

Importance of Body Condition Scoring to Cattle Producers

Body condition is an expression of the amount of body fat that an animal is carrying. It is a one management tool that can be used to predict herd fertility and to determine feeding programs throughout the year. Females that are too thin or too fat can be an expensive investment. Thin cows can have difficulty rebreeding, while fat cows are prone to calving problems and excessive feed costs.

What is Body Condition Scoring?

Body condition scoring is a "hands-on" method of determining the amount of fat an animal is carrying. It is easy to learn, fast, simple and cheap. It does not require specialized equipment, is sufficiently accurate, and has many management implications. Body condition scoring allows everyone to speak the same language when describing body condition. It uses a numerical rating system based on the feel of a cow, rather than ambiguous descriptions based simply on a visual appraisal.

Condition scores are measured by feeling for fat cover with your hands. The scores cannot be measured visually because a full hair coat can hide poor condition. You measure the fat cover over four major locations on the animal's body: back bone (spine or topline), short ribs, hip bones (hooks and pins) and tail head. For more detailed information on how to condition score refer to the Agdex fact sheet 420/40-1 or the CD-ROM "What's the Score?"

Comparing Canadian and U.S. systems

You could use either the Canadian or the American rating system for body condition scoring (Table 1). Both are equally accurate. The Canadian system uses a 1 to 5 point scale, whereas the American system uses a 1 to 9 point scale. Table 1 shows the relationship between the two systems. In the Canadian system, if an animal's condition falls between two values, then halves are used. For example, a 2.5 score indicates that the animal is intermediate between a 2 and a 3 for body condition. Further discussion of condition scores used in this fact sheet are based on the Canadian body condition score system.

Nutritional Priorities of Cows

In a cow-calf operation, the levels of the various nutrients required depend on whether you are feeding for maintenance, maintenance plus production or maintenance plus reproduction.

You can more easily see the relationship between maintenance, production and reproduction if you picture a non-pregnant animal as a barrel into which nutrients are poured (Figure 1). First, maintenance requirements need to be met. The animal requires nutrients to maintain its weight; if not enough nutrients are supplied, it will lose weight. Adding more feed and nutrients will meet the production expectation of growth. Finally, if yet more feed and nutrients enter the body, the animal is able to reproduce. When all current requirements are met, the excess is stored as fat.

Table 1. Comparison of the Canadian and American body condition scoring systems

Body condition score system		General description
Canada	American (U.S.A.)	
Thin		
1	1	Emaciated; starving and weak; the entire body is extremely thin, and all skeletal structures are prominently visible. No muscle tissue is evident and no external fat is present. All the skeletal structures are visible and very sharp to the touch. The hair coat appears to be very dull. Survival during stress is doubtful.
1.5	2	Very thin, somewhat emaciated; The vertebrae along the topline are prominent. The hooks and tail head are visually less prominent. There is no fat around the hip bone and pin bone and tail head.
2	3	The animal is thin. The vertebrae along the topline are prominent. Muscle tissue is evident, but not abundant. Individual vertebrae can be felt, but are not as sharp. The short ribs can be identified individually when touched, but they feel sharp rather than very sharp. Individual ribs can be identified visually. There is some tissue cover around the hook and tail head.
Optimum		
2.5	4	Moderate; individual ribs noticeable but overall fat cover is lacking; increased musculature through shoulders and hindquarters; hips and short ribs feel slightly round versus sharp.
3	5	Good; increased fat cover over ribs, and ribcage is only slightly visible. Muscle tissue is nearing the maximum. Generally only the 12 and 13 ribs are individually distinguishable. There are obvious fat deposits behind the front shoulder. Areas on each side of the tail head are fairly well filled but not rounded.
3.5	6	Very good; back, ribs, and tail head slightly rounded and feel spongy when palpated.
Fat		
4	7	Moderately fat the bone structure is no longer noticeable. The skeletal structure is difficult to identify. Individual short ribs cannot be felt even with firm pressure. Folds of fat are beginning to develop over the ribs and thurl area of the animal. Fat cover around the tail head is evident on both sides as slight "rounds" that are soft to the touch.
4.5	8	Fat; very fleshy, squared appearance due to excess fat over back, tail head, and hindquarters. Individual short ribs cannot be felt even with firm pressure. Mobility may begin to be restricted.
5	9	Very fat or obese - The animal has a "blocky" appearance. The bone structure is not noticeable. The back bone has a flat appearance and cannot be felt even with pressure. Folds of fat are apparent over the ribs, thurl and thighs. The hip bones and tail head to pin area on both sides are completely buried in fat. The animal's mobility is impaired by the large amounts of fat.

