

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

Effect of rearing calves either individually in pens and bucket fed milk twice per day or group housed and fed via a computerised machine

Stock: 36 Jan-Feb 2007 born 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:

Bucket Individually housed and bucket fed warm Wynngold Bloom Milk Replacer (23%CP, 20% 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 i.e 625g CMR/day. The calves were weaned at 6 weeks of age. From 2 weeks prior to weaning the milk replacer was gradually reduced from 5 to 1 litre.

Machine Calves were group housed and fed the same milk powder via a computerised machine at an identical daily feed rate available throughout the day with a maximum intake of 60% of milk available in the first feed with the remainder available 2 hours later.

18% CP early weaning concentrates (Wynnstay Start 'n' Wean), 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:

Livewt (kg)	Bucket	Machine	Sig
Start	45.2	47.3	NS
Weaning	61.6	62.7	NS
11 weeks	102.1	102.2	NS

NS = not significant, * = $P < 0.05$, ** = $P < 0.01$, *** = $P < 0.001$

DLWG (kg)	Bucket	Machine	Sig
Start - weaning	0.39	0.37	NS
Wean - 11 weeks	1.16	1.13	NS
Start -11 weeks	0.74	0.71	NS

Feed intakes (kg)	Bucket	Machine	Sig
Milk replacer	19.0	19.0	NS
Concs - start to wean	25.4	23.7	NS
Concs - wean to 11 weeks	112.8	110.2	
Concentrates - total	138.2	133.9	

The behaviour of the calves was recorded by video over a series of 24 hour periods and analysed.

Behaviour	Bucket	Machine	Sig
Cross sucking			
Mouth	0	1.67	*
Navel	0	0.33	NS
Ear and other	0	2.67	*
Looking	10	4.33	*
Tactile contact	1.3	3.70	NS
Play	1.3	3.7	NS
Idle standing	27	14	=0.072
Lying down	95	110	NS
Restlessness	23.3	11	*
Grooming	4	2.33	NS
Licking	3.33	2.33	NS
Feeding	14.3	27	*

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

Labour	Bucket	Machine	Sig
Morning & afternoon	61.6	29.0	***
Minutes per calf per day	3.62	1.70	***

Results & Conclusions:

- There were no significant differences in live weight, DLWG or feed intakes between the treatments.
- The machine fed calves recorded significantly higher ($P<0.05$) incidence of mouth, ear and other body part sucking, play and feeding compared to the individually reared calves.
- The bucket reared calves recorded significantly higher ($P<0.05$) incidence of looking and restlessness compared to the group reared calves. Do these results indicate that the machine reared calves were 'more content'?
- Labour inputs were reduced by 53% with the group reared calves.
- Based on rearing a batch of 36 calves to weaning at 6 weeks of age it requires 152 and 71 minutes of labour to rear a calf on either a bucket or DeLaval CF150 system respectively. If labour is valued at £10 per hour this costs £25.34 and £11.90 per calf, a saving of £13.44 per calf.
- If an automatic calf feeder costs approximately £7,000 this would be recouped by rearing 520 calves.

Acknowledgement:

Financial support from DeLaval and Wynnstay Group Plc is gratefully acknowledged.

Reference:

Marsh, S.P. and Warnock, W. 2008. Computerised machine rearing systems for group housed dairy-bred bull calves. *Proceedings of the British Society of Animal Science*. Paper 129