

Beef



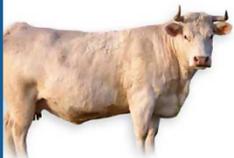
Angus



Facts

- Cattle are ruminants, meaning their stomachs have four chambers, which allow them to digest grasses. Typically cattle are raised in pastures until they are at least one year old. Then they are sold and transported for "finishing" which means they are usually fed a grain-based diet to increase weight quickly. Some cattle are raised entirely on pasture or are "finished" on grass and are called grassfed or grass-finished. This method usually produces leaner meat, which means less fat.
- Montana is home to more cattle than people and ranks 6th in the nation for the number of beef cattle.
- The first beef cattle arrived in the United States via Mexico in the 1500s, but more arrived in the early 1600s. In Virginia in 1620 about 500 cows roamed the fields, and less than a decade later the population increased to 30,000 bovines!
- While only about half of each animal is used for beef, the entire animal is important to the cattle industry. The parts of the animal we do not use for beef are called by-products, which are used to make many products including soap, pharmaceuticals, leather, glue, and tires.

Charolais



Hereford



Highland



Selection

The flavor, tenderness, nutritional value, and fat content of beef depend on many factors including the breed, age of the animal, feed, cut, and cooking techniques. A less expensive cut can be tender and delicious when cooked using proper techniques such as tenderizing, marinating, or cooking slowly for longer amounts of time. To reduce fat content, select lean varieties and cuts.

Storage

Keep beef refrigerated below 40°F or frozen at or below 0°F. Ground beef can be refrigerated for one to two days or frozen for three to four months. Steaks and roasts can be refrigerated for three to five days or frozen for six to twelve months.

Cooking

Generally, cooking time is dependent on type of cut, size of meat, and desired doneness. For a complete guide to cooking beef, see *Confident Cooking with Beef* (www.beefretail.org/CMDocs/BeefRetail/customerhandouts/ConfidentCookingwithBeef.pdf).

Broil. Preheat oven for 10 minutes. Add seasonings, if desired. Place on rack of broiler pan and put in oven 2-4 inches below heat element. Turn once and cook 8-30 minutes. Ideal for kabobs, ground beef patties or steaks.

Chop. Slice or chop steaks or ground beef, cook, and add to salads for added protein.

Cook Safely. Cook to an internal temperature of 145°F for steaks and roasts; 165°F for ground beef. Questions? Visit www.foodsafety.gov and click on Keep Food Safe.

Grill. Add seasonings, if desired. Place on grill over medium heat. Cover and grill for desired tenderness, turning once. Ideal for kabobs, ground beef patties or steaks.

Pan-Broil. Add seasonings, if desired. Heat pan to medium heat, add beef. Do not add oil or water. Do not cover the meat. Turn beef occasionally and cook to desired doneness. Ideal for steaks or ground beef patties.

Pan-Fry/Sauté. Add seasonings, if desired. Use 1/2 inch thick or less beef cuts. Heat pan to medium heat, add oil to coat bottom of pan, add beef. Turn beef occasionally and cook 3-4 minutes or to desired doneness. Ideal for steaks or ground beef patties.

Pot Roast/Braise. Heat pan to medium heat, add oil to coat bottom of pan, add beef, and brown sides. Add seasonings, if desired. Place beef in stock pot and add 1/2 to 2 cups of liquid, such as broth, water or juice. Cover and simmer on low heat on the stovetop or in a 325°F oven. Cook for 1-3 hours. Ideal for large, less tender cuts of beef, such as short ribs, pot roasts, and briskets.

Preserve. For information on preserving beef, look for Extension MontGuides on Home Canning Pressures and Processing Time. Visit <https://nutrition.msuextension.org/> and click on the food preservation link or contact your Extension office.

Roast. Preheat oven to 325°F or 425°F. Place roast fat side up on a rack in a shallow roasting pan. Do not allow the meat to rest in fat. Do not add water or cover the roast. Cook for 20 minutes-3 hours. Let stand for 15-20 minutes. Ideal for roasts or meatloaf.

Season. To enhance flavor, season with rubs, marinades, and spices such as allspice, basil, bay leaves, caraway seed, celery seed, chili powder, cinnamon, cloves, cumin, curry powder, garlic, ginger, marjoram, nutmeg, oregano or thyme.

