

MASTER — Sheep responses to limed pastures

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Summary

This Primefact reports sheep responses to limed pastures. The limed pastures carried 25% more stock (3.8 DSE/ha) than the unlimed pastures. As a result, the limed pasture produced 28% more liveweight (53 kg/ha/year) and 24% more greasy wool (11.5 kg/ha/year) than the unlimed pastures.

Sheep responses

- The limed pastures carried 25% more stock (up to 4.8 DSE/ha) compared to the unlimed pastures (Table 1 and Fig. 1).
- There was no difference in sheep liveweight per head between treatments (Table 1). However, based on a 'per hectare' basis, sheep produced 28% more liveweight (53 kg/ha/year) on the limed treatments than on the unlimed treatments (Fig. 2).

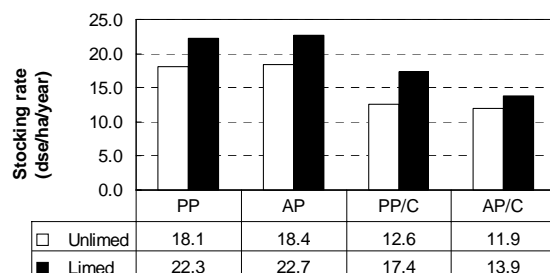


Fig.1. Average stocking rate (DSE/ha) in 1993–2003

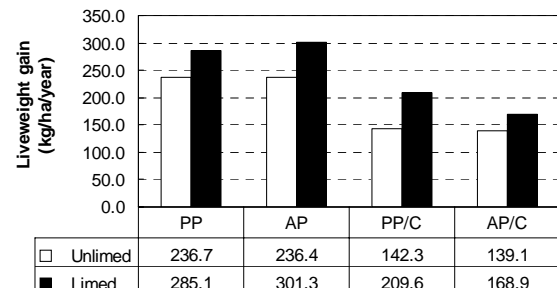


Fig. 2. Average liveweight gain (kg/ha/year) in 1993–2003

- No differences between treatments were found for wool cut per head or fibre diameter (Table 1). However, the greasy wool production per hectare increased by 24% (11.5 kg/ha/year) on the limed treatments than on the unlimed treatments (Fig. 3).

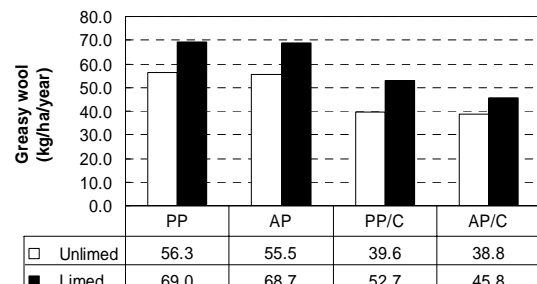


Fig.3. Average greasy wool production (kg/ha/year) in 1993–2003



Grazing management

- Pastures were rotationally grazed by Merino wethers (15–18 months), replaced each year.
- A 'put and take method' was used to mimic the feed demand of a ewe-lamb system.
- Pastures were grazed for 2.5 weeks and spelled for 5 weeks for most of the year.
- A short rotation regime (1-week grazing and 2-week spell) was used at the autumn break (April/May) and in spring.
- Stocking rates were adjusted according to pasture availability and sheep conditions at the start of each rotation cycle.
- The aim was to keep individual sheep in similar body condition on both limed and unlimed treatments without prejudicing pasture growth and persistence.

Table 1. Sheep responses to lime averaged across 1993–2003

Treatment*	PP–	PP+	PP/C–	PP/C+	AP–	AP+	AP/C–	AP/C+	Lime–	Lime+
Stocking rate										
Wethers/ha/year	11.7	14.6	8.6	11.1	11.8	14.5	8.6	10.0	10.2	12.6
DSE**/ha/year	18.1	22.3	12.6	17.4	18.4	22.7	11.9	13.9	15.3	19.1
Lime effect (DSE/ha)		4.1		4.8		4.3		2.0		3.8
Lime effect (%)	100	123	100	138	100	124	100	117	100	125
Liveweight gain										
Gain per head (kg/yr)	19.3	18.8	16.1	18.0	19.3	19.7	16.1	16.1	17.7	18.1
Gain per ha (kg/yr)	237	285	142	210	236	301	139	169	189	241
Lime effect (kg/ha)		48		67		65		30		53
Lime effect (%)	100	120	100	147	100	127	100	121	100	128
Greasy wool										
Wool per head (kg/yr)	4.7	4.6	4.5	4.6	4.6	4.6	4.5	4.5	4.6	4.6
Fibre diameter (micron)	18.8	19.1	18.8	18.8	18.9	18.8	18.1	18.7	18.6	18.8
Wool per ha (kg/yr)	56.3	69.0	39.6	52.7	55.5	68.7	38.8	45.8	47.6	59.1
Lime effect (kg/ha)		12.7		13.1		13.1		7.0		11.5
Lime effect (%)	100	123	100	133	100	124	100	118	100	124

* PP, perennial pasture; AP, annual pasture; PP/C, perennial pasture/crop rotation; AP/C, annual pasture/crop rotation; + limed; –unlimed.

** DSE was calculated according to liveweight and liveweight gain for each rotation cycle.

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Further information

- [Primefact 31, MASTER — Experimental design](#)
- [Primefact 32, MASTER — Soil acidity and lime responses](#)
- [Primefact 33, MASTER — Crop responses to lime](#)
- [Primefact 34, MASTER — Pasture responses to lime](#)

- [Primefact 36, MASTER — Nitrate leaching and deep drainage on acid soils](#)
- [Primefact 37, MASTER — Earthworm numbers and microbial carbon concentration](#)
- [Primefact 38, MASTER — Economic analysis](#)

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