

Animal Health and Husbandry Practices That Increase Beef Herd Profitability

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Introduction

Producer level surveys of cow-calf operations across the country have shown that a minority of herds adopt management practices that promote herd efficiency and profitability. For example, these surveys have found that less than 35% of producers utilize pregnancy examination of cows and only 23% use body condition scoring to monitor adequacy of herd nutritional programs. The easiest way to improve herd profitability is to focus on optimizing herd efficiency. The goal of this article is to provide producers with management practices that will positively impact herd efficiency and improve long-term profitability.

Reproductive Efficiency

Unlike reproduction, which just evaluates whether a cow gets pregnant, reproductive efficiency evaluates the speed at which pregnancy occurs. In cow-calf operations, reproductive efficiency is the primary driver of calf numbers and weight and, therefore, increased gross revenue. The reason reproductive efficiency is so important is as follows: calf weaning weight is a function of both average daily gain (ADG) and age at weaning. A calf that is born early in the calving season will, on average, weigh more than a calf that is born late in the calving season simply because the calf born earlier is older at the time of weaning. Therefore, the early born calf will be worth more at sale for no other reason that it was born sooner. For example, if we assume that a calf born on day 1 of a calving season will gain 2 lbs/day from birth to weaning and another calf born on day 42 of a calving season will gain at the same rate until the day of weaning, calf 1 will weigh approximately 84 lbs more than calf 2 simply because it's older. The impact of improving reproductive efficiency on herd profitability can be seen in Table 1 below. In this example, both herds are the same size, have the same number of cows pregnant at the end of the breeding season, and wean the same number of calves at weaning. The only difference is the speed at which cows in each herd got pregnant and, therefore, the age of the calves at weaning.

Table 1. Impact of improved reproductive efficiency on productivity in a theoretical cow-calf operation

Calving Period	Average calf weight, lbs	Total calf weaning weight, lbs	
		Herd A	Herd B
1	500	31,000	7,500
2	458	10,922	11,450
3	416	3,744	11,648
4	374		5,236
5	332		2,656
6	290		1,450
Total lbs weaned		45,736	39,940
Estimated returns, (\$1.50/ lb)		\$68,604	\$59,910

Here, it's clear that herd A is more efficient and, therefore, more profitable than herd B because calves were older and heavier at weaning. The ideal distribution of pregnancies across a breeding season is below in **Figure 1**.

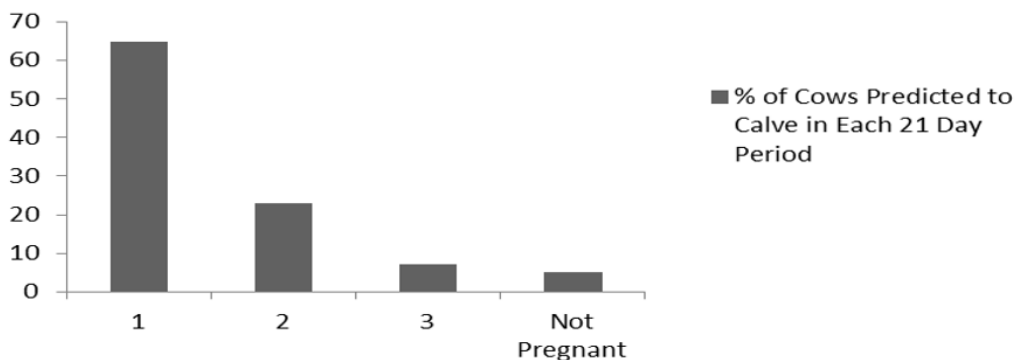


Figure 1. Pregnancy Distribution Goal for a 63-Day Breeding Season

Ways to Improve Reproductive Efficiency

1. Perform pregnancy examinations on heifers and cows within 40-60 days of bull removal

- Not only will pregnancy examinations help determine which heifers and cows are and are not pregnant, it also allows for the collection of data that will help improve herd efficiency. Cow body condition score (BCS), age, teat/udder score, foot health and identification can all be used to help refine culling parameters, animal grouping, feeding strategies, and herd health procedures
- Pregnancy examination allows for the application of a breeding season evaluation in overall herd management. Breeding season evaluations use pregnancy examination data to look at overall herd efficiency and allow for troubleshooting to be done when problems arise
- Overall, pregnancy examination facilitates the selection of more fertile females that thrive in a given production setting.

