

Adopt-A-Cow: Beef

LESSON 6: A DAY WITHOUT COWS

EDUCATION STANDARDS

English Language Arts

- SL.1, SL.2, SL.3

Educational Technology

- ET.EL.2

Mathematics

- 3.MD.B.3

Mathematics Practices

- SMP 3, SMP 4, SMP 6

Science Practices

- SEP 1, SEP 2, SEP 4, SEP 5, SEP 7

Optional ABC's of Beef:

English Language Arts

- SL.1, SL.2, SL.3, W.3, W.7

TIME NEEDED

Part 1: Byproducts (15 min)

Part 2: Economics (25 min)

Part 3: Careers (10 min)

MATERIAL LIST

Materials for the whole class:

- Computer/Projector/TV/
Promethean board
- PowerPoint

Materials for the individual or teams of students

- Byproduct cards
- Graph Paper
- Beef Numbers Worksheets



EXPECTED LEARNER OUTCOMES

OBJECTIVE 1 – Youth will identify products they use in daily life that contain beef byproducts.

OBJECTIVE 2 – Youth will be exposed to a variety of careers in the beef industry.

OBJECTIVE 3 – Youth will create, read, and interpret graphs relating to the economic importance of the beef industry.

BACKGROUND

Beef cattle are raised for the nutritious proteins that their muscle provides; however, that is not the only thing that these cattle give us. Many other products are derived from cattle. Around 98% of the animal is utilized and only about 50% of that is beef. Some of the products produced from beef animals are edible like marshmallows and gelatin; however, there are also other inedible products like leather and cosmetics.

Beef byproducts are also used within pharmaceuticals that are used to keep some people healthy. These pharmaceuticals can be made synthetically; however, often it is more economical to utilize cattle or other animals.

The overall impact that beef has on the economy is difficult to measure, but it can be said that the production of beef creates jobs and adds value to the economy.



VOCABULARY

Byproduct – an incidental or secondary product made in the manufacture of something else.

Economist – a person who specializes in the production, consumption, and transfer of wealth.

Edible – suitable or safe to eat.

Graph – a pictorial representation or diagram that represents data or values in an organized manner.

Inedible – not possible or safe to eat.

Table – a visual representation of data used to organize information to show relationships.

LESSON PREPARATION

**Lesson is designed using a PowerPoint format. This is done to provide structure and speaking points. It also provides visual aids to help youth understand what is being discussed. In a less formal setting, a PowerPoint may not be appropriate, and educators may select not to use the formal presentation. Individual slides can be printed to provide visual aids.*

- Print and cut out byproduct cards for each group of youth. For the longevity of the cards, consider laminating them.
- Print worksheets for each youth.

LESSON INSTRUCTIONS

**Detailed notes are contained within the PowerPoint notes section for each slide.*

Part 1: Byproducts

- I. Lesson 5 Review (Slide 2)
- II. What would life be like if there were no cows? (Slide 3)
- III. Cart Sort (Slide 4)
 - Pass out byproduct cards to each group. Have the students spend approximately 10 minutes sorting the cards into categories based on similarities/relationships that make sense to them.
 - Have teams share what categories they created and what items they put into those categories.
 - Based on the categories that the teams share, conclusions can be drawn about what each of the items has in common. One thing that they might note – Some things are edible while others are inedible.
- IV. Various parts of the cow are used for different items. (Slide 5)
- V. Favorite way to eat beef (Slide 6)
 - Provide students with graph paper to display the data they collect.

Part 2: Economics

- VI. Agriculture Economist (Slide 7)
- VII. Cattle Producing States Data Table and Bar Graph (coincides with worksheet page 1) (Slide 8-9)
- VIII. Cattle Production Line Chart (coincides with worksheet page 2) (Slide 10)

Part 3: Beef Careers

- IX. Careers (Slide 11)
- X. Career Data Maps (coincides with worksheet page 3) (Slide 12-13)
- XI. Review of the process of getting beef from Farm to Table (Slide 14-19)
- XII. Overview of careers related to Beef (Slide 20)
- XIII. An optional activity to wrap up this lesson is to have youth work on a children's book titled 'ABC's of Beef.' This book can either focus on Beef Byproducts or Beef Careers. Information on this project is found later in this document.

