

Beef Cattle Awareness

Lesson Plan

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Grand Ag Challenge

2022

Item	Notes/Details	Time
Concepts	<p>Students will know and understand:</p> <ul style="list-style-type: none">• Beef cattle calves take special care to ensure they grow to be healthy and free of disease.• Female cattle take special care of their young.• Cattle dietary requirements change as their body and digestive system grow and change.• Farmers and ranchers have multiple ways to sell or keep their animals.• Farmers and ranchers take special care of their animals in order for them to have healthy growth.• Farmers and ranchers care deeply about their animals and that losing/selling animals takes an emotional toll.	0 min
Objectives	<p>Students will learn concepts by doing:</p> <ul style="list-style-type: none">• Discussions related to animal care• Researching those who have influenced the beef cattle industry• Developing their own opinion/views on how producers care for their animals and debate their views based on research	0 min
Essential Questions	<ol style="list-style-type: none">1. How does beef cattle care change as an animal progresses throughout life?2. Why is calf care so important to a rancher/producer?3. How do producers choose what to do with their animals, after they have been weaned from their mothers?4. What can producers do to better highlight how they take proper care of their animals?5. How can others better support farmers and ranchers in terms of mental health as well as financial stressors?	10 min Can do before or after the lesson.
Interest Approach	<p>Farmers and ranchers have been portrayed as ruthless, abusive, and that they only care about the money when it comes to the production of animals for their meat. However, those of us involved in production agriculture know this is far from the truth. Ranchers spend countless hours and use any resource they can find to help raise animals, keep them healthy, as well as find the best place to process their animals into food that not only feeds others but their families as well.</p>	5 min

	<p>Let's dive into what it takes to care for animals, how ranchers choose the future of their animals, and the toll animal production takes on farmers and ranchers.</p>	
<p>Prezi/Presentation Teacher Notes</p>	<p><u>Notes on Calf Care</u> Directly following birth</p> <ul style="list-style-type: none"> ● Remove mucus from around nostril, if mother doesn't ● Dip navel with 7% iodine ● Make sure mother is interacting with calf by cleaning it <ul style="list-style-type: none"> ○ In winter, move to warm location to prevent calf from freezing ● Colostrum <ul style="list-style-type: none"> ○ True colostrum contains twice as much dry matter and total solids, two to three times as many minerals, and five times as much protein as whole milk. Colostrum also contains various hormones and growth factors that are necessary for growth and development of the digestive tract. Colostrum is lower in lactose, thus decreasing the incidence of diarrhea. Milk obtained after the first milking is inferior in quality to the first milking and should not be fed to the newborn calf as colostrum milk. ○ Calves acquire resistance to disease from their dam through timely and adequate intakes of high-quality colostrum, their mother's first milk. Calves that do not receive adequate amounts of quality colostrum early in life are more susceptible to diseases. ● For the first two weeks of life, calves receive most of their nutrition from milk. ● Calf scours or diarrhea can be caused by overfeeding milk or by bacterial, viral, or protozoal ("crypto" or coccidia) infections. ● Calf starter (feed given to young animals that contains a high amount of protein for growth) should be fed to calves starting at four days of age. Calf starter should be formulated to include very palatable ingredients and to contain adequate protein, minerals, and vitamins. ● Hay should not be fed until calves are weaned and/or they are eight weeks of age. ● Feeding calves free-choice water increases starter intake and weight gain. ● Some calves can be weaned at four weeks of age, whereas others may be up to 10 weeks of age. ● After weaning, changes in the grain mix and group housing should be made one at a time, and changes should be made gradually over a two-week period. ● At two to three months of age, calves should be vaccinated for blackleg with a seven-way Clostridial vaccine ● At birth, calves can be given an oral vaccine to prevent scours. ● Dehorning calves under one month of age is less stressful on the 	<p>60 min</p>

calf and is easier to accomplish than waiting until heifers get older.

- Castration and dehorning are done for the protection of the animal, other cattle in the herd and people who handle the cattle.
- Where practical, cattle should be castrated before the age of 3 months (90 days), or at the first available handling opportunity beyond this age.
- Sample recipe for a home-mixed calf starter (18% crude protein). ● 700 lbs rolled or coarse ground oats ● 600 lbs cracked corn ● 475 lbs 48% soybean meal ● 150 lbs molasses ● 15 lbs white salt ● 15 lbs dicalcium phosphate ● 20 lbs limestone ● enough trace mineral and vitamin premix to meet needs listed in Table 5 ● addition of a Deccox[®], Rumensin[®], or Bovatec[®]

Notes on Cow/Cattle Care

These came from the BQA Guidelines. The article in the references does a great job explaining each one in detail.

- Provide necessary food, water and care to protect the health and well-being of animals.
- Provide disease prevention practices to protect herd health, including access to veterinary medical care.
- Provide facilities that allow safe, humane, and efficient movement and/or restraint of cattle.
- Use appropriate methods to humanely euthanize terminally sick or injured livestock and dispose of them properly.
- Provide personnel with training/experience to properly handle and care for cattle.
- Make timely observations of cattle to ensure basic needs are being met.
- Minimize stress when transporting cattle.
- Keep updated on advancements and changes in the industry to make decisions based upon sound production practices and consideration for animal well-being.
- Persons who willfully mistreat animals will not be tolerated.
- During periods of high heat and humidity and little wind, actions should be taken to minimize the effects of heat stress as cattle are processed and managed.
- Cattle exposed to cold require more energy for maintenance, and performance will be reduced if action is not taken to provide for it.

