Vigortone Calf Trial 02-04

Materials & Methods

Milk replacer used in this study was 20 % crude protein and 20 % fat. All protein in the milk replacer was derived from milk products. Treatments were neomycin-oxytetracycline (NT) at 400-200 g/ton antibiotics in the milk replacer or Levucell SB (SB) from Lallemand in the milk replacer. Fifty male Holstein calves were purchased from a Wisconsin sale barn and transported to a calf raising facility near Springville, IA the evening of February 9, 2004. Calves were randomly assigned to one of two treatment groups on arrival. Calves were housed in individual pens within a "coverall" barn. Pens were bedded with straw. On arrival, calves were given 8 oz of Critical Care (electrolyte product from North American Nutrition Companies) dissolved in 2 qt of warm water.

Beginning with the morning feeding on February 10, each calf received 8 oz of milk replacer dissolved in 2 qt warm water twice daily for 5 weeks. During the sixth week, 8 oz milk replacer in 2 qt warm water was fed only once daily. After the 6^{th} week, calves were weaned from milk replacer. Beginning the first week of the trial, an 18% crude protein texturized calf starter feed (VigorKalf R from Vigortone Ag Products) was offered *ad libitum*.

Initial weight and height of individual calves was measured 4 hours after the morning feeding on February 10. Weight of individual calves was also measured at 14, 28, 42, and 56 days. Final height measurement of each calf was taken on day 42. Daily amount of starter feed consumption was recorded for individual calves. During the first 14 days, fecal scores were recorded daily for each calf using a scale of 1 – 5. Medical treatments were recorded for individual calves. Data was analyzed using single factor ANOVA. A total of 6 calves were removed from the study due to injury or death. Values for these calves were not included in the data analysis.

Results

Body weight and height of calves did not differ ($P>.10$) between treatments at initiation and termination of the trial (Table 1). Intermediate body weights also did not differ between treatment groups. Weight gain for each 2-week interval did not differ between NT and SB treated calves from initiation to six weeks of age. Calves were weaned at six weeks and all calves were then fed only the calf starter feed and water *ad libitum*. Although calves did not receive NT or SB from the sixth to eighth week, their weight gain was measured to determine any carryover effects of treatments. Weight gain between week 6 and week 8 was less for calves that had received NT than for calves that had received SB (29.9 vs. 36.4 lb; $P < .05$). However, total weight gains from 0 to 8 weeks were not different ($P >.10$) between treatment groups.

Table 1. Growth of Calves Given NT or SB in Milk Replacer from 0 to 6 Weeks of Age

Treatment	Initial Wt., lb	2-Wk Wt., lb	4-Wk Wt., lb	6-Wk Wt., lb	8-Wk[1] Wt., lb	Initial Ht., inch	6-Wk Ht., inch
NT (n=24)	105.2	109.0	135.8	159.3	189.2	33.5	35.8
SB (n=20)	106.6	111.6	137.4	158.0	194.5	33.6	36.1

[1]From 6 to 8 weeks of age calves were fed only VigorKalf R 18% starter feed and water.

Starter intake, total dry matter intake, and gain:DM intake ratios were similar (P >.10) between treatment groups. Calves were co-mingled after weaning at week 6 so no differences in feed intake were measured from the 6th to 8th weeks. A general rule is that calves can be weaned when they consistently consume at least 2 lb of starter feed daily. Starter feed intake averaged 2 lb/calf/day during week 4 of this trial, indicating calves readily consumed the starter feed.

Table 2. Starter Intake, Total DM Intake and Feed Conversion of Calves Given NT or SB in Milk Replacer from 0 to 6 Weeks of Age

	Weekly Starter Intake, lb/hd						Total DM intake, lb[1]	G:F ratio
Treatment	Wk 1	Wk 2	Wk 3	Wk 4	Wk 5	Wk 6	0 – 6 wk	0 – 6 wk
NT (n=24)	2.80	4.92	11.33	13.92	20.46	25.63	109.65	0.49
SB (n=20)	2.13	4.70	11.87	15.25	21.05	24.60	110.14	0.47

[1]Sum of dry matter (DM) consumed from starter feed and milk replacer.