Response of Stock to Supplementary Feeding on Pastures

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FEEDING of supplements of conserved roughage or concentrates is widely recommended as a means of preventing the effects of poor pasture on growth or milk production of stock.

However, when evidence of the quantitative response to such supplementary feeding is sought as a basis for rational advice on the practice, it is found that the responses have been most erratic and far less than would have been expected on the basis of feeding standards. Data from an experiment carried out at the Regional Pastoral Laboratory, Armidale (Gordon et al. unpublished) summarised in Table 1, provide excellent evidence of this, the response to the supplementary feeding, at the highest level of feeding, being 27 per cent. of that expected. On the basis of feeding standards, Gill and Thompson (1954) have also referred to the fact that response to supplementary feeding of Scottish hill sheep was less than expected. In work with dairy cattle (Mylrea, Holder and McClymont, unpublished), the feeding of 30 lb. of kikuyu grass silage, with or without a meat meal supplement, had no detectable effect in preventing the autumn decline in milk production on low quality paspalum and kikuyu pastures. Robinson (1955) and Southcott and Hewetson (Regional Pastoral Laboratory, Armidale, unpublished), have reported similar low responses of growing beef cattle to supplementary roughage.

The most obvious explanation of such findings as the above is that the supplementary feeding has resulted in considerably less intake of feed from the pasture, and observations on grazing times by many of the above workers (Mylrea et al, Gill and Thompson, and Southcott and Hewetson) have, in fact, shown considerable depression in grazing time of the supplementary fed animals. Hancock (1952) has also referred to several observations showing that feeding of concentrates or hay to milking cattle, or milk to calves, depressed grazing time.

Similar results have been obtained with supplementary grazing on oats in Regional Pastoral Laboratory experiments (Gorden et al, unpublished). Merino weaners, on poor natural pasture, over 20 weeks lost 1.6 lb. Similar sheep given 3 hours access per day to oat-grazing gained only 0.54 lb., while those given continuous access gained 24.3 lb. Those given the 3 hours grazing per day devoted little or no time to grazing on the natural pasture, but spent the day waiting about the gate to the oat paddock. Results indicating a similar situation have been obtained at Shannon Vale Nutrition Station (Cotsell, unpublished), where with sheep half the week on sown pastures, stocking rates of 1 sheep or 4 sheep per acre on the poor natural pasture during the other half of the week, had no effect on the weight gains.

The reduction in pasture intake caused by a supplement is not confined to poor unpalatable pastures alone, as there is a good deal of evidence in the literature of failure of sheep on good pasture to respond to supplementary feed, despite large amounts of such feed being eaten. Similar results have been obtained by the writer (unpublished).

It is evident from the above that the response of stock to supplementary feeding on pasture, at least where the intake of pasture is sufficient for near maintenance, or a low level of production, is likely to be far less than would be expected on the basis of feeding standards, due to reduction in pasture intake.

Further study is indicated of the factors which determine grazing time and pasture intake, and of techniques which might reduce depression of pasture intake to a minimum, such as, perhaps, intermittent feeding, concentrates versus roughages, or feeding at night. Until data from such studies are available, advice on supplementary feeding for production must remain empirical and the results largely unpredictable.

REFERENCES:

Gill, J. C., and Thompson, W. (1954). Proc. Brit. Soc. Anim. Prod., p. 35.
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TABLE 1

Response of Merino weaners, initially averaging 42 lb. bodyweight, to supplementary feeding for 20 weeks while grazing winter native pasture.

Quantity of Supplements* Fed	Starch equivalent from supplements	Total bodyweight change†	Mean bodyweight change per week	Bodyweight response to each increase in level of feeding	Theoretical bodyweight response‡	Actual response x 100 / Theoretical response
(oz./day)	(lb./week)	(lb.)	(lb.)	(lb.)	(lb.)	
0	—	—3.5	—0.175	—	—	—
4	1.2	+1.5	+0.075	0.250	0.8	31
8	2.4	+6.2	+0.310	0.235	0.8	29
16	4.8	+10.5	+0.525	0.215	0.8	27

*Supplement comprised maize 4, meatmeal 2 and oaten chaff 2 parts by weight.

†Parasites were not a significant factor as indicated by comparative performances within each group where half the number were regularly drenched.

‡Based on the requirement of 1.5 lb. S.E. per lb. bodyweight gain.