Animal Science Research Centre - Beef Unit Trial Results – 2006 (a)

Effect of weaning calves at low (0.75kg) or high (1.25kg) levels of concentrate intake on performance to 12 weeks of age

Introduction:
There are four criteria that can be used to determine weaning time with artificially reared calves: age, concentrate feed intake, liveweight and milk price. Late weaning systems are based on the theory of giving the calf the best possible start in life, but can be costly with high milk intakes. Hence emphasis is usually placed on early weaning of the calf (6-9 weeks old) and encouraging concentrate intake. A number of factors can affect concentrate intake including quality and quantity of milk fed, size of the calf and concentrate texture. Recommendations are to typically wean calves when eating 1kg concentrate per day. The objective of this experiment was to evaluate the effect of weaning twice daily milk fed calves on either a low (0.75kg) or high (1.25kg) concentrate intake on performance to 12 weeks old.

Stock:
36 Jan-Feb 2006 born Holstein and Limousin x Holstein bull and heifer calves.

Treatments:
The calves were fed colostrum within 6 hours of birth and for a further 4 days and were individually penned on straw.

Low concs — Calves bucket fed warm whey based milk replacer (Wynngold Bloom [23%CP, 20% Oil] Wynnstay Group Plc) mixed at 125g per litre of water twice per day at 4 litres per day. At 7 days of age increased to 5 litres per day to supply 625g CMR per day. The calves were offered *ad lib* 18% CP early weaning concentrates ('Start n Wean', Wynnstay Group Plc) from day 4. The calves were weaned when concentrate intake averaged 0.75kg/day for 3 consecutive days.

High concs — Identical rearing regime to the above treatment but calves weaned when concentrate intake averaged 1.25kg/day for 3 consecutive days.

Fresh water and straw was offered from racks and fed *ad lib* from 4 days old to both treatment groups. The calves were moved into group pens at weaning. Wynnstay 'Start n Wean' concentrates were offered *ad lib* from weaning to 12 weeks old.

Results:

Table 1: Live weights (kg) and weaning age

	Low	High	Sig
Start wt	45.9	46.7	NS
Wean wt	59.8	67.1	***
Wean age (days)	42.5	52.6	***
12 week wt	101.4	105.7	NS

Table 2: Daily live weight gains (kg) and coat bloom score

	Low	High	Sig
DLWG birth-weaning	0.33	0.38	*
DLWG weaning-12wks	1.00	1.23	***
DLWG birth-12wks	0.66	0.70	NS
Coat bloom score at 12wks	2.18	2.56	*

NS = not significant, * P<0.05, *** P<0.001
* Coat bloom score scale of 1 = dull, 2 = normal, 3 = shiny

Table 3: Feed intakes (kg)

	Low	High
Milk Replacer (kg)	26.5	32.9
Concentrates - birth-weaning	8.7	15.1
Concentrates - birth-12wks	121.5	113.7

Table 4: Financial performance – feed costs per calf (£) and per kg gain (p)

	Low	High
Milk Replacer @ £1,000/t - Jan 2006	26.50	32.90
Concs @ £170/t - Jan 2006	20.65	19.33
Total	47.15	52.23
Feed cost per kg gain (p)	85.0	88.5

Conclusions:

- The calves weaned at a high level of concentrate intake recorded a significant (*P*<0.001) increase in weaning weight (+6.5kg) and were weaned 10.1 days later at 7.5 weeks old. The calves gained an extra 3.5kg in weight by 12 weeks of age compared to the calves weaned at the low level of concentrate intake.
- The calves weaned when eating 0.75 kg of concentrates were weaned at approximately 6 weeks old and recorded lower feed costs (reduced by £5.08 per calf).
- If calf liveweight gain is valued at £1.40/kg (at the time of the study) the value of extra weight gain achieved by weaning calves at a high concentrate intake negates the increased feed costs.
- The calves weaned at a high level of concentrate intake recorded a significant improvement in calf coat bloom score. This could have a marked improvement in calf value for producers rearing and selling calves at 12 weeks of age.
- It is suggested that the recommendation that calves should be weaned when eating 1kg/day of concentrates should remain.

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Reference:

Marsh, S.P., Hartley, P.R., and Brown, S.T. 2007 Effect of weaning twice daily milk fed calves at low or high levels of concentrate intake on performance to 12 weeks old. *Proceedings of the British Society of Animal Science*. Paper 193.

Simon P. Marsh, Senior Lecturer, Harper Adams University May 2007