

# Body Condition

## The Beef Cow's Energy Gauge

# 7

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Monitoring body condition is a management tool for evaluating the nutritional status and energy reserves of beef cattle. Nutritional requirements of cattle must be met in order to attain an optimal level of performance and efficient use of feed resources. Proper feeding strategies and ration balancing techniques have been discussed earlier in this publication. By following these techniques and strategies, you can provide the proper nutrients required to maintain or improve body condition, or nutrient reserves.

Cow body condition scoring (BCS) is a method of categorizing breeding animals by their degree of body nutrient reserves. This concept is not new. BCS simply puts a quantitative score on a procedure many cow/calf producers have followed for years to determine the body fat reserves of their herds.

BCS allows you to be more exact in describing your cows. It also provides a standardized tool for the beef industry to use when monitoring the energy reserves of the cow herd. Body condition scores range from 1 (severely emaciated) to 9 (very obese); see Table 7.1.

Monitoring body condition is an effective way to evaluate the herd's nutritional status. It also allows you to monitor the effectiveness of your feeding strategies and ration balancing. By assigning body condition scores, you will be better able to sort cows according to their nutritional needs, thereby improving the efficiency of your nutrition programs.

**Table 7.1. Body condition score.**

1	↑	Severely emaciated. Bone structure of shoulders, ribs, back, hooks, and pins is sharp to the touch and easily visible. Little evidence of fat deposits or muscling.
2		Emaciated. Little evidence of fat deposition, but some muscling in the hindquarters. The backbone feels sharp to the touch.
3	<b>Caution</b>	Very thin, no fat on ribs or brisket and some muscle still visible. Backbone easily visible.
4		Thin, with ribs easily visible but shoulders and hindquarters still show fair muscling. Backbone visible.
5		Moderate to thin. Last two or three ribs cannot be seen unless animal has been shrunk (held off feed and water for 12 to 18 hours). Little evidence of fat in brisket, over ribs, or around tail head.
6		Good, smooth appearance throughout. Some fat deposits in brisket and over tail head. Ribs covered and back appears rounded.
7	<b>Caution</b>	Very good flesh, brisket full. Fat cover is thick and spongy and patchiness is likely. Ribs very smooth.
8		Obese, back very square, brisket distended, heavy fat pockets around tail head. Square appearance.
9	↓	Rarely observed. Very obese. Animal's mobility may be impaired by excessive fat.

Source: Spitzer, J.C. 1986. *Influences of Nutrition on Reproduction in Beef Cattle*. W.B. Saunders Co., Philadelphia.

There is a strong link between body condition and weight change. As BCS increases or decreases, corresponding weight changes occur. Body condition of beef cows affects herd performance and profitability.

## How to determine BCS

Body condition scoring can be done by physically palpating individual cows, visually appraising each cow, or scoring a representative sample of the herd. Palpation likely is more accurate, but it is not always practical due to large numbers of cattle or inadequate facilities.

Once properly trained, you can inspect cattle visually and accurately assign a BCS. When visually inspecting cattle and assigning BCS, it is important to know where to look on the cow and what to look for (Figure 7.1). Be careful to adjust for fill and hair coat, particularly in cold climates.

Always assign a BCS when animals have the same amount of rumen fill as the last time a BCS was assigned. Some producers prefer to assign BCS when the animals are shrunk (held off feed and water for 12 to 18 hours). This removes the rumen fill and makes it easier to see the ribs; thin cows with full rumens may seem to have more body condition than they actually do.

It may be advantageous to compare BCS to live weight. It has been reported that for every 1 BCS you can expect a 75- to 95-pound change in weight, depending on the frame size of the cow.

## The ideal BCS

The BCS of beef cows varies depending on breed, environmental conditions, physiological conditions, and time of year. It is recommended that BCS of all cattle be taken and recorded at weaning and again at calving time. By doing so, you can sort thin cows from more fleshy ones and provide the thin cows with a nutritional supplement to increase their body condition prior to calving and rebreeding.

