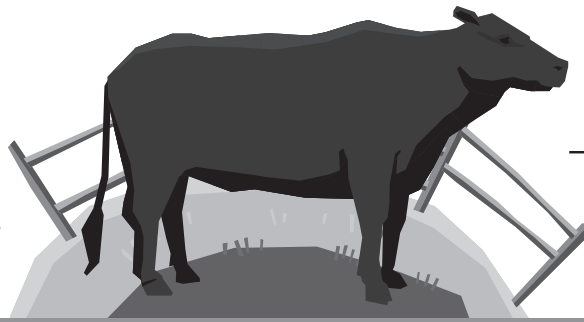


Name _____ Date _____



Criollo vs. Angus Cattle

in a Changing Climate

GET OUT AND GRAZE (GO AG!)

Scenario 1 - Abundant Resources: Predictions

- I predict that _____ cattle will need more supplemental feed because they will not collect enough food resources during the game.
Angus / Criollo
- I predict that _____ cattle will consume a greater percentage of the resources available.
Angus / Criollo

Abundant Resources: Data

ANGUS	
COW	NUMBER OF RESOURCES
1	
2	
3	
4	
5	
TOTAL	

Total Number of Resources Available: 50
 Percent of Total Resources Consumed:
 (_____ ÷ 50) x 100 = _____ %
Total

Mean Resources Per Cow:
 (Total Resources Consumed divided by Number of Cows)

Number of Cows that Needed Supplemental Feed
 (10 Resources or Less):

CRIOLLO	
COW	NUMBER OF RESOURCES
1	
2	
3	
4	
5	
TOTAL	

Total Number of Resources Available: 100
 Percent of Total Resources Consumed:
 (_____ ÷ 100) x 100 = _____ %
Total

Mean Resources Per Cow:
 (Total Resources Consumed divided by Number of Cows)

Number of Cows that Needed Supplemental Feed
 (7 Resources or Less):

Scenario 2 - Limited Resources: Predictions

1. I predict that _____ cattle will need more supplemental feed because they will not collect enough food resources during the game.
Angus / Criollo
2. I predict that _____ cattle will consume a greater percentage of the resources available.
Angus / Criollo

Limited Resources: Data

ANGUS	
COW	NUMBER OF RESOURCES
1	
2	
3	
4	
5	
TOTAL	

Total Number of Resources Available: 25

Percent of Total Resources Consumed:
 $(\frac{\text{Total Resources Consumed}}{\text{Total}} \div 25) \times 100 = \text{_____}\%$

Mean Resources Per Cow:
 (Total Resources Consumed divided by Number of Cows)

Number of Cows that Needed Supplemental Feed
 (10 Resources or Less):

CRIOLLO	
COW	NUMBER OF RESOURCES
1	
2	
3	
4	
5	
TOTAL	

Total Number of Resources Available: 50

Percent of Total Resources Consumed:
 $(\frac{\text{Total Resources Consumed}}{\text{Total}} \div 50) \times 100 = \text{_____}\%$

Mean Resources Per Cow:
 (Total Resources Consumed divided by Number of Cows)

Number of Cows that Needed Supplemental Feed
 (7 Resources or Less):

RESULTS AND CONCLUSIONS

1. Use the data tables on pages 1 and 2 to complete the following.
- a. The _____ cattle needed more supplemental feed because they did not collect enough food resources during the game.
Angus / Criollo
- b. The _____ cattle consumed a higher percentage of the resources available.
Angus / Criollo

2. It is predicted in some places that climate change will cause increased temperatures and prolonged drought. This will reduce the availability of plants that cattle eat. Which type of cattle could better forage in these conditions? Why?

3. Increased temperatures and prolonged drought create a problem for cattle ranchers that rely on Angus cattle because they require more water and forage in a smaller area. Many ranchers are considering a transition to Criollo cattle.

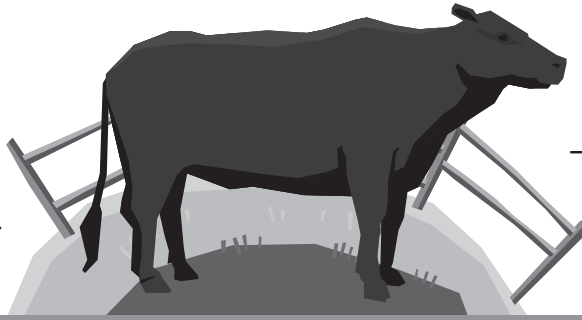
Identify two characteristics of Criollo that could make them a more sustainable alternative for cattle ranchers.

