EFFICIENCY OF FEED UTILIZATION BY ONE-YEAR-OLD ANGUS STEERS SELECTED FOR EITHER FAST OR SLOW GROWTH RATE TO ONE YEAR OF AGE

R.M. HERD, P.A. SPECK**, P.C.* WYNN** and *T.J. PATTERSON**

The effect of selection for growth in beef cattle on enterprise profitability has being questioned for *over a* decade and more knowledge *on* changes in the efficiency of feed utilization is required. The aim of the present study is to examine the efficiency of feed utilization for maintenance and growth in ten one-year-old steers from each of two lines of Angus cattle selected since 1974 for either high or low average daily growth to one year of age.

The steers were. established on a range of dietary energy intakes for two periods each of three weeks duration, as described by Speck *et al.* (1990). Fasted *(24* h) live weights (LW) were taken at the start and end of each period. The steers were fed pellets and straw which together provided 9.9 MJ metabolizable energy/kg dry matter (DM). The efficiency of feed utilization for maintenance and growth was determined by regressing LW change and feed intake. The slope of the regression relationship for each genotype is the efficiency of feed use for growth. Maintenance intake was defined as the intake coincident with no change in LW.

At the start of the experiment High-line steers were heavier than Low-line steers *(283 v 208* kg). High-line steers required more feed per day to maintain their greater LW than did Low-line steers, but required less feed to sustain each kilogram of this LW than did Low-line steers, and were therefore more efficient (Table 1). There was no difference in their efficiency of use of feed for growth.

Table 1 Daily feed intakes for maintenance and the efficiency of growth by one-year-old steers selected *for* either high or low growth rate

	Maintenance[a]		Efficiency of growth (kg LW/unit feed)		Regression r-squared	
Selection line:	High	Low	High	Low	High	Low
kg DM	4.49**	3.73**	0.542	0.549	0.79	0.84
kg DM/kg LW	0.016*	0.018*	148	121	0.78	0.90

[a] Least-squares means. ** P<0.005 * P<0.05

The fact that the High-line appeared more efficient in feed utilization for maintenance, but not growth, than the Low-line may be a function of the relative differences in the stage of maturity of the two lines when compared at the same age. However, steers selected for high growth rate will attain specified market weights in fewer days and will therefore require less feed for maintenance whilst growing to this weight.

SPECK, P.A, HERD, R.M., WARD, W.G., NEWMAN, R.,BRENNAN, C. PATTERSON, P.J. and WYNN, P.C. (1990). Proc. Aust. Soc. Anim. Prod. 18:551.

* *Agricultural Research Centre, N.S.W. Agriculture & Fisheries, Trangie, N.S.W. 2823.*

** *Division of Animal Production, CSIRO, Prospect, N.S.W. 2148.*