

Manage Nutrition Challenges



PHOTOS BY SHAUNA ROSE HERMEL

Keeping cows in adequate body condition during gestation is crucial.

by Stephanie Veldman

Nutritional challenges are extreme for cows during the last trimester of pregnancy and at the beginning of lactation. It is important for cows to be in proper condition before entering this phase since rebreeding performance and calf health can be affected by cows in poor body condition.

To determine if cows are in proper body condition, producers can assign to them a body condition score (BCS). The most commonly used BCS system is based on a scale from 1 to 9 (see Table 1). The lower the number, the thinner the cow; the higher the number, the fatter the cow. Cliff Lamb,

associate professor at the University of Minnesota (UM) North Central Research and Outreach Center, says the optimal BCS range is 5 to 6.

“Body condition score is just a measurement of that cow’s energy reserves. As she goes into that last 30 to 40 days of pregnancy and early lactation, her highest nutrient requirements are going to occur,” says Greg Lardy, Extension specialist with the Animal and Range Sciences Department at North Dakota State University (NDSU).

“The fetus is growing very rapidly during those last 45 days of pregnancy and during

lactation,” he adds. “During early lactation, the cow is, for the most part, going to be in what we would call negative energy balance. In other words, she won’t be able to eat enough or get enough energy into her to maintain herself, so she has to have some reserves there to maintain condition.”

Determining BCS

Assigning a BCS to a cow is a very simple procedure, Lamb says.

“Body condition scoring is something each producer should be able to do on his own, and it doesn’t cost anything to learn,” Lamb points out. “The more you do this, the easier it gets. With practice, you will get good at it over a couple of years.”

For a starting reference, he adds, “Most cows are going to be anywhere from a 3.5 to a 5.5, on average.”

As a rule of thumb, Lamb says, a cow will need to gain about 80-90 pounds (lb.) of actual weight to increase her BCS by one score.

“If your cows are in a condition score of 3, and you want to get them to a 5, on the average, each cow will have to gain about 160-180 pounds,” he adds.

He says producers should be aware of two situations when assigning body condition scores:

- 1) If cows have a lot of hair, it can be more difficult to see how much fat cover they really have.
- 2) Cows often become fuller during pregnancy. Lamb cautions producers to avoid confusing a fuller gut during pregnancy with adequate fat cover.

Importance of good condition

If cows are in poor body condition going into their last trimester of pregnancy, they can suffer a number of problems.

Thin cows may have calving difficulties because they are weaker during parturition and will give up easier, Lamb says. The calves usually are lighter and smaller, and weak cows produce less milk.

“There have been studies done on cows that calve in poor condition — their calves tend to be smaller at birth, smaller at weaning and smaller when they are a year old,” Lamb says.

Cows that are thin can also suffer from a weak immune system, making them more susceptible to disease than cows that calve in good condition.

A weaker immune system can also affect the calf. Lardy says thin cows typically produce less colostrum. They also tend to produce colostrum having a lower concentration of immunoglobulins.

Immunoglobulins are proteins that contain the antibodies that provide the calf protection the first couple months of life, he adds.

► **Above:** It is important to have cows in proper body condition prior to calving to ensure rebreeding performance and calf health are not impaired.

Rebreeding can also be affected if cows are thin. Jim Sprinkle, Extension agent for the University of Arizona (UA), says that as an animal becomes more stressed, certain body functions shut down. He says that if cows are too thin, it can cause stress and affect reproductive functions (see Table 2).

“This usually happens when a cow hits a BCS of 3 or less. That varies from cow to cow, but generally speaking, reproduction drops dramatically,” he says. “At a BCS 3, not more than half the cows will probably breed.”

Lamb says that if reproductive abilities are shut down, it can take an extended period of time before they resume. “They start their estrus cycles after they calve. So a thin cow, if she calves at a condition score of 3, may take 100 days to restart her postpartum estrus cycle. That is usually after the beginning of the breeding season,” he adds.

Economics

Because of the problems associated with thin cows, it is important for producers to have a management plan in place to bring cows to a BCS 5 before the last trimester of gestation.

Several studies have been done on the cost-effectiveness of adding weight to cows in mid-gestation. Sprinkle says mid-gestation is the cheapest time to add weight if the calf is weaned. “During this time period is when her maintenance requirements are the lowest, so mid-gestation to late gestation is when we are trying to pick up body condition,” he says.

In southwestern states, Sprinkle says producers are most often working in late gestation because of the length of time it takes to get the calf weaned off the cow. He adds that because of unpredictable forage conditions, producers in southwestern states should have a minimum BCS 4 at breeding.

Lamb recommends weaning calves 30-45 days earlier than their normal weaning time if body condition needs to be added to cows.

“That allows the cow an extra 30 to 45 days when she doesn’t have to produce milk, and she can add condition faster,” he says. “Once you have a cow to a body condition score 5, you can just maintain her on a certain ration instead of trying to continue to put weight on her.”

