

BEEF COWS HAVE BEEN GETTING BIGGER, WHICH HAS IMPLICATIONS FOR WYOMING AGRICULTURE

Did you know today's average beef cow in the United States is more than 300 pounds heavier than the average beef cow from 1975!

If you are a small producer or a larger one, this important change should be kept in mind while selecting cattle for your property. Choosing the correct cow size can help make the best use of your properties' resources, maintain the health of the land, and most efficiently produce beef for your family or for sale.

Data shows a distinct trend to bigger cows

According to the United States Beef Improvement Federation and the National Cattle Slaughter Summary, the average 1975 U.S. beef cow weighed 1,047 pounds but in 2009 weighed 1,350 pounds. This change can largely be attributed to genetic improvement of beef cows, particularly in selecting for animals that are better and faster producers. As we have selected for cattle that produce more beef per head, we have also selected for larger cattle in terms of height and weight.

Unfortunately, it also appears calf weaning weights may have plateaued in the northern U.S. Scientists from Oklahoma State University used Superior Livestock Auction video sale data from 1995 to 2016 and documented that around 2006-2007, non-implanted calves peaked at about 550.

What does this mean for the beef industry?

Larger beef cattle can affect all phases of the beef industry. Stocking rates on rangelands can be affected because larger cattle require more forage, so ranches may have to adjust stocking rates downward in terms of total number of animals (fewer animals per acre).

Larger beef cattle can cause logistical issues for some larger processors. Dairy Herd Management (2015) reported that some, such as Tyson Foods, banned steers over 58 inches tall at particular plants in 2013. These larger carcasses slow down plant productivity because they are harder to handle.

Finally, consumer interests continue to change and demand for smaller prime cuts increased over time. Large cattle that produce larger cuts are not as good a fit for this changing market.

What does this mean for a ranch and for smaller producers?

Examples of selection for growth and size in beef cattle sires through time.



1957 Champion Hereford Bull at the Wyoming State Fair in Douglas.



2012 Grand Champion Polled Hereford Bull at the National Western Stock Show in Denver.

There are four potential problems Wyoming producers may contend with related to larger cows.

First, the ranch’s current carrying capacity may be fewer animals than dad or grandad ran.

Second, larger cows may have reduced longevity as it has been reported a 1,400-pound cow will wean one fewer calves in her lifetime than a 1,100-pound cow.

Third, in semi-arid rangeland production environments, larger cows may not necessarily wean heavier calves – in other words, they may eat more grass and only wean calves similar to smaller cows.

Fourth, if cows have gotten larger over time on a ranch, but total number of cows has stayed the same, overgrazing and difficulty in maintaining body condition and desired reproductive rates may occur.

The third and fourth points are also prime considerations for the smaller producer, because smaller cows eat less than larger cows, and you could accommodate more animals or you would have to purchase less supplemental feed.

As you consider what cow size would best fit your place, keep in mind how forage needs vary by size. A

beef cow will generally consume 2.5 percent of her body weight in air dry forage each day. A 1,000-pound cow needs 25 pounds of grass per day, a 1,200-pound cow needs 30 pounds of grass per day, and a 1,400-pound cow needs 35 pounds of grass per day.

What does it cost?

Whether raising cattle on a small acreage or large, this ranch-sized example will show how the economics can be driven by cow size. Our research team at the University of Wyoming ran unit cost of production models for three of the cow sizes (1,000 [small], 1,200 [moderate], and 1,400 [big] pounds).

Based on a summary of profit/loss, as returns to labor and equipment, and unit cost of production, we estimate total ranch herd profit would be \$6,289.14 for the small cow herd of 100 cows, -\$1,637.68 for the moderate cow herd of 88 cows, and -\$7,918.29 for the big cow herd of 78 cows (table below) assuming the cow herd was stocked appropriately for the area of land.

On a per-cow basis, estimated profit would be \$62.89 per small cow, -\$18.61 per moderate cow, and

Summary of profit/loss and unit cost of production

| | Big Cows (1,400 lbs) | Moderate Cows (1,200 lbs) | Small Cows (1,000 lbs) |
|-------------------------------------------------|-------------------------|------------------------------|---------------------------|
| Calf sales (total) | \$64,260.00 | \$72,981.00 | \$81,737.70 |
| Calf sales (per cow) | \$823.85 | \$829.33 | \$817.38 |
| Herd replacement cost (total) | \$8,025.00 | \$11,015.00 | \$12,965.00 |
| Value produced (total) | \$56,235.00 | \$61,966.00 | \$68,772.70 |
| Value produced (per cow) | \$720.96 | \$704.16 | \$687.73 |
| Feed costs (total) | \$40,855.29 | \$38,857.68 | \$36,151.56 |
| Other costs (total) | \$10,698.00 | \$12,146.00 | \$13,732.00 |
| Overhead costs | \$12,600.00 | \$12,600.00 | \$12,600.00 |
| Total Costs | \$64,153.29 | \$63,603.68 | \$62,483.56 |
| Profit or Loss (total) ¹ | -\$7,918.29 | -\$1,637.68 | \$6,289.14 |
| Profit or Loss (per cow) ¹ | -\$101.52 | -\$18.61 | \$62.89 |
| Profit or Loss (per pound of calf) ¹ | -\$0.21 | -\$0.04 | \$0.13 |
| Unit cost of production | \$1.91 | \$1.74 | \$1.57 |

¹Model scenarios do not consider overhead such as labor and machines, so numbers are a more accurate reflection of returns to labor and equipment. Additional assumptions of the labor and machine costs, which are highly variable by operation, would be needed to further understand and calculate estimated profit/loss.

-\$101.52 per big cow. On a per-pound of calf basis, we estimate profit would be \$0.13 for small cows, -\$0.04 for moderate cows and -\$0.21 for big cows. Lastly, the estimated unit cost of production was \$1.57 per small cow, \$1.74 per moderate cow, and \$1.91 per big cow.

Conclusions

For small-acreage landowners interested in raising their own beef, for their own use or sale, remember smaller cows require less grass and incorporate the mature size of animals in your purchasing decision.

For larger ranches with breeding programs, managing for a moderate cow in terms of size and milk could be an important consideration. This will require balancing maternal traits (maternal milk, maternal height, maternal weight) and traits such as weaning weight in the breeding program.

If you plan to breed cattle on your place, consider using new selection indices that also estimate forage intake (or how much grass they will need). More small to moderate size cows can be economically advantageous because overhead costs can be spread over more

animals, and smaller cows can make more efficient use of the inputs available (forage, etc.)

The information presented here is intended to develop awareness about the cow size trend and potential consequences of this trend for the small and large producer. If producing beef for sale, consider feed sources, forages, genetics, and marketing strategies when considering what cow size best fits your resources and goals.

If interested in learning more about this subject, we have recently put together a comprehensive UW Extension factsheet that provides additional details, *Beef Cow Size: Industry Trends, Economics, and Implications for Grazing Wyoming Rangelands* B-1343; bit.ly/beef-cow-size.

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