It is recommended that mature cows enter the calving season at a BCS of at least 5 but not more than 7. First-calf, 2-year-old heifers should

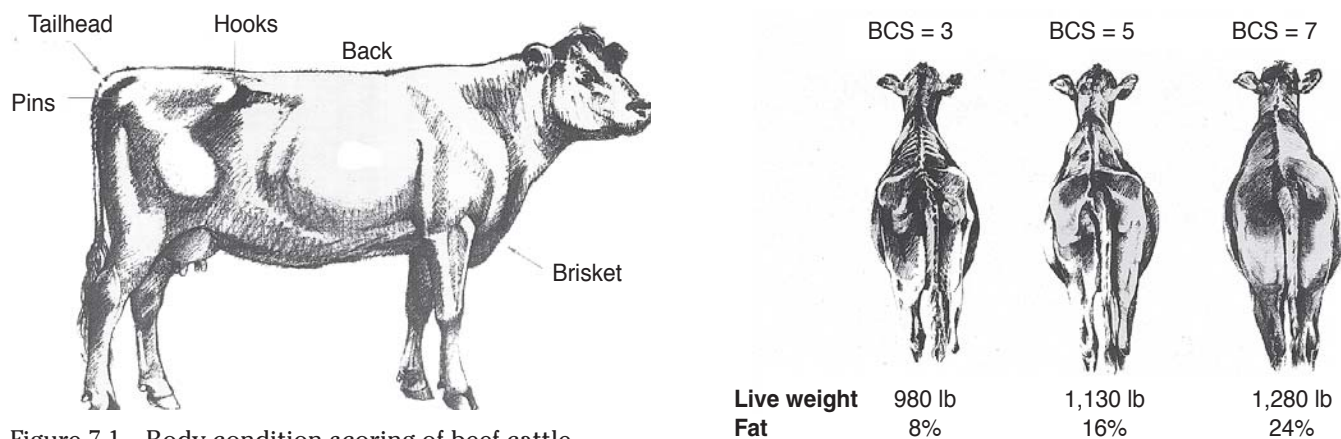


Figure 7.1—Body condition scoring of beef cattle.

enter the calving season at a BCS of at least 6 but not more than 7. A higher BCS is recommended for first-calf heifers because they are still growing. Consequently, they require more nutrients for continued growth, milk production, and repair of their reproductive tract for rebreeding. It also is recommended that you calve first-calf heifers 30 days prior to the main herd. This gives heifers an additional 30 days to rebreed and stay in the herd.

## The consequences of thin cows

The cow is an amazing animal, with a nearly unequaled ability to survive on poor-quality forages. Yet even with her incredible ability to survive, she must prioritize nutrient allocation. When a cow doesn't have enough nutrients in her diet to meet all her needs, her body prioritizes how the limited nutrients will be used. The priorities are as follows (highest priority first):

1. Maintenance
2. Lactation
3. Growth in young cows
4. Reproduction

Thus, when a cow has inadequate feed and lacks body reserves, reproduction is the first thing to suffer and the last to recover. Reproductive losses can be devastating to ranch profitability.

Information collected from Texas producers involved in the Standardized Performance Analysis program (1991–1999) showed that the key measure of reproductive and productive performance was pounds of calf weaned per exposed female. This number is a function of both conception rate and days from calving to conception (postpartum interval). Cows that calve early in the calving season wean heavier calves. Thus, it is important not only to get cattle bred, but also to get them bred early in the breeding season.

Numerous researchers have shown that body condition has a significant impact on pregnancy rate and postpartum interval. It has been reported that only 50 percent of cows having a BCS of 4 were pregnant after a 90-day breeding season, while 90 percent of those with a BCS of 7 were settled in the same period (Figure 7.2). Others found a difference of 58 days in calving to conception between cows with condition scores 3 and 7 (Figure 7.2).

