

Strategies for beef cattle production in Botswana

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Variable and low rainfalls produce very significant seasonal and between-year differences in the amount and quality of herbage available to grazing animals in central Botswana. This variation in availability of feed makes it difficult to manage cattle in a manner that produces a stable profit and maintains a sustainable rangeland. Common characteristics of these production systems include low conception rate among breeding cows and a slow growth rate of young calves (Entwistle 1983). There are also times when overgrazing reduces the growth potential of residual herbage and increases the risk of long term damage to soil and vegetation.

Data from grazing studies conducted in Botswana were examined in order to quantify the variation in production of a breeding herd over four years when annual rainfall varied from 138 to 512 mm and stocking rate average 1 cow/calf per 10 ha. Data for a typical cow calf unit in this study (Figure 1) illustrate the following points: (i) the nutrient drain on a cow supporting a calf during a dry year results in a cow not calving the following year; (ii) a cow without a calf will gain weight and conceive even in a dry year; and (iii) calf growth is normally slow and in a dry year is very poor.

To understand the problem in more detail we have compared the nutrient requirements for efficient production of a cow calf unit throughout the year with the amount of feed likely to be available in either a low or high rainfall year (Figure 2). Efficient production was defined as the ability of a pregnant cow to maintain weight and wean a calf weighing 160 kg at 7 months of

age, and is shown as the dotted line in Figure 2. The seasonal pattern of rainfall and pasture growth means that the period of lowest herbage availability occurs in late winter and spring. In years with higher than average rainfall there are only one or two months around September and October when herbage availability is less than the requirements of the animal. During low rainfall seasons there is a shortage of herbage for 6 months and the estimated cost of supplementary feeding to maintain production is around A\$200 per cow/calf unit. This is clearly not beneficial in the short term and the overgrazing that accompanies the period of supplementary feeding is likely to have serious long term implications for plants and the soil. A preliminary analysis suggests that if good rains have not fallen by February, calves should be removed from the cows and fed to ensure survival and good growth. This strategy allows the cow to produce a calf in the following season but has the added cost of feeding the calf. Early weaning and supplementary feeding of the calf are not common practices in Botswana. The introduction of new cow and calf management practices to cope with low and variable rainfall will require careful evaluation and clear demonstration of the long-term benefits for producers.

Entwistle, K.W. (1983). Factors influencing reproduction in beef cattle in Australia. A.M.R.C. Review No. 43. Australian Meat Research Committee, Sydney.

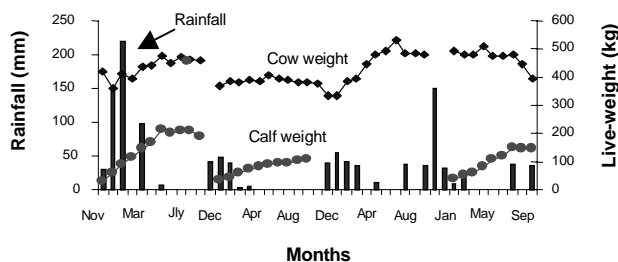


Figure 1 Liveweight (kg) of cows and calves, and rainfall (mm) measured over a 4-year period in central Botswana.

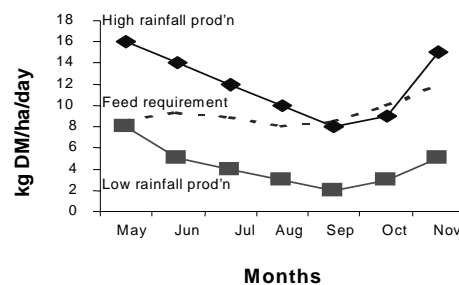


Figure 2 Effect of rainfall (mm) on feed production during winter months in year with high or low rainfall, and the feed requirement for a cow and calf (dotted line) over the same period.