Recap

- XIV. What would your life be like without cows (Slide 21)
- XV. Thank Moo! Review (Slide 22)



Dog Food



Shampoo & Conditioner



Cosmetics



Crayons



Laundry Detergent



Perfume



Plywood



Adhesive



Jello



Chewing Gum



Candles



Gummy Bears



Paint Brushes



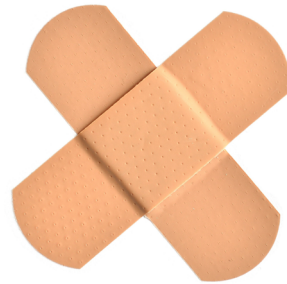
Lotion



Medicine



Bandage



Insulation



Leather



BEEF NUMBERS

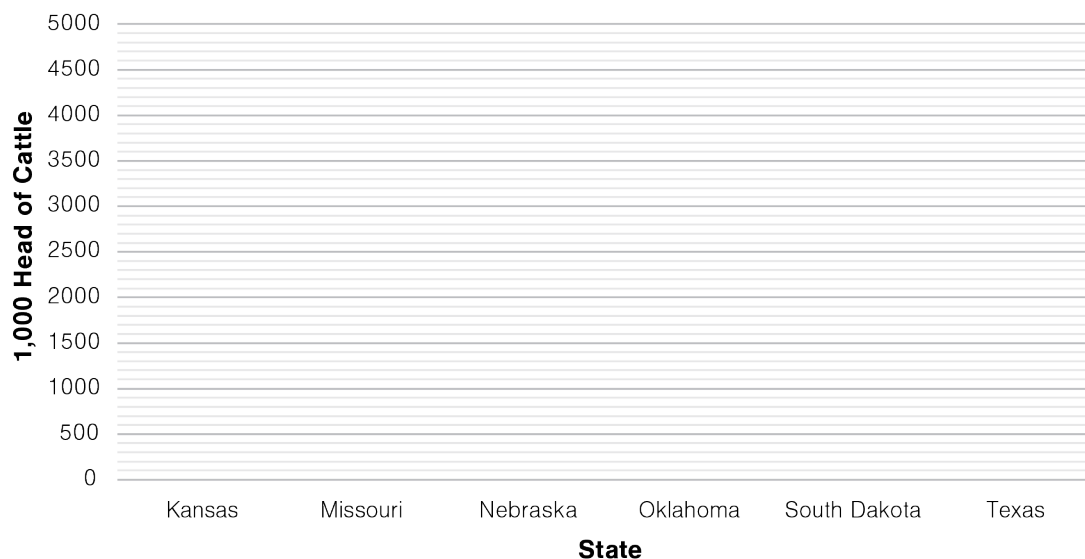
Beef cattle production has a local as well as national impact. Let's look at some of the Beef numbers.

Bar Graph

Using the cattle inventory numbers below, create a bar graph comparing the number of beef cattle in the largest beef producing states.

State	Kansas	Missouri	Nebraska	Oklahoma	South Dakota	Texas
1,000 Head of Cattle	1,264	1,840	1,637	1,922	1,502	4,115

Cattle Inventory



1. Why is it helpful to use a bar graph to communicate this information?
2. Where does South Dakota rank in beef cattle numbers? _____
3. Justify Your Answer
4. Based on what we have learned about beef cattle production, what makes the states in the graph good for producing beef cattle?



