

Farm Animal Management @Purdue

Body Condition Scoring in Farm Animals

Michael Neary, *Extension Animal Scientist*

Ann Yager, *Animal Sciences Student*

PURDUE
UNIVERSITY

Purdue University
Department of
Animal Sciences

Body condition scoring is an important management practice used by producers as a tool to help optimize production, evaluate health, and assess nutritional status. This practice helps evaluate their herd or flock as to the amount of body reserves, particularly fat and muscle, an animal possesses. If body condition scoring is conducted at planned intervals throughout the production cycle, nutrition and management can be altered if needed.

The most critical times to body condition score animals during the production cycle include pre-breeding, mid-gestation, parturition, and weaning. The practice of body condition scoring is used mainly to increase economic returns through increased reproductive performance and realize more efficient feed costs.

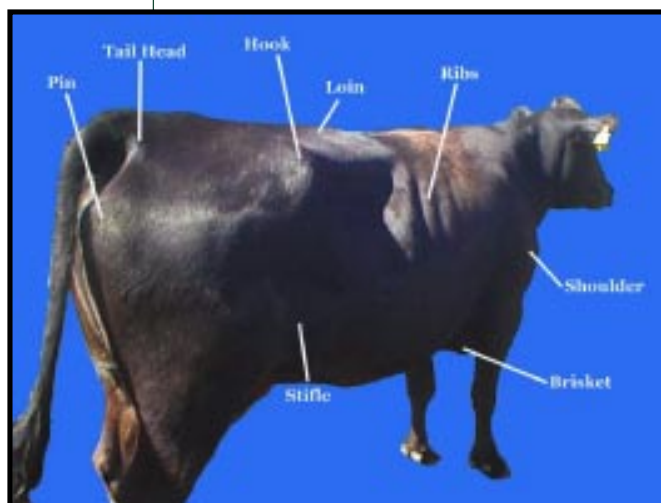
Body condition scoring is often done by careful visual examination, although palpation of the animal may be necessary when long hair or wool is present. Evaluations look at the amount of muscle and fat cover in eight important anatomical points when assigning a body condition score. Once the score is determined, it can be compared to a desired condition score at a particular period of the production cycle for a species. At this time, a producer determines the appropriate nutritional changes or management needed.

Body condition scoring is a subjective practice, but it is usually quite accurate when

performed by trained evaluators. Cattle and horses use a system of 1 to 9, while dairy, swine, and sheep are scored from 1 to 5. For all species, the lower the number, the thinner the animal. Sheep are often assigned half numbers, for example, 2.5 or 3.5; dairy are often assigned in fourths, for example, 2.75 or 3.25. Knowing how to body condition score is useful for individual animals, as well as for the herd or flock in general. Herd owners, or professionals in the animal care field, can make the proper adjustments to their feeding or health programs to reach the optimal body condition score for their animals. There are slight variations among the scoring of beef or dairy cattle, horses, sheep, and swine, but the same principles apply to all species, as discussed later in this publication.

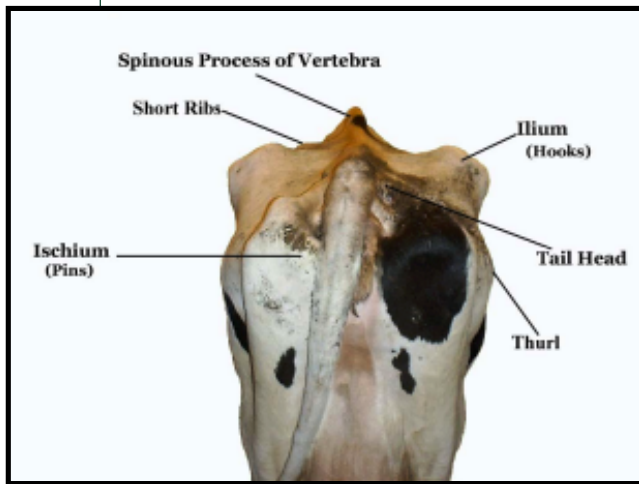
Examining the Animal

To examine the animal, the evaluator must concentrate on the amount of muscle present, skeletal features, and fat cover in eight important anatomical points. These points are the brisket (sternum), shoulder,



ribs, loin (lumbar vertebra), hooks, stifle, tail head, and pins. All locations are evaluated to get an overall body condition score. Each animal should be evaluated methodically and systemically.

