



BioStart Calf Trial Report

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Introduction

The biological calf health goals of calf rearing are to;

1. Establish beneficial gastrointestinal microflora. The first microbes to establish in the gastrointestinal system of a calf (from colostrum) stay with that animal for the rest of its life. The right microbes will fight disease-causing organisms and reduce stress on the immune system.
2. Set up the calves immune system. This is important over the first 21 days while the immune system is still developing.
3. Minimise scouring.

The financial/farming goals of calf rearing are to as soon as possible;

1. Reach target weaning weight
2. Wean the calves off milk and onto hard feed
3. Minimise input costs
4. Make a financial return

Issues facing farmers rearing calves are;

1. There is often not enough good quality colostrum available. A cow-reared calf would get 4 days of colostrum and ongoing immune support from its mother
2. Environmental stress – especially weather
3. Change of feed stresses (milk /CMR/meal/grass)
4. Standing in pens exposes calves to *E. coli* (causes scours)
5. *Salmonella* via bird droppings (causes scours)

BioStart Limited has developed a calf feed additive that can address some of the issues facing calf rearers. BioStart Calf and BioStart Ruminant, are given over the first 10 weeks of a calf's life or until weaning off liquid feed. Calf and Ruminant contain a number of prebiotic and other nutritional ingredients that will augment calf feed (be it fesh milk, calf milk replacer or meal) and promote healthy calves that grow better than untreated calves.

Trial Aim

The aim of this trial was to evaluate the effect of using the BioStart calf rearing products (Calf and Ruminant) on calf live weight and live weight gain over the first 10 weeks of life on a commercial dairy farm.

Methodology

The trial was conducted in Te Awamutu during the 1996 calving season on a commercial dairy farm. The treatments were either no calf rearing products (control) or the Biostart calf rearing programme; Calf for first 21 days at 2 x 1 mL/calf/day, followed by Ruminant 1 mL/calf/feed/day. For the trial the Biostart products were added to the calf milk replacer just prior to feeding the calves.

There were 19 calves per group with each groups being age and weight matched. The trial was conducted over 10 weeks and calves were weighed at fortnightly intervals.

Results

The two groups had very similar birth weights, 29.3 and 29.4 kg for control and Biostart-treated calves, respectively (Table 1) which was ideal for this trial. At 24 days of age there was no difference in live weight between the two groups, however, at days 38, 52 and 68 the Biostart-treated calves were 6, 6 and 7 % heavier than control calves.

Table 1 Live weights of the control and Biostart-treated calves.

Live Weight (kg)	Age (d)	Control	Biostart	Biostart Increase
	Birth	29.3	29.4	
Calf	24	45.4	45.9	1%
Ruminant	38	55.2	58.4	6%
Ruminant	52	63.9	67.8	6%
Ruminant	68	73.7	79.2	7%

A better way of comparing live weights of calves in this type of trial is to record changes relative to a calf's birth weight. The actual birth weights of calves is affected by a number of factors including breed (Friesian calves are generally heavier than Jersey calves), age of the mother (heifers generally have lighter calves) and nutrition of the mother during late pregnancy. Each of these factors impacts on birth weight as well as the rate at which a calf grows.

A better measurement of a products performance in a calf rearing trial is to therefore look at a calf's live weight relative to a calf's birth weight as this takes into consideration the impacts of breed, age of the mother and pregnancy nutrition. Using this correction for birth weight the Biostart treated calves were 13, 10 and 16 % heavier at 38, 52 and 68 days, respectively (Table 2; Figure 1).

Table 2 Changes in live weight relative to birth weight for control and Biostart-treated calves.

LWt Relative to BWt	Age (d)	Control	Biostart	Biostart Increase
Calf	24	156.5	157.5	1%
Ruminant	38	190.3	202.8	7%
Ruminant	52	220.7	238.7	8%
Ruminant	68	255.2	284.4	11%

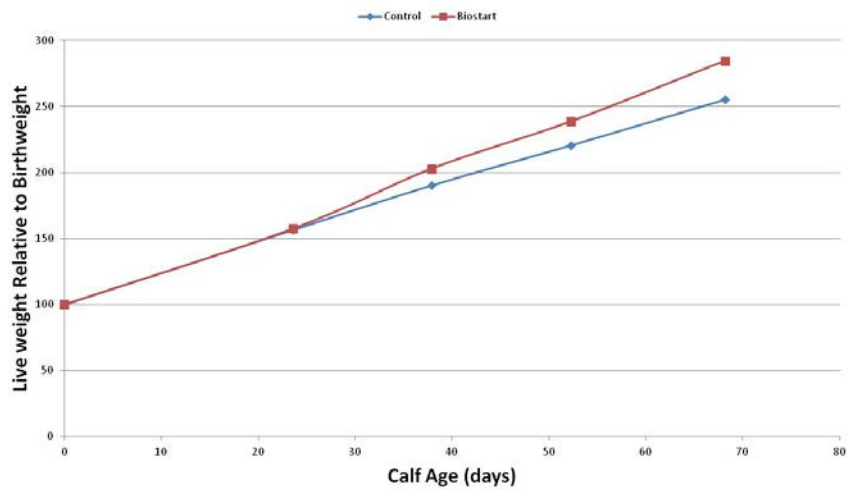


Figure 1 Liveweight relative to birthweight of control and Biostart-treated Calves.

The live weight gain per day indicates how well a particular calf is growing. The Biostart treated calves grew 14, 11 and 18 % faster at 38, 52 and 68 days, respectively, when compared to control calves (Table 3).

Table 3 Live weight gain rates for control and Biostart-treated calves.

LWt Gain Rate Since Birth (g/d)	Age (d)	Control	Biostart	Biostart Increase
Calf	24	674	697	3%
Ruminant	38	681	776	14%
Ruminant	52	804	892	11%
Ruminant	68	681	802	18%

Conclusions

Administering the 10 week Biostart calf rearing treatment (21 days of Calf, followed by 48 days of Ruminant) the Biostart-treated calves;-

- Were 7 % heavier live weight (79 compared to 74 kg)
- Were 11 % heavier live weight relative to birth weight (255 compared to 284kg)
- Had an 18 % superior growth rate of 802 g/d compared to 681 g/d for the control calves.

