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## Cost Analysis of Forage Alternatives

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# CORNHUSKER ECONOMICS

UNIVERSITY OF  
**Nebraska**  
Lincoln

September 26, 2012

Institute of Agriculture & Natural Resources  
Department of Agricultural Economics  
<http://agecon.unl.edu/cornhuskereconomics>

University of Nebraska–Lincoln Extension

## Cost Analysis of Forage Alternatives

Market Report	Yr Ago	4 Wks Ag	9/21/12
<b><u>Livestock and Products,</u></b>			
<b><u>Weekly Average</u></b>			
Nebraska Slaughter Steers, 35-65% Choice, Live Weight. . . . .	\$115.82	\$120.78	\$125.85
Nebraska Feeder Steers, Med. & Large Frame, 550-600 lb. . . . .	141.93	163.93	165.15
Nebraska Feeder Steers, Med. & Large Frame 750-800 lb. . . . .	137.07	146.62	148.25
Choice Boxed Beef, 600-750 lb. Carcass. . . . .	184.50	193.47	194.11
Western Corn Belt Base Hog Price Carcass, Negotiated. . . . .	88.21	79.84	70.01
Pork Carcass Cutout, 185 lb. Carcass, 51-52% Lean. . . . .	96.63	86.85	77.00
Slaughter Lambs, Ch. & Pr., Heavy, Woolled, South Dakota, Direct. . . . .	178.25	101.50	86.75
National Carcass Lamb Cutout, FOB. . . . .	406.35	321.01	312.33
<b><u>Crops,</u></b>			
<b><u>Daily Spot Prices</u></b>			
Wheat, No. 1, H.W. Imperial, bu. . . . .	6.18	7.98	8.40
Corn, No. 2, Yellow Nebraska City, bu. . . . .	6.25	8.04	7.36
Soybeans, No. 1, Yellow Nebraska City, bu. . . . .	12.11	17.39	15.87
Grain Sorghum, No. 2, Yellow Dorchester, cwt. . . . .	10.32	13.21	12.46
Oats, No. 2, Heavy Minneapolis, MN , bu. . . . .	3.46	3.97	3.84
<b><u>Feed</u></b>			
Alfalfa, Large Square Bales, Good to Premium, RFV 160-185 Northeast Nebraska, ton. . . . .	185.00	242.50	260.00
Alfalfa, Large Rounds, Good Platte Valley, ton. . . . .	117.50	220.00	212.50
Grass Hay, Large Rounds, Good Nebraska, ton. . . . .	92.50	155.00	185.00
Dried Distillers Grains, 10% Moisture, Nebraska Average. . . . .	197.50	312.50	281.00
Wet Distillers Grains, 65-70% Moisture, Nebraska Average. . . . .	72.50	118.00	110.12
<b>*No Market</b>			

This issue is another article in a series addressing drought conditions, economic impacts and resources for Nebraska agriculture.

With drought conditions reducing forage production throughout Nebraska, many livestock producers are looking for feed alternatives. The University of Nebraska has two Excel spreadsheets that are useful tools for analyzing feed options, the **Cornstalk Grazing Cow-Q-Lator** and the **Feed Cost Cow-Q-Lator**. To access these tools and download free copies, please visit the website at: <http://westcentral.unl.edu/web/westcentral/agecon3>.

The **Cornstalk Grazing Cow-Q-Lator** estimates the number of acres of cornstalks that are needed, as well as doing a cost analysis. Given a specific number and weight of animals and the length of time a cattle producer might wish to graze them, the number of acres of cornstalks needed is calculated based on the corn yield. Research has shown a direct relationship between corn yield and available forage from corn residue.

Assume a “user” wishes to graze 120 cows weighing on average 1,200 pounds for 110 days. The tool would calculate that 528 Animal Unit Months (AUMs) of grazing would be needed. Given that the grain yield was 200 bushels per acre and an average removal rate of 50 percent is used, 262 acres of cornstalks would be needed. If this crop residue was leased for \$12 per acre, including fencing, water and labor, the total cost would be close to \$3,200 or about \$.24 per animal per day.

Cattle transportation and monitoring the cattle during the time animals are to be grazed on crop residue should be included in determining the final cost.

