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TRIAL REPORT

Radiant Calf Trial

Objective

To generate calf performance data for dairy heifer calves reared on Radiant Calf milk replacer



Trial Site	Agri-Food and Bioscience Institute (AFBI) (Hillsborough, N. Ireland)
Calf type	Holstein heifers
Number of Calves	12 (born Sept to Dec 25)
Milk Powder	Radiant Calf (23% crude protein, 18% fat; with 30% skim milk powder, contains EXAMO [milk oligosaccharides], Butyrate and Gardion)
Feeder Type	Teated buckets

Management and Feed

Colostrum:

- Calves remained with their dam for 6-12 hours after birth and received 3-4L of dam colostrum via teated bottle or oesophageal feed tube within 2 hours of birth.
- Calves were transferred to a straw bedded pen under a heat lamp and offered a second feed of colostrum (2L) via a nipple teated bucket within 12-16 hours of birth.
- Once completely dry, calves were moved to a straw bedded paired pen and offered colostrum twice daily (2.5L per feed) until 3 days of age.

Milk Replacer:

- On day 4, calves were fed milk replacer mixed at 150g/L (150g powder + 850ml water = 1 litre of mixed milk) twice daily via teated buckets (Table 1).

**Table 1. Milk Feeding Plan**

Age period (days)	Days	CMR (g/litre)	CMR (litres/d)	CMR (g/d)
0-3	3	Colostrum		
4-7	4	150	5	750
8-42	35	150	6	900
43-49	7	150	5	750
50-56	7	150	4	600
57-63	7	150	2 (once daily)	300

Total milk powder, 45kg

Water and Dry Feed:

- Fresh water, calf starter concentrate (Calf nuts, 18% CP) and chopped straw in buckets was available ad-libitum (from day 5)

Weaning:

- Milk was reduced gradually from 6 to 2 litres over 21 days and calves were weaned at 63 days of age

Management:

- Calves were fitted with a calf jacket until 28 days of age, dehorned at approximately 4 weeks and pair housed until 13 weeks of age.

Results**Calf Intake**

- Calves consumed on average 45kg milk powder and 31kg starter up to weaning (day 63). After weaning, calves consumed 88kg starter from days 64 to 90 (Table 2).

Table 2. Total intake of milk replacer and concentrate

	Total intake
Milk replacer (kg DM/calf)	45
Concentrate d5-63 (kg DM/pair)	61
Concentrate d64-77 (kg DM/pair)	81
Concentrate d78-90 (kg DM/pair)	95



Calf Growth

- Calves weighed on average 36kg at birth and 86kg at weaning (day 63) (Table 3 and Figure 1) and had a daily live weight gain from birth to weaning of 0.79kg/d (Table 4).
- All calves doubled their birth weight by weaning (Figure 2).
- After weaning, calves weighed on average 103kg on day 77 equating to a daily live weight gain immediately post weaning of 1.2kg/d (Table 4).
- Calves had a daily live weight gain from birth to 13 weeks of 0.95kg/d (Table 4).

Table 3. Calf body weight (kg) up to 13 weeks of age

	Body weight, kg	
	Mean $\pm$ SE	Range
Birth	36 $\pm$ 1.2	30-45
d14	45 $\pm$ 1.3	37-52
d28	55 $\pm$ 1.5	44-63
d42	66 $\pm$ 1.4	56-72
d49	72 $\pm$ 1.7	61-80
d63	86 $\pm$ 2.0	77-99
d77	103 $\pm$ 2.3	92-118
d91	122 $\pm$ 3.2	105-142

