



Cattle Producer's Handbook

Management Section

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Condition Scoring of Beef Cattle

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The nutritional requirements of the animal must be met to attain high levels of cow performance and efficient use of feed resources. Precise feeding of beef cows is complicated, however, under diverse range and pasture environments. Monitoring body condition during the production cycle is an effective means of evaluating the cow herd's nutritional program.

Body Condition Scoring

Cow body condition scoring is a method of categorizing breeding animals by their degree of body reserves. Numerical values, derived through subjective visual appraisal and (or) manual palpation, are assigned to each cow according to apparent external fat cover, muscle appearance, and apparent skeletal features.

While several numbering systems for assessing condition scores are in use, they all are based on the

same range of cow body condition, and all serve the same function. A system using the relative rankings of 1 through 9, which is commonly used throughout the United States, is described in Table 1. Key anatomical reference points for evaluating cow body condition are shown in Fig. 7.

Researchers have reported strong positive correlations between condition scores and the percent body fat of cows. In fact, condition scores are more indicative of an animal's relative body fatness than other objective linear measurements such as weight to height ratios and backfat probes. Research shows visual appraisal alone can accurately evaluate body condition, which is beneficial considering that palpating all cows may not be practical under certain circumstances. A simplified reference guide containing key points and backfat estimates for each condition score is shown in Table 2.

Table 1. Body condition scoring system for beef cows.

Score	Condition	Description
1	Severely emaciated	Individual spinous processes, shoulder, rib, and hip bones are obvious. No apparent fat cover. Shoulder, loin, and rear quarter muscle has marked atrophied appearance. Physically weak (Fig. 1).
2	Extremely thin	Same as 1 but not weakened (Fig. 2).
3	Very thin	Individual spinous processes, shoulder, rib, and hip bones are obvious. No apparent fat cover. Only slight muscle atrophy (Fig. 3).
4	Slightly thin	Individual spinous processes no longer apparent. Rear ribs, hip, and pin bones evident. Slight fat cover over shoulder and foreribs only. No visible muscle atrophy (Fig. 4).
5	Moderate	Last two ribs noticeable. Small amount of fat over shoulder, foreribs, and loin. Slight or no fat on brisket or over hip and pin bones (Fig. 5).
6	Slightly fleshy	Individual ribs are not evident. Moderate fat covering over shoulder, loin, and foreribs. Some fat in brisket and over last ribs and hip bones (Fig. 6).
7	Fleshy	Very smooth profile due to fat deposits. Considerable fat covering over shoulder, rib, loin, and hip. Fat fills out brisket, flanks, and tailhead.
8	Obese	When viewed from behind, back and hips have square appearance, and tailhead is full due to excessive fat deposits. Flanks appear deep, and brisket is full and distended with fat.
9	Very obese	Excessive fat deposits cause a rippled appearance over loin, hip, and tailhead. Neck appears short due to fullness of brisket. Heavy deposition of udder fat noticeable in dry cows.

Table 2. Key points for condition scoring beef cows.

Reference point	1	2	3	4	5	6	7	8	9
Physically weak	yes	no	no	no	no	no	no	no	no
Muscle atrophy ¹	yes	yes	slight	no	no	no	no	no	no
Outline of spine visible	yes	yes	yes	slight	no	no	no	no	no
Outline of ribs visible	all	all	all	3 to 5	1 to 2	0	0	0	0
Fat in brisket and flanks	no	no	no	no	no	some	full	full	extreme
Outline of hip and pin bones visible	yes	yes	yes	yes	yes	yes	slight	no	no
Fat udder and patchy fat around tailhead	no	no	no	no	no	no	no	slight	yes
Backfat estimate, inches	0	0	.05	.11	.19	.29	.41	.54	.68

¹Muscles of loin, rump, and hindquarter are concave, indicating loss of muscle tissue.



Fig. 1. Condition score 1—severely emaciated.



Fig. 2. Condition score 2—extremely thin.



Fig. 3. Condition score 3—very thin.



Fig. 4. Condition score 4—slightly thin.



Fig. 5. Condition score 5—moderate.



Fig. 6. Condition score 6—slightly fleshy.

Condition Scores and Cow Performance

Reproductive Performance

Condition scores can be used to manage the cow herd toward a desired level of reproductive performance. Cows of higher body condition at calving and during early lactation are more likely to cycle and become pregnant early in the breeding season.

Results from a 3-year study in western South Dakota indicate that the likelihood of estrus by the beginning of the breeding season increases with higher cow body condition scores (Table 3). The probability of cows conceiving early and becoming pregnant during a 60-day breeding season is also greater as condition score increases (Table 4).

Table 3. Cow body condition and probability of cycling by the beginning of breeding season.

Condition score	Probability based on pre-calving condition score	Probability based on pre-breeding condition score
2	—	.05
3	.09	.12
4	.19	.28
5	.35	.52
6	.55	.74
7	.74	.89
8	.86	—

Table 4. Cow body condition and reproductive performance.

Condition score	Probability of pregnancy during a 60-day breeding season		Probability of conceiving in the first 21 days of the breeding season	
	Early calvers	Late calvers	Early calvers	Late calvers
Based on condition score at calving:				
3	.88	—	.51	—
4	.93	.88	.58	.41
5	.96	.93	.65	.56
6	.98	.96	.72	.70
7	.99	.97	.77	.81
8	.99	.99	.82	.89

Based on condition score at the beginning of breeding season:

2	.81	.60	.29	.23
3	.91	.80	.44	.36
4	.96	.91	.60	.50
5	.98	.97	.75	.65
6	.99	.99	.85	.77
7	1.00	.99	.92	.86

Late-calving cows that are thin (condition score 3 or less) have the poorest chances of cycling and becoming pregnant. Cows that calve early could be one condition score less at the beginning of the breeding season than late calvers and still have the same probability of conceiving. Higher levels of nutrition for late-calving cows and early calving of heifers will ensure that a majority of the cow herd cycles early in the breeding season.