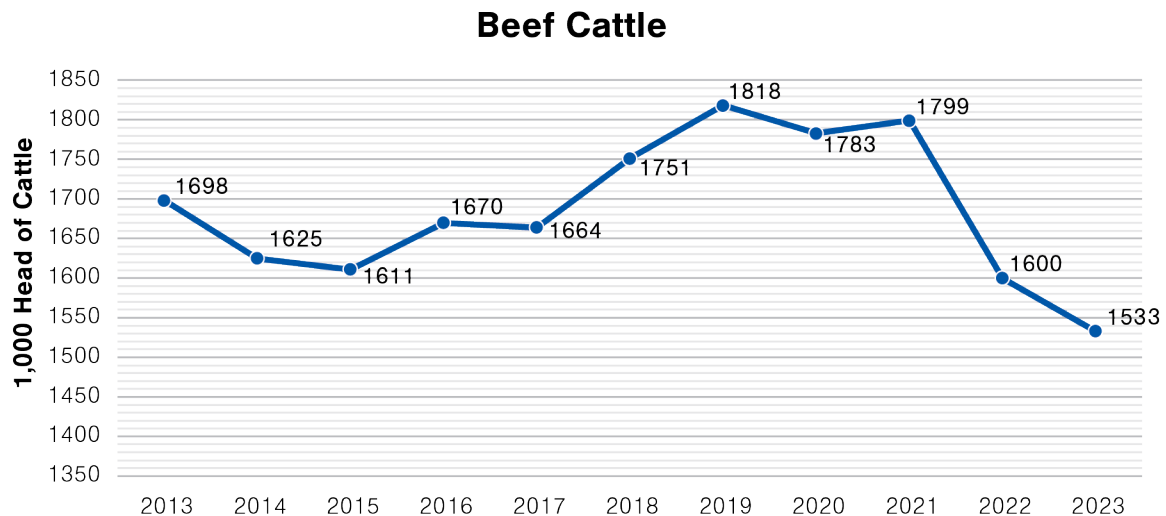
Line Graph

A variety of factors can impact the number of cattle that ranchers keep.

When South Dakota experiences a severe drought the amount of rangeland available for grazing and the amount of forage available to make hay for winter feeding decreases. This means that ranchers cannot feed as many cows and calves and will have to downsize their herds. During good weather years, the opposite is true.

The availability of feedstock is not the only factor that is considered when a rancher considers how many cattle to raise. A rancher must also consider what the market price for selling the animal or meat will be as well as the number of people available to aid in managing the ranch and cattle.

Interpret the line graph below to answer the following questions related to the South Dakota beef industry.



Given this line graph:

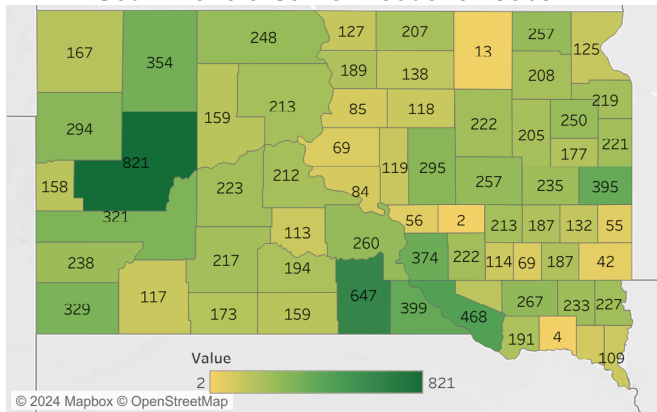
1. How would you describe what is happening in the graph to someone else?
2. What year did South Dakota stock the largest number of cattle? How many cattle were stocked that year?
3. Between what two years did the largest change occur? Did the number of cattle increase or decrease? Justify your answer in words.



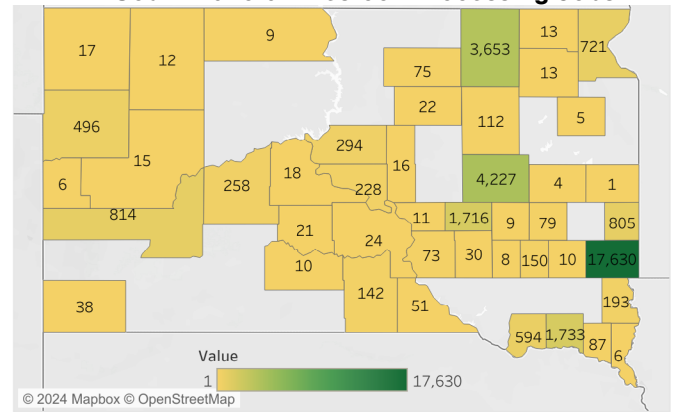
Career Data

South Dakota's beef industry employs many people across the state. Look at the maps below to see how many jobs can be found in each county related to cattle production and livestock processing. Answer the questions.

