

agMag

Spring 2002

A Magazine about Agriculture for North Dakota Students

Beef

This fourth issue of the North Dakota Ag Mag focuses on beef production, processing, distribution and consumption. The information and activities are geared primarily toward the state's third, fourth and fifth graders.

The Ag Mag is distributed once each semester. Subscriptions are free, but if you're not on the mailing list or know someone else who wants to be added, contact the North Dakota Department of Agriculture at 1-800-242-7535 or ndda@state.nd.us.

The magazine is also on the Web at <http://www.ag.ndsu.nodak.edu/aginfo/agmag/agmag.htm>.

This magazine is one of the North Dakota Agriculture in the Classroom Council activities that helps you and other K-12 teachers integrate information and activities about North Dakota agriculture into your science, math, language arts, social studies and other classes. It's an additional resource rather than a separate program.

Another Council teacher resource is **Project Food, Land & People (FLP)**. This national resource features 55 PreK-12 lessons that teach problem solving, critical thinking, group work and more skills while helping students understand the interrelationships among agriculture, the environment and people of the world.

Project Food, Land & People lessons include:

- * Investigating Insects
- * Tree-mendous
- * Be Label Able
- * Global Grocery Bags
- * Tomatoes to Ketchup, Chickens to Omelettes
- * Banking on Seeds
- * From Fiber to Fashion
- ... and many more.

Food, Land & People classes will be taught across the state on sufficient demand. The FLP classes feature many hands-on activities, farm and agribusiness tours, idea sharing and much more over two days. Registration covers one hour of EDU 600 credit from North Dakota State University plus the 735-page Resources for Learning book, meals, breaks and additional materials. Local scholarships may be available from agricultural organizations and agencies.

For information about Food, Land & People classes, contact:

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jill.vigesaa@nd.usda.gov

An additional Council resource is **AgCitement**, a mobile learning lab with hands-on activities to help students learn about agriculture.

For information about AgCitement, contact:

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Answers to Where's the Beef?



Beef Production

Idea: There are about 250 different breeds of cattle around the world. Talk with your students about what a “breed” is and what breeds of cattle are in your area. Ask individuals or teams of students to research and write brief reports about a breed of beef cattle, including physical traits and history. Breeds might include Hereford, Angus, Charolais, Galloway, Brahman and Longhorn. See www.cattle-today.com for ideas.

Idea: Have students research America’s cattle trails of the 1800s and draw maps of the most important trails. Why were these trails first used, and why were they abandoned?

Idea: North Dakota ranchers produce enough beef each year to make 2 billion hamburgers. How many is 2 billion? What can that number be compared to? If all 640,000 North Dakotans ate one hamburger every day, how many hamburgers would that be in a year? In a decade?

Background Information

Caring for Beef Cattle

For beef cattle to grow and reproduce, they need proper attention and care. Cattle depend on ranchers for shelter, feed, water and measures for

disease prevention. The rancher’s job is to provide for the animals’ needs and observe for potential problems. Cattle that fail to grow or reproduce properly when given insufficient or improper care do not produce meat economically. If this happens, the rancher has fewer animals or less product to sell, and the cost of producing animal products increases. This means less income for the rancher to pay for feed, bedding, veterinary services and other costs. So the ranchers’ income depends on providing good animal care.

Background Information

Cattle graze on land that can’t be used for anything else because the terrain is too steep or hilly for building houses, or too rocky or dry for growing food crops. About half the area of the U.S. (excluding Alaska and Hawaii) falls into this category. At least 90 percent of this land is covered with grass that contains cellulose, which is indigestible by humans. However, cattle can digest this grass, converting it into beef and dairy products. This land would go to waste if it wasn’t used for grazing cattle.

Adapted from “Wow that Cow!” by the American National CattleWomen, Inc.

Answers to Where in the World?



Dirt Baby

This activity addresses the importance of cattle and grazing. It concentrates on what makes cattle special so they can eat grass, how cattle are able to help us take good care of our range and grazing lands, and why cattle are important in providing good nutrition for us.

Supplies needed:

- Knee-high hose
- Grass seed
- Soil
- Tall (junior size) baby food jar

Steps:

Place a pinch or two of grass seed, like Annual Ryegrass, in the hose toe, which is also the head or top of the dirt baby.