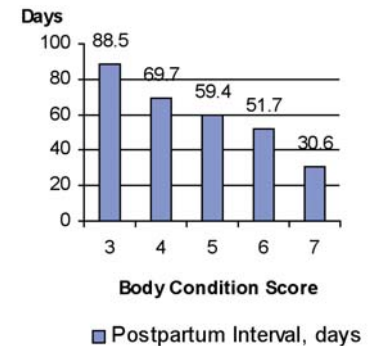
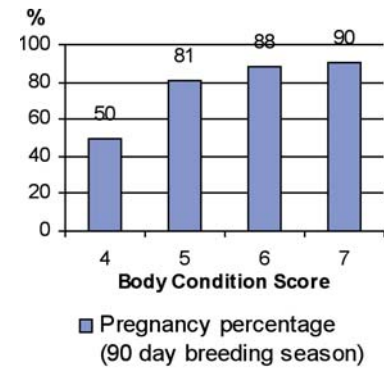


Figure 7.2—Effect of body condition score on reproductive performance. As BCS increases, the postpartum interval decreases and the pregnancy percentage increases.

**Table 7.2. The relationship of body condition score to beef cow performance.**

BCS	Pregnancy rate (%)	Calving interval (days)	Calf average daily gain (lb)
3	43	414	1.6
4	61	381	1.75
5	86	364	1.85
6	93	364	1.85

Low BCS has significant impacts on calf health and growth, and hence on profits. Researchers have reported an increased calf death loss of 5 percent for thin cows (92 percent survival in thin cows compared to 97 percent for cows in good condition). Furthermore, studies have shown reduced gains of 0.25 pound per day in calves from cows with a BCS of 3 as compared to those from cows with a BCS of 5 or greater (Table 7.2).

### The cost of poor condition

We have discussed the production loss associated with underconditioned cows, but it is more powerful to look at economic losses and costs. Using an example herd of 100 cows, we have calculated the cost of mismanagement in Table 7.3. In this example, we compare BCS 3 to 5.

This example is not all-inclusive, but it helps to show some potential costs of thin cows. You would not expect to see an entire herd in such poor condition. However, it is not uncommon to see part of a herd as thin as BCS 3. Often, the thin cows are old cows or 2-year-olds weaning their first calf. Thus, in reality you would (hopefully) not lose \$141 per exposed cow, but possibly a percentage of this amount.

## How and when to improve body condition score

There is no doubt that thin cows have lower production and produce less income. Thus, you must adopt the most economically efficient management. The ideal is to optimize production at minimum expense. Thus, you need to put condition on the cows at the most efficient times and minimize condition loss when economically viable.

**Table 7.3. Economic comparison of BCS 3 to BCS 5 cow herds.**

	<b>BCS 3 herd (100 bred cows)</b>	<b>BCS 5 herd (100 bred cows)</b>
Cows exposed to produce 100 bred cows	132 cows exposed 76% conception	106 cows exposed 94% conception
Calf survival	92 head of calves weaned (92%)	97 head of calves weaned (97%)
Age at weaning, adjusted for postpartum interval (PPI)	Calves 180 days at weaning (88.5 days PPI)	Calves 210 days at weaning (59.4 days PPI)
Calf weaning weight (using 85-lb average birth weight and adjusted weaning age)	373 lb Gain 1.6 lb/day	474 lb Gain 1.85 lb/day
Pounds of weaned calf per herd	34,316 lb total	45,978 lb total
Value of calves at weaning	\$105/cwt = \$36,032	\$95/cwt = \$43,679
Income per cow calved	\$360	\$437
Income per cow exposed	\$273	\$412

First, you must decide which cattle really need more condition. If cattle are already in good flesh, you don't want to expend additional resources. However, you may have some cows with BCS ranging from 3 to 7.