Adding weight to thin cows

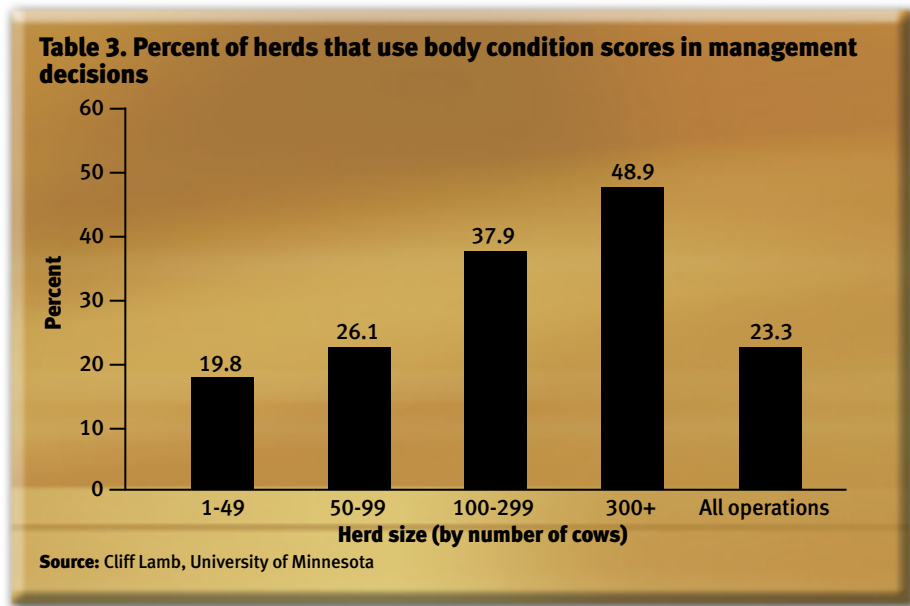
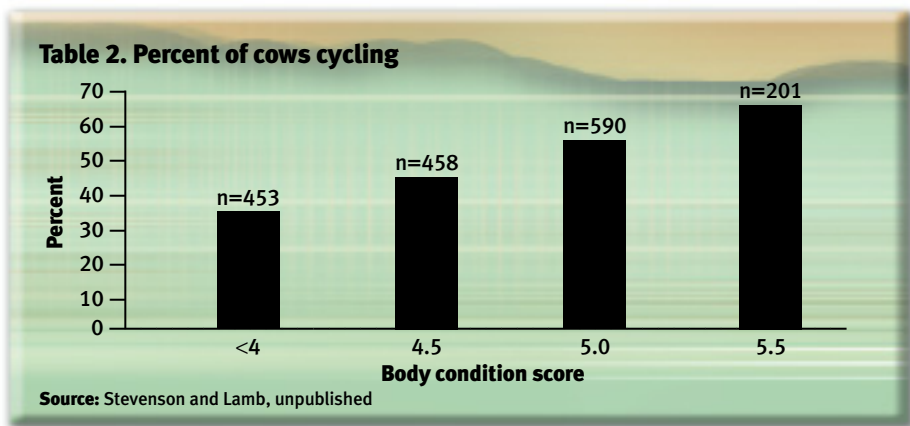
Sprinkle recommends producers analyze the quality of the forages their animals are consuming.

“That can be difficult in range conditions, but you can try to select a similar diet to what the cattle are consuming and get it analyzed in a laboratory for protein and total digestible nutrients (TDN),” he says. The goal is to find if the forages have a nutritional

Table 1. Cow body condition scores

BCS	Appearance
1	Emaciated — shoulder, ribs, back visible
2	Very Thin — some muscle, no fat deposits
3	Thin — some fat deposits, ribs visible
4	Borderline — foreribs not noticeable
5	Moderate — 12th and 13th ribs not visible
6	Good — ribs covered, sponginess to tail head
7	Very Good — abundant fat on tail head
8	Fat — fat cover thick and spongy
9	Obese — extremely fat throughout

Source: National Research Council, 1996



deficit, like protein, that needs to be supplemented.

Sprinkle says it is important that cows have adequate protein in their diets because the protein helps microbes in the rumen flourish. The microbes break down the cellulose in the forage the cows are consuming.

“In a ruminant animal, it is very important to maintain the microbe population,” Sprinkle says. “If the cows are

starved for protein, you have fewer microbes, which slows the rate of digestion of the cellulose. That makes the forage stay longer in the rumen and ultimately decreases intake.”

He adds that if the protein content in the forage is below 6.25%-7%, there is a benefit to adding protein.

“Usually when you are below that 6% protein, we can see a 30% to 40% increase in

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forage intake with a little bit of protein supplement. Feeding 1 to 2 pounds of protein supplement per day can pay off," he says.

Lamb recommends feeding a protein supplement that is higher than 22% crude protein (CP) because it will help the cows eat more poor-quality forage.

Energy supplements also may be necessary, though Sprinkle cautions against using them as an alternative to forages since the cows may replace the forage with the grain, which isn't as cost-effective.

"Energy supplements have a place in stretching forage supplies. They have a place in putting on weight gain, and they are cheaper than feeding protein supplements if additional protein is not necessary," Sprinkle says.

He adds, "What I recommend producers do is keep a close eye on body condition. Look at their forage supply. Get it tested, and if you see cattle are starting to slip a little in body condition, then you start a supplementation program and monitor body condition carefully."



Manage first-calf heifers

The toughest cows to get rebred are the 2- and 3-year-olds, says Cliff Lamb, associate professor at the University of Minnesota (UM) North Central Research and Outreach Center. He says the reason is because they are still growing.

"First-calf heifers are only about 85% of what their mature weight is going to be," he says. "They are learning how to nurse their calves, they are trying to put on weight and they are still growing — all at the same time. Their needs are certainly much higher than mature cows' needs."

Jim Sprinkle, Extension agent for the University of Arizona (UA), says that producers can't compare younger cows to older cows. "Everything is aggravated with younger cows," he says. "They have fewer teeth because their permanent teeth are still coming in, they are not as experienced in grazing as the older cattle," and their rumens are not as large.

He suggests splitting off the younger cows and putting them on the higher-quality pastures.

"Be willing to spend a little more in supplementation to try and keep them in good body condition before calving," Sprinkle says.



► First-calf heifers are nutritionally challenged because they are still growing, they are learning to nurse their calves, they have fewer teeth, and their rumens are not as large.