

LOW COST COW/CALF PROGRAM

The Bulletin For Alumni Of The School

Volume 11 Number 5

Nutraceuticals

It is a self-defining word. It means just what it says. We are probably more accustomed to the word pharmaceuticals. Those are the things prescribed by our doctor that we buy at the pharmacy to cure what ails us. Nutraceuticals are the nutrients - contained (naturally) in our food or added to our food - that cure what ails us. The first use of the term occurred in the late 1980's but nutraceuticals were around much earlier. I recall, as a preschooler in the late 1930's, my mom putting a measured amount of iodine into a glass of water and then drinking it (pharmaceutical). Yuk! This was in the NW, which is noted to be an iodine-deficient area. It was prescribed for my mom for thyroid problems (goiter). I didn't receive any. It was learned much later that iodine deficiency results in intellectual impairment. Explains a lot! Iodized salt, a nutraceutical, was introduced in 1924 but it was years later before it became available to isolated parts of the NW. I also recall being offered dessert, only after swallowing and keeping down a spoon full of cod-liver oil (pharmaceutical). More Yuk! Now the fat-soluble vitamins come to us, in fortified foods, as nutraceuticals. When you *Google* nutraceutical, you receive 2.5 mil hits. Most all of them focus on health-food advertisements.

Nutraceuticals for Cattle

We offer minerals to our cattle (and occasionally protein) as supplements to the forage they are consuming. Are these nutraceuticals? We do this in order to maximize performance and not necessarily to cure any ills (perhaps, in some situations, to prevent them). For eons, cattle grew and reproduced successfully with pasture forage as their sole source of nutrition. We then became production oriented. Bigger was better. Coming out of WWII, grain was much less expensive than pastureland; thus, commercial cattle feeding blossomed. As grain prices got higher, we found that (with some expensive equipment and cheap fossil fuel) the energy from the grain could be made even more available by steam flaking and pressure cooking. Nutritionists formulated di-

ets with higher and higher levels of grain. When they realized that the envelope was being pushed, they insisted that some fiber be included in the diet. Although in the very acidic rumen environment, the fiber is not fermented. It does help, however, to minimize enterotoxemia, bloat and other maladies. Is this fiber-feed considered a nutraceutical? Tylosin has been fed since the late 60's for the prevention (minimization) of liver abscesses. Is Tylosin a pharmaceutical?

Dietary Fat & Cows

Oklahoma State University researchers¹ recently reported on a study of supplementing pregnant-cow diets with high-oil sunflower seeds. The study was conducted to measure a potential nutraceutical affect that lipids may have on reproductive efficiency of beef cows. Some big ol' pregnant cows (1300 lb), that had previously calved, were divided into 3 supplement-treatment groups of 48 head each so that the average BCS was the same for all groups. The supplements were 1.5 lbs of soybean meal/feeding (NCON), 6.63 lb of soybean hull-based supplement/feeding (PCON) and 3.66 lb of whole, sunflower seeds/feeding (WSUN). The seeds contained 44% fat, which was 58% linoleic acid (omega 6) and 22% oleic acid (omega 9). The cattle were run together in a single, dormant, tall-grass prairie pasture and had free-choice access to Bermuda grass and tall-grass prairie hays. Each cow was fed its appropriate supplement in an individual stall on Monday, Tuesday, Thursday and Saturday mornings. All supplements were formulated to contain the same amount of protein. The PCON and the WSUN supplements contained the same amount of energy. *It should be noted that wheat middlings were added to the PCON supplement in order to bring the energy to the level of the WSUN supplement.* Supplement feeding commenced on November 30 and terminated on February 14, just before the first calf was born. Following the 76-day supplementation period, the cows

were run as a single herd.

Results

From the start of supplement feeding until calving, the live weight gain was 50.7, 72.7 and 22.0 lbs for the NCON, PCON and WSUN treatments, respectively. BCS declined for all treatment groups during the supplement period. BCS change was -0.27, -0.09 and -0.40 for the NCON, PCON and WSUN treatments, respectively. The cattle supplemented with the sunflower seeds were the poorest performing of the three groups. *It is a wonder that baseball players don't waste away.* Assuming uniform forage consumption across all groups, the NCON and PCON groups' diets received 2% dietary fat while the seed group got 5.7%. That is a pretty high level for a cow on a forage diet, in anybody's book. Further, the high lipid consisted of unsaturated fatty acids. It has been shown, by others, that high levels of dietary lipid (in the form of saturated fatty acids) are tolerated much better. The added fat simply may have reduced forage utilization and consumption. Neither calf birth nor weaning weight was influenced by supplementation. The indication of first estrus did not differ among treatments. The cows were AI from May 9 through June 5, followed by natural mating through July 15 (67-day season). AI conception rate was NCON, 53%; PCON, 79% and WSUN, 74%. Although there were these differences in AI conception rates, there was no difference in overall conception rate (88%). Subsequent feedlot-calf performance did not vary with pre-calving treatments.

Schools In '06 - '07

Valleyview, AB Nov 22 -- 25
Fairview, AB Nov 29 -- Dec 2
Near Ok City, OK March 6 -- 9
Lamar, CO March 12 -- 15

Dick Diven

Agri-Concepts, Inc.

11098 N Desert Flower Dr

Tucson, AZ 85737-7051

520.544.0864

rhdiven@lowcostcowcalf.com

www.lowcostcowcalf.com

¹ Banta, JP, DL Lalman, FN Owens, CR Krehbiel and RP Wettemann. 2006. Effects of interval-feeding whole sunflower seeds during mid to late gestation on performance of beef cows and their progeny. J Anim Sci 84:2410.