

Cattle Business in Mississippi – November/December 2008
“Beef Production Strategies” article

Body Condition Scoring – A Useful Management Tool

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Body condition scoring is a management tool that can be used to evaluate the nutritional status of beef cattle. Body condition (fat cover) is an indication of the energy reserves of a beef animal. It is important in beef production because it influences subsequent reproductive and growth performance. Cows and heifers in thin body condition at calving time are slower to rebreed, produce less colostrum, may not have sufficient nutrient reserves for maximum milk production, and are less likely to wean a live calf. Over-conditioning, on the other hand, is expensive and can result in calving problems and lower dry matter intake early in lactation.

Body condition scores in beef cattle range from 1 (extremely emaciated) to 9 (very obese). Body condition can be easily evaluated by visual appraisal while driving or walking through a herd. It can be assessed when cattle handling may be impractical. Body condition is a more reliable indication of nutritional status than live weight. Changes in shrink, gut fill, and the weight of fetus and fluids associated with pregnancy limit live weight from being an accurate indicator of nutritional status.

Two animals with the same body condition score may have dramatically different live weights. Similarly, cattle with the same live weight may have distinctly different body condition scores. Weight differences between condition scores vary depending on the score and where the animal is in the production cycle. These weight differences often range from 70 to 140 pounds. Percentage body fat associated with each distinct body condition score appears in Table 1.

Table 1. Beef cattle body condition score and associated body fat percent and shrunk body weight

Body Condition Score (BCS)	Body Fat, %	Shrunk body weight, percent of BCS 5
1	3.77	77
2	7.54	81
3	11.30	87
4	15.07	93
5	18.89	100
6	22.61	108
7	26.38	118
8	30.15	130
9	33.91	144

Source: NRC, 2000. Adapted from NRC Nutrient Requirements of Beef Cattle, 7th revised edition.

Using the table above, the body weight change needed to move from one body

condition score to another can be calculated. For example, a 1200-pound cow at a body condition score of 5 would need to weigh 108 percent of its current weight to achieve a body condition score of 6. This cow would need to gain 96 pounds ($1200 \times 1.08 = 1296$, $1296 - 1200 = 96$) to move up one body condition score.

Body condition depends on cattle nutritional requirements and past nutrient intake. Design nutritional programs to avoid dramatic variations in body condition scores. Recommended body condition score at calving is 5 for mature cows. Because heifers are still growing, their nutritional requirements in terms of nutrient percentages are higher than later in life. Therefore, manage heifers to calve in a body condition score of 6. Cattle require increased percentages of total digestible nutrients, in particular, in their diets above requirements for maintenance and performance to increase body condition score. Nutrient requirements to increase body condition score of mature cows from 4 to 5 during the last 90 days of pregnancy are listed in Table 2.

Table 2. Nutrient requirements to increase body condition score of mature beef cows from 4 to 5 during the last 90 days of pregnancy¹

Animal Description	Dry Matter Intake (DMI)		Diet Nutrient Density					Daily Nutrients per Animal				
	DMI, lb/day	DMI, % of BW	TDN, % DM	NE _m , Mcal/lb	CP, % DM	Ca, % DM	P, % DM	TDN, lb	NE _m , Mcal	CP, lb	Ca, lb	P, Lb
Mature body weight at body condition score 5, lb												
1,000	20.5	2.1	60	.59	7.7	.36	.20	12.3	12.1	1.57	.074	.040
1,100	22.0	2.0	60	.58	7.5	.35	.20	13.2	12.8	1.65	.078	.043
1,200	23.5	2.0	59	.58	7.4	.34	.19	13.9	13.6	1.74	.081	.045

¹ BW = total body weight = shrunk body weight or 96% full body weight, TDN = total digestible nutrients, NE_m = net energy for maintenance, CP = crude protein, Ca = calcium, P = phosphorus
Source: NRC, 2000. Adapted from NRC Nutrient Requirements of Beef Cattle, 7th revised edition.

There are several key places to assess body condition in beef cattle. Overall body fat should be evaluated along with fat cover over the tail head, ribs, and shoulder, and in the brisket. Muscling should be evaluated to determine if it has been broken down for energy. This occurs when cattle reach the low end of the body condition scoring scale. Visible and palpable bone structure is another essential part of body condition scoring and includes the ribs, backbone, spinous process, transverse processes, hooks (hips), and pins.

Palpate the animal's condition over the ribs, along the backbone, and over the tailhead to assist in assigning body condition scores. Fat (condition) will be spongy to the touch. Bone structure with little or no fat cover will feel sharp to the touch. Palpation of body condition is particularly beneficial when loose hide or thick hair coat makes visual appraisal of body condition more difficult.

Body condition scores of females in the breeding herd should fall within a range of 5 to 7 from the beginning of the calving season throughout the breeding season. Condition score cows and heifers in the herd to properly plan and adjust forage and feeding programs. This helps ensure adequate body condition for optimum reproductive performance. Ideal times to body condition score beef cattle are:

- ✓ When calves are weaned
- ✓ 60 days prior to calving

- ✓ At calving
- ✓ At the beginning of the breeding season

Proper body condition is also important for bulls to be fertile and active breeders. Target a body condition score of 6 for bulls at the beginning of the breeding season. Monitor bull body condition during the breeding season to identify bulls that become too thin. Hand feeding or bull rotation may be necessary to maintain adequate body condition for active breeding.

Keep good records of body condition scores in the herd on a routine basis. This is an easy and important step in developing a successful herd nutrition program. Assign feeding groups based in part on body condition score to meet cattle nutrient needs and most efficiently utilize feed and forage resources. Consider early weaning as another option for managing thin cows for successful rebreeding.

Nutrition-related costs make up a significant percentage of cash costs in most cow-calf operations in Mississippi. Monitoring body condition in the herd is a simple technique that can be used to make cost-effective herd nutrition decisions that optimize performance. For more information on body condition scoring beef cattle, contact an office of the Mississippi State University Extension Service.