

The Stockman's Eye

Utilize body condition scoring to improve reproduction and feed efficiencies.

Story & photos by *Crystal Albers*

Profitability in the cattle business depends on the percentage of cows in the herd that consistently calve every breeding season, and the percentage that don't. Cattlemen spend countless hours and countless resources seeking out options to avoid open cows and to improve herd productivity. However, sometimes the simplest alternative offers the best solution. Body condition scores (BCSs) allow producers to achieve optimal reproduction levels and reduce feed costs using only initiative and a good stockman's eye.

ABCs of BCSs

Body condition scoring is, in its simplest form, a way to estimate an animal's body energy reserves, or its fat and muscle composition.

Producers visually evaluate beef cows in the field and score them according to their energy reserves. The most common scoring system ranks cows on their nutritional status from BCS 1, extremely thin, to BCS 9, extremely obese.

John Hall, Virginia Tech Extension beef cattle specialist, has taught body condition scoring to students and purebred and commercial producers for several years, conducting workshops and research on the subject. He says cattlemen should adopt the practice for two main reasons.

"The first, and most important reason is for reproductive efficiency — in order to have cows that have enough energy reserves that they do a good job cycling, breeding back and lactating," he says.

Research shows that most reproductive failures can be attributed to improper nutrition and poor body condition. Without adequate body fat, cows tend to have breeding difficulties. By using BCS to recognize poor condition, producers can improve nutritional status and head off breeding problems, decreasing the percentage of open cows and improving calving interval, lactation and calf vigor at birth.

"The second reason is to monitor the feed needs of the animal and the feeding program," Hall says. "Is the feeding program meeting the needs of the animal? If it's not, then it needs to be increased. Are cows

getting overconditioned so that they're really getting too fat and we're wasting feed resources? Then maybe we can cut back, reducing feed costs as well."

The practice isn't new. In fact, body condition scoring has been around since the late 1970s and early 1980s. But its applications are becoming more and more important as cattlemen everywhere realize its ability to streamline production costs. The American Angus Association has also recognized its importance, requiring breeders to submit BCSs when submitting cow weights in order to calculate improved mature cow size expected progeny differences (EPDs) in the National Cattle Evaluation (NCE).

Hall says producers shouldn't become alarmed at the thought of implementing the numerical scoring system at their operations. He says the practice can be self-taught and requires little training.

"Anyone can learn to do it. It is very easy to use," he says. "With the advent of digital and streaming video, you can teach yourself over the Web. There are several good places to go to get that information. Working with another producer who knows how to body condition score is a really good way to learn. And, of course, most of the Extension services across the United States are very willing to teach producers how to body condition score."

Plus, body condition scoring involves little, if any, cost.

"There's no special equipment needed. Nothing but a good stockman's eye," Hall says.

Getting started

Hall suggests beginning producers confine animals to a small lot.

"I find it actually easier to teach people and to learn when animals are not in a chute, but when they're out in a small lot," he says. "Once producers learn to body condition score, they can do it from horseback or in the pickup truck or as they walk through the field. They don't really need to confine animals at all."

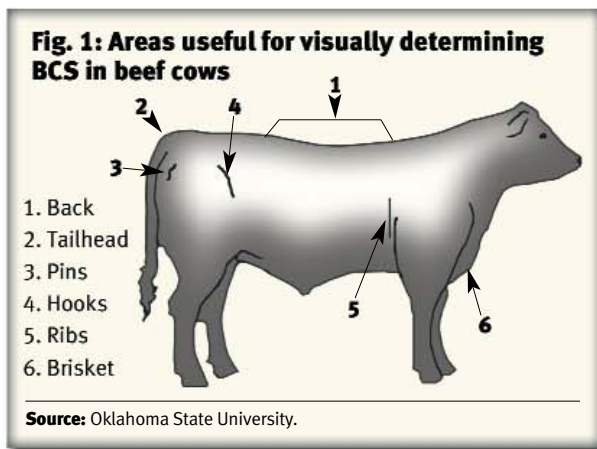


Table 1: Body condition score chart

Reference Point	BCS								
	1	2	3	4	5	6	7	8	9
Physically weak	yes	no	no	no	no	no	no	no	no
Muscle atrophy	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	3-5	1-2	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	slight	yes	extreme

Source: Virginia Tech. Modified from Pruitt, 1994.

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Once an animal is confined or in a desired area, cattlemen can then evaluate a cow's six basic reference points: the back, tailhead, pins, hooks, ribs and brisket (see Fig. 1, page 115). These areas, depending on their appearance, are used to assign BCSs. Hall suggests using a scoring chart developed by South Dakota animal scientist Dick Pruitt (see Table 1, page 115) to simplify the scoring process.