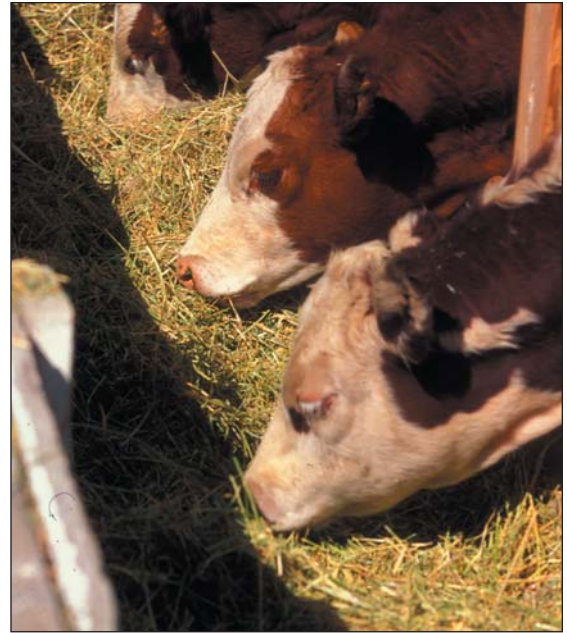
There is no value in overfeeding already well-conditioned cows, so sorting into feeding groups likely is the best option. Three groups often are recommended, but in most operations two groups are more practical.

If the herd is sorted into two groups, the first likely would include thin mature cows with BCS of 4 or less and 3-year-old and younger cows with BCS of 5 or less. Feed this group to gain condition. Feed the remainder of the herd (those with an adequate BCS) a maintenance ration.

To improve a cow's BCS by 1 point, she will need to gain 75 to 95 pounds. To achieve this gain, you must be aware of what is happening at each phase of the cow production cycle (Table 7.4.), as well as what nutritional and feed resources are available. For example, in a spring calving herd, calves are weaned in late fall, when the fetus in the pregnant cow is developing slowly. From a production sense, this is a practical time to consider increasing body condition. Yet, it may be a time of limited-quality feed.

Evaluate what will work best to maintain and add condition to your herd. It is important to estimate the number of pounds to be gained in order to reach the desired condition score and to formulate the ration accordingly. Balancing rations is discussed in Chapter 5.

There are no simple management solutions to optimize production. However, by making good decisions, you can improve your herd performance and pay dividends for the time spent making decisions.



**Table 7.4. Estimated weight gain from weaning to calving to achieve desired BCS.**

Current BCS	Desired BCS	Approximate amount of body weight gain
1	5	Needs to gain more than 350 lb Economics are questionable
2	5	Needs to gain 300 to 350 lb Economics are questionable
3	5	Needs to gain 200 to 300 lb
4	5	Needs to gain 150 to 200 lb
5	5–7	Needs to gain weight of fetus (100 lb)
6	5–7	Needs to gain weight of fetus (100 lb)
7	5–7	No weight gain needed
8	5–7	Probably can lose from 50 to 150 lb (during midpregnancy)
9	5–7	Probably can lose from 100 to 200 lb (during midpregnancy)

## Worksheet 7.1 Application of Body Condition Scoring

1. What would you estimate your cows' BCS to be at calving?

1          2          3          4          5          6          7          8          9

2. What would you estimate your cows' BCS to be at weaning?

1          2          3          4          5          6          7          8          9

3. Approximately how many pounds on average (if needed) would each cow need to gain to reach "ideal" condition? \_\_\_\_\_ (1 BCS = 75 to 95 pounds)

4. When would be the best time to improve the BCS of underconditioned cows in your herd?

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5. Assume the difference in postpartum interval between BCS 4 and BCS 5 cattle is about 10 days and your herd averages BCS 4. How many pounds might you add at weaning by having calves born 10 days earlier? Calves usually gain from 1.6 to 2.2 pounds per day.

Estimated gain (in pounds per day) \_\_\_\_\_ x 10 days = \_\_\_\_\_ pounds per head  
 x \_\_\_\_\_ number of calves sold at weaning = \_\_\_\_\_ pounds of lost opportunity at weaning

It is important to remember that weaning weight is only one area of lost performance for thin cows.