

# A Note on Some Aspects of the Summer Nutrition of Weaner Sheep in a Mediterranean Environment

W. G. ALLDEN\*

The nutritive limitations of the mature herbage of improved pastures in a Mediterranean environment have been illustrated by Neal-Smith (1942), and Allden and Anderson (1957) working with sheep, and by Muirhead and Allden (1952) and Franklin *et al.* (1956) in beef cattle growth studies.

The use of feed supplements to improve the defective nutrition of young weaner sheep grazing improved pastures based on *Phalaris tuberosa*, subterranean clover and annual grasses during the months of summer drought has been examined (Donald and Allden, unpublished) in terms of (a) current responses, and (b) residual effects, for both liveweight gain and wool production. In this study the feeding of a daily supplement of 14 oz lucerne hay and 7 oz oats grain to sheep during the first and second summer of life conferred substantial benefits in terms of liveweight increment and wool production. Thus in the first summer period supplemented groups gained 17 lb liveweight over their unsupplemented mates, and cut an additional 1.5 lb greasy wool. Residual benefits however have been short-term, the control group regaining the weight advantage which accrued to the supplemented sheep, taking 450 days to catch up with sheep whose diet had been augmented in the first summer of life, and 730 days to reach a bodyweight similar to the group supplemented in the first and second summers. In a subsequent study the control group bridged a 22 lb weight margin which had accrued to a group of supplemented weaners within 140 days of the cessation of supplementary feeding.

In both experiments the "catching-up" phase has occurred under conditions of favourable pasture growth following the advent of the autumn rainfall season.

No mortality was recorded, although bodyweight losses of up to 30 per cent. of initial weight were sustained by young sheep in these experiments. It was tentatively concluded that with average to well-grown Merino weaners supplementary feeding would be profitable only if mortalities were prevented or earlier breeding permitted.

The nutritive deficiencies of the mature herbage of improved pastures have been further studied in terms of available energy and pasture (Allden, unpublished).

In an experiment of factorial design sixteen groups each of eight sheep were daily fed supplements made up from barley grain, wheat gluten and wheat starch. Rations were fed to sheep individually in specially constructed pens, so that the daily intake of supplementary feed was controlled for each sheep under conditions of common grazing.

---

\*Waite Agricultural Research Institute, University of Adelaide.

The levels of available energy (T.D.N.) and digestible crude protein (apparently digestible nitrogen x 6.25) in the supplements varied, viz :-

4 levels of energy (0.10; 0.25; 0.50 ; 0.75 lb T.D.N.) each with  
4 levels of protein (0.035 ; 0.070; 0.105 ; 0.140 lb D.C.P.) .

An analysis of the results failed to show any interaction between the protein and energy moiety of the supplements in terms of bodyweight gain and of wool growth. Both energy and protein in the supplement contributed towards wool growth, responses taking a linear form in each case. Bodyweight gain showed a linear response to energy and a curvilinear response to protein in the supplements.

It is concluded that as a feed for young grazing sheep the mature herbage of improved pastures is deficient in both protein and available energy, but once a small need for protein has been satisfied energy is the principal factor limiting body growth. Wool growth is chiefly dependent upon protein intake, but supplementary energy has improved the efficiency of nitrogen utilization.

#### REFERENCES

- Allden, W. G., and Anderson, R A. (1957).-*J. Dept. Agric. S. Aust.* 61:69.  
Franklin, M. C. (1956).-Animal Production Committee Report.  
Muirhead, D. B., and Allden, W. G. (1952).-*J. Dept. Agric. S. Aust.* 55: 348.  
Neal-Smith, C. A. (1942).-*J. Dept. Agric. S. Aust.* 45: 485.