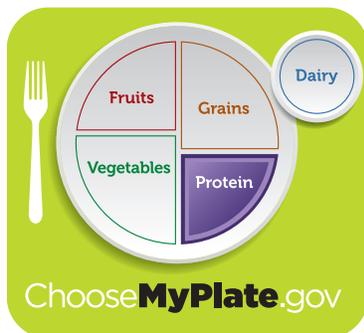
Stew. Brown all sides of beef over medium heat in pan prior to covering beef with a liquid, such as broth, water or juice. Bring liquid to boil and reduce heat to low to cook for 2-3 hours. Ideal for shanks, briskets or stew meats.

Stir-Fry. Similar to pan-fry method except beef is sliced into thin strips. Heat pan to medium heat, add oil to coat bottom of pan, add beef. Cook in small batches to allow moisture to evaporate. Cook beef by continuously turning for even browning. Ideal for steaks and added to vegetable dishes.

Adapted from Beef Food Fact Sheet developed by Montana State University Extension. For the full fact sheet and other resources, visit: <https://nutrition.msuextension.org/>.

Nutrition Information

Beef is a nutrient powerhouse. While the specific nutritional information depends on many factors as discussed above, beef is an excellent source of vitamin B₁₂ and protein and a good source of iron and vitamin B₆. Protein helps build and repair body tissues including muscles.



Recipes

Sloppy Joe on a Roll

This recipe incorporates three of Montana's top agriculture products—beef, wheat, and lentils! Consider working with a Family and Consumer Science teacher to cook these Montana Sloppy Joes. High school culinary/Family and Consumer Science students make excellent cooking mentors for younger students.

Adapted from: Montana's Healthy School Recipe Roundup, Montana Team Nutrition Program (<https://opi.mt.gov/Portals/182/Page%20Files/School%20Nutrition/Menu%20Planning/Montana%20Round-up%20Cookbook.pdf>)

Servings

6, or cut each sandwich into quarters for 24 samples

Ingredients

- 1 lb ground beef
- 1/4 cup onions, raw, chopped
- 2 Tbsp tomato paste
- 2 Tbsp catsup
- 1 cup + 2 Tbsp water
- 1 Tbsp vinegar, distilled
- 1/2 tsp mustard powder/dry
- 1/2 tsp pepper
- 1 tsp brown sugar
- 1/2 cup uncooked lentils
- 2 oz mild green chili peppers, canned, drained
- 2 tsp garlic, raw, minced
- 6 whole wheat buns

Directions

1. Brown ground beef. Drain.
2. Cook lentils in enough water to cover them. Simmer for about 30-40 minutes. Drain excess water. Puree lentils in a food processor. If using red lentils, reduce cook time to 10-15 minutes.
3. Add onions and minced garlic to ground beef. Cook for 5 minutes. Stir in pureed lentils. Add tomato paste, catsup, water, vinegar, dry mustard, pepper, green chilies, and brown sugar. Mix well and simmer for 25-30 minutes. Heat to at least 155°F or higher. Pour ground beef mixture into steam-table pan (12" x 20" x 2 1/2"). For 50 servings, use 1 pan. Hold at 135°F or higher.

Beef and Broccoli Bowl

This recipe can be made in a classroom by using a hot plate. Younger children can take turns measuring the ingredients and reading the steps.

Adapted from: Cooking Light (www.myrecipes.com/recipe/beef-broccoli-bowl)

Servings

6

Ingredients

3 cups cooked rice, soba noodles, or rice noodles
1/3 cup lower-sodium soy sauce
1 1/2 Tbsp Tbsp cornstarch
1 1/2 Tbsp hoisin sauce, or substitute barbeque sauce
1 lb boneless sirloin steak, cut into thin strips
1 Tbsp canola oil
3 cups broccoli florets
1 1/2 cups red onion, vertically sliced
1 1/2 cups carrot, chopped
3/4 cup water
1 Tbsp dark sesame oil
1/2 cup green onions, sliced

Directions

1. Cook rice or noodles according to the package directions.
2. Combine soy sauce, cornstarch, hoisin sauce, water, and dark sesame oil in a medium bowl to create a marinade. Add beef, toss to coat, and set aside.
3. Heat oil in a large skillet on high heat, swirl to coat.
4. Using a slotted spoon or tongs, move beef to pan, reserving marinade. Cook 2 minutes or until browned, stirring occasionally. Remove beef from pan.
5. Add broccoli, onion, and carrot to pan; cook 4 minutes or until broccoli is crisp-tender, stirring occasionally. Add reserved marinade and bring to a boil. Cook 1 minute.
6. Add beef and cook 1 minute, or until thoroughly heated.
7. Sprinkle with green onions. Serve over rice or noodles.

