



Harper Adams
University College

ANIMAL SCIENCE RESEARCH CENTRE

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For 'Bonanza Calf Nutrition'

Effect of once or twice per day milk replacer feeding systems on the finishing performance of dairy-bred beef calves reared through to slaughter on an intensive cereal beef system

Introduction

40 Jan/Feb 2011 born Holstein (28) and Continental x Holstein (12) bull calves were purchased at 11 to 29 days old (mean 20.5 days) and reared through to 12 weeks at Harper Adams University College. Purchasing calves at this age would be representative of buying calves from markets. The calves were randomized according to age, breed and weight and were reared on either a once versus twice a day of milk replacer feeding experiment for Bonanza Calf Nutrition. Both treatments involved feeding 600g of milk replacer per day with calves weaned when eating 1.2kg of starter pellets for 3 consecutive days. The milk replacer for the once-a-day reared calves was mixed at 37°C at 200g per 800ml of water and fed at 3 litres per day in one feed. The milk replacer for the twice-a-day reared calves was mixed at 37°C at 120g per 880ml of water and fed at 2.5 litres twice per day (5 litres per day). Calf growth rates were significantly improved on the once-a-day system (Marsh *et al.*, 2012). The calves were subsequently reared through to slaughter on an intensive cereal beef system and their finishing performance is summarized below.

Results

Table 1. Animal Performance (kg)

(Kg/bull)	Once	Twice	s.e.d	Sig
Start wt	56.5	56.7	1.96	NS
Slaughter wt	585	573	11.18	NS
Age at slaughter (months)	13.43	13.49	0.358	NS
DLWG from birth	1.29	1.25	0.058	NS

Table 2: Carcase characteristics

	Once	Twice	s.e.d	Sig
Carcase wt (kg)	310	306	5.9	NS
Kill out (%)	52.9	53.3	4.62	NS
Carcase daily gain (kg)	0.70	0.69	0.029	NS
Conformation* (1-7)	2.5	2.6	0.15	NS
Fat class* (1-7)	2.6	2.9	0.17	NS

* EUROP carcass classification: Conformation: P+=1 and E=7. Fat class: 1=1 and 5H=7.

Table 3: Financial performance (£/bull)

	Once	Twice	s.e.d	Sig
Carcase price (£/kg)	3.20	3.21	2.63	NS
Carcase value (£)	995	983	13.75	NS

There were no significant differences in subsequent performance through to slaughter for growth rate, carcass characteristics or carcass value between two calf rearing treatments.

Discussion & Conclusions:

- Overall performance of the bulls was very good, both achieving and exceeding recognised targets for intensive cereal beef production. The Holsteins recorded slaughter weights of 555kg at 13.4 months old compared to the EBLEX (2005) target for of 540kg at 13 months old. The Continental cross Holstein bulls were slaughtered at 619kg at 13.7 months old compared to the EBLEX target of 570kg at 14 months.
- Feeding calves once a day resulted in a numerically increased slaughter weight, DLWG, carcass weight and carcass value. However the differences are not significantly different ($P>0.05$). Carcass daily gain was similar due to the higher killing out percentage of the twice a day CMR fed calves.
- After a period of nutritional restriction beef animals can exhibit compensatory growth. However it has been suggested that growth restriction in early life can result in reduced levels of compensation (Ryan, 1990). The results from this study agree with this statement since the twice-a-day reared calves did not exhibit compensatory growth when finished on an intensive cereal beef system.

References:

EBLEX Beef Action for Profit 3. 2005. Better Returns from Dairy-Bred Bulls. Huntingdon: EBLEX

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