South Dakota Cattle Production Jobs



South Dakota Livestock Processing Jobs



1. Circle your county on the map.
2. Draw a bar graph to represent the number of Cattle Production Jobs in your county and three bordering counties. Be sure to provide all labels on your graph.
3. How many more (or fewer) cattle producing jobs are in your county than in the surrounding counties included on your above graph? Show your work for the calculations.
4. Why do you think your county has more/fewer cattle producing jobs than the surrounding counties?



BEEF NUMBERS (ANSWER KEY)

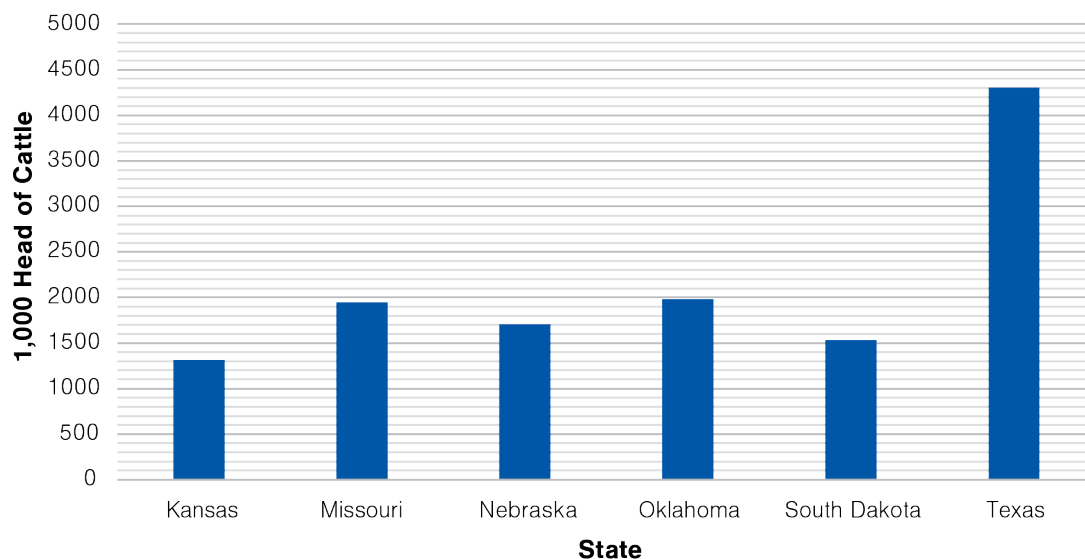
Beef cattle production has a local as well as national impact. Let's look at some of the Beef numbers.

Bar Graph

Using the cattle inventory numbers below, create a bar graph comparing the number of Beef cattle in the largest beef producing states.

State	Kansas	Missouri	Nebraska	Oklahoma	South Dakota	Texas
1,000 Head of Cattle	1,315	1,945	1,703	1,981	1,533	4,300

Cattle Inventory



1. Why is it helpful to use a bar graph to communicate this information?
Graphing it provides a visual of the data making it easier to quickly compare.
2. Where does South Dakota rank in beef cattle numbers?
5th
3. Justify your answer.
Based on the bar graph, it has the 5th largest bar.
4. Based on what we have learned about beef cattle production, what makes the states in the graph good for producing beef cattle?
Open spaces with grasslands and fresh water sources



