



**NDSU Agriculture Communication**

**NORTH DAKOTA STATE UNIVERSITY**

**NDSU Extension Service**  
**ND Agricultural Experiment Station**

**SEARCH**

# Underfeeding Beef Cows Has Consequences

## Underfed cows take longer to rebreed and may have difficult births.

Beef cows that have been underfed during gestation and lactation will be less productive than cows fed adequate diets.

“For adequate production, a beef cow’s daily ration must meet nutritional requirements,” says Karl Hoppe, North Dakota State University Extension livestock systems specialist at the Carrington Research Extension Center. “Cows will lose body weight when consuming less energy than needed for maintaining body functions and production demands.”

Extreme cold temperatures or wind chills will increase the cow’s energy needs substantially. If the cow doesn’t receive additional energy through her diet, she will take nutrients from her body to meet her energy demands.

Production problems will occur when the cow loses too much weight. However, a heavier cow will be able to lose more weight than a thin cow before serious production problems occur.

A visual method for determining weight loss or gain in beef cows is body condition scoring (BCS). Beef cows that carry more condition (or fat) will rate a higher body condition score (maximum of BCS 9) than thin cows (minimum of BCS 1). A body condition score of 4 is borderline for maintaining adequate production in beef cows.

### Thin Cows Take Longer to Rebreed

“Cows with a body condition score of 4 or less at calving will have poor reproductive performance,” says John Dhuyvetter, NDSU Extension livestock systems specialist at the North Central Research Extension Center near Minot.

After calving, thin cows will require more days to reach first estrus (heat) and more days to become pregnant. Researchers report that cows with a borderline or lower BCS need an average of 12 more days to reach first estrus. For example, they found that cows with a BCS of 4 or less needed 61 days while cows with a BCS of 5 or greater needed 49 days to reach first estrus.

In addition, beef cows in this study with a BCS of 4 or less took six more days to become pregnant when compared with a cow with a BCS of 5 or greater (90 vs. 84 days). The researchers also found that 84 percent of cows with a BCS of 4 or less were pregnant within 60 days after calving, compared with 91 percent of cows with a BCS of 5 or greater.

For thin cows, increasing the level of energy in the diet after calving will increase the number of pregnant cows at 60 days after giving birth. Cows with a BCS of 4 or less will have comparable pregnancy rates to cows with BCS of 5 or greater when fed a diet that allows for maintaining or gaining weight after calving through rebreeding.

In this study, the amount of energy fed daily was 15.6, 12.6 and 8.9 pounds of total digestible nutrients (TDN) per head daily for high-, moderate- and low-feed energy diets, respectively. The amount of energy fed daily during flushing was 21.8 pounds of TDN.

### Flushing an Alternative

### Images

**Changing Body Condition Scores in Borderline (BCS 4) Cows After Calving**

Condition Score Change	< 4	4 to 5	5 to 6	6 to 7
Average BCS change	-0.1	0.1	1.22	2.44
Days to pregnancy	100.0	108.7	108.3	98.8
Milk production (lb, day 60)	11.2	13.2	14.3	15.4

Source: NDSU Extension

### Changing Body Condition Scores in Borderline (BCS 4) Cows After Calving

**Feed Level Influences Percent of Cows Pregnant Within 60 Days After Calving**

Feed Energy	Rebreeding Average Daily Gain	Body Condition Score 4 or less	5 or greater
High	1.2 lb gain	92	92
Moderate	none	90	88
Low	1.2 lb loss	88	85
Low/No/Hot*	1.2 lb loss	85	98
Average		84	91

\*Flushed 14 days prior to breeding then flushed for 14 days prior to and 50 after bull turnout. The flushing diet for this study was 9 to 12 pounds gain plus free-choice corn silage.  
 Source: NDSU Extension

### Feed Level Influences Percent of Cows Pregnant Within 60 Days After Calving

Flushing is a management term for providing additional high-quality feeds and grains to cows starting 14 days prior to the start of the breeding season and continuing throughout the first 30 days of breeding. Cows that lost weight after calving but gain weight prior to and during breeding will have a higher pregnancy rate than cows that do not regain weight.

Specifically for thin cows (BCS 4), increasing the concentration of energy in the diet will increase milk production at 90 days after calving and also reduce the days to pregnancy.

#### Additional Detrimental Effects of Underfeeding

Beef cows that are underfed during gestation and lactation may have additional areas of poor production. Here are two of the issues:

- Underfeeding during gestation will reduce birth weights but may increase the number of difficult births, or dystocia.
- Undernourished or thin cows may have reduced quantity and quality of colostrum. Colostrum is a form of milk that mammals produce in late pregnancy. It contains energy, protein, fat and vitamins, plus antibodies to protect newborns against disease until their own immune system is totally functional. Lower-quality colostrum may result in calves with more illnesses (scours) during early lactation. Reduced immunity also may lead to poorer calf survival rates.

“A ration should be balanced for energy, crude protein, minerals and vitamins,” Hoppe says. “Nutrients are needed by the cow in constant proportions every day. Any nutrient deficiency will lead to reduced digestion and metabolism. Reducing nutrients below the animals’ requirements might reduce feed costs but will also limit production.”

Energy can be underfed in a diet to manage energy reserves (BCS or body fat). However, protein needs to be supplemented.

“The most efficient nutritional management strategy is through feeding adequate amounts of nutrients daily,” Dhuyvetter says. “Matching energy needs during cold weather stress by increasing feed energy helps cows survive extreme cold weather.”

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#### Attachments




PDF - Changing Body Condition Scores in Borderline (BCS 4) Cows After Calving   
(2019-03-15\_Changing\_Condition\_Scores\_In\_Borderline\_Cows.pdf - 19.31 Kb)



EPS - Changing Body Condition Scores in Borderline (BCS 4) Cows After Calving  
(2019-03-15\_Changing\_Condition\_Scores\_In\_Borderline\_Cows.eps - 218.31 Kb)



PDF - Feed Level Influences Percent of Cows Pregnant Within 60 Days After Calving   
(2019-03-15\_Feed\_Level\_Influences\_Percent\_of\_Cows\_Pregnant.pdf - 20.15 Kb)



EPS - Feed Level Influences Percent of Cows Pregnant Within 60 Days After Calving  
(2019-03-15\_Feed\_Level\_Influences\_Percent\_of\_Cows\_Pregnant.eps - 226.65 Kb)