OPTIMISING FEED SUPPLY, REPRODUCTIVE EFFICENCY AND PROGENY GROWTH TO MEET MARKET SPECIFICATIONS. 3. EFFIECENT USE OF PASTURE

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Pasture feed availability for grazing cattle in the Mediterranean environment of Western Australia varies between excess high quality green feed in spring to low quantity and quality in autumn. Along with this variation in quantity and quality of pasture energy supply, the breeders' energy requirements throughout the year vary with their liveweight and physiological status.

The aim of this experiment was to compare the year-round energy supply of metabolisable energy from pasture with the energy demand of a cow-calf breeding unit, calving either in autumn or winter (Read *et al*. 2004; Tudor *et al.* 2004). Pasture growth rates were calculated from regular pasture assessments as well as utilising data from the remote sensing program (CSIRO 2004). Energy supply from green feed was calculated using daily pasture growth rates and metabolisable energy values calculated from *in vitro* digestibility analysis. Dry feed energy supply was estimated from feed consumption based on feed on offer and feed quality. Energy requirement of the cows were determined using a generalised liveweight cycle model (breeders varying from 450 to 600 kg annually, and calves growing to 270 kg by 6 months and 350 kg by 9 months). Livestock requirements were estimated from the body weight changes and feed test quality data (AFRC 1993).

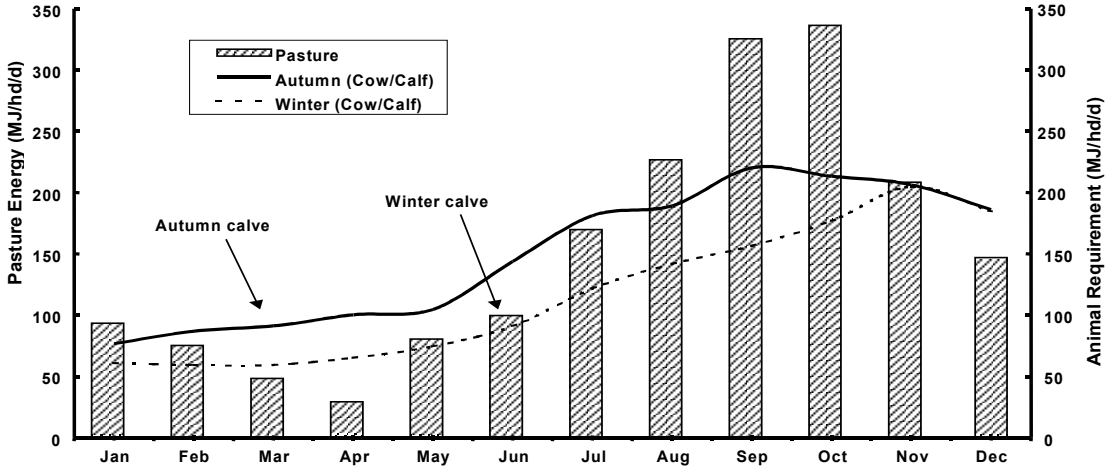

Figure 1. Estimated daily metabolisable energy supplied by pasture and energy requirement of cows calving in autumn or winter. Green feed from May to November/December and dry from January to April.

The autumn calving cow in late pregnancy and early lactation had higher energy requirements than could be supplied from the dry pasture, requiring substantial supplementary feeding (Figure 1). By calving in winter, the period when energy supply from pasture was low (autumn) coincided with the lower energy demand of the cow. Subsequently, the higher energy demand in early lactation coincided with the period when pasture quality and quantity were sufficient to meet demands. This reduced the quantity of supplementary feed needed. In addition, the green feed surplus in spring was greater with winter calving. The reduced feed demand with winter calving allowed an increase in stocking rate and calf turnoff.

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