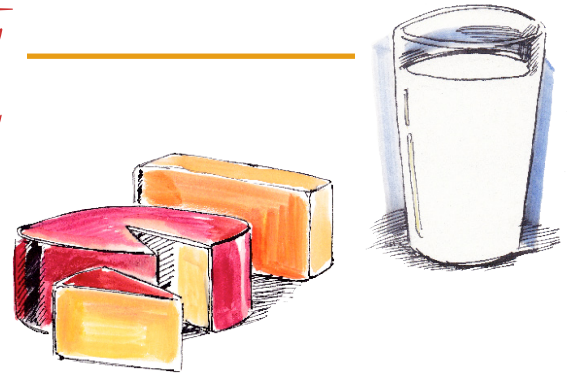


# Dairy



## Did You Know

- All dairy products are derived from animal milk. Although we most commonly think of milk coming from cows, Montanans also drink goat's and sheep's milk! In many other cultures, people drink milk from other animals including donkeys, horses, oxen, buffaloes, and camels.
- Only female cows can make milk. But she must have a calf first. Calves are baby cows that drink milk made and stored in their mothers' udders.
- Milk can be used to make a variety of dairy foods, such as yogurt and cheese. Common types of cheese include: fresh or unripened (mozzarella), soft ripened (Brie), semi-hard (cheddar), hard (Parmesan), and blue-veined (Gorgonzola). What is your favorite kind of cheese?
- There are six main dairy cattle breeds in the United States: Holstein, Ayrshire, Brown Swiss, Milking Shorthorn, Guernsey, and Jersey. The Holstein cow make the most milk of all breeds – more than 100 glasses of milk a day!
- The black and white spots on a Holsteins are like fingerprints—no two cows have exactly the same pattern.
- In 2015, Montana was home to approximately 13,000 dairy cows on nearly 65 dairy farms. A farm in Montana usually has about 210 cows in their herd. Have you ever met a cow on a farm or in a petting zoo?

Holstein



Brown Swiss



Ayrshire



Guernsey



Jersey



Milking Shorthorn



- Dairy foods and drinks like milk, yogurt and cheese are packed with vitamin D and calcium. These nutrients help us to grow strong bones and help our heart, muscles, and nerves to work correctly.
- Do you know anyone who is lactose intolerant or can't drink milk because it makes their stomach hurt? Some people have trouble digesting lactose. Lactose is a type of sugar found in milk and dairy. If you can't have regular dairy foods, you can try different foods that still taste like dairy such as fortified lactose-free yogurt or alternative milks, like soy or almond milk.

## Agriculture & Processing

- The average dairy cow spends most of her time either resting or eating. She can eat up to 14 meals a day! Dairy cows are housed on farms, fed high quality cow feed, and milked two times a day. The milk is then taken from the farm to one of several Montana dairy processing plants, where it is pasteurized. Pasteurization kills bad bacteria, making it safe for you to drink. Milk can also be turned into foods like cheese, yogurt, or sour cream. These foods and drinks then go to your grocery store or school, where they are stored in cold, refrigerator shelves.
- How does yogurt get its special flavor? Yogurt is milk that is fermented with lactic bacteria. This is good bacteria that gives yogurt its sour taste! Cheese is created from the thickening and draining of milk, cream, or both. Like yogurt, cheese requires good bacteria to separate into curds (solid) and whey (liquid). Cheese is harder than milk or yogurt because the liquid has been drained out!

## Selection

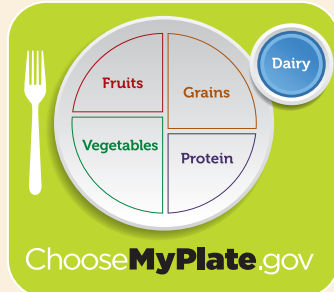
Dairy products include milk, yogurt, cheese, ice cream, butter, and other products. Milk is perishable, so use the sell by dates to select milk that is fresh.

## Storage

Dairy products should be refrigerated at or below 40°F and not be left at room temperature for more than two hours. Avoid storing milk in a refrigerator door where the temperature may fluctuate.