According to Virginia Tech guides, cows in thin condition, or BCS 1-4, will have an angular and bony appearance, with minimum fat cover over the spine, ribs, hook bones and pin bones. These cows exhibit no visible fat around the tailhead or brisket. Data from several research trials has shown animals in this category are more susceptible to health problems and have 9%-29% lower pregnancy rates compared to cows with a BCS 5 or above. BCS 4 or below cows also have longer calving intervals and increased days to estrus, as well as decreased calf vigor and lower birth weights.

Cows that fall in the most desirable range, an adequate body condition of BCS 5-7, will have good appearance overall, being neither thin nor fat. BCS 5 cows have visible hips and some visible ribs, with some fat over the hooks and pins. BCS 6 and BCS 7 cows will show some fat around the tailhead and in the brisket, and ribs will no longer be visible. The spine will no longer be visible for cows in adequate condition. Cows in this group have fewer calving difficulties, increased pregnancy rates and fewer days to first estrus, Hall says.

Cows considered fat (BCS 8-9) will look boxy and smooth, with hidden bone structure. Fat deposits will occur around the tailhead and on the pin bones. Extreme amounts of fat in the brisket and flanks may also be present. These cows are more costly to maintain and are at a higher risk for dystocia, or calving difficulty, due to

Table 2: Diets to help dry cows gain weight

Ingredient	Diet Composition		
	(lb. per cow per day on as-fed basis)		
	Diet 1	Diet 2	Diet 3
Fescue/grass hay	19.5	18.0	10.0
Corn	6.0	0	0
Soybean meal	0.5	0	0
Corn gluten feed	0	7.0	16.0
Days to gain 1 BCS	46	57	27
Cost per cow per day	\$1.00	\$0.89	\$1.04

Source: John Hall, Virginia Tech.

increased fat deposits. Extremely obese animals may fail to cycle or conceive.

To maximize the management benefits of body condition scoring, the practice must be done at four critical times throughout the breeding season in order to be effective: 90 days before calving, at calving, at the beginning of the breeding season, and at weaning.

"These are crucial times in order to split them off into feeding groups so that we can regain body condition or reduce feed intake if we need to on cattle," Hall says.

Expectations

As producers begin evaluating cattle and developing feeding plans based upon their findings, Hall says several factors may affect BCS and what cattlemen should consider normal condition levels.

BCS 3

► Cows such as this BCS 3 cow are thin in condition. Thin cows (BCS 1-4) will have an angular and bony appearance, with minimum fat cover over the spine, ribs, hook bones and pin bones. These cows exhibit no visible fat around the tailhead or brisket. Animals in this category are more susceptible to health problems and have lower pregnancy rates compared to cows with a BCS 5 or above.





BCS 4

► This BCS 4 exhibits little fat in the brisket. There is a slight outline of the spine, some ribs are visible, and the hips and pin bones can be seen. It's typical for good-milking cows to reach this condition after weaning; however, producers should have cows back to a BCS 5-7 by calving.



BCS 5

► BCS 5 cows, such as this cow, exhibit good overall appearance. The outline of the hips and pin bones are visible; however, there is some fat cover over the hooks and pins. Areas on each side of the tailhead are well-filled, but not mounded. The spine is no longer visible. This condition falls into the most desirable range, BCS 5-7. Cows in this group have fewer calving difficulties, increased pregnancy rates and fewer days to first estrus.



BCS 6

►This BCS 6 cow exhibits good condition, with some fat in the brisket and flanks and an outline of hips and pin bones. The spine and ribs are no longer visible. The hindquarters are plump and full, and there is noticeable sponginess over the foreribs and on each side of the tailhead.

BCS 7

►BCS 7 cows will show abundant fat cover around the tailhead and in the brisket, and the spine and ribs will no longer be visible.





BCS 8

► Animals such as this BCS 8 cow are considered fat, or over-conditioned. Bone structure disappears from sight, and fat cover is thick and spongy. BCS 8-9 cows will look boxy and smooth, with fat deposits around the tailhead and on the pin bones. These cows are more costly to maintain and are at a higher risk for dystocia, failure to cycle and failure to conceive.



BCS 9

► This BCS 9 cow exhibits extreme amounts of fat in the brisket and flanks, and the tailhead is buried in fat. BCS 9 animals may have impaired mobility due to the excessive fat.

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While it's good to aim for a cow with a BCS 5-7 at 60-90 days before calving, he says BCS will fluctuate with season, weather, age, breed and initial body composition. The appearance of a cow may also be affected by gut fill and pregnancy.

For example, it's common for a good-milking cow to have a BCS 4 at weaning, he says, "which is fine, as long as you have her back to good condition by the start of breeding."

Plus, he cautions, expect more problems with first-calf heifers and younger cows.

"First-calf heifers and cows with their second calf are the ones we have the most problems with not having adequate body condition," Hall says. "Those younger cows are growing. They're trying to lactate; they're trying to do all those demanding things that we put on that young cow. They're going to have a tendency to have more problems maintaining body condition than a mature cow."