Using the above example, and assuming the cattle had to be moved 75 miles to the cornstalk grazing area at a cost of \$5 per loaded mile for a truck load of 30 head, it would



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take four loads at \$375 each to get the cattle to the cornstalks and four loads to bring them back, costing about \$3,000 total.

The cost for monitoring cattle at this distance may also be significant. If the cattle owner drives the 150 miles, round trip, at \$.50 per mile plus an additional labor cost of \$20, the cost of a single visit would be \$95. Making this trip once a week for the 110-day grazing period, results in 15 trips for a total cost of \$1,425.

In our example, the cost for leasing the crop residue is \$3,200, transporting the cattle is \$3,000 and checking them weekly is \$1,425. This totals \$7,625 or \$63.68 per head for the 110-day period, or \$0.58 per head per day. Please note, for the Cow-Q-Lator to work properly the acres needed must match the acres rented. If these values do not match the cost information will be incorrect.

Since every operation is unique, no one should make a decision based on this example. Each user will have varying circumstances and information which alters the expected outcomes significantly. This tool is designed so that information specific to a given operation can be used to obtain applicable results. The spreadsheet is easy to download and use, and your local County Extension Educator can help if you don't have access to the Internet or the Excel program.

Purchasing feed is another option a livestock producer may consider to deal with a forage deficit. Just like grazing cornstalks, there is more to consider than just the raw unit cost. There are additional considerations such as waste, spoilage, hauling, storage and feeding costs.

The **Feed Cost Cow-Q-Lator** provides a process to include these added costs. This tool permits the user to enter data for up to ten different feeds. Information for the analyses includes the purchase price, unit type, the distance to be transported, number of units per load, cost per loaded mile, storage cost and loss and feeding efficiency and costs.

The first type of analysis is available in the spreadsheet tab titled, "Per Pound." This page allows users to compare up to four feeds. Feed is compared using three criteria, energy measured as total digestible nutrients (TDN), crude protein (CP) and dry matter (DM). Costs per unit at four different levels are shown on a per pound basis. Feed is compared as bought (Level 1); bought and transported (Level 2); bought, transported and stored (Level 3); and bought, transported, stored and fed (Level 4).

In a comparison of two feeds, a higher quality hay costs \$200 per ton while a lower quality hay costs \$150 a ton, on an as fed basis. Both feeds have the same 90 percent DM content. CP and TDN content for the higher quality hay is 13 and 57 percent, respectively. The lower quality hay has 11 percent CP and 45 percent TDN.

Transportation costs (\$4.50 per loaded mile for 75 miles), storage cost (\$1/ton), feeding costs (\$5/ton), hauling loss (1%), and storage loss (2%) are the same for both feeds. However, feeding loss is estimated at 10 percent for the higher quality hay and 15 percent for lower quality hay, due to palatability differences.

The lower quality hay provides CP at a lesser cost (\$1.126/lb), compared to the higher quality hay (\$1.152/lb). However, the higher quality hay has a cost advantage for TDN (\$0.263/lb) compared to the lower quality hay (\$0.275/lb).

The second analysis provided in the "Whole Herd" tab provides information about quantities and cost of feeding a herd of cattle for a specific time period. The information required for this worksheet is the amount, in pounds, of feed fed per animal per day, the number of animals and the number of days fed. Using the same 110-day feeding period and 120 cow herd used in the corn residue grazing example, and feeding 20 pounds of hay per day results in 132 tons of hay needed by the cows. At \$150 per ton, the cost of this hay would be \$19,800.

However, when accounting for the feed lost in transportation, storage and feeding, an additional 28 tons must be purchased to get the 20 pounds of actual hay consumption per head per day. The cost of 160 ton of hay at \$150 per ton would be \$24,000, or an additional \$4,200 because of feed lost in transporting, storing and feeding. Adding the costs of transportation (\$2,700), storage (\$160) and feeding (\$775), brings the total cost for this feed to \$27,635.

This **Feed Cost Cow-Q-Lator** spreadsheet includes a cornstalk tab similar to the **Cornstalk Cow-Q-Lator** which allows users to include cornstalk residues as an option to compare with the delivered feeds.

If you have any questions, please feel free to contact the authors or any of your local extension personnel.

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