

The potential for lot feeding of sheep on cereal farms to protect medic seed reserves and surface soil.

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Lot feeding of sheep during the summer-autumn period is becoming popular as a means of protecting medic seed reserves and the surface soil (4). On hard-setting red-brown earths sheep can consume 1 tonne/ha of medic seed or 2/3 t/ha of subterranean clover seed in a few weeks during summer at normal stocking densities (1. 2) and factual data on low-cost rations to feed sheep is urgently needed (5). Preliminary data are presented in this paper.

## Methods

A uniform area of dry pasture at Korunye, South Australia was fenced into nine paddocks, water points installed and each paddock allocated three Merino wethers to give stocking densities of 20, 40 and 60 DSE/ha. The small paddocks varied three-fold in size. The available dry pasture residues and medic pod numbers and weight were measured at the beginning of the experiment (12 February 1992) and thereafter every 14 days for 42 days (25 March 1992). Sheep body weight was recorded at the beginning and the end of the 6-week experimental period. Using a modification of a Silsoe College sand trap (3) soil and plant litter movement was measured on each plot 10 weeks after the beginning of the experiment. To further examine the residual effect of summer grazing on pasture legume seed reserves and subsequent pasture regeneration, medic plant density counts were made in June after the opening rains.

## Results and discussion

Summer grazing caused a rapid decline in total dry pasture residues and, in particular, medic pod and seed reserves (Table 1). Stocking density effects were all significant ( $P < 0.01$ ).

**Table 1. The impact of 42 days of summer grazing on the decline of total dry pasture residues, medic pod and seed reserves, and subsequent medic plant density.**

Stocking density (DSE/ha)	Dry residue decline (%) (kg/ha)	Medic pod decline (%) (kg/ha)	Medic pod decline (%) (#/m <sup>2</sup> )	Medic seed decline (%) (kg/ha)	Medic plant decline (%) <sup>a</sup> (#/m <sup>2</sup> )
20	31	26	23	35	64
40	50	67	63	73	76
60	76	86	85	87	84

<sup>a</sup> Medic plant density decline relative to areas that were ungrazed during summer.

As well as the decline in dry pasture residues, summer grazing also reduced sheep body weights by 5%, 10% and 17% at 20, 40 and 60 DSE/ha respectively. This represents a considerable loss over a short period and does not take into account any losses in wool production. Soil and plant litter movement was greatly increased with higher stocking densities, demonstrating both the direct effect of sheep treading on the soil and the effect of reduced soil cover by grazing. Soil and plant litter movement was obvious during the first six weeks, but at 10 weeks 13 times as much soil and 3.9 times as much plant litter moved under the high stocking density compared to the low stocking density. The experiment clearly shows the large and potentially costly impact that summer-autumn grazing has on medic pasture and soil. Our studies are continuing.

## References

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