

Large Animal Newsletter

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Managing Body Condition Scores

For many producers, managing body condition scores (BCS) of their cow herd is not the most important consideration on their minds right now. But when you think about it, body condition of the cow has quite an impact on the total production of the herd.

Here is a short list of the things that body condition influences...

- Pregnancy Rate
- Milk Production/Quality
- Calf's Growth Rate (WDA)
- Calf's Weaning Weight
- Calving interval
- Post Partum interval
- Calving ease

- Calf Immunity (Colostrum Quality)

At Twin Forks Clinic we recommend that cows have a condition score of 5 to 5.5 at calving time while replacement heifers have a condition score of 5.5 to 6 at calving. This range seems to get the best results physically and economically. As displayed in the previous list, BCS has a major impact on the cow's production and reproduction.

A study at Louisiana State University showed that heifers with a condition score of 4 were about twice as likely to require assistance at calving as heifers with a BCS of 5.¹

Calving Difficulty and Initial Condition Score

| Initial BCS | Calf Birth Weight | Assistance At Calving |
|-------------|-------------------|-----------------------|
| 4 | 71.6 lbs | 22.2% |
| 5 | 74.7 lbs | 12.6% |
| 6 | 75.5 lbs | 13.8% |
| 7 | 74.1 lbs | 15.7% |

The condition score 5 heifers were able to handle bigger calves on average with less assistance. It should also be noted that as the heifers condition score increased beyond BCS 6, the percentage of heifers that needed assistance increased also.

Another study from Colorado State looked at the differences in BCS in replacement heifers and the quality of their colostrum. This is important because a newborn calf acquires passive immunity by ingesting immunoglobulins present in the colostrum. Colostrum quality was measured by determining the concentration of IgG and IgM (immunoglobulins) in the colostrum.

1st Calf Heifer Condition and Calf Immunity²

| | BCS 3 | BCS4 | BCS 5 | BCS6 |
|--------------|----------|-------|----------|-------|
| IgG mg/dl | 1998 | 2178 | 2309 | 2348 |
| IgM mg/dl | 145.9 | 157.2 | 193.1 | 304.1 |

As you can see, heifers with a condition score of 5 or 6 had substantially better quality colostrum than heifers with a condition score of 3 or 4. Granted, there are many other factors that affect colostrum quality, but condition score and plane of nutrition at calving appear to be very important.

It is very important to have cows and heifers in proper condition at calving time. It is also very important to have cattle on a positive plane of nutrition prior to calving. In a study by Corah, et. al at the University of Wyoming, cows with a C.S. of 5 on an adequate plane of nutrition prior to calving, greatly outperformed cows on a low energy diet.

Effect of Nutrition and Cow Body Condition Prior to Calving

| | High Energy Levels | Low Energy Levels |
|----------------------------|--------------------------|-------------------------|
| Cow Wt. Loss | -22 | -142 |
| % Calf Survival at Birth | 100% | 90% |
| % Calf Survival at weaning | 100% | 71% |
| Milk Production Lbs/day | 12.1 lbs | 9.0 lbs |
| Calf Scours | | |
| Percent Affected | 33% | 52% |
| Percent Mortality | 0% | 19% |

As you can see, cows that were fed on a proper plane of nutrition, and a

proper BCS, lost less weight at calving, produced more milk, had healthier calves and weaned them all.

On the production side, adequate BCS will help reduce calving difficulty, increase calf immunity through improved colostrum quality, allow the cow to produce adequate milk, and produce calves with higher rates of gain and higher weaning weights. In short, keeping cows in adequate BCS should produce more calves, and higher weaning weights.

Of course, for females to stay in the herd, they must not only produce but reproduce. So let's take a look at how BCS affects reproduction.

Keeping cows in adequate condition will help shorten postpartum interval, giving the cow a better chance to rebreed thus improving pregnancy rates and decreasing calving interval.

In a study by Houghton, P.L. et. al., BCS had a major impact on Post Partum Interval or the number of days from the time a cow calves to the time she conceives again.

