

Animal Science Research Centre - Beef Unit Trial Results – 2007 (b)

Comparison of once versus twice per day milk replacer feeding systems with 5 day old bucket reared calves

Stock: 44 Oct-Nov 2006 born Holstein & Simmental x Holstein bull calves.

Treatments: The calves were fed colostrum within 6 hours of birth and for a further 4 days and were placed on to the following treatments in individual pens:

Twice Bucket fed warm Wynngold Bloom Milk Replacer (22% CP, 18% Oil) mixed at 125g per 875ml of water twice per day at 4 litres per day. At 7 days of age the milk was increased to 5 litres per day to supply 625g of milk replacer. The calves were weaned at 6 weeks of age.

Once Bucket fed warm 'Once a day Watermix' Golden Maverick Milk Replacer (20% CP, 30% Oil) mixed at 200g per 800ml of water and fed at the following rates to weaning at 6 weeks old:

Age (days)	Litres per day	CMR (g/d)
5-8	2.0	400
9-12	2.5	500
13-28	3.0	600
29-42	3.5	700

Wynnstay Start 'n' Wean concentrates (18% CP), fresh water and straw were offered *ad lib* from 4 days old to both treatment groups. The calves were moved into group pens at weaning.

Results:

Liveweight (kg)	Twice	Once	Sig
Start	46.6	49.7	NS
3 weeks	54.0	54.5	NS
Weaning	69.9	69.4	NS
12 weeks	123.1	121.9	NS

DLWG (kg)	Twice	Once	Sig
Start - 3 weeks	0.35	0.23	**
Start - weaning	0.56	0.47	=0.115
Wean - 12 weeks	1.27	1.25	NS
Start -12 weeks	0.91	0.86	NS

NS = not significant, *= $P < 0.05$, ** = $P < 0.01$.

Coat bloom score* (1-3)	Twice	Once	Sig
Weaning	2.50	2.30	=0.122
12 weeks	2.68	2.73	NS

*Bloom score scale: 1=dull, 2 = normal, 3 = shiny

Feed intakes (kg)	Twice	Once	Sig
Milk replacer	22.9	23.0	
Concs -start to wean	27.4	30.6	NS
Concs - wean to 12 weeks	138.6	139.7	
Concs - total	166.0	170.3	

Feed costs (£/calf - October 2006)	Twice	Once
Once a day CMR @ £1,600/t		36.80
Twice a day CMR @ £1,350/t	30.91	
Concentrates @ £172/t	28.55	29.29
Feed costs/calf	59.46	66.09
Feed cost per kg gain (p)	0.78	0.92

The time in minutes spent attending each group for feeding, bedding and checking are shown below:

Labour (minutes)	Twice	Once	Sig
Morning & afternoon	61.2	30.9	***
Minutes per calf per day	2.78	1.40	***
Minutes per calf to weaning	116.8	58.8	***

*** = $P < 0.001$

Results & Conclusions:

- Calf growth rates on both systems exceeded the recognised targets for rearing bull calves to 12 weeks old of 115kg (MLC 1999).
- The twice-a-day reared calves recorded significantly higher ($p < 0.01$) DLWG's from start to 3 weeks.
- There were no significant differences in live weight at weaning or 12 weeks, or feed intakes between the treatments. However the twice-a-day calves gained an extra 4.3kg to 12 weeks of age and had an improved coat bloom at weaning however these differences were not statistically different.
- Feed costs to 12 weeks old were increased by £6.63 per calf on the once-a-day system
- Labour inputs were reduced by 49.7% with the once-a-day system.
- Based on rearing a batch of 44 calves to weaning at 6 weeks of age it requires 116.8 and 58.8 minutes of labour to rear a calf on either a twice or once a day milk feeding system respectively. If labour is valued at £10 per hour it costs £19.46 and £9.80 per calf. Reduced labour costs were therefore worth £9.66 a calf for the once-a-day system however increased feed costs reduced the net margin benefit to £3.03 per calf. The benefit of changing to a once-a-day system would be negated if a value of £1.20/kg is placed on the extra 4.3kg gained to 12 weeks of age by the twice a day fed calves.

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Reference: Marsh, S.P. and Collinson, A.R. 2008. Effect of rearing 5 day old dairy-bred beef calves on once or twice per day milk feeding systems to weaning at 6 weeks old. *Proceedings of the British Society of Animal Science*. Paper 191

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