

The effect of rumen escape protein on carcass characteristics of rapidly growing prepubertal dairy heifers

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Dairy heifers grown rapidly during the prepubertal period, 4 to 12 months of age, have an increased amount of fat deposited in their mammary glands (Valentine *et al.* 1987). An experiment investigated the use of rations high in rumen escape protein to alleviate the problem of increased fat deposition in the mammary gland associated with rapid prepubertal growth rates. This paper reports on the carcass characteristics from that experiment.

Three groups of 21 randomly selected Friesian heifers were fed isoenergetic (11 MJ ME) rations as follows:

- Diet A contained 14% CP with 15% rumen escape protein (REP);
- Diet B contained 18% CP with 15% REP; and
- Diet C contained 18% CP with 30% REP.

All heifers were offered the diets *ad libitum* in a feedlot from 4 to 10 months of age. After the experimental feeding

period, heifers were run as one group and offered pasture, silage, lucerne hay and diet B pellets. Six heifers per group were slaughtered when they were between the 10th and 18th day of their oestrus cycle. Table 1 summarises the carcass characteristics of the slaughtered heifers.

The lower fat content of heifers rapidly grown on diet C needs to be economically evaluated if consideration of this strategy is to be utilised for meat and milk production. Also, the implications on future reproduction of these heifers has to be considered.

References

- Valentine, S.C., Dobos, R.C., Lewis, P.A., Bartsch, B.D. and Wickes, R.B. (1987). Effect of liveweight gain before or during pregnancy on mammary development and subsequent milk production of Australian Holstein-Friesian heifers. *Australian Journal of Experimental Agriculture* **27**, 195-204.

Table 1 Mean (\pm se) growth rates and carcass characteristics of prepubertal dairy heifers fed the 3 diets.

Outcome	Diet		
	A	B	C
Age at start of feeding (days)	137.3 (7.3)	166.5 (13.7)	159.8 (9.3)
Weight at start of feeding (kg)	115.3 (11.6)	126.3 (9.2)	128.3 (6.7)
Number of days on diets (days)	166 (5.5)	145 (13.2)	137.7 (7.8)
Daily gain (kg)	0.95 (0.06)	0.94 (0.04)	0.96 (0.04)
Age at slaughter (days)	492 (10.9)	502.5 (8.6)	471.2 (17.1)
Weight at end of feeding (kg)	271.2 (17.1)	259.5 (10.6)	260.7 (9.4)
Weight at slaughter (kg)	386.2 (18.4)	352.2 (12.4)	355.5 (11.4)
Hot carcass weight (kg)	179.9 (7.2)	169.1 (8.5)	169.5 (7.3)
Cold carcass weight (kg)	173.6 (7.0)	163.1 (8.2)	163.6 (6.9)
Fat depth (mm)	11.67 (2.8)	7.8 (0.98)	6.5 (0.62)