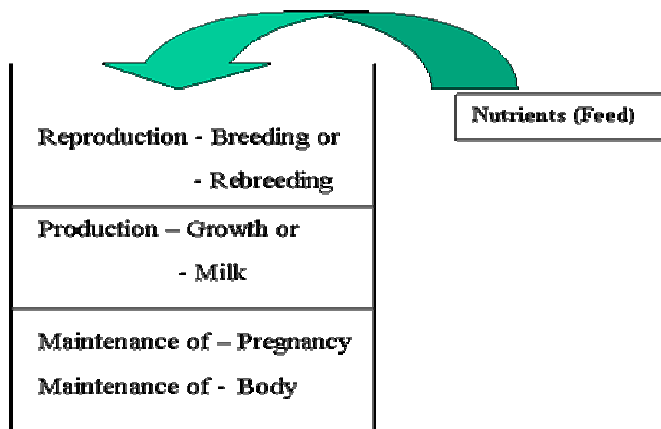


Figure 1. Priority of use for nutrients by beef cows

Although requirements for production and reproduction are shown as being separate in the illustration, they can in fact be closely related. Some cows in a herd may reduce milk production and rebreed if the amounts of some nutrients supplied are borderline, while other cows may respond in the opposite way.

Most English and Continental beef breeds tend to deposit excess fat externally (subcutaneous), whereas dairy breeds deposit more fat internally (mesenteric). During periods of low energy intake, excess external body fat is the first body tissue used to meet nutritional requirements. When energy is insufficient, fat stores may not be enough to fulfill requirements. When this happens, muscle (protein) is broken down to satisfy energy demand. When requirements exceed nutrient intake and external fat is broken down and is utilized in the reverse order.

Important Factors to Consider When Body Condition Scoring

For consistent herd evaluations, a single individual should score cattle over successive years. The subjectivity of the scoring system may result in variation between individuals assigning scores.

Many factors influence how cattle look or feel at

observation time. The various factors that determine the level of nutrients required by an animal can be summarized as follows: body weight, species or breed, age, sex, weather (season, temperature, wind speed, humidity), physiological and hormonal state of the animal, activity level, previous nutrition level, the level at which a nutrient is fed and the chemical form in which it is fed, and the overall balance of nutrients. It is important to remember that the scoring system is a subjective evaluation of fleshing and fat deposition (energy reserves), not gut fill, hair coat, or body weight.

Consider cow age, breed, and frame size when determining body condition score. Older cattle tend to carry less condition over their top than younger cattle. Fat deposition varies by breed or type of cattle with dairy- and Brahman-influenced cattle carrying less subcutaneous fat and more internal fat than British or Continental type cattle. Small to moderate framed cows (Angus and Hereford) are often scored higher than larger cattle.

Keep the scoring system simple. A thin cow looks sharp and angular, whereas a fat one appears smooth and square. Consistency and simplicity are important in evaluating energy balance of a cow herd.

Using Body Condition Score to Evaluate Your Herd

Body condition score should be used to achieve optimal body condition of the cow at calving. This will maximize the overall reproductive and economic efficiency of the herd. It is important, however, to evaluate body condition throughout the year.