Several studies indicate that average body condition or cows with condition scores of 5 at calving and at the beginning of the breeding season will have relatively high levels of reproductive performance. Many management factors in addition to nutrition and body condition will affect reproductive performance of the beef cow herd. What is considered ideal body condition may vary with location, breed, month of the breeding season, and management system. The optimum body condition at various times of the year will also depend on what level of reproductive performance is expected.

To obtain relatively high reproductive performance and still avoid excessive feed costs, nutritional programs should match cow body condition with an expected level of performance. For the scoring system described, a change in one condition score is equivalent to a 60- to 80-pound change in weight. A cow with a condition score of 7 could stand to lose 140 pounds of body weight if condition score 5 is the goal. A condition score 3 cow would need to gain 140 pounds. These weight changes do not include weight gain of the fetus and fluids associated with pregnancy.

Calf Performance

Lactating cows use their body fat as an energy source for milk production. In general, heavier milking cows lose more body condition during lactation than average milkers when both groups are provided a similar level of nutrition. As a result, the heaviest calves may often be suckling the thinnest cows.

Several university studies have shown that weaning weights of calves are not related to cow body condition scores. Changes in management and feeding programs from spring to summer and fall may have allowed for compensatory growth of calves that were previously undernourished in these studies. Only under severe nutritional restriction of the cow (loss of two or more condition scores) has it been determined that weaning weights of calves are depressed (Table 5).

Table 5. Effects of cow condition score change from March until May calf performance.

	Condition score change, March to May		
	Maintained	Lost one	Lost two or more
205-day adjusted weight, lb	607	606	586

- **Cows should be at least a condition score of 5 at calving and the beginning of the breeding season for high levels of reproductive performance.** Late-calving cows require higher condition scores than early calvers for the same level of reproductive performance.

- **Breed heifers to calve 20 to 30 days before the mature cows.** In the future, this practice will increase the likelihood that thin, young cows will cycle and conceive during a fixed breeding season.
- **Avoid using condition scores as a primary selection tool for culling cows in the fall.** Milking ability and cow body condition can be related. The thin cows may be weaning heavier calves.

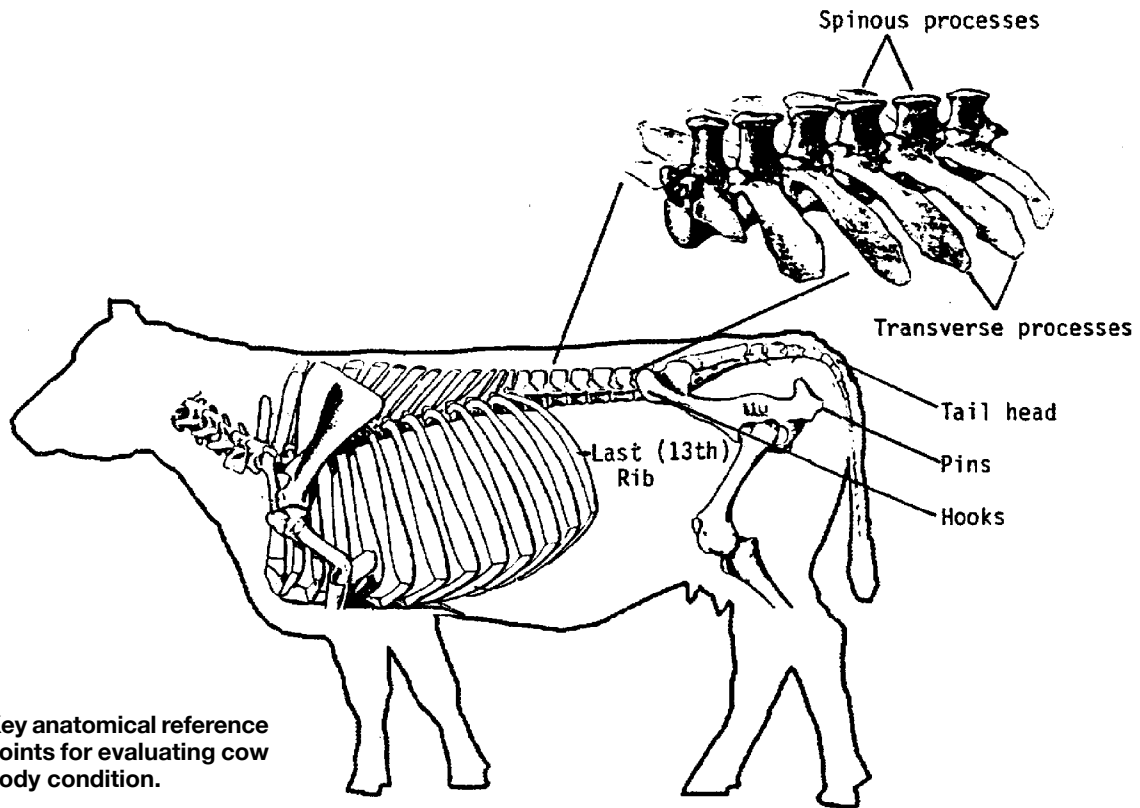


Fig. 7. Key anatomical reference points for evaluating cow body condition.



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