



THE CUTTING EDGE OF NUTRITION

The Bulletin for Alumni of the Beef Cattle Nutrition School

January, 96

Spring Calving?

From the School, you gleaned that I have difficulty with "spring" calving. The first hurdle is - when is spring? For most, the tilting of the earth defines the seasons. A season begins or ends according to the equinoxes or solstices. For instance, spring of '94 commenced at 1:28_{pm} MST on March 20 and ended at 7:48_{am} on June 21—a season of about 94 days.

Seldom do ranchers calve in winter. Winter denotes freezing blizzards and dormant forage. Any description of winter is not conducive to pleasantries of motherhood. Spring, however, suggests warming, flowering and twitterpation—a good time to have a baby. Therefore, calving in Jan through Mar is called spring (or worst case, early) calving. Now the feeling is good.

Feeling Good

Oklahoma State scientists wish to feel good as well¹. In a recent study, they examined the value of supplementing native forage with either Protein or Energy, prepartum and postpartum, in spring-calving cows. The cows commenced calving Feb 1 for a 65 day period. The study addresses my second hurdle with "spring" calving - a lot of supplemental feed is required.

The following table describes the nutrient content of the supplements. The Pro-

Nutrient Content of Supplements		
	Protein	Energy
Protein, lb/d	1.15	1.10
NEm, Mcal/d	2.51	5.31

tein supplement consisted of 91% soybean meal and 3.3% soybean hulls, with the remainder being molasses and mineral. It was fed at the rate of 2.7 lb/d. The Energy supplement contained 15.5% meal and 80% hulls. It was fed at 5.4

lb/d (soy hulls do not contain grain starch). All cows grazed together on native tallgrass pastures. Supplementation began 86 days prior to the start of the calving season and continued for a total of 164 days. Half of the cows received the Protein supplement while the remaining cows were fed the Energy supplement. Upon calving, ½ of the cows on each diet remained on that diet or were switched to the other.

If it is assumed that these cows (H and HxA) had a frame size 4.5 and forage contained 0.42 Mcal of NEm, energy from forage would have been 9 Mcal/d. When supplemented with Protein the supplement supplied 22% of the daily energy. In the case of the Energy supplement, 37% of the energy came from the supplement. This assumes that supplementation did not impede forage consumption or utilization. In either case, rate of supplementation was high.

Below is a summary of results from feeding Protein or Energy precalving. The

Effect of Pre-calving Supplem. on BCS, Conception and Calf Performance		
	Protein	Energy
No. of Cows	172	170
Ave Calving date	1-Mar	3-Mar
BCS at Calving	5.3	5.5
BCS at Breeding	4.9	5.1
Pregnancy Rate, %	79.7	90.5
Calf Birth wt	76.5	83.8
Weaning wt	421.1	436.5

researchers found that the small differences in BCS at calving were significant. The greater impact of Energy supplementation also is revealed in higher pregnancy rate and birth weight of calves. Weaning weight was not statistically different.

The next table summarizes the response to the same supplements when fed to cows postpartum. According to statistical analyses, none of the parameters were affected by supplementation. When examining pregnancy rates, it would appear that feeding energy postpartum increased the rate by 4.8%. The authors are saying, however, that this discrepancy was due to chance alone.

Effect of Supplementation During Early Lactation on BCS, Conception and Calf Performance		
	Protein	Energy
No. of Cows	123	122
Ave Calving date	2-Mar	3-Mar
BCS at Calving	5.4	5.4
BCS at Breeding	5	5
Pregnancy Rate, %	83.3	88.1
Weaning wt	436.5	440.9

This study was replicated over three years. During the 2nd and 3rd years a third supplement, Hi-Protein, was included during the postpartum period. Whereas the Protein and Energy supplements were fed to provide similar protein levels with differing energy levels, the Hi-Protein supplement provided double the protein level with the same energy level as the Energy supplement. Doubling the protein had no impact upon pregnancy rate, although the calving interval was extended by 13 days during year 3.

Specify Your Protein

Energy feeding precalving has a greater impact upon cow reproductive performance than does similar supplementation postcalving. Protein requirements for dry cows are low and are related to energy consumption. Soybean meal is suitable for this purpose. Protein requirements during lactation are high and are related to milk production. This indicates high escape protein requirements for which soy is not well suited.

Schools in '96

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¹ Marston, T.T., K.S. Lusby, R.P. Wettemann & H.T. Purvis. 1995. Effects of Feeding Energy or Protein Supplements Before or After Calving on Performance of Spring-Calving Cows Grazing Native Range. J. Anim. Sci. 73:657.