Notes on Now What (Choosing the Future of Animals)

Replacement Heifers and Bulls

- Evaluate heifers based on desired characteristics for your farm/ranch
 - Looking at physical appearance, mother ability, docile, etc in females
 - Looking for masculine, wide framed, heavy muscled, and

soundness in males

- Look at growth rate from birth to weaning to yearling age
- Use Expected Progeny Differences (EPDs) if available
- If available, have a veterinarian check reproductive system

Options to Sell

- Feed Yard
 - Contract with a local feedyard that a rancher will bring in a set amount of cattle for sale, prior to them reaching their target weight.
- Auction
 - Ranchers can take their animals to an auction and sell just what they bring.
- Local Butchers/Processors
 - Ranchers have the option to sell their animal directly to a local butcher.
 - Some butchers like to purchase animals so they have inventory to sell in their stores.
 - However, ranchers can privately sell their beef product. This includes the purchaser paying for the beef as well as processing, knowing the product is coming from an USDA inspected facility.
- Contracts
 - Ranchers have the ability to sell their animals via contract to larger processing facilities such as Cargill or National Beef.
 - This is done by reaching out to the company of choice and filling out paperwork and setting the contract amount.

Notes on Notes from the Rancher

Ranchers face many challenges on the ranch/farm.

- Weather
 - Extreme weather can injure, disease, or kill animals, causing issues for the rancher in taking care of their animals.
 - In recent years, flooding, wildfires, and high heat/humidity have killed thousands of cattle in multiple areas of the United States.
- Long Hours
 - Calving season can be extremely long hours on a rancher.
 - Many ranchers check their heifers/cows every 2-3 hours, even throughout the night.
 - If any assistance is needed by the heifer/cow, the rancher steps in to help, often forgoing sleeping and rest.
 - Injury can always result due to fatigue.
- Prices
 - A rancher's pay is dependent upon the commodity price. With prices being lower for the commodity (output) and higher for feed, vaccinations, water (inputs) the rancher

	<p>can see a drop in profit for the ranch.</p> <ul style="list-style-type: none"> ● Loss <ul style="list-style-type: none"> ○ Ranchers take great pride in the care of their livestock animals. ○ However, animal loss is inevitable on a ranch. ○ This includes loss from disease, environmental conditions, accidents on the farm that cause broken bones, and selling animals. ○ No matter how you look at it, the loss of an animal takes a toll on the rancher as they do everything they can to save the animal. ○ Ranchers know that these animals are here to help feed their families and others. Even knowing this is going in, selling animals can be extremely difficult on ranchers. 	
Infographic Teacher Notes	<p>Show the students the infographic and have them read through it. Challenge the students to think about where the beef product goes (all to the United States or exported?). Have a discussion on the number of head per farm. Have them research the numbers for the state/county they live in (https://www.ers.usda.gov/data-products/state-fact-sheets/) and discuss how this relates to the national average. Have them discuss reasons for animal loss on a farm/ranch. How can those losses be prevented.</p>	45 min
Conclusion	<p>Farmers and ranchers spend countless hours and expunge multiple resources to ensure cattle grow and produce a healthy product for humans to consume. While producers know the end goal of many of their cattle, the loss and sale of cattle have a significant emotional toll on producers.</p> <p>Can answer essential questions.</p> <p>Can give formative assessment.</p>	5-30 min
References	<p>Amaral-Philips, D.M., Scharko, P. B., Johns, J.T., and Franklin, S. (2006, August). <i>Feeding and Managing Baby Calves from Birth to 3 Months of Age</i>. UK Cooperative Extension. https://afs.ca.uky.edu/files/feeding_and_managing_baby_calves_from_birth_to_3_months_of_age.pdf</p> <p>Arnold, K. (2019, October 1). <i>Here's the Beef: Basics for Selecting a Bull</i>. TAMU. https://animalscience.tamu.edu/2019/10/01/heres-the-beef-basics-for-selecting-a-bull/#:~:text=Bulls%20should%20look%20asculine%20and,a%20good%20indicator%20of%20muscling.</p> <p>Beef Quality Assurance. (2015). <i>Cattle Care & Handling Guidelines</i>. https://www.bqa.org/Media/BQA/Docs/cchg2015_final.pdf</p> <p>Briggs, N.G. (2020, August 12). <i>Contract Selling of Feedlot Cattle</i>. Penn State</p>	0 min

	<p>Extension. https://extension.psu.edu/contract-selling-of-feedlot-cattle McCune, K. (2022). <i>How Do Livestock Auctions Work: An Overview for Sellers</i>. Family Farm Livestock. https://familyfarmlivestock.com/how-do-livestock-auctions-work-an-overview-for-sellers/</p> <p>Radke, A. (2015, December 19). <i>8 Strategies for Selecting Replacement Heifers</i>. Beef Magazine. https://www.beefmagazine.com/blog/8-strategies-selecting-replacement-heifers</p> <p>Rural Health Information Hub. (2021, November 30). <i>Rural Response to Farmer Mental Health and Suicide Prevention</i>. https://www.ruralhealthinfo.org/topics/farmer-mental-health</p>	
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Additional Learning Materials

Below you will find three items you can add to this lesson plan. They are completely optional but add to the lesson. Each item is described below and is linked on the webpage. There is a teacher notes page, student work page, and rubric to go along with each item.

Student Research Project–Influencers of the Cattle Industry

This project asks students to research influencers of the cattle industry and develop a poster outlining their chosen individuals accomplishments related to the cattle industry. Students will work to develop their research skills, learn more about the cattle industry throughout history, and become ‘experts’ on individuals who have helped shape the cattle industry.

Animal Ag Issues Presentation

Animal agriculture has been a heated topic for many across the country. This presentation asks students to choose from a list of issues and prepare factual information, based on research, that outlines their stance on that issue. A list of credible sources will be available for students, as well as a guide for teachers.

Formative Assessment

This assessment gauges the knowledge students gained throughout this lesson.