There is individual variation in fat cover in specific body locations for animals that have a similar body condition score. The most effective way to evaluate is from front to rear using the anatomical points. Examine the animal while it is mobile and standing to get the best-estimated score. Try to evaluate the animal from several angles, for example, the front, side, and rear.



Ann Yager

In addition, three factors must be considered when body condition scoring an animal.

- Gut fill, including stage of pregnancy.
- Amount of hair or wool.
- Amount of muscle.

Gut fill (feed and water intake) and stage of pregnancy can influence body condition score of an animal. Full and/or late gestation animals appear fatter and may mistakenly be scored higher, whereas animals that have been fasting may appear thinner and mistakenly be scored lower than their true body condition. Experience helps the evaluator adjust for amount of fill and stage of pregnancy when scoring and evaluating fat and muscle. Because of the thickness of hide, hair, or wool cover on some animals, it may be difficult to score an animal without manual palpation of these areas. Heavily muscled animals typically appear more round,



photo by C.Brady

BCS 1: This animal's skeletal structure is easily visible, because of lack of fat and muscle cover. All the ribs can be seen, as well as the backbone, shoulder joint, and pelvis. This animal is dangerously thin.

and this can be confused with smoothness due to fat deposition. Similarly, light-muscled animals can be mistakenly viewed as thin. To evaluate expression of muscle, the area through the center of the round (or hindquarter) is least affected by fat. Animals with a lot of bulge and flair tend to be more heavily muscled. In contrast, animals that are angular tend to be lighter muscled.



photo by C.Brady

BCS 3: This animal's skeletal structure is still clearly visible, but with more cover than the animal with body condition Score of 1. Notice that there is more fill over the spine, pelvis, stifle, shoulder, tail head, and ribs, but the normal amount of muscling has still not been achieved.

Description of Body Condition Scores for Beef Cattle and Horses

Condition Score 1: Severely Emaciated

The spinous processes show no fat cover, are very prominent and sharp. There are visible spaces between the vertebra. The ribs and bone structure are visible with no fat cover; the tail head is very prominent. There is severe muscle loss in the shoulder, loin, and hind regions. There is no fat over muscle, or under skin. An animal with a score of one is life-threateningly thin.

Condition Score 2: Very Thin

There is more fat cover over the ribs and backbone, but space is still visible between the vertebra. The tail head is less prominent, but there is still muscle loss. Overall, there is slightly more fat cover than in condition Score 1.

Condition Score 3: Thin

The spinous processes are still visible, but less sharp. There is less space between the vertebra, and more fat cover along the entire backbone. The loin muscle has more depth, but there is no obvious fat cover. The ribs and tail head are still visible, with more cover, and there is only slight muscle loss.

Condition Score 4: Slightly Thin

There are no spaces between the vertebra, and the spinous processes are no longer visible, but can be palpated with little pressure. The last 2 to 4 ribs and the hipbones are still visible. Fat covers the loin and shoulder, and the animal has no muscle loss, but is still flat.

Condition Score 5: Moderate or Average

There is just the right amount of fat cover over the shoulders, ribs, loin, and tail head. The spinous processes can be palpated with a little pressure, and feel smooth to the touch. Only the last two ribs are visible, and the loin is filled. There is little fat in the brisket and over the hooks and pins.

Condition Score 6: Slightly Fleshy

The spine is palpated with moderate pressure, and the hindquarters have become slightly rounded. There is visible fat in the



photo by C. Brady

BCS 5: This animal is lean and in perfect condition for performance needs. There is just enough fat cover so the skeletal features can be easily palpated.

brisket and around the tail head. All ribs, the loins, shoulders, and fore ribs are covered with fat.

Condition Score 7: Fleshy

The entire animal appears smooth. The spine can be felt with significant pressure. There is fat that fills the brisket, flanks, and tail head. There is more fat cover over the shoulder, loins, and fore ribs.



photo by C. Brady

BCS 7: This animal has a smoother appearance than the animal with a body condition Score of 5, due to more cover deposited over the animal's body. Notice the difference in muscle definition and visibility compared to the animal with a body condition Score of 5.

