

Calf Survival & Rebreeding of the Cow

Calf survival and the subsequent rebreeding of the dam are greatly interrelated. Factors that reduce calf survival almost always result in later rebreeding and fewer cows bred. The remainder of this brief covers reasons for poor calf survival and rebreeding of the dam, plus discusses tips to improve these measures in the herd.

Calf Survival

Inadequate nutrition of the late gestation (90 days pre-calving) cow almost always leads to a reduction in calf survival and reduced weaning weights. Table 1 lists the results of low energy and protein intake by late gestation cows.

Table 1. Effect of inadequate protein and energy consumption by late gestation cows on the newborn calf.

- Reduced calf survival
- Lowered heat production
- Increased time to nurse
- Weak calf syndrome
- Reduced birth weight^a
- Increased scouring
- Reduced weaning weight

^aOnly the effect of low energy intake.

A cow's body temperature drops 1 to 2 degrees Fahrenheit during the last 48 hours before calving, transferring this heat to the fetus to prepare the calf for cold stress post-calving. A healthy newborn calf will further elevate its body temperature by shivering, burning brown fat to produce heat, and consuming warm colostrum from its dam. Weak newborns have limited ability to shiver, typically have lower than average brown fat stores, stand and suckle later after calving, and consume less colostrum compared to healthy, vigorous calves. Weak calves are more

subject to hypothermia, sickness, and generally have a compromised immune system (from inadequate colostrum consumption) that reduces subsequent weaning weights and even growth in the feedyard. Dystocia calves (calving difficulty) are similarly weak and have compared immune systems.

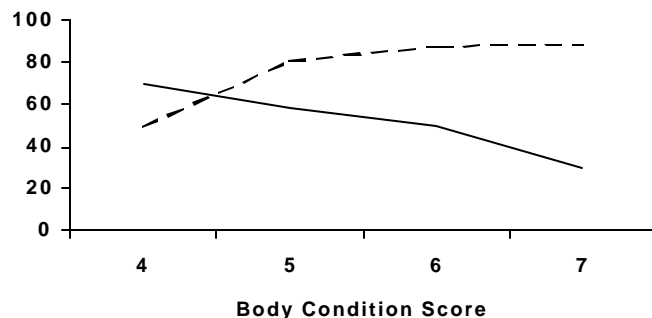
Rebreeding of the Cow

Inadequate energy or protein nutrition of the late gestation cow leads to a low (thin body condition score (BCS)). Thin cows are slower to rebreed and are less likely to conceive (Figure 1).

Feeding the Cow

Poor quality forages are frequently fed to dry, pregnant cows and should be utilized extensively to reduce feed costs and improve profitability. Low quality forages are

Figure 1. Effect of Body Condition at Calving on Pregnancy & Days to Conception.



Sources: Purdue Univ., Oklahoma St. Univ.

nutritionally correct to maintain BCS (cores of 5 to 6). However, depending on the forage quality, it may not be appropriate to feed large amounts of low quality forage when BCS is low (scores of less than 5), and thus the cow needs to gain BCS in late gestation. Cows consuming poor quality forages need some supplemental protein to allow for microbial digestion of the forage in the rumen, but rarely will supplemental energy be needed by the gestating cow to maintain BCS.

Table 2 lists the nutrient requirements for various production classes of cows. Keep in mind, if large increases in BCS are required, or extremely cold weather persists, more energy than listed must be fed. A good rule of thumb would be to feed two pounds of soyhulls, corn, or other energy concentrates to provide extra energy for heat production during periods of extremely cold weather.

Table 2. Suggested nutrient requirements ^a for cows based on weight and production.									
Body Weight, lb Production ^b	----- 900 -----			----- 1100 -----			----- 1300 -----		
	MG	LG	L	MG	LG	L	MG	LG	L
DMI, lb	16.7	18.2	18.8	18.1	21.0	21.6	22.0	23.6	24.3
NE _m , Mcal	7.0	9.1	10.3	7.6	10.3	11.5	9.2	11.3	12.6
CP, lb	1.8	2.1	2.4	1.9	2.2	2.6	2.3	2.5	2.8
Ca, %	.33	.45	.45	.33	.45	.45	.33	.45	.45
P, %	.31	.31	.34	.31	.31	.34	.31	.31	.34
Salt, %	-----			.2			-----		
K, %	-----			.7			-----		
S, %	-----			.19			-----		
Vitamin A, IU	-----			.17			-----		
Vitamin D, IU	-----			50,000			-----		
Vitamin E, IU	-----			6,250			-----		
	-----			60			-----		

^aBased on maintenance with minimal to no weight or condition gain. DMI will vary around mean value shown. Percents are based on dry matter. Pounds, Mcal, and IU are per head daily.
^bMG is 4 months pre-calving (mid-gestation). LG is 1 month pre-calving (late gestation). L is average milking ability (lactation).

New Research

Feeding up to 1 oz of urea with natural protein supplements to dry cows consuming low protein forage is nutritionally correct. Feeding excessive urea will result in loss of this crude protein in the urine and can result in loss of BCS. Feeding approximately .5 lb of added fat in the last third of gestation may improve calf survival compared to similar energy from carbohydrates. This work is preliminary but could be very important if confirmed. Cows gaining .5 to 1 BCS between calving and breeding are more fertile than cows not gaining or losing BCS. Feeding by-pass protein between calving and breeding improves BCS, reduces days to conception, and improves conception rates, especially in two-to-three-year old females. Supplements should provide .3 to .5 lb of a high quality by-pass protein out of the total supplemental protein. Supplemental fat fed between weaning and calving may also improve BCS, reduce days to conception, and improve pregnancy rates, but levels of fat to feed and duration to feed are still unknown.