

Consequences of Underfeeding Beef Cows

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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. Cows will lose body weight when consuming less energy than needed for maintaining body functions and production demands.

Extreme cold temperatures or windchills will increase the cow's energy needs. If this energy is not fed in the diet, the cow will take nutrients from her body to meet her energy demands. Production problems will occur when too much weight is lost. However, a cow in heavy condition will be able to lose more weight than a cow in thin condition 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 on the beef cow.

Thin cows take longer to rebreed

Cows with a body condition score of 4 or less at calving will have poor reproductive performance. After calving, thin cows will require more days to first estrus (heat) and more days to pregnancy. Research reports an average of 12 more days to first estrus (BCS 4 or less, 61 days vs. BCS 5 or greater, 49 days) are needed by cows with a borderline or lower BCS.

In addition, beef cows with a BCS of 4 or less took six more days to become pregnant when compared to a BCS 5 or greater (90 vs. 84 days); 84 percent of cows with BCS of 4 or less were pregnant within 60 days after calving compared to 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 postpartum (Table 1). 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.

Table 1.			
Percent pregnant within 60 days after calving is influenced by feed level.			
	Postcalving	Body Condition Score	
Feed Energy	avg. daily gain	4 or less	5 or greater
High	1-2 lb. gain	92	92
Moderate	none	92	88
Low	1-2 lb. loss	68	85
Low-Flushed *	1-2 lb. loss	85	98
Average		84	91

*Flushed 14 days prior to breeding then flushed for 14 days prior to and 30 after bull turn out. The flushing diet for this study was 9-13 pounds grain plus free choice corn silage. The amount of energy fed daily was 15.6, 12.6 and 8.9 lb. TDN per head daily for the high, moderate and low feed energy diets, respectively. The amount of energy fed daily during flushing was 21.8 lb. TDN.

Flushing is an alternative

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

Increasing body condition increases milk production

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 (Table 2).

Table 2.				
Changing condition scores in Borderline (BCS 4) cows after calving.				
Condition Score Change	<0	0 to 1	1 to 2	>2
Average BCS change	-.41	.49	1.22	2.44
Days of pregnancy	150.9	126.7	106.3	98.8
Milk production (lb./day, day 60)	11.2	13.2	14.5	15.4

Underfeeding may have additional detrimental effects

Beef cows that are underfed during gestation and lactation may have additional areas of poor production. 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 containing lower levels of immunoglobulins is implicated in calves with more illnesses (scours) during early lactation. Reduced immunity may lead to poorer calf survival rates. These effects of underfeeding have been observed in herds to varying degrees.

A ration should be balanced for energy, crude protein, minerals and vitamins. Any nutrient deficiency will lead to reduced digestion and metabolism. Nutrients are needed by the cow in constant proportions every day. 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. Reduced crude protein feeding will lead to decreased feed fermentation, decreased feed digestibility, reduced feed intake, weight loss, depressed immunity, decreased thriftiness, increased calving difficulties, reduced colostrum quality, reduced milk production and possible weak calf syndrome.

Reduced mineral and vitamin feeding will also lead to unthriftiness, reduced immunity, calving dystocia, reduced calf survivability, decreased milk production, longer interval to rebreeding and reduced number of cows rebreeding.

The most efficient nutritional management strategy is through feeding adequate amounts of nutrients daily.

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