Condition Score 8: Fat (Obese)

The animal appears square. The tail head is embedded in fat, and the flanks and brisket appear to be full.

Condition Score 9: Extremely Fat (Very Obese)

There is no visible bone structure or definition in the muscles. The spine cannot be felt. The brisket is filled with fat, and the neck appears shorter due to the deposition of fat. The loin, hip, and tail head have a rippled look due to the excess fat.



photo by C.Brady

BCS 9: This animal has a rounded appearance due to the excess amount of fat deposited over the spine, pelvis, and sternum. The skeletal structure cannot be seen or felt.

Description of Body Condition Scores for Sheep and Swine

Condition Score 1: Very Thin

The backbone is very prominent and can be felt with little pressure. There are visible spaces between the vertebra. The loin muscle is very shallow. The ribs and bone structure are visible with no fat cover; the tail head is very prominent; and there is severe



BCS = 1



BCS 1: This animal's skeletal structure can be easily seen and palpated. The ribs and backbone are easily distinguished, due to lack of fat cover.

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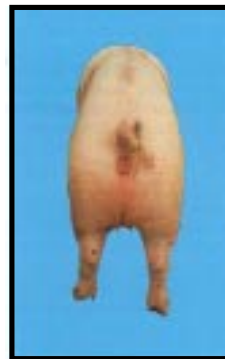
muscle loss in the shoulder, loin, and hind regions. There is no fat over muscle, or under skin. The bone structure is very apparent.

Condition Score 2: Thin

The spinous processes are still extended, but less sharp, and can be felt with pressure. There is less space between the vertebra, and more fat cover along the entire backbone. The loin muscle has more depth and fullness, but there is no apparent fat cover. The ribs and tail head are still discernible, with more cover, and there is still slight muscle loss.

Condition Score 3: Average or Normal

There is just the right amount of fat cover over the shoulders, ribs, loin, and tail head. The spinous processes and hips can be palpated with pressure; they are not visible, and they feel smooth to the touch. The loin muscle is filled with a cover of fat.



BCS - 3



BCS 3: This animal has a good muscle to fat ratio. The bone structure is not as visible as body condition Score 2, but can still be palpated. Notice the more rounded top due to increased fill in the loin.

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Condition Score 4: Fat

The entire animal appears smooth and has an enlarged, rounded appearance. The spine can be felt with great pressure. There is fat filling in the flanks, tail head, and over the sternum. There is more fat cover over the shoulder, loins, and ribs.

Condition Score 5: Very Fat

There is no visible bone structure or definition in the muscles. The spine cannot be felt. The neck appears shorter due to fat deposits around the shoulder. The loin, hip, and tail head have a flat look due to being engulfed in heavy fat cover.

BCS 5: This animal is more rounded than an animal with a lower body condition score (because of fat deposits). No bone structure or muscle definition can be seen. The animal's top appears flat because of increased fat in the loin and pelvic area.



BCS = 5

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Description of Body Condition Scores for Dairy

Condition Score 1: Very Thin

Individual spinous processes are very discrete. There is a deep indentation in the loin area, over the prominent transverse processes. Short ribs are very prominent, and there is no discernible fatty tissue in the loin or pelvic area. The pelvis and ribs appear sharp and can be easily palpated. There is a severe depression between the hooks and pins, and around the tail head. Notice the "V" shape from hooks to thurl to pins.



BCS = 1



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BCS 1: This animal's skeletal structure is very prominent. Notice the deep depressions next to the spine, between the pelvis and rib cage, between the hooks and pins, and around the tail head.

Condition Score 2: Thin

The animal's skeleton is still very apparent. The individual spinous processes are clearly visible, but there is a small amount of fat tissue over the spine, hooks, and pins. The ribs and pelvis can be palpated with an insignificant amount of pressure. There is an evident depression between the hooks and pins, and over the transverse processes in the

loin area. The tail head is seated in a shallow cavity with some fatty tissue covering the pin bones.

Condition Score 3: Average or Normal

The animal appears smooth over the spine, hooks, and pins, with a minor depression in the loin area. A layer of fat tissue covers the ribs and pelvis, which can be easily palpated with minimal pressure. A moderate, rather obvious depression is observed between the hooks and pins. There is a gentle "U" shape from hooks to thurl to pins. The tail head is situated in a small cavity, and fatty tissue can be easily felt over the entire area.