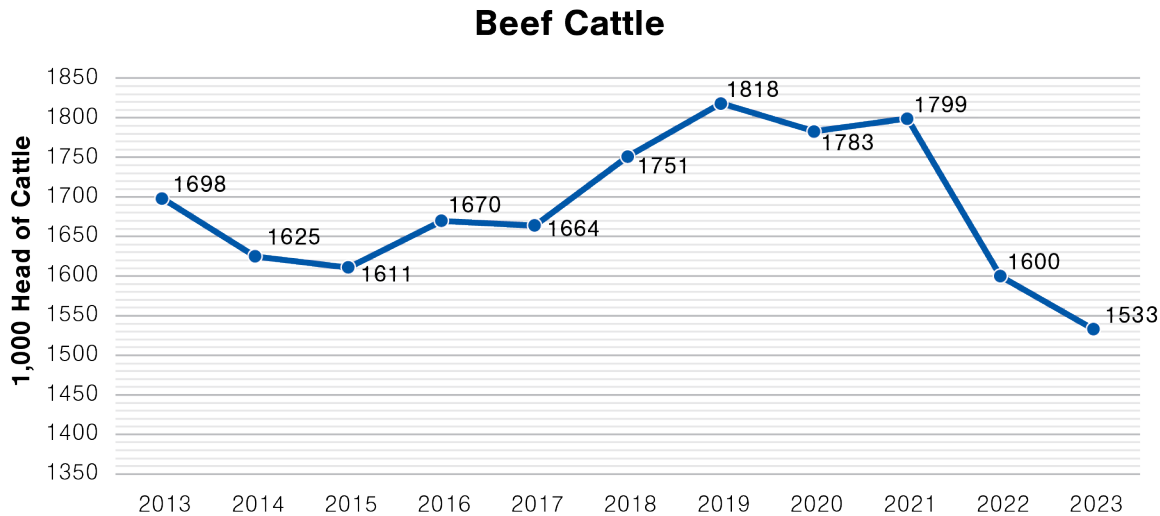
Line Graph

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The availability of feedstock is not the only factor that is considered when a rancher considers how many cattle to raise. A rancher must also consider what the market price for selling the animal or meat will be as well as the number of people available to aid in managing the ranch and cattle.

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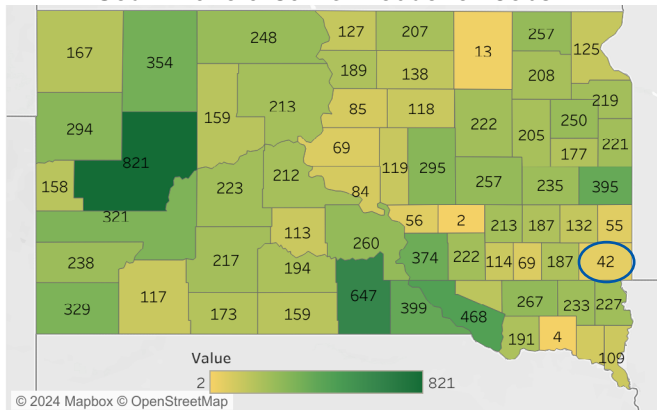
1. How would you describe what is happening in the graph to someone else?
The graph shows the fluctuation in the number of cattle in South Dakota between 2013 and 2023. The number decreases from 2013-2015, then increases. It stays stable from 2016-2017 when it then begins to rise till 2019 where it peaks. It then slowly drops till 2021 where the number then drops till 2023 where it is the lowest.
2. What year did South Dakota stock the largest number of cattle? How many cattle were stocked that year?
2019, 1,818,000 head of cattle
3. Between what two years did the largest change occur? Did the number of cattle increase or decrease? Justify your answer in words.
2021-2022, the number of cattle decreased by 199,000.



