

A COMPARISON OF THE GROWTH OF BEEF CATTLE AND SHEEP GRAZING
MATURE GRAIN LEGUME CROPS

W.G. ALLDEN* and P.E. GEYTENBEEK*

Although there is good evidence that sheep grazing mature grain legume crops during the dry summer months will make rapid weight gains (Allden and Geytenbeek 1980)) it is by no means clear whether similar results might be expected from beef cattle (Carbon et al. 1972).

The present study compared the growth of yearling Hereford beef cattle (initial weight 293 kg) and Suffolk x Merino store lambs (32.6 kg), grazing together on four grain legume crops and a mature subterranean clover pasture for a 100-day period during the dry summer months in the mediterranean-type environment of Mintaro, South Australia. The crops under study were Cyprus vetch (*Lathyrus ochrus*), field beans (*Vicia faba*), lupins (*Lupinus angustifolius*), field peas (*Pisum sativum*) and subterranean clover (*Trifolium subterraneum*). The cattle and sheep were allocated at random in groups of four to the 5 crop treatments, there being two replicates.

TABLE 1 Grain and herbage yields of legumes and the performance of sheep and cattle on these crops (Values in columns with similar letters not significantly different)

Crop	Liveweight Gain		Initial Yield		Final Yield	
	Cattle	Sheep	Grain	Herbage	Grain	Herbage
	g/day		t/ha		t/ha	
Field bean	980a	225ab	5.0a	4.3a	2.0 n.s.	0.6c
Lupin	550b	251a	3.5b	6.3b	1.3	2.4b
Cyprus vetch	230c	202b	3.3b	4.1a	1.3	1.7b
Field pea	250c	208b	3.9b	5.5b	1.5	3.3a
Sub. clover	130c	66c	1.3c	6.7b	1.0	2.4b

Table 1 presents the growth rates of the cattle and sheep and the crop yields at the beginning and end of the experiment. Gains by the lambs were excellent on all the grain legume crops (200-225 g/d) whereas cattle made excellent gains only on the field bean crop (980 g/d), performed moderately on the lupins (550 g/d) and quite indifferently on the peas and Cyprus vetch (230-250 g/d). Both cattle and sheep did little more than maintain body weight on the mature subterranean clover.

The data showed that cattle grew better on the crop species with a large seed (i.e. field beans), or one that retained its grain in the pod. Lupins retained their seed in the pod for the early part of the experiment and during this period cattle gained rapidly, but growth was arrested when the pods shattered and the seeds were dispersed. The pods of Cyprus vetch and peas shattered at the beginning of the grazing period and were relatively inaccessible to cattle. These results indicate that the outcome of crop grazing studies using sheep may bear little relationship to the results obtained with cattle'.

REFERENCES

- ALLDEN, W.G. and GEYTENBEEK, P.E. (1980). *Proc. Aust. Soc. Anim. Prod.* **13**: 249.
 CARBON, B.A., ARNOLD, G.W., and WALLACE, S.R. (1972). *Proc. Aust. Soc. Anim. Prod.* **9**: 281.

*Waite Agricultural Research Institute, Private Bag, Glen Osmond, S.A. 5064.