Activities

Plant or Animal?

Adapted from National Agriculture in the Classroom (<http://www.agclassroom.org/teacher/matrix/lessonplan.cfm?lpid=146&grade=0,1,2>)

Montana Early Learning Standards

Standard 2.-Fine Motor Skills

Standard 2.5-Nutrition

Standard 3.1-Receptive Communication

Standard 4.5-Reasoning and Representational Thought

Standard 4.16-Life Science

Description

Students will learn about the sources of different foods by differentiating between foods originating from plants and foods originating from animals.

Supplies

- Drawing paper
- Crayons, colored pencils, or markers
- Small recycled cardboard boxes
- Example Food Cards

Directions

1. Before the activity, prepare example food cards, like the ones found here: http://naitc-api.usu.edu/media/uploads/2015/03/16/Animal_or_Plant_Example_Food_Cards.pdf.
2. Tell the children that they will be going on an imaginary field trip to a farm. Ask them to close their eyes as you describe the journey to them. Describe the path they would take to leave the classroom and get in the bus or car. Continue the description of your imaginary field trip as the students arrive at the farm.
3. Allow the children to visualize on their own what they might see on a farm. Then, ask the children to open their eyes and raise their hand to tell you what kinds of things they would imagine seeing. After children have offered their ideas, inform them that they will be learning about the plants and the animals that are often found on farms.
4. Open a discussion with children and ask them what foods they typically eat in a day or week. After students have shared show one of the example food cards and ask students if they eat this food. Continue by asking students where that food comes from. Continue through several types of food.
5. Read the book, *How Did That Get In My Lunchbox? The Story of Food* by Chris Butterworth to the class. Allow students time to react to the reading and discuss their ideas regarding the origination of their foods. As you read the book, ask the students the origin of each food after you read the page. For example, "Does (bread) come from a plant or an animal?"
6. After reading the book, return to the example food cards (will these be large cards so everyone can view them?) and, one by one, again ask students where that food comes from. Also ask if the food comes from a plant or an animal.

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7. Distribute crayons, colored pencils, or markers and several sheets of drawing paper to each student. Instruct them to draw a picture of one type of food on each card. Teachers can help children write the name of the food they have drawn on the paper.
8. Have students take their index cards of food illustrations and divide them into two categories: foods from animals and foods from plants.
9. You can also make this activity into a game. Divide children into groups of 4-8. Provide 2 small boxes for each group to decorate. Label one box, "Food from Plants" and the second box, "Food from Animals." Take a selection of the food cards the group made and have the children mix them up. Instruct each group to look at the pictures and determine if the illustration originates from an animal or plant. Once a determination is made, children will place the card in the correct box.

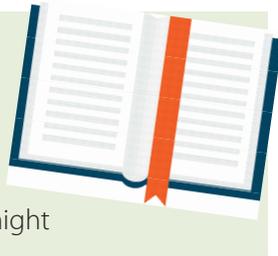
Book Nook

A Cow's Alfalfa-bet, by Woody Jackson

Kiss the Cow! by Phyllis Root

No Milk! by Jennifer Ericsson

From Cow to Ice Cream by Bertram Knight



Extend the Fun

Cheeseburger on MyPlate

Have students color in the MyPlate placemat to match the ingredients of a cheeseburger. Orange: Bun (Grains), Green: Tomato and Pickle (Vegetables), Blue: Cheese (Milk/Dairy), Purple: Burger (Protein). You can find MyPlate at www.choosemyplate.gov.

Cows eat Grass

Cut out cow shapes. Explain to your child that cows like to eat grass. Go outside and have your child pick some blades of grass. Have them glue the cows, and the blades of grass onto a piece of blue paper.

Dig Deeper

For sources and photo credits along with more recipes, lessons, quick activities, resources, and guides, visit: mtharvestofthemoth.org.



Texas Longhorn

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The Montana Harvest of the Month program showcases Montana grown foods in Montana schools and 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, Montana Department of Agriculture, Montana Organic Association, and FoodCorps Montana. More information and resources are available at: mtharvestofthemoth.org

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