-

-

4. How would a transition to Criollo affect other parts of an ecosystem?

ANSWER KEY



Criollo vs. Angus Cattle

in a Changing Climate

GET OUT AND GRAZE (GO AG!)

Scenario 1 - Abundant Resources: Predictions

- I predict that _____ cattle will need more supplemental feed because they will not collect enough food resources during the _____.
- I predict that _____ cattle will consume a greater percentage of the resources available.

student answers will vary

Abundant Resources: Data

ANGUS	
COW	NUMBER OF RESOURCES
1	
2	
3	
4	
5	
TOTAL	

student answers will vary

Total Number of Resources Available: 50
 Percent of Total Resources Consumed:
 $(\frac{\text{Total Consumed}}{50}) \times 100 = \text{_____}\%$
 Total

Mean Resources Per Cow:
 (Total Resources Consumed divided by Number of Cows)

Number of Cows that Needed Supplemental Feed
 (10 Resources or Less):

CRIOLLO	
COW	NUMBER OF RESOURCES
1	
2	
3	
4	
5	
TOTAL	

student answers will vary

Total Number of Resources Available: 100
 Percent of Total Resources Consumed:
 $(\frac{\text{Total Consumed}}{100}) \times 100 = \text{_____}\%$
 Total

Mean Resources Per Cow:
 (Total Resources Consumed divided by Number of Cows)

Number of Cows that Needed Supplemental Feed
 (7 Resources or Less):

Scenario 2 - Limited Resources: Predictions

- I predict that _____ cattle will need more supplemental feed because they will not collect enough food resources during the game.
- I predict that _____ will consume a greater percentage of the resources available.

student answers will vary

Limited Resources: Data

ANGUS	
COW	NUMBER OF RESOURCES
1	
2	
3	
4	
5	
TOTAL	

Total Number of Resources Available: 25

Percent of Total Resources Consumed:
 $(\frac{\text{Total Consumed}}{25}) \times 100 = \text{_____}\%$

Mean Resources Per Cow:
 (Total Resources Consumed divided by Number of Cows)

Number of Cows that Needed Supplemental Feed
 (10 Resources or Less):

student answers will vary

CRIOLLO	
COW	NUMBER OF RESOURCES
1	
2	
3	
4	
5	
TOTAL	

Total Number of Resources Available: 50

Percent of Total Resources Consumed:
 $(\frac{\text{Total Consumed}}{50}) \times 100 = \text{_____}\%$

Mean Resources Per Cow:
 (Total Resources Consumed divided by Number of Cows)

Number of Cows that Needed Supplemental Feed
 (7 Resources or Less):

student answers will vary

RESULTS AND CONCLUSIONS

1. Use the data tables on pages 1 and 2 to complete the following.

a. The Angus cattle needed more supplemental feed because they did not collect enough food resources during the game.

This will usually be the case.

b. The Angus cattle consumed a higher percentage of the resources available.

2. It is predicted in some places that climate change will cause increased temperatures and prolonged drought. This will reduce the availability of plants that cattle eat. Which type of cattle could better forage in these conditions? Why?

Criollo may be better suited to forage in drought conditions because they are more likely to roam further away from a water source and search for food resources.

3. Increased temperatures and prolonged drought create a problem for cattle ranchers that rely on Angus cattle because they require more water and forage in a smaller area. Many ranchers are considering a transition to Criollo cattle.

Identify two characteristics of Criollo that could make them a more sustainable alternative for cattle ranchers.

- *Smaller, better adapted to move over difficult terrain*
- *Able to move further from water source to forage*

4. How would a transition to Criollo affect other parts of an ecosystem?

Criollo can spread their impact more widely over a grassland. They would be less likely to overgraze an area because their grazing would not be as concentrated. Therefore, plants would be more likely to survive and reproduce, and the effect of more abundant producers would likely be more abundant consumers.