## Cooking

**Blend.** In a blender, mix plain low-fat or fat-free yogurt with fresh berries, fruit, and/or vegetables to make a smoothie for a healthy breakfast, snack, or dessert.



**Breakfast.** Combine plain low-fat or fat-free yogurt and granola for a delicious breakfast, snack, or dessert. Add fresh berries and fruit to hot or cold cereals with low-fat or fat-free milk. Substitute milk for water to prepare hot cereals, such as oatmeal.

**Cook.** When heating milk in a recipe, be sure to heat slowly and stir often to ensure that the milk does not burn.

**Dip.** Use low-fat or fat-free yogurt with herbs, seasonings, or peanut butter as a dip for fruits or vegetables.

**Freeze.** Hard cheeses, including cheddar, may be frozen for up to four months. Cream cheese, cottage cheese, and some creams may not freeze well. Frozen dairy is often best used for cooking and should be thawed in the refrigerator prior to use.

**Snack.** Enjoy milk, yogurt, or cheese for a calcium-rich snack.

**Substitute.** Use plain low-fat or fat-free yogurt instead of sour cream for a low-fat option.

**Top.** Shredded low-fat or fat-free cheese adds nutrients to casseroles, soups, stews, or vegetables.

## Activities

### Matching Cows

Source: Christine Lux, Ed.D. Curriculum & Teaching and Early Childhood Education

### Montana Early Learning Standards

- 2.1 Fine motor skills
- 4.12 Data analysis
- 4.16 Life science

### Description

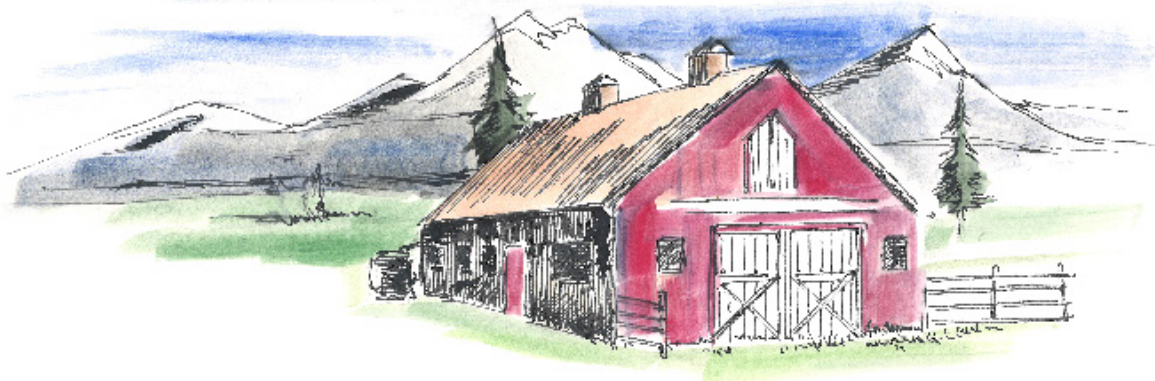
Children will notice similarities and differences between dairy cow breeds by matching photos.

### Supplies

- Two photo cards of each dairy cow breed with the names of each breed (Holstein, Ayrshire, Brown Swiss, Milking Shorthorn, Guernsey, and Jersey). Create photo cards by printing 4x6 photos.

### Directions

1. Shuffle the photo cards.
2. Turn all cards photo side down and organize into three rows.
3. Turn over any two cards. Compare the cards. If the cards match, keep them. If the cards don't match, put them back in their spots.
4. Take turns.
5. The game is over when all of the matches have been made. Review the breeds of dairy cows using the photos.



## Milking the Cow

Source: *The Inspired Treehouse*

### Montana Early Learning Standards

- 2.1 Fine motor skills
- 4.3 Persistence and attentiveness
- 4.7 Drama

#### Description

Children will use whole hand movements to simulate milking a cow at the sensory table.