Effect of Body Condition Score at Calving on Postpartum Interval

| BCS | PPI (Days) |
|---------|---------------|
| 3.5-4.0 | 88.5 |
| 4.5 | 69.7 |
| 5.0 | 59.4 |
| 5.5-6.0 | 51.7 |
| 6.5 | 30.6 |

As BCS increased, postpartum interval decreased. If you have a 45 or 60 day breeding season, the cows in better condition would have a better chance of breeding and breeding early in the season. Thus it is not surprising to find that cows in good condition have higher pregnancy rates.

Reproductive Performance of First Calf Heifers Dependent Upon Body Condition Score at Calving¹

| BCS At Calving | Pregnancy Rate % | Days to Pregnancy |
|----------------|------------------|-------------------|
| 4 | 64.9% | 92 |
| 5 | 71.4% | 82 |
| 6 | 87.0% | 74 |
| 7 | 90.7% | 76 |

As you can see, as BCS increased, pregnancy rate also increased. In this study also, as condition score increased, the "Days to Pregnancy" or PPI decreased.

It looks like if you manage condition score, many other factors in beef production almost take care of themselves. One of the most cost effective ways to manage condition is to conserve it. Let's take a brief look at some of the things we can do to manage/conservate condition score.

Later Calving When you study the nutritional requirements of gestating cows, it becomes evident that the cow's requirements start to increase in the third trimester of gestation and peaks about 60 to 90 days after calving. Therefore it makes sense to calve during late spring/early summer when there is green vegetative growth out in the pastures. Cows can meet most of their requirements through grazing with little supplementation.

Another good reason to move your calving season back is that adverse weather conditions are not as likely to increase nutritional requirements during an already critical time.

Early Weaning Recently, many producers have found that early weaning is very effective at conserving BCS in their cows. When calves are weaned early, the cows' nutrient requirements decrease by 20-30%. When the calves are weaned, the cows will

generally maintain their current, and sometimes gain, condition on grass. Early weaned calves will gain much more efficiently in the lot than if they would if they were left on the cow. These calves will also finish earlier in the year compared to more traditional weaning practices.

Graze Crop Residues Crop residues like corn stalks and sunflower residue work very for maintaining condition score or even increasing condition prior to calving. These residues are usually moderate to high in energy and usually relatively cheap. Producers need to be careful to monitor nitrate concerns in stalks and runoff lagoons.

Select efficient replacements Last but certainly not least, producers need to select efficient females. Most producers have those cows that are known as “hard keepers”. These cows require increased management and resources to make sure that they maintain enough condition to stay in the herd. If these cows are thin year after year, they probably should be culled. On the flip side of the coin, those cows that have a condition score over 6 consistently, but usually wean poor calves should be culled. These cows usually maintain condition at the expense of their calf. A cow calf record keeping system is invaluable in identifying these cows.

In summary, though body condition score is usually not managed directly, maybe it should be since it has an impact on so many other factors. Body condition can be managed very effectively and efficiently and if it is sacrificed, the consequences can be rather harsh and long-lived.

Kevin L. Cawthra, Animal Scientist, Twin Forks Clinic
Coombs et Al., Body Condition and Winter Supplementation
Effect on Weight Change and Reproduction in Spring-
Calving Beef Heifers. Louisiana State University Agricultural
Center Bulletin Number 853

²Odde et Al., Colorado State University

Don't Waste Money on Dewormer

Do producers waste time and money when deworming their beef herds?

Do producers waste time and money when deworming their beef herds? Some of them do. However, other producers are losing money because they do nothing to address internal parasites. Research has repeatedly shown how internal parasites, such as roundworms (nematodes), can steal producer profits through decreased animal performance and reduced resistance to disease. But warding off these problems, through an effective deworming program, is largely a matter of good timing.

According to Dee Griffin, veterinarian and professor at the University of Nebraska Great Plains Veterinary Education Center, three factors determine the degree to which internal parasites threaten animal health and performance: an animal's age, the environment and animal population density.

“The younger the animal, the bigger the potential problem internal parasites can be. The younger a calf is, the more susceptible it is to loss of production due to parasites,” states Griffin. “Smart parasite control includes trying to minimize the exposure of young animals through strategic use of dewormers.”