Ideally, cows should be condition scored at three times during each production year. Condition scoring should be done at:

- **Fall pregnancy check or start of winter feeding program:** The optimum score is 3.0.
- **Calving:** The optimum score is 2.5 for mature cows and 3.0 for first-calf heifers.
- **Thirty days before the start of the breeding season:** The optimum score is 2.5 for all females.

Condition Score and Feeding Strategies

The ideal feeding program is one that recognizes the ability of the beef cow to safely and economically gain and lose body condition, if the change in condition is gradual. It costs over twice as much to improve body condition as it does to use excess body condition to supplement the daily energy intake. Therefore, producers should improve body condition when dietary energy is least expensive (usually in the summer), and let the cow lose condition when dietary energy is expensive (usually in the winter). Remember that a rapid loss in condition is not safe, and a rapid increase in condition is not always possible.

If a cow is fed to lose one-half of a body condition score over the winter, there will be a savings in winter feed costs. In contrast, feed costs will be 20 to 30 per cent higher for cows fed to gain one-half of a body condition score over the winter, as compared with those fed to maintain body condition. As noted above, mature cows should calve in a body condition score of 2.5 to 3.0 and be able to maintain that condition through the breeding season.

There is room for variation from these optimums as long as you are aware of the amount the cattle vary from the optimum and you have a plan in place to adjust your management to accommodate the variances. Generally, if cattle are thinner than

these optimums, fertility drops. As cattle grow fatter than the optimum, herd productivity is not increased and you are spending more on feed than necessary.

Many mature cows gain in excess of 90 kg (200 lb) (the equivalent of one unit of body condition score) during a normal pasture season. A reasonable target for body condition at fall weaning is 3.0. If this condition is not achieved by the end of the summer grazing season, producers should consider weaning calves earlier so that the cows have at least one month of good fall grazing in which to gain condition before winter feeding begins.

Cows entering the winter with a condition score of 3.0 have several advantages over cows scoring less than 2.0. The extra fat tissue provides some internal insulation against heat loss. It also provides an energy reserve that can be called upon when the amount of daily feed is limited to meet the cow's needs in order to reduce wintering costs

During dry conditions or drought conditions it is a good management practice to evaluate the body condition of your cow herd. Conduct this survey approximately 90 days post-breeding to identify post-partum nutritional effects and estimate the current range or pasture status. Cows that are thin during mid-summer will probably be thin at weaning and fat cows will probably be fat at weaning. Cows that enter the winter in thin condition (score 2 or lower) need to gain considerable weight before calving. A cow that has to improve one unit in condition (gain approximately 90 kg (200 lb)) must be fed approximately 50 per cent more to achieve the weight gain.

Early weaning (weaning 45 to 75 days prior to normal weaning date) is one management tool that can be used to increase body condition score in thin cows during a dry, late summer. Altering body condition takes time. The period from weaning to calving is a time when it is easy to alter cow body condition since a dry cow's only nutritional requirements are body maintenance and fetal development. Removing the nutrient demands of lactation will increase energy available to the cow or heifer. This increase in available energy should allow for gain in fat

reserves and increase in body condition. Young, thin cows (2- and 3-year olds; BCS less than 2.5) may be candidates for early weaning.

Condition scoring can be used to sort a herd into groups that have similar nutritional needs. Both bred heifers and thin cows need more energy than mature cows that score 2.5 to 3.0. They will also benefit from reduced competition for feed, if they are fed separately.

Summary

Brood cow management is a key element in a successful cow-calf operation. Body condition scoring can be a useful tool in improving cow reproductive performance, in developing cost-effective feeding strategies, and in detecting possible health problems. At the start of the winter feeding program, the optimum body condition score is 3.0. At calving, the optimum score is 2.5 for mature cows and 3.0 for first-calf heifers. At 30 days before the start of the breeding season, the optimum score is 2.5 for all females. If cows are either thinner or fatter than these optimums, they tend to have lower reproductive efficiencies.

If you have questions or require further assistance on this topic, please call the Ag-Info Center at 310 FARM (310-3276) or 1-866-822-7677