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Beef Cow Herd Nutrition

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It has been estimated that in the U.S. only 70% of the cows exposed for breeding actually wean a calf the following year. Although many factors are responsible for this dilemma, nutrition has been identified as one area that contributes greatly to this economic loss. Research has shown that proper nutrition is required if a cow is to wean a calf every 12 months.

Most producers realize that a cow's nutritional requirements vary during her biological cycles throughout the year. And changing the cow's nutrient intake at appropriate times can have an impact on reproduction and calf weaning weight. Since some nutritional deficiencies such as those involving protein, vitamins and minerals may not be apparent from visual appraisal, it is essential that cows be provided with required nutrients regardless of how they look.

As indicated in Table 1, nutrient requirements of a dry cow as compared to a lactating cow vary dramatically. Dry matter, crude protein and energy requirements are increased substantially after the cow has calved. Numerous research reports indicate that proper nutrition of the cow in the last 90 days prior to calving can have a substantial effect on her subsequent reproductive performance during breeding season. Nutrient deficiencies during late pregnancy also can have severe effects on calf birth weights and livability.

Proper nutrition of the cow prior to calving will greatly influence the performance of the cow and calf following calving regardless of the nutritional level after calving.

Table 1. Beef Cow Requirements^a

	Dry Matter	Crude Protein	TDN	Ca	P	Vit A ^b
	Lb.			g		
Dry cows						
1,000 lb.	16.5	1.06	9.4	15	15	23
1,100 lb.	17.9	1.12	10.0	15	15	24
1,200 lb.	19.0	1.19	10.7	16	16	26
Lactating cows						
1,000 lb.	20.5	1.89	11.0	26	26	23
1,100 lb.	21.6	1.98	11.7	27	27	24
1,200 lb.	23.1	2.13	12.3	28	28	26

^aNRC, 1976.
^bThousands IU.

Let's look first at the nutrition of the cow the last 90 days of gestation. For the mature cow this is a time when weight gain is not necessary and in fact the cow, if in moderate condition entering the wintering period, can actually lose some weight. The cow is not growing; she is simply trying to maintain her weight and provide nutrients for the developing fetus. However, during the last 30-45 days prior to calving her nutrient requirements increase substantially and supplemental energy and protein will be necessary.

A loss that may occur which may not be easily identifiable until later is that a cow underfed during the last three months prior to

calving may take longer to show estrus prior to the breeding season. In most range beef cows estrus is not observed after calving for at least 60 days. This allows only one heat cycle for her to be bred if she is to calve on a yearly basis. In order to enhance her abilities to show estrus and conceive prior to this time, additional energy and protein must be supplied from supplemental sources.

Increasing the days a cow remains open lowers calf weaning weights since, as demonstrated many times, calves born early in the calving season will have heavier weaning weights than those born later. Therefore, it is important to provide adequate nutrition

for the cow during the last three months of pregnancy so she will be able to cycle and conceive early in the next breeding season.

The Post-Calving Period

After calving, the cow experiences severe trauma since she is trying both to produce milk for her calf and to get her reproductive tract in shape for rebreeding. Because this creates extreme nutritional demands, this is a nutritionally critical period. As indicated in Table 1, her post-calving requirements are double for crude protein and increase by 50% for energy compared to the last 90 days prior to calving. Therefore, the more nutritious feeds should be saved for use during this post-calving period prior to when grass is available for grazing. If the cow is inad-

equately fed during this period, the most obvious observation will be delayed onset of estrus and, subsequently, delayed breeding. This may not sound very critical; however, the later she begins cycling the fewer chances she has to be bred during the breeding season and the later she will calve.

Several recommendations could be followed which should enhance a cow's opportunity to produce a live healthy calf as well as to rebreed within 80 days to insure her calving on a yearly basis.

(1) Provide salt and mineral free choice on a year around basis. The mineral supplement should contain 8-12% phosphorus and a similar amount of calcium. During the spring if grass tetany becomes a prob-

lem then magnesium oxide should be added to the mineral mix. Unfortunately, magnesium is not stored in the body and must be replenished on a daily basis. Therefore, it would be a wise management practice to start feeding magnesium supplement prior to the onset of possible grass tetany problems so cows adapt to this mineral mix and consume it in large enough quantities to get their magnesium requirement.


- (2) Vitamin A should be supplied in the mineral mix or it can be injected as appropriate.
- (3) Enough protein supplement must be fed to provide a dietary crude protein level of at least 6%. This level is necessary to maintain proper digestive functions and to increase feed intake. As a rule of thumb, 2 lbs. of a 20% crude protein supplement would be adequate to supply most protein needs for the mature non-lactating beef cow grazing range grasses and low quality forages. After calving, approximately 4 lbs. of a similar supplement would be necessary to supply adequate protein. It is the author's opinion that a lower protein supplement would provide additional benefits by providing supplemental energy as well as protein. In many cases the gestating and lactating beef cow will be more deficient in energy than protein and by feeding a lower protein supplement both the energy deficiency can be overcome as well as any protein deficiencies. Of course, alfalfa hay can be used to supply supplemental protein and should be fed at a level of 4-6 lbs. for the post-calving cow.
- (4) Visual appraisal of cow condition can be helpful in determining if nutritional requirements are being met. However, protein, vitamin and mineral deficiencies are often not apparent through visual appraisal; therefore, it would be important to supply adequate nutrients regardless of what visual appraisal indicates. On the other hand energy deficiencies can be observed in most beef cows through visual appraisal; such things as loss of weight or condition would suggest a need for additional energy. The percent protein content can be decreased in proportion to the increased level of supplemental feeding.

Since beef cows selectively graze range forage or stalk fields, it is important that forages being grazed are not overstocked. This gives the cows opportunity to select the more nutritious plant parts to meet their energy and protein needs; overstocking diminishes this opportunity. Certainly, too, snow cover will create a need for supplemental feeding.

If a producer decides to feed high levels of energy supplement to grazing animals, this may have a detrimental effect since it will decrease forage intake and digestibility. Therefore, limited amounts of supplemental energy can be most helpful in enhancing forage intake and digestibility but amounts greater than 4-5 lbs. should be avoided. Feeding 1-2 lbs. of high protein,

high energy supplement can be most important in encouraging cows to increase feed intake and to clean up dried grass as well as stalk fields.

In summary, numerous research reports indicate that underfeeding of protein, energy, vitamins and minerals during the winter and post-calving periods of a cow's biological cycle may not have extremely detrimental effects in the same year this underfeeding occurred. However, the long term effects on calf viability, weaning weights and cow reproductive performance can be severely detrimental regarding future performance. Therefore, through proper supplementation at appropriate times the cowman can avoid long term negative effects on his beef cow herd.

If you need assistance in developing a nutrition program for your beef cow herd, please contact your local Extension Agent or the author. 

ANGUS JOURNAL Flashbacks

1968—"The formation of the New York Junior Angus Assn. was a highlight of the recent New York junior field day sponsored by the state adult association. More than 200 people attended the event at Clayton C. Taylor's Dancote Farm, Lawtons Elected president was Nancy Neal, Hillsdale; Lee Powell, Wolcott, vice president; Eve Ann Swartz, Earlville, secretary; Pam Hamilton, Poughquag, treasurer and Russell Filton, Williamsville, reporter."