Griffin says parasites steal nutrients and decrease feed efficiency. A five to ten percent decrease in average daily gain is common. Heavy parasite loads may cause damage to the intestine, decreasing the calf's ability to absorb nutrients, as well as causing significant amounts of blood loss. Immune function is also affected, making calves more susceptible to disease. Furthermore, parasite-laden calves may not mount an effective response to vaccines. Consequently, in addition to a direct effect on gain, parasites can be

detrimental to health status for the long-term, hampering an animal's ability to achieve its potential for post-weaning performance and carcass quality grade.

Internal parasites are a greater threat in warm, moist environments that are most favorable to their life cycles. Parasite eggs are passed through cattle feces. Larvae within drops of moisture clinging to blades of grass are then ingested as cattle graze. Animal density is a factor influencing concentrations of manure in pastures and opportunity for exposure.

Griffin says strategic deworming programs should address pasture contamination as well as removal of parasites from the animal. In parasite-friendly environments, such as the southeastern U.S., a strategic program should include deworming of cows and suckling calves once in the spring and again in early summer, after an interval of four to six weeks. Calves should be dewormed again at weaning, with the cows receiving their third treatment in late fall.

Griffin advises producers to always deworm calves at weaning. However, giving them two doses by weaning time is even better to promote optimum performance and health.

Many producers choose to deworm cows in the fall only. Griffin says that's usually because someone told them it would make the cows come through the winter in better flesh. Fall deworming can promote better body condition among cows maintained in parasite-friendly climates. However, failing to deworm cows in the spring does not address the major source of pasture contamination.

“If you are going to deworm cows only once, fall is not the best time. It cleans out the parasites but does little to reduce pasture contamination. It's not as good as deworming cows in the spring,” Griffin explains.

In environments less favorable to parasites (dry and low animal density)

deworming older cows once a year may be adequate. Cattle do become more resistant to many internal parasites as they mature. In areas receiving less than 15 inches of precipitation annually, Griffin advises deworming cows five years and older once per year, in the spring. It cleans out the parasites and minimizes pasture contamination. In very dry climates with very low animal density, it may not be necessary to deworm older cows at all. But young females – especially first and second calvers – need more attention and should be dewormed in both spring and fall.

So deworming older cows may be a waste of time and money for some producers. For others, strategic deworming of cows can prevent a negative effect on milk production, boost body condition and minimize future exposure. Deworming suckling calves is recommended, even in dry climates. Treating them twice during the suckling phase offers the best long-term effect. And to help optimize health, performance and carcass merit, emphasizes Griffin, always deworm calves at weaning.

Troy Smith, Feedlot Magazine, July 6, 2006

Lighter weight replacement heifers cut feed costs without hurting reproductive performance

Feed is the single biggest cost in cow-calf operations. New UNL research indicates producers can save on feed by developing replacement heifers to lighter than traditional weights.

Typically, ranchers equate lighter weight replacement heifers with poor pregnancy rates and calving difficulty. However, IANR animal science research shows replacement heifers can be developed to a lighter-than-traditional weight without hurting reproductive performance.

The study found no problems in developing spring-born heifers to 53 percent of mature breeding weight compared with 58 percent. Traditionally, ranchers develop replacement heifers to 60 percent or 65 percent of mature weight. This lighter approach significantly reduces costs for developing heifers from fall weaning until the following summer's breeding season.

Feeding heifers to 53 percent of mature weight costs about \$22 per head less during the development period than feeding to traditional replacement weights. In a 500-cow operation with 15 percent of heifers replaced annually, that represents a \$1,650 annual savings. In this three-year study at the university's Gudmundsen Sandhills Laboratory near Whitman, heifers reached 53 percent or 58 percent of the weight of a mature 1,200-pound cow at the beginning of the breeding season. The two weight groups had similar average calf birth dates, weights and calving difficulties.

There also was no difference between the two weight groups in the percentage of cows that successfully rebred for their critical second pregnancy. Researchers tracked lighter heifers through their fourth pregnancy and found no problems. The heifers remained at lighter than traditional weights as mature cows.

Endeavors, University of Nebraska-Lincoln, 2005-2006

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