HIGH ENERGY RATIONS FOR CALVES AT WEANING

The weaning period is critical in a calf's life and if the weaning weight is to be maintained and a normal gain obtained, the calf's ration must be high in energy with ample available protein. The National Research Council's findings show that a 400 pound calf requires 7.0 pounds of total digestible nutrients (TDN) with 0.9 pound of digestible protein in order to make gains of 1.6 pounds per day.

A trial was started in October, 1968 and continued for four years to evaluate the practice of feeding calves a high energy ration for a period of three weeks after weaning. The first three years, the ration included oats, tame hay, soybean oilmeal and antibiotic (terramycin) crumbles. Also, during the first three years, one-half of the calves were vaccinated for infectious Bovine Rhino-tracheitis (red nose) two weeks before weaning.

In October, 1971 the ration fed was modified by removing both the soybean oilmeal and the antibiotic crumbles. Also, in 1971, none of the calves were vaccinated for "red nose".

In all four years of the trial, all calves were vaccinated for blackleg and malignant edema and for over eating disease (enterotoxemia type C and D).

In 1971, the station calves (Hereford) were weighed on October 13 and weaned. They were then allotted by sex and directly exposed to their high energy ration. This ration was composed initially of 3 pounds of oats and top quality tame (crested-brome) hay fed free choice. The oats was gradually increased until a level of 5 pounds per calf per day was reached.

Table 22 shows the four year performance of calves on this trial. Table 23 shows the four year average daily rations fed and the feed cost.

Table 22. Four Year Average Weights and Weight Gains of Calves in the High Energy Ration Trial

	Steers				
	1968	**1969**	**1970**	**1971**	**4-Yr. Avg.**
Days on trial	20	17	21	20	20
Number of head	48	39	43	49	179
Avg. Oct. weight / hd.	381.6	386.0	388.3	364.2	380.0
Avg. Nov. weight / hd.	403.2	414.4	424.4	386.9	407.2
Avg. weight gain / hd.	21.6	28.4	36.1	22.7	27.2
Avg. daily gain / hd.	1.08	1.67	1.72	1.14	1.40
	Heifers				
Days on trial	20	17	21	20	20
Number of head	49	54	44	51	198
Avg. Oct. weight / hd.	370.5	382.5	373.2	342.4	367.2
Avg. Nov. weight / hd.	387.6	404.4	410.1	361.8	391.0
Avg. weight gain / hd.	17.0	21.9	36.9	19.4	23.8
Avg. daily gain / hd.	0.85	1.25	1.76	0.97	1.21

Table 23. Four Year Average Daily Rations Fed to Calves in the High Energy Ration Trial

	1968	1969	1970	1971	4-Yr. Avg.
	Steers				
Tame hay (lbs.)	4.2	7.1	7.3	7.1	6.42
Whole oats (lbs.)	3.8	4.0	3.9	4.1	3.95
Soybean oilmeal (lbs.) 1/	0.6	0.6	0.7	---	0.63
Terramycin crumbles 1/	350 mg.	250 mg.	260 mg.	---	287 mg.
Calculated TDN	5.36	7.03	7.15	6.54	6.52
Cost / hundred pounds gain	$15.07	$10.33	$10.92	$11.76	$12.02
Feed cost / head	$3.25	$2.99	$3.95	$2.67	$3.22
	Heifers				
Tame hay (lbs.)	4.2	6.2	7.1	6.7	6.05
Whole oats (lbs.)	3.8	4.1	3.9	4.1	3.98
Soybean oilmeal (lbs.) 1/	0.6	0.6	0.7	---	0.63
Terramycin crumbles 1/	350 mg.	250 mg.	260 mg.	---	287 mg.
Calculated TDN	5.36	6.63	7.04	6.34	6.34
Cost / hundred pounds gain	$18.94	$13.32	$10.56	$13.40	$14.06
Feed cost / head	$3.23	$2.88	$3.90	$2.63	$3.16

1/ Fed for 3 years only.

Summary

Although the calves were lighter at weaning in 1971, the gains for the 20 day period averaged 22.7 pounds for the steers and 19.4 pounds for the heifers. Feed costs per calf averaged $2.65 in 1971, or about $12.58 per hundred pounds of gain.

The four year average shows that steers gained faster and were more efficient to feed than were heifers. Over the four years, the steer calves gained an average of 27.2 pounds and the heifers gained 23.8 pounds during the 20 day feeding period.

In all four years, it has been an economically sound practice to feed high energy rations to weaning calves. There did not appear to be any response to vaccinating for "red nose" during the three years, 1968-1970. We do feel it is important to vaccinate for over eating (enterotoxemia – type C and D) when feeding calves high energy rations.