BCS = 3



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BCS 3: This animal is in perfect condition to meet performance needs. The animal appears smooth over the spine, ribs, and pelvis and the skeletal structure can be easily palpated. The hooks and pins are still discernible, with a moderate, rather deep depression between the pelvis and rib cage, hooks and pins, and around the tail-head.

Condition Score 4: Fat

There are no spinous processes detectable, and no depression in the loin area, which gives the top-line of the animal a flat, table-top appearance. The ribs can no longer be felt, and the pelvis can only be felt with firm pressure. The hooks and pins have a rounded appearance due to areas of fat covering; folds of fatty tissue can be seen around the tail head. Individual short ribs cannot be seen.

Condition Score 5: Very Fat

The animal has a smoothed appearance due to the amount of fat cover over the spine, and between hooks and pins. Spinous and transverse processes are covered in fat, giving the back a bulged appearance. The ribs and pelvic bones are covered with a thick layer of



BCS = 5

BCS 5: *This animal will experience production difficulties because of the amount of excess fat deposited. The animal appears rounded and smooth with a square-shaped appearance, because of the amount of fat filling in the loin. The skeletal structure is no longer visible, and can only be palpated with excessive pressure.*

fatty tissue, and cannot be felt even with firm pressure. The tail head is concealed in a thick layer of fatty tissue. The rump is filled-in from hooks to pins above the thurl.

Variations in Body Condition Scores Throughout the Production Cycle (See Graph 1)

- **Breeding.** This stage in the production cycle is an important time to have lactating animals at an optimum body condition score (5 for beef and horses; 3 for dairy, sheep, and swine). It is important that cows have enough energy reserves to produce adequate milk, resume estrus, and conceive in a timely period. In other species, body condition at breeding may not be as critical, but it is best to have the herd at moderate body condition so that they will be able to maintain optimum reproductive efficiency.

- **Maintenance Phases of Production Cycle.** This phase can include early and mid-gestation in all species, and can also include the non-lactating and non-pregnant phase in sheep. During maintenance phases there are limited production demands on animals. They are not lactating, and if pregnant, fetal growth is slow and nutritional needs are minimal.

Body condition score during this phase can be adjusted either up or down, depending on

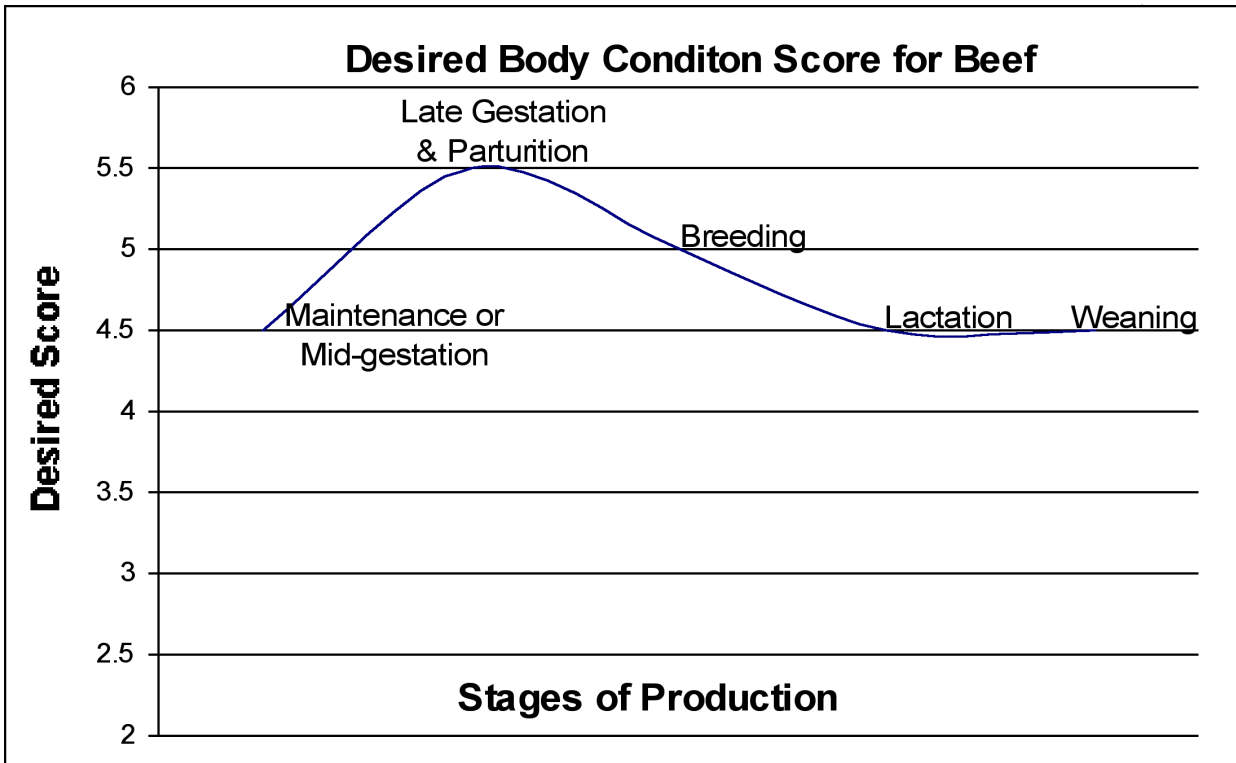
the animal's needs. If animals enter a maintenance phase in above average body condition, they may actually be able to lose some condition, without any loss in productivity. Ruminant animals could consume lower quality more economical forages or crop residues in this scenario. Sows are commonly limit-fed during early and mid-gestation to prevent them from becoming over-conditioned and to reduce feed costs. Conversely, animals determined to be thinner than desired during this phase should be fed to increase body condition and weight over a longer period of time to allow more flexibility in the feeding program.

