

Teacher's Guide

Ag in the Classroom - Helping the Next Generation Understand Their Connection to Agriculture

Ranching Reader

Additional Resources

growingyourfuture.com - connects you to Colorado's Agriculture in the Classroom program. A variety of resources are available at this site.

www.cobeef.com

The Colorado Beef Council offers a wide variety of educational materials FREE to educators in Colorado. For this edition of the Colorado Reader, the Colorado Beef Council is offering *Beef Cattle in the Story of Agriculture* free to classrooms. Appropriate for students in the older elementary grades, this is a non-fiction account of where and how beef cattle are raised; how cattle are processed into beef products, both edible and non-edible; and how beef products are distributed and marketed.

www.explorebeef.org

The People, The Land, The Legacy. This site offers information, graphics, facts and figures, personal accounts and other resources that work together to make up the true story of how beef gets from producers' pastures to consumers' plates.

www.factsaboutbeef.com - The purpose of the FactsAboutBeef.com website, a Beef Checkoff Funded forum, is to be a source of information about beef production issues related to beef safety, nutrition, environment, animal care and the beef community. Have a question – look here and if you don't find it – Ask An Expert! They also have information on by-products or co-products from beef at: <https://factsaboutbeef.com/tag/cattle-by-products/>. Or, here is a blog post about it - <http://www.cattle-empire.net/blog/1231-many-uses-cow-beef-products>

www.beefitswhatsfordinner.com – For all things beef, check out BeefItsWhatsforDinner.com to learn more about purchasing, specific cuts, recipes, preparation and nutrition.

INTRODUCTION:

Wearing many hats

In the movies, cattle ranching looks pretty simple. The cattle are 'out yonder' and the cowboys are riding off chasing bad guys and the like. In real life, cattle ranching is more complicated. On any given day, a rancher's job description might be general manager, financial specialist, marketing director, equipment specialist, irrigation technician, hay farmer, range scientist, cattle foreman, animal health specialist, risk manager, welder, equipment operator, cook, veterinary assistant and horse trainer among others.

Most ranches are family owned and operated, often passed from one generation to the next. They aren't big companies with large, highly-specialized staff. Ranches are also often remote, far from the conveniences of cities and towns.

All of these job titles add up to "steward of the land and animals". Stewardship is taking responsibility for the planning and management of the ranch with an emphasis on planning for the future.

This is also called sustainable agriculture. If a rancher damages his land, it will produce less. For example, a stand of blue gramma grass (native plant of the eastern plains of Colorado) that is ruined can take as many as 50 years to be re-established. If animals become unhealthy, sickness

and disease can spread throughout an entire herd.

The challenges facing today's ranching families are not unlike the challenges of those who came before them: water, weather and economics factor into decisions being made about how to run the ranch.

When cattle are on the ranch, they spend most of their year grazing. This is where the cattle and calves are in pastures munching on grass plants. During some portions of the year, or different phases of their life, cattle may be fed harvested feeds. Cattle have the ability to thrive on a number of feeds that humans can't digest. Cattle can be seen grazing crop residues like stalks in a corn field during the winter. Harvested feeds require equipment, fuel and labor making them more expensive to feed than range grasses. Harvested feeds, however, are more energy and protein rich than grass. On average, a beef cow needs to eat about three percent of her body weight in feed per day, regardless of whether the feed is range grass or hay. For a 1,200 pound cow, that's about 36 pounds of feed per day.

Some parts of Colorado are currently experiencing a drought. A drought is a period of time where rainfall in a region is less than average. When pastures receive less moisture, they grow less grass. When less grass is available, cattle ranchers need to reduce the size of their herds, find additional pastures to graze or feed harvested feeds. Severe, prolonged droughts may result in ranchlands that aren't able to sustain any livestock until after rains return.

Properly managed livestock grazing is beneficial to rangelands and is an important part of maintaining the health of the ecosystem.

Comments, questions, suggestions and feedback about the Colorado Reader are welcome.

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PAGE 2 Math Activities

A calf is born April 15. It weighs 60 pounds. On October 15th, the calf weighs 660 pounds. How much weight did the calf gain in that time period?

$660 - 60 \text{ pounds at birth} = 600 \text{ pounds of weight the calf gained}$

What was the average weight gain each month? *April to Oct is 6 months*
 $600 \text{ pounds divided by } 6 = 100 \text{ pounds}$

A rancher has 600 cows. Ninety-five percent of the cows have calves.

How many cows have calves?

