PREPUBERTAL FEED RESTRICTION ENHANCES MILK PRODUCTION IN HEIFERS

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It has been demonstrated that rapid gains in liveweight (LWT) of heifers prior to puberty adversely affects subsequent milk production (Foldager and Sejrsen 1987). Recently, it has been shown that prepubertal administration of growth hormone (GH) can increase mammogenesis in heifers (Sandles et al. 1987). Feed restriction may have a similar effect since plasma GH is inversely related to intake (Gow et al. 1981). Thus, a period of feed restriction prior to puberty may enhance mammogenesis and subsequent milk production.

In this experiment, 4 sets of identical-twin dairy heifers were used so that one twin was allowed to grow at a normal rate and her co-twin was severely restricted in feed intake from 7 to 11 months of age.

Table 1. Effect of feed restriction on growth, puberty and lactation performance (n=4)

Variable	Control	Restricted	Significance
Pretreatment LWT (kg)	147	137	ns
Growth rate (kg/d)	0.51	0	P < 0.01
Age at puberty (d)	345	438	P < 0.01
LWT at puberty (kg)	210	213	ns
LWT at calving (kg)	388	357	P < 0.05
Milk yield (kg/d)	12.6	13.9	P < 0.1
Lactation length (d)	245	268	P < 0.1

Strategic use of a period of severe feed'restriction prevented growth, delayed puberty and resulted in reduced liveweights at calving. Despite these effects, average daily milk yield was improved and lactation length increased.

The authors consider that such a restriction was too severe and a moderate restriction would have allowed compensatory growth and perhaps greater effects on milk yield. Nevertheless, a period of restricted growth may be a convenient means of improving heifer production.

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