#### Supplies

- Container or pitcher of water
- Rubber glove  
(consider non latex if there are allergies)
- Push pin

#### Directions

1. Use the push pin to poke a hole in each finger of the glove.
2. Fill the glove with water and tie the end so that it holds the water.
3. Allow the child to grasp and squeeze each finger of the glove to squirt water into the sensory table.



## Milk Art

Source: *Science Fun for Everyone!*

### Montana Early Learning Standards

- 4.1 Curiosity
- 4.15 Scientific thinking and use of the scientific method
- 4.17 Physical science

#### Description

Children will watch a demonstration of color mixing using milk, food coloring, and soap.

#### Supplies

- Small bowl
- ½ cup of milk
- Dish soap
- Cotton swab
- Food coloring

#### Directions

1. Pour the milk into the bowl.
2. Put one drop of each color in different places in the milk.
3. Put just a tiny amount of soap on the end of the cotton swab, then touch it to one of the colors.
4. Watch what happens!

*How it works* – Milk contains fat, which is connected through bonds. Imagine little pieces of fat holding hands with one another. Dish soap is used on greasy or oily dishes because it breaks the bonds in fats, allowing them to separate. When you add food coloring to milk, it floats on top of the fat. Adding dish soap makes the fat separate and move, creating magical milk art!

*Tips* - Use expired milk to minimize food waste. Do not drink the milk art!

## Recipe

### Razzle Dazzle Smoothie

Create-a-Smoothie, New England Dairy and Food Council

#### Servings

6

#### Ingredients

- 1 1/2 cups Fat-free milk
- 3 cups Vanilla yogurt, *low-fat*
- 1 1/2 cups Mixed berries, *frozen*
- 1 Banana, *frozen*

#### Preparation

1. Collect and measure all ingredients.
2. Add the fruit and yogurt to the blender.
3. Pour the milk into the blender.
4. Blend for about 30-45 seconds until smooth.
5. Refrigerate leftovers immediately. Drink within 2 days.

## Book Nook

*Fudge the Jersey Cow*, by Farmer Bryan, Simon Chadwick

*Farm to Table: Milk*, by Ann O. Squire

*Milk From Cow to Carton*, by Aliko

*Cody the Allergic Cow: A Children's Story of Milk Allergies*, by Nicole Smith

*The Complete Cow*, by Sara Lindsay Rath

*All About Dairy*, by Vic Parker

*The Milk Makers (Reading Rainbow Book)*, by Gail Gibbons



## Nutrition Information

Dairy products are rich in calcium, potassium, B vitamins, and protein, and they are often fortified with vitamin D. Not many foods contain vitamin D, as our bodies are designed to produce it with the help of sunlight. Vitamin D promotes calcium absorption and bone growth. Calcium is necessary to maintain healthy bones and to carry out other body functions. Dairy products such as milk, yogurt, and cheese are excellent sources of calcium and constitute a majority of Americans' calcium intake. The Dietary Guidelines for Americans recommend choosing low-fat and fat-free dairy foods most often. Some individuals are lactose intolerant. This means they do not produce enough lactase, a digestive enzyme used to break down the milk sugar, lactose. Individuals with lactose intolerance can try alternatives such as fortified lactose-free yogurt or milk. School-aged children are recommended to enjoy 2 1/2 to 3 servings of dairy per day and adults 3 servings per day. A serving is one cup of milk or yogurt or 1 1/2 ounces of natural cheese.

## Dig Deeper

For sources and photo credits along with more recipes, lessons, quick activities, resources, and guides, visit: [mtharvestofthemoth.org](http://mtharvestofthemoth.org).



## 4 Montana Harvest of the Month: Dairy



The Montana Harvest of the Month program showcases Montana grown foods in Montana communities. This program is a collaboration between Montana Farm to School, Office of Public Instruction, Montana Team Nutrition Program, National Center for Appropriate Technology, Montana State University Extension, Gallatin Valley Farm to School, FoodCorps Montana, and Montana Department of Agriculture. More information and resources are available at: [mtharvestofthemoth.org](http://mtharvestofthemoth.org).

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