Pack a handful of soil in the end of the hose on top of the seed. Tie a knot in the hose under the ball of soil. Place the top of the hose (which is the bottom of the dirt baby) in a tall baby food jar filled with water. The hose will absorb the water and saturate the head of the dirt baby that is above the mouth of the jar. In 10-15 days the seed should germinate through the hose. You may have to cut a few small holes to aid in this step.

To decorate, cut a round piece of fabric to fit over the mouth of the jar and add lace, ribbon or other decoration. Glue jiggle eyes on the face, and cut out a heart-shaped piece of felt to glue in place for the mouth.

Water as needed. Cut and style the “hair.”

Dirt Baby Script

Do you know how to make a baby? A dirt baby, I mean. It takes just a few supplies: a knee-high hose, a cup of potting soil, baby food jar, grass seed, water, pieces of felt, scraps of fabric, and jiggle eyes.

Within a few weeks this dirt baby will have a beautiful head of green hair that will grow and grow.

How does this have anything to do with cattle? Because cattle love grass! Cattle are special because they can eat and utilize grass to get the nutrients they need. They are able to do this because they are ruminant animals with four compartments to their stomachs. Cattle chew grass and swallow it.

Beef Processing — Answers to Carcass Calculations

Idea: Have students bring cattle by-products. Discuss and make a display.

Yield of a 1,150-Pound Steer

	Pounds	Percentage (Pounds/Total Pounds x 100)
Saleable carcass	714	62.1%
Hide	87	7.6%
Blood	87	7.6%
Bone	55	4.8%
Edible by-products	33	2.9%
Other non-edible by-products	174	15.1%
Total	1,150	100%

Dressing percent =

$$\frac{\text{saleable carcass wt.}}{\text{live wt.}} \times 100 = 62.1\%$$

If the live value is \$.75 per pound, what is the per pound value of the carcass? **\$ 1.21**

Hint: Carcass price = $\frac{\text{live price}}{\text{dressing \%}} \times 100 = \$ 1.21$

Carcass composition of 1,150-Pound Steer

Cut	Pounds in 714-lb. Carcass	% in Carcass
Round roasts and steaks	66	9.2%
Tip roasts and steaks	17	2.4%
Rump roasts	8	1.1%
Ground beef and beef stew	243	34.0%
Loin steaks	44	6.2%
Sirloin steaks	15	2.1%
Tenderloin steaks	7	1.0%
Rib roasts and steaks	32	4.5%
Short ribs	9	1.3%
Chuck roasts and steaks	95	13.3%
Flank steaks	4	0.5%
Brisket	16	2.2%
Miscellaneous cuts	12	1.7%
Fat and bone	146	20.4%
Total	714	99.9%

If "fat and bone" equal the cutting loss from the 714-pound carcass, how much meat is actually sold from a 1,150 pound steer?

Retail meat = **568 lbs.**

Later, they start the rumination process by "burping" the grass mass back from the first compartment known as the *rumen*. The cattle re-chew their "cud" (which looks a lot like when you have a mouth full of bubble gum). The food is then swallowed again where it undergoes further chemical breakdown as it passes through the remaining stomach compartments known as the *reticulum*, *omasum* and *abomasum*.

You and I do not have this ability so we rely on cattle to get the nutrients from grass and change it into nutritious, delicious beef that you and I can eat to get the zinc, iron and protein that we need each day.

It is important that we have cattle with this ability because 64 percent of the continental U.S. is agricultural land and 2/3 of that land is grazing land. That adds up to about 1.1 billion acres of grazing land in the United States. Grazing land means cattle walk across the land and eat the vegetation they find.

Grazing actually maintains, restores and encourages variety among plant life and helps prevent forest and prairie fires.

