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## Is There a Best Cow Size for Beef Cattle Producers?

Matthew Stockton

*University of Nebraska-Lincoln*

Sunil P. Dhoubhadel

*University of Nebraska-Lincoln*

Leslie Aaron Stalker

*University of Nebraska-Lincoln*

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# CORNHUSKER ECONOMICS

## Is There a Best Cow Size for Beef Cattle Producers?

Market Report	Yr Ago	4 Wks Ago	4/12/13
<b><u>Livestock and Products,</u></b>			
<b><u>Weekly Average</u></b>			
Nebraska Slaughter Steers, 35-65% Choice, Live Weight.....	\$122.64	\$126.86	\$127.63
Nebraska Feeder Steers, Med. & Large Frame, 550-600 lb.....	182.97	165.91	160.74
Nebraska Feeder Steers, Med. & Large Frame 750-800 lb.....	153.83	138.41	139.84
Choice Boxed Beef, 600-750 lb. Carcass.....	177.79	196.75	190.60
Western Corn Belt Base Hog Price Carcass, Negotiated.....	79.27	73.45	81.52
Pork Carcass Cutout, 185 lb. Carcass, 51-52% Lean.....	78.22	78.45	81.91
Slaughter Lambs, Ch. & Pr., Heavy, Woolled, South Dakota, Direct.....	148.63	97.50	*
National Carcass Lamb Cutout, FOB.....	371.29	286.30	288.12
<b><u>Crops,</u></b>			
<b><u>Daily Spot Prices</u></b>			
Wheat, No. 1, H.W. Imperial, bu.....	5.48	7.01	7.06
Corn, No. 2, Yellow Nebraska City, bu.....	6.20	7.45	*
Soybeans, No. 1, Yellow Nebraska City, bu.....	13.83	14.45	14.38
Grain Sorghum, No. 2, Yellow Dorchester, cwt.....	10.45	12.36	11.32
Oats, No. 2, Heavy Minneapolis, MN, bu.....	3.43	4.31	4.13
<b><u>Feed</u></b>			
Alfalfa, Large Square Bales, Good to Premium, RFV 160-185 Northeast Nebraska, ton.....	225.00	*	245.00
Alfalfa, Large Rounds, Good Platte Valley, ton.....	145.00	227.50	227.50
Grass Hay, Large Rounds, Good Nebraska, ton.....	97.50	212.50	217.50
Dried Distillers Grains, 10% Moisture, Nebraska Average.....	229.25	264.00	247.50
Wet Distillers Grains, 65-70% Moisture, Nebraska Average.....	76.75	102.50	89.00
<b>*No Market</b>			

There are individuals in the beef cattle industry who claim there is a need for smaller brood cows, because smaller cows are more efficient and therefore more profitable. On the other hand, there are those who claim the larger the cow the better, and these generally are those who feed calves to slaughter. The proponents of both sides seem to have logical reasons that support their claims. So who is right?

Recent work on cow systems at the Gudmundsen Sandhills Laboratory, conducted by scientists from the University of Nebraska-Lincoln West Central Research and Extension Center, show that the contribution of dam's weight to profit is surprisingly different, depending on how and when the offspring are marketed. While biology is a large player in the answer, the economics must be considered to formulate an appropriate solution. While larger cows may not be as efficient in the pasture, the larger framed offspring may more than compensate for this by their feedlot performance.

Costs and revenues covering the years 2002 to 2011 were matched with production data recorded for four consecutive production years. This was used to evaluate nine different cattle production systems or scenarios (Table 1, on next page). These nine systems included four where calves were raised and sold either as weaned calves, yearlings or fat cattle priced either as live cattle or on a grid system. The remaining five systems included situations where the calves were not raised, but instead were purchased as one class of calves and sold as another.

It was found that calves sold as fat cattle generally contributed more positively to profit if they were from larger cows, with the exception of those bought as yearling calves and sold on a grid and those bought as weaned cattle and sold as yearlings, both of which were optimized at the small dam size.

Raised animals sold as weaned calves or yearlings also reached optimal returns for the smallest dams. These results are consistent with the notion that cow-calf producer's profits may be increased with smaller brood cows, including those who buy and raise stocker calves. When calves were sold as fat cattle, those born to larger dams were generally more profitable than calves born to average weight or small dams. The only exceptions were those purchased as yearlings and sold as fat cattle on a grid. As a rule, calves from medium/average sized dams were the least profitable compared with either small or large cows. However, in one instance, dam weight near the average was the most profitable. This occurred in the fifth scenario (Table 1), where purchased weaned calves were sold as fat cattle priced on a grid system. In the two scenarios where weaned calves and yearlings were raised and sold, the smallest dams provided the greatest contribution to returns, but both the largest and the smallest outperformed the middle weight cows.

In all cases, the optimum dam weight was not the same for fat animals sold on a live basis versus the dam weight for fat animals sold on a grid. This fact adds a layer of complexity to the choice of marketing fat cattle.

All of these results lead to at least one general conclusion: contribution to profit is not just a matter of biological efficiency of the cow, but extends to the whole system, including costs and market conditions and the performance of the calf. From this work, the answer to the question "What is optimal cow size?" is clearly not the same for all producers.

This work is available in its entirety from the authors upon request.

Matthew Stockton, (308) 696-6713  
Agricultural Economist, Assistant Professor  
[mstockton2@unl.edu](mailto:mstockton2@unl.edu)

Sunil Dhoubhadel, (308) 696-6738  
Economics Research Analyst  
[sdhoubhadel2@unl.edu](mailto:sdhoubhadel2@unl.edu)

Aaron Stalker, (308) 696-6707  
Beef Range Systems Specialist  
[astalker3@unl.edu](mailto:astalker3@unl.edu)

University of Nebraska-Lincoln  
West Central Research and Extension Center

**Table 1. Summary Results of the Optimum Cow Size for the Nine Production Systems**

Scenario Number	Production Systems	Optimum Cow Size
1	Sell Calves at Weaning	Smallest
2	Purchase Weaned Calves, Sell as Yearlings	Smallest
3	Sell Raised Yearlings	Smallest
4	Purchase Weaned Calves, Sell as Live Fat Cattle	Largest
5	Purchase Weaned Calves, Sell as Fat Cattle on a Grid	Medium/Large
6	Sell Raised Live Fat Cattle	Largest
7	Sell Raised Fat Cattle on a Grid	Largest
8	Purchase Yearlings, Sell as Live Fat Cattle	Largest
9	Purchase Yearlings, Sell as Fat Cattle on a Grid	Smallest