

REARING STRATEGIES AND MATERIAL PERFORMANCE OF BEEF HEIFERS

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Rapid growth in both beef and dairy heifers during rearing can lower subsequent lactational performance (Little and Ray 1979, Schultz 1969 and Johnsson and Obst 1984). The critical liveweight range during which rapid growth is detrimental however has not been defined. Johnsson and Obst (1984) found that the rate of growth before 8 months of age had more influence on subsequent milking ability than the rate of growth between 8 and 14 months of age. In the current experiment conducted with 91 Friesian x Hereford heifers the effect of rapid growth during the periods from 2.5 to 5.5 months and between 5.5 and 8.5 months on lactation and calf growth rates were examined.

At 2.5 months of age half of the heifers were randomly allocated to one of two treatments groups on the basis of birth date and weight gain from birth to 91 days. One group was weaned from their dams and grew at a rate of 300 g/day (L) while the second group remained on their mothers and grew at a rate of 930 g/day (H). At 5.5 months of age the unweaned heifers were divided into two groups on the basis of live weight. One group was left on their mothers and grew at 1200 g/day (HH) while the other group was weaned and grew 430 g/day (HL). The calves weaned at 2.5 months were also randomly allocated into two groups on the basis of live weight. One group grew at 520 g/day (LL) while the other group was managed to grow at a rate of 1020 g/day (LH). At 8.5 months of age the heifers still on their mothers were weaned. Teaser bulls with chinball harnesses were then introduced to monitor the onset of puberty. All heifers were then run together and managed to grow at a target rate of 500 g/day until mating to 3% Hereford bulls commencing 1/6/88.

Table 1 Reproduction, lactation and calf performance of the different rearing systems (means \pm s.d.)

Treatments:	HH (22)	HL (23)	LH (23)	LL (23)
Age at first observed oestrus (days)	260 \pm 24a	316 \pm 64b	339 \pm 61b	407 \pm 43c
Weight at first observed oestrus (kg)	275 \pm 35a	246 \pm 33b	258 \pm 28ab	250 \pm 24b
Conception rate (%)	95	91	96	100
Calf birth day (day of year)	73 \pm 8	74 \pm 10	77 \pm 9	86 \pm 17
Calf birth weight (kg)	34.0 \pm 0.8	33.6 \pm 0.7	35.8 \pm 0.7	34.4 \pm 0.7
Milk yield at 30 days (kg)	4.7 \pm 0.3	5.3 \pm 0.3	5.6 \pm 0.3	5.6 \pm 0.3
Milk protein (%)	2.6 \pm 0.17	2.6 \pm 0.3	2.6 \pm 0.2	2.6 \pm 0.14
Milk butterfat (%)	3.2 \pm 0.2	3.4 \pm 0.2	3.4 \pm 0.2	3.7 \pm 0.2
Calf live weight (6 mth) adjusted for age and sex	223 \pm 19	220 \pm 30	223 \pm 19	221 \pm 22

Means in a row with different notations differ significantly ($P < 0.05$).

Although the four different groups differed markedly in the manner in which they were reared, no significant differences in milk yield or quality were observed nor were there any differences in calf birth weights or growth rates. Heifers which experienced no restriction in growth exhibited oestrus at an earlier age than heifers which experienced a period of restriction, and were also heavier at 1st oestrus than groups other than the LH group.

JOHNSON, I.D. and OBST, J.M. (1984). Anim. Prod. 38: 57.

LITTLE, W., RAY, R.M. (1979). Anim. Prod. 29: 131.

SCHULTZ, L.H. (1969). J. Dairy Sci. 52: 1321.

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