Once cows become 4-, 5- or 6-year-olds, however, they should be maintaining good body condition.

"If they're not maintaining body condition, basically just on forage without much supplementation, then either your cows aren't matching your environment or you're having some problems in either pasture management or range management," Hall says.

Overall, Hall says most good purebred herds keep their cattle between BCS 5 and BCS 7. "Most have cows in adequate body condition, maybe just a little overconditioned. We see a lot of herds, though, where producers do a good amount of ET (embryo transfer). A lot of times these ET donor cows, of course, have very high body condition scores because they haven't been producing a calf and lactating."

For purebred producers, Hall notes, the scoring system may have additional value as an indicator of cow productivity, and, therefore, value in EPD calculations.

"For example, I don't see having problems with a heavy-milking cow coming in at weaning time with a BCS 4, as long as she's got a good, heavy calf and I have her back as a BCS 5-6 by the time calving starts," he says. "On the other hand, if I have a cow that's a really fleshy cow, and she stays a really fleshy cow, and she comes in at weaning time as a BCS 7, but she's got one of the smallest calves in the herd, maybe I want to think about whether she's the kind of cow I want to keep."

Region, or environment, is another consideration when assigning cows a BCS.

"If you're in the central or northern Plains, then you probably need to look at research publications in that area. If you're in the West, look at publications there," Hall suggests. "Because the genetic base of the cattle in your area is going to be more similar to your herd, and the pictures

you see are going to make more sense to you. The environment can have an impact, especially when you go into talking about nutritional strategies to increase body condition scoring."

Quality control

When it comes to feeding to improve body condition, Hall says there's not a specific technique or feeding strategy; however, there are guidelines to increasing BCSs.

"Depending on which piece of research you look at, a cow needs to gain or lose somewhere between 45-85 pounds to change a body condition score (by one BCS)," he says.

Hall says example diets are available (see Table 2, page 116); however, cattlemen should consult their local resources, such as a nutritionist or Extension agent, to determine the best-suited nutrition program.

"The best thing that folks can do is use their locally available feed resources that are relatively inexpensive that meet their needs," he says. "If you're going to pick up body condition, you have to understand where your forage quality is. East of the Mississippi, most of the time, protein is not a problem in forage quality, and so energy is what needs supplemented. In range country, sometimes protein is limiting forage digestibility, so it might be a combination of protein and energy that needs to be supplemented. You have to understand your forage base."

Of course, a few cattlemen may remain skeptical of the value of a subjective measurement such as body condition scoring. However, Hall notes that such tools are invaluable.

"It's a subjective way of measurement because we don't directly measure body fat thickness like we do with ultrasound, and, sure, there are some variations," he says. "You get in groups of people where they might call a cow a [BCS] 5, when somebody else would call it a [BCS] 6, but the important thing, from a strictly management standpoint, is whether these cows fall into categories of thin, adequate or fat body condition."

Plus, a cow's weight data becomes more meaningful when paired with measurements like BCS. For example, two animals can have widely different live weights and still have similar BCSs, and animals of similar live weight can vary in body condition. Body condition helps distinguish between cows with poor and good nutritional status.

"The importance has always been there," Hall says. "From the research we've done in the last 20 years looking at ways to estimate body energy reserves, there's still no better, easy way to measure body energy reserves, which are so highly related to reproductive efficiency, as body condition scores."

For more information

Visit the following Web sites to learn more about body condition scoring:

- ▶ **Angus Productions Inc. (API) body condition scoring Web site, www.cowbcs.info** (Sponsored by Purina and AgriLabs, this site carries links to the following sites. More links and information will be added as they become known.)
- ▶ **Clemson University, "Body condition at calving key for high rebreeding rates in first-calf heifers," www.clemson.edu/edisto/beef-db/bc-2005.htm** or "Minimum breeding target weights for replacement heifers," www.clemson.edu/edisto/beef-db/bc-2001.htm
- ▶ **Kansas State University, "Feeding cows by body condition," www.oznet.ksu.edu/library/lvstk2/c842.pdf**
- ▶ **Montana State University, "Should I body condition score my cows?" www.animalrangeextension.montana.edu/Articles/Beef/Main-health.htm**
- ▶ **Oklahoma State University, "Body condition score is a precise tool to evaluate beef cows," www.beefcowcalf.com/cgi-bin/pseek/go.cgi?id=1540**
- ▶ **Texas A&M University, "Body condition, nutrition and reproduction of beef cows," <http://animalscience.tamu.edu/ansc/publications/beefpubs/B1526-bcsnutrition.pdf>**
- ▶ **Virginia Tech, "Body condition scoring beef cows," www.ext.vt.edu/pubs/beef/400-795/400-795.pdf**