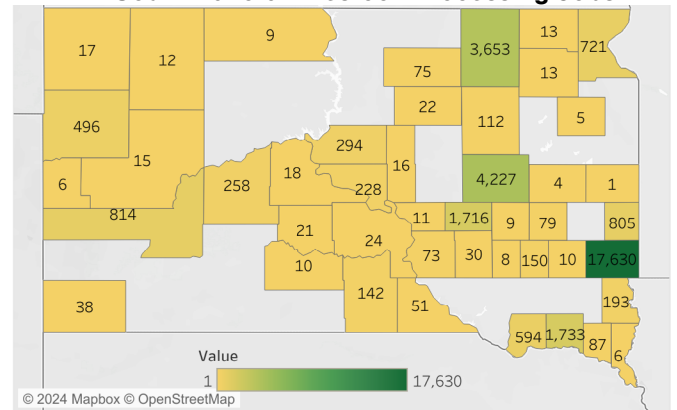
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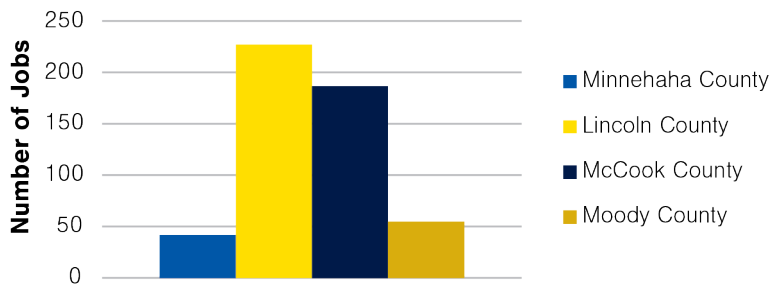


South Dakota Livestock Processing Jobs



1. Circle your county on the map.
Example: Minnehaha County
2. Draw a bar graph to represent the number of Cattle Production Jobs in your county and three bordering counties. Be sure to provide all labels on your graph.

Cattle Production Jobs



3. How many more (or fewer) cattle producing jobs are in your county than in the surrounding counties included on your above graph? Show your work for the calculations.

Minnehaha 42, Lincoln 227, McCook 187, Moody 55

Minnehaha has 13 less jobs than Moody County, 185 less jobs than Lincoln, and 145 less jobs than McCook County.

4. Why do you think your county has more/fewer cattle producing jobs than the surrounding counties?

Minnehaha has fewer cattle production jobs than surrounding counties due to it being a more urban county containing Sioux Falls.



THE ABC'S OF BEEF (OPTIONAL)

Create a Beef Alphabet book that can introduce younger students to Beef. You may select to create a Beef Alphabet book that highlights all the careers related to beef production or a Beef Alphabet book that highlights the infinite number of beef byproducts that exist.

Book Requirements:

- a. One entry per letter of the alphabet. The exception will be for Q, U, X, and Z.
- b. Each entry must
- c. provide a brief description or fact about the word chosen.
- d. have an appropriate visual.
- e. be neat, creative, and free of grammatical errors.
- f. The overall book must also include:
 - g. a colorful cover.
 - h. a bibliography citing sources.
 - i. an introduction to the author.

Bibliography information:

List each source starting with the letter it is associated with; followed by the link to the website. If you utilize more than one source, list them alphabetically.

Example: F - careerexplorer.com/careers/livestock-feed-sales-representative/

Sample ABC Book Entry:

*This is a sample entry only and may not be used in your book.

F is for FEED SALESMAN

- Promotes and sells livestock feeds.
- Needs communication skills and knowledge of agriculture practices.



EXTENDED LEARNING

Interested in learning more about what is provided by one cow? Look at this lesson to learn about how much meat is provided by a cow and to explore the process of processing beef (watermelon).

4h.unl.edu/documents/NE4H-Livestock-Info_How-much-meat-animals-provide_110821.pdf

LITERATURE TO EXPLORE

Looking for literature to further explore topics from this lesson? Check out these books:

Can-Do Cow Kids. by Amanda Radke (*recommended with Lesson 6*)

Follow Cody and Cassidy as they help keep their cattle safe and sound while they learn about a variety of agricultural careers.

Roll, Sprinkle, Spread, Bake! by Amanda Radke (*recommended with Lesson 6*)

Take an adventure with grandma as she heads to the grocery store and makes pizza.

REFERENCES

Office of the Secretary. (n.d.). danr.sd.gov/AboutDANR/EconomicStudy.aspx

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