Effects of Winter Nutrition Level on Cow and Calf Performance

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Cow and calf performance under four winter nutritional levels was evaluated, using 61 purebred Polled and high grade Hereford cows randomly allotted to obtain approximately equal pregnant and open cows in each group. The cows were 1.0 to 4.5 years old, except for two older ones. Average calving date was mid April. Forty-five live calves were born. They were weighed within 24 hours after birth and at monthly intervals from June to November. One calf was born dead. Cows were weighed each month and rotated among four native bluestem pastures during the entire year. All calves were graded and weaned at the last weighing.

Winter rations were formulated so the one with highest energy and protein would approximately maintain the cows weight from November to May. This ration consisted of 3 lbs. good quality alfalfa hay, 3 lbs. cracked sorghum grain and 1½ lbs. soybean meal daily. A second ration lower in protein consisted of 3 lbs. alfalfa hay and 3 lb. of sorghum grain daily. A third ration was lower in energy but high in protein with 3 lbs. alfalfa hay and 1½ lbs. soybean meal daily. Ration four was low in both energy and protein, containing only 3 lbs. alfalfa hay per day. Each group of cows was wintered and summered in approximately 300 acres native pasture of predominately big and little bluestem.

Results and Discussion

Average initial cow weights by groups ranged from 838 to 945 lbs. The random assignment put both old cows in the third group, which increased initial weight and age of the group. Cow weight in group 1 remained essentially constant from November till May as planned; all other groups lost weight. Cows receiving 3 lbs. alfalfa hay lost an average of 64 lbs. However, approximately 80 percent of the cows in each group calved late in the feeding period. During May, cattle on low protein rations gained less rapidly than other groups (groups 2 and 4 versus 1 and 3). All groups gained rapidly from June to August then changed little. By August average weight of all except those that had received only 3 lbs. alfalfa hay (Group 4) was around 1,000 lbs. Group 4 reached their highest average weight (942 lbs.) in October.

No difficulty was encountered at calving and 45 of the 46 calves born were weaned. Calf birth weights were approximately equal among groups (70 to 73 lbs.). Calf growth patterns were essentially the same in all groups. Calves from cows which received alfalfa hay and soybean meal (group 3) gained slower and were significantly lighter at weaning than calves from the other three groups.

The study is being continued with the same nutritional levels and the same cows in the same groups. One year's data indicate cows receiving low energy and protein (group 4) were

stressed enough to prevent their reaching mature size as rapidly as cows on a higher nutritional plan. However, calf performance seemed not to be affected by the cows' low winter nutritional level. There was some indication with these rations that energy was more critical than protein. Refer to tables 7 and 8 page 29 for reproductive performance of a portion of these cows.

Table 2

Average Cow and Calf Performance Under Indicated Nutritional Levels

Group		1	2	3	4
Ration	Alfalfa	3 lb.	3 lb.	3 lb.	3 lb.
	Grain	3 lb.	3 lb.		
	SBM	1½ lb.		1½ lb.	
Data					
No. of cows		15	17	15	14
Avg. cow age		2.0	2.0	3.3	2.1
1967 cow wt.		838.4	880.7	945.0	895.0
1968 cow wt.		990.3	1002.3	1047.3	925.8
Cow wt. change		151.9	121.6	102.3	30.8
No. of calves		12	11	11	11
Calf birth wt.		70.1	76.2	70.3	73.3
205-day calf wt.		447.2	440.8	376.7	429.2
Calf weaning grade		11.5	11.8	11.1	11.7