Figure 1. Calf body weight ($\pm$ SEM) up to 13 weeks of age

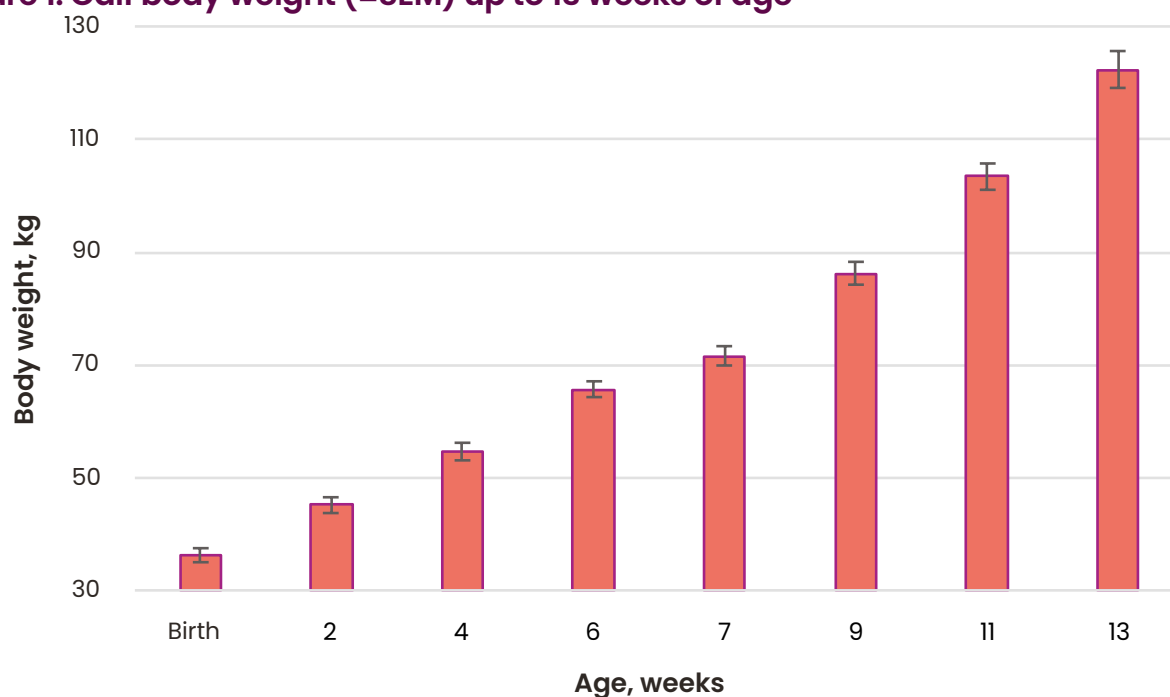
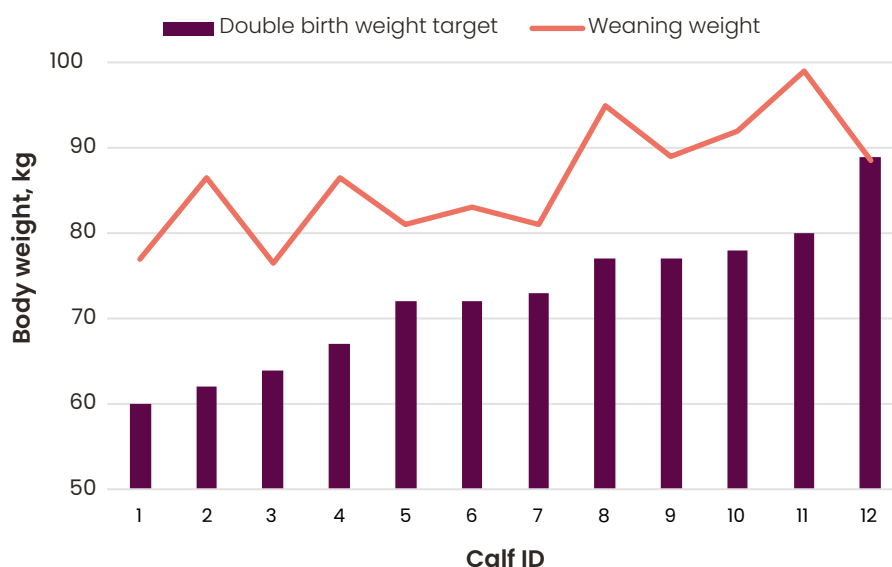




Table 4. Calf daily live weight gain pre and post weaning

	Mean $\pm$ SE	Range
Birth to d14, kg/d	0.64 $\pm$ 0.05	0.4–0.9
d14 to weaning (d63), kg/d	0.84 $\pm$ 0.02	0.7–1.0
Birth to weaning (d63), kg/d	0.79 $\pm$ 0.02	0.7–0.9
Weaning (d63) to d77, kg/d	1.23 $\pm$ 0.06	0.9–1.5
Birth to d91, kg/d	0.95 $\pm$ 0.03	0.8–1.1

Figure 2. Body weight at weaning (d63) vs target body weight at weaning (based on double birth weight)



Calf Health:

- Calf health was good throughout the trial; no calves received treatment for scour, and only 2 calves received treatment for a single episode of respiratory illness.

Conclusions

- Calves fed a total of 45kg Radiant Calf milk replacer doubled their birth weight (average of 36kg) by weaning, weighing on average 86kg at 9 weeks of age.
- Calves had good growth rates from birth to weaning of 0.79kg per day and continued to thrive immediately post weaning with excellent growth rates of 1.2kg per day.
- Calf health was excellent throughout the trial.
- With good management, feeding calves up to 6L per day (900g milk solids per day) of Radiant Calf milk replacer, enhanced with milk oligosaccharides (EXAMO), results in good performance in terms of growth and health.