- **Late Gestation and Parturition.**

Regardless of a female's body condition, she must be gaining weight during late gestation. The majority of fetal and associated tissue growth occurs during this stage of pregnancy. This is also the time period where a majority of mammary tissue growth occurs. Thinner animals will need to gain more weight and condition during this phase than animals in normal or above conditions. For dairy cows, most of the increase in body condition must occur during late lactation, with cows only maintaining condition during the dry period. Over-conditioned cows may be prone to metabolic disorders at calving when the intense demands of milk production begin.

It is desirable for animals to enter parturition in optimum body condition. Animals in moderate condition usually have lower dystocia problems, lower neonatal losses, higher quality colostrum, increased milk production, shorter postpartum intervals, and increased conception rates.

- **Lactation.** During early lactation, most animals, especially young growing animals, are in negative energy balance. In other words, they do not eat enough to keep up with the energy demands of milk production. Thus, they must utilize energy from body reserves. Cattle and horses are further challenged with re-breeding during early- to mid-lactation. Increasing the postpartum interval and failure to rebreed in a timely manner after parturition means the



Graph 1: The graph illustrates normal changes in desired body condition scores for beef through a production cycle.

female may not produce offspring on a calendar year basis. Cows with an optimum body condition score at parturition usually milk heavier and have fewer days to re-breeding than cows that are thin.

Weather and Housing Effects

Weather and the type of housing used influence the target condition scores desired, especially when animals are outside or maintained in cold housing. Slightly higher condition scores relative to general ranges given for specific production stages are often desirable when prolonged periods of wet and/or cold weather is expected. This is dependent upon whether windbreaks are available, amount of mud, rain, or snow, hair/wool, and the diet available for the animals. Increased body condition score gives the animal increased insulation and energy reserves during periods of inclement weather. Further, body condition may be expected to fall if feed intake declines during periods of high heat and humidity.

Conclusion

Body condition scoring is an important animal management skill to learn and practice. Being able to properly assign body condition scores to animals allows one to get a reasonable indication of the health and nutritional status of individual animals or groups of contemporaries.

Body condition scoring systems differ slightly among animal species. However, the approach to condition scoring is very similar between species. All systems describe the body reserves of animals as to the amount of fat and muscle at key anatomical points. Even without knowing the intricacies of a specific system for a particular animal, one should be able to determine a thin animal, an over-conditioned animal, or an animal that is near optimum for body condition.

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