

ABSENCE OF PROTOZOA IN THE RUMEN AND PRODUCTION OF GRAZING SHEEP

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Studies with lambs held in pens have shown that the rate of wool growth is increased when protozoa are absent from the rumen (Bird et al., 1979; Bird and Leng, 1983). Wool growth was stimulated over a wide range of protein intakes indicating the potential for increasing the production of sheep grazing pasture.

Following a study with lambs in pens (Bird and Leng, 1983) two groups of 20 lambs (faunated and defaunated) were allowed to graze green oat pasture with an understudy of ryegrass, clover and lucerne. The paddock was divided into four blocks (1 ha) and grazed in a 4 x 21 d rotation. Over 84 d defaunated lambs had a higher rate of body weight gain (23%) and wool growth rate (19%) (measured over the last 63 days) with respect to the faunated lambs.

In a second experiment the productivity of pregnant ewes (faunated and defaunated) grazing native pasture was monitored over a 23 week period (first lambs were born in the eleventh week). Following joining, ewes were held in a shed and drenched with alkanate 3SL3 (anionic detergent, sodium lauryl diethoxy sulphate I.C.I. Aust. Ltd.) to remove protozoa. Animals were randomised into two groups of 32 and one group was reinoculated with rumen fluid containing protozoa before being returned to pasture. The sheep were apparently free of rumen protozoa until the tenth week when small numbers of protozoa were detected in rumen fluid samples collected from 6 of the defaunated ewes, 6 weeks later almost all ewes in the defaunated group were contaminated with protozoa. Defaunation was associated with a higher rate of wool production (22%) but body weight change was similar for both groups.

TABLE 1 Wool growth rate and body weight gain of faunated and defaunated sheep grazing pasture

Animal	Pasture	Protozoal pop ⁿ . density x 10 ⁵ /ml	Body wt. gain (g/d)	Wool growth (clean) (g/d)
Hoggets	Green oats	-	104 ^a	11.9 ^a
		5.0	78 ^b	10.0 ^b
Ewes	Native pasture	-	-48 ^a	4.4 ^a
		2.5	-48 ^a	3.6 ^b

Different superscripts within experiments denote significance (P < 0.05)

The results from these trials are in accord with the earlier findings of Bird et al. (1979) and Bird and Leng (1983) and demonstrate that defaunation stimulated wool growth in animals grazing high protein and low protein pasture.

REFERENCES

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