$600 \times .95 = 570 \text{ cows with calves}$

How many cows do not have cows?

$600 - 570 = 30 \text{ cows without calves or}$

$600 \times .05 = 30$

Sixty percent of the calves are female.

How many female calves were born this year?

$570 \times .60 = 342 \text{ were female calves}$

How many male calves were born this year?

$570 - 342 = 228 \text{ or}$

$570 \times .40 = 228$

PAGE 3 Math Activities

A cow eats about three pounds of hay every day for every 100 pounds of her body weight. If a cow weighs 1,200 pounds, how much hay does she eat every day?

$1200/100 = 12 \times 3 = 36 \text{ lb of hay/day}$

A rancher needs to buy hay for her cows for the winter. She estimates she will need 2.5 tons per cow. She has 50 cows. How much hay does she need to buy?

$50 \times 2.5 = 125 \text{ tons of hay}$

PAGE 5 Activities

- Which counties have the most cattle? The counties shown in red and orange.
- Which counties raise the least? Those counties shown in white.
- Compare this map with a topographical map of Colorado. What do you see in the counties that are white? There are mountains located in these areas.
- Put a star on the county where you live. What is the range of cattle in your county? Answers will vary.

PAGE 8 By-products

This reader helps you achieve the fol-

Co-Products From Hide and Hair:

Baseball gloves
Belts
Boots and shoes
Camel's hair brushes
Car and furniture Upholstery
Drum heads
Felt hats
Gloves
Leather coats
Leather watchbands
Luggage
Purses and wallets
Rawhide softballs
Violin strings

By-products From Bones and Horns:

Bone china
Candies
Chewing gum
Combs
Ice cream
Knife handles
Lipstick
Marshmallows
Photo film
Piano keys
Vitamin capsules
Wallpaper paste

By-products From Glands and Organs:

Asphalt
Antifreeze
Cosmetics
Fertilizer
Insulation
Livestock Feed
Medicines
Paint
Plastic
Shampoo
Soap
Tires
Toothpaste

Lowering standards with your students:

National Ag Literacy Outcomes:

Agriculture and the Environment Outcomes
Science: Explain how the interaction of the sun, soil, water, and weather in plant and animal growth impacts agricultural production; Recognize the natural resources used in agricultural practices to produce food, feed, clothing, landscaping plants, and fuel (e.g., soil, water, air, plants, animals, and minerals)

Plants and Animals for Food, Fiber & Energy Outcomes

Science: Understand the concept of stewardship and identify ways farmers/ranchers care for soil, water, plants, and animals; Identify animals involved in agricultural production and their uses (i.e., work, meat, dairy, eggs); Identify the importance of natural resources (e.g., sun, soil, water, minerals) in farming

Health: Identify examples of feed/food products eaten by animals and people

Food, Health, and Lifestyle Outcomes

Social Studies: Diagram the path of production for a processed product, from farm to table

Health: Identify food sources of required food nutrients

Culture, Society, Economy & Geography Outcomes
Social Studies: Explain the value of agriculture and how it is important in daily life; Understand the agricultural history of an individual's specific community and/or state

Colorado Academic Standards

GLE.4.2010 Social Studies S 1. History.

1. Organize and sequence events to understand the concepts of chronology and cause and effect in the history of Colorado
Social Studies Standard 2. Economics.

2. The relationship between choice and opportunity cost (PFL)

EO: a. Define choice and opportunity cost

EO: b. Analyze different choices and their opportunity costs

EO: c. Give examples of the opportunity costs for individual decisions

Mathematics Standard 1. Number Sense, Properties and Operations

1. Different models and representations can be used to compare fractional parts.

2. Formulate, represent, and use algorithms to compute with flexibility, accuracy, and efficiency
Mathematics Standard 2: Patterns, functions, and Algebraic Structures

1. Number patterns and relationships can be represented by symbols

Mathematics Standard 3: Data Analysis, Statistics, and Probability

1. Visual displays are used to represent data

CCSS ELA-Literacy

CCSS.ELA-Literacy.CCRA.L.4: Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

CCSS.ELA-Literacy.CCRA.R.1: Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

CCSS.ELA-Literacy.CCRI.R.1: Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.

CCSS.ELA-Literacy.CCRI.R.3: Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

CCSS.ELA-Literacy.CCRFR3a: 3. Know and apply grade-level phonics and word analysis skills in decoding words. a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.

CCSS.ELA-Literacy.CCRFR4: Read with sufficient accuracy and fluency to support comprehension.