2. Perform breeding soundness examinations (BSE) on all herd sires prior to the beginning of the breeding season

- Across the United States, less than 25% of producers regularly have BSEs performed on their bulls. BSEs should be performed on all bulls (new and old) 45-60 days before the beginning of a breeding season. In one study, the elimination of subfertile bulls resulted in a 6% increase in calf crop. At today's calf prices, a 6% increase in calf crop would result in an approximately \$20 return for every \$1 invested in a BSE, making this a very profitable venture

3. Maintain heifers and cows in the proper body condition prior to calving

- Nutrition and reproduction are intimately linked and cows on a poor nutritional plane have significantly poorer reproductive performance than cows maintained on a more adequate nutritional plane. The impact of nutrition on herd reproductive performance can be seen in **Table 2** below.
- Cows should be maintained so that they calve at a BCS of 5-6 and heifers maintained so that they calve at a BCS of 6-7.

Table 2. Impact of BCS at calving on future reproductive performance, calf growth, and farm income.

BCS	Preg Risk (%)	Calving Interval (days)	Calf ADG (lb/day)	Calf WW (lbs)	Calf Price (\$/lb)	Gross Income/Calf (\$)	Gross Income/Cow (\$)
3	43	414	1.6	374	1.23	460	182
4	61	381	1.8	460	1.16	534	300
5	86	364	1.9	514	1.09	560	443
6	93	364	1.9	514	1.09	560	479

Improved Calf Husbandry

The sale price of calves can be affected by many things that are beyond the control of most producers. However, small investments in calf management can dramatically increase the revenue an individual calf generates. For example, recent data from auction markets in Athens, GA show that steer calves bring, on average, \$10-13/100 lb more than bull calves of the same weight. For a 500 or 600-lb calf, this equates to an extra \$50-70 in gross returns. Recent studies evaluating factors affecting the price of calves sold through auction markets in Arkansas found that calves sold in groups of more than 6, calves with muscle scores of 1 or 2, crossbred or black-hided calves, and polled calves brought \$5-10/100 lbs more than calves sold within other classifications. Thus, for relatively small investments, producers can reap significant increases in gross returns that will improve herd profitability. Calf management practices that can improve herd profitability are listed below:

1. *Castrate all bull calves not intended to be future herd sires (\$10-13/100 lb increase in value)*
2. *Sell calves in lots of 6 or more (\$5-10/100 lb increase in value)*
3. *Ensure calves are in adequate body condition prior to sale (\$5-10/100 lb increase in value)*

Implanting Nursing Beef Calves

Calf average daily gain (ADG) can be improved by using growth-promoting implants. These implants use estrogen, progesterone, their derivatives, or combinations of these hormones to improve feed efficiency and promote deposition of lean muscle mass. Ralgro, Synovex C, Encore, and Compudose are all labeled for use in nursing beef calves. A single Ralgro implant will increase ADG by approximately 0.12 lb/day compared to calves that are not implanted. Because some of these implants (Ralgro and Synovex C) work for less than 90 days, some producers will often administer a second implant after the payout period of the first has wanted. With two Ralgro implants used approximately 60 days apart from one another in a nursing calf, ADG is expected to increase by approximately 0.13 lb/day. Similarly, two implants of Synovex C will give an additional 0.1 lb/day increase in ADG compared to calves not implanted at all. Ralgro can be used as early as 30 days of age and the other three at day 45 and later. Generally, implants are expected to provide a \$30-40 return on each dollar invested in them. To better illustrate how profitable implants can be, implanting nursing calves represents an approximately \$1800/hr value proposition. *So, since it seems that all implants give a positive increase in ADG relative to no implant at all, producers should not be concerned about which implant to use. Rather, the focus should be on choosing the right implant for your production system and getting it into the calves at the appropriate time to reap the benefits that come with their use.*

SUMMARY

Cow-calf production has historically been an industry with relatively low-profit margins. Utilizing cattle health and management practices that improve herd efficiency will increase the value of the final product sold (calves) and, in most cases, reduce the overall cost of production. This combination of factors will, over the long term, enhance the bottom line of cattle producers while also maximizing animal health and well-being. As always, when questions regarding animal health arise, contact your local herd health veterinarian.