LOW COST COW/CALF PRODUCTION

The Bulletin ***For Alumni Of The School***

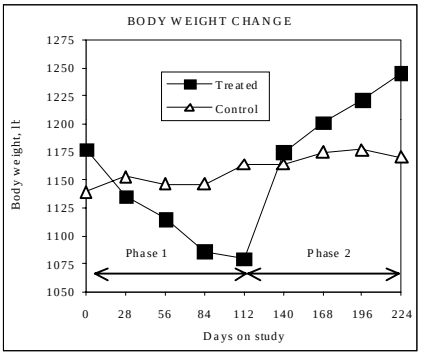
Volume 4 **Number 1**

Feed Availability

"Optimization of a cow-calf production system requires synchronization of the cow's nutrient requirements with feed availability." This was the lead statement in a recent report by two researchers at the USDA Research Center in Clay Center, NE.[1] Ranges go through seasonal changes. Invariably, there is a period when forage quality is low. Nothing can be done about **range seasonality** and if the goal is not to supplement with energy feeds, then we've got to work on the cow. Recall the energy function NEΔ? The most energy required by a cow is for weight gain. The second is the summation of energy required for maintenance plus lactation. At the time of calving, the cow must be in suitable body condition and gaining weight in order to breed back in a timely manner. Therefore, the timing of this conditioning and weight gain must coincide with the highest quality of forage the land produces. The onset of high quality forage varies from one locale to another. It can be in December in Northern California but not until the middle of May in Alberta and late winter farther south. How much time must be allowed from the onset of quality forage until calving? Only the rancher really knows. He knows what the body weight gain will be each day and how much conditioning (increase in BCS) of the cow is required. Therefore, he knows the time of calving relative to the time the land commences greening. After consideration of the impact of photoperiod on conception, allowance for an occasional late season, etc., he establishes the calving date. Not long after calving, the cow starts losing weight. Weight loss can be slowed by weaning. She continues to decline in condition until the green appears once again.

Wt Loss/Wt Gain

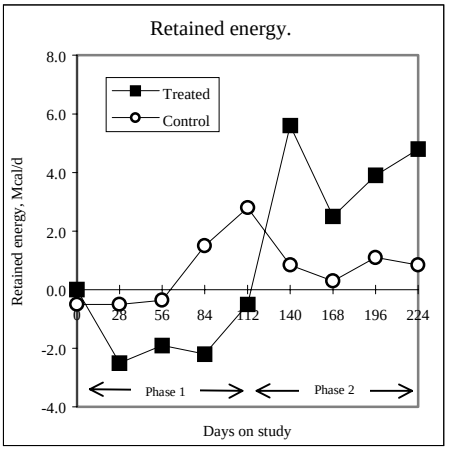
In the study referred to earlier, mature, non-pregnant, non-lactating cows were divided into two groups. One group (Control) was fed 20 lb/d of chopped brome hay throughout the entire 224 d study. The second group (Treated) was fed 13 lb of the same hay for the first 112 d (Phase 1), followed with 26.4 lb/d for the last 112 d (Phase 2). The total amount of feed received during the entire 224 d study was the same for both groups. As expected, the cows in the Treated group lost weight (92 lb) during Phase 1 and gained it back during Phase 2. This is shown in the graph below. Note the very small amount



of weight loss for the 28 days between day 84 and day 112. It has been suggested that for a given nutrient intake, there is a target equilibrium in mature cows. The authors calculated that in the present study, cows in the Treated group would have achieved weight equilibrium by 136 d - if Phase 1 had lasted that long. This is even more apparent in the next chart, picturing retained energy. The cow should be at maintenance when energy consumed is equal to energy lost or retained energy equals zero. With the Treated group, that nearly is achieved by the end of Phase 1 (112 d). When the retained nitrogen (protein) is graphed over the entire study for both groups of cattle, the curves are very similar to those shown in the retained energy chart. A new equilibrium for protein seemed to occur but a bit earlier than for energy with the restricted cows.

Why is This

Heat production is the combination of the heat of digestion and the heat increment associated with physical and metabolic work. Following feed restriction for the Treated cattle in Phase 1, heat production decreased rapidly. At the beginning of Phase 1, the cows were in a negative energy balance. By 112 d, the efficiency with which they retained energy was increasing. An equilibrium was near by.



Rumors

"I truly am amazed at how handy you've made it for other people to work with complex nutrition." Thank you, Ted Sailer, N. Dakota.

Schools In 1998 - '99

Edmonton, AB January 18 - 21, '99
Red Deer, AB February 1 - 4, '99
Lethbridge, AB February 16 - 19, '99

Jennifer Stewart-Smith
Beefbooster Management Ltd.
#226, 1935-32 Ave NE
Calgary, AB T2E 7C8
(800) 668-1529 FAX (403) 291-9559

Pratt, KS June 9 - 12, '98
Boise, ID July 13 - 16, '98
Billings, MT October 5 - 8, '98
Redding, CA November 9 - 12, '98
Ogallala, NE December 9 - 12, '98

Dick Diven
Agri-Concepts, Inc.
12850 N. Bandanna Way
Tucson, AZ 85737-8906
(800) 575-0864 FAX (520) 742-2607

[1] Freetly, H.C. and J.A. Nienaber. 1998. Efficiency of energy and nitrogen loss and gain in mature cows. J. Anim. Sci. 76:896.