Grass

I'll tell you 'bout a family, a most important bunch.
They aren't your friends or neighbors, but I still have a hunch
You know this family pretty well, you see them every day.
But if you think they're people, then think another way.
This family's a converter of light that's from the sun.
In other words of energy, right into food for one
To benefit our wildlife, assist our livestock too.
A family most remarkable but understood by few.
Grass roots are fine and fibrous, and they enrich the soil,
And keep it firm and stabilized, and so it helps to foil
Erosion's cruel forces, by water and by wind,
Make sure soil productivity will never, ever end.
It feeds a world of people, it feeds both man and beast,
And most folks don't appreciate or understand the least
Just how this good Grass family keeps all the Earth alive,
Because without grass, mankind could not survive.

Source: Stan Tixier, Society for Range Management

Beef Distribution

Answers to The Journey of Beef

1. Calves are born on farms and ranches, weighing about 80 pounds at birth.
2. When 1-year-old calves weigh about 800 pounds, they usually go to a feedlot where they eat grain along with hay or silage until they weight about 1,200 pounds.
3. When cattle are ready for market at about 1,200 pounds (14-20 months of age), they may be sold at an auction market or sale barn, or bought directly by a cattle buyer who comes to the feedlot and buys for a packer or processor.
4. Finished cattle are then trucked to a packing plant where they are converted to beef to eat and by-products.
5. From the packing plant, beef is shipped to the supermarket where it is purchased to be eaten at home or to schools, restaurants and hospitals.

Idea: Visit a butcher shop or supermarket to learn about how beef arrives and is marketed.

Answers to Crossword Puzzle



Beef Consumption

Background Information

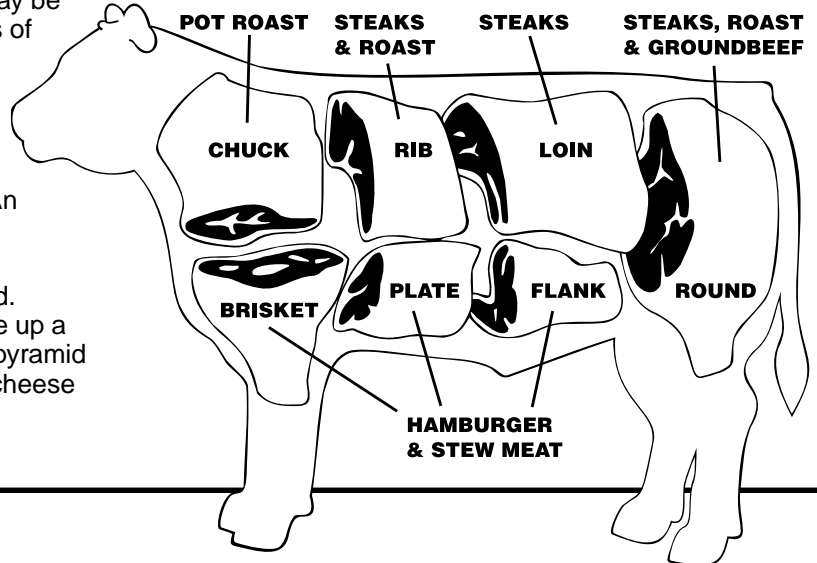
A 3-ounce serving of cooked meat is about the size of a deck of playing cards. The Food Guide Pyramid recommends that children eat 2 servings (for a total of 6 ounces) from the meat, poultry, fish, dry beans, eggs and nuts group each day. In addition to 3 ounces of cooked lean meat, poultry or fish, a serving may be 1/2 cup of cooked beans, 1 egg or 2 tablespoons of peanut butter.

The Clean Scene Rap

All of us should wash our hands with soap and water for at least 20 seconds before and after handling food, and after going to the bathroom. An easy way for kids to measure this time is to have them sing "Happy Birthday" twice as they scrub.

Idea: Show the students the Food Guide Pyramid. Talk about the different ingredients that can make up a hamburger sandwich and which segment of the pyramid each fits in. Examples: bun - grain, beef - meat, cheese - dairy, tomato - fruit, onion - vegetable.

Idea: Copy this "Where Does Beef Come From?" graphic or enlarge it so all students can see. Talk about what part of the beef animal the different cuts of meat students see at the grocery store come from.



Resources

North Dakota Beef Commission
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The National Cattlemen's Beef Association offers preschool through 12th grade educators high-quality supplemental classroom kits for free or at very reasonable prices. To see the materials and order, go to www.teachfree.com.

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