EWE AND LAMB GROWTH FROM ADJACENT MONOCULTURES OF GRASS AND CLOVER

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Sheep prefer a diet of about 70% clover and 30% grass (Marotti *et al.* 2002), and clover promotes higher intakes and levels of animal performance (Gibb and Treacher 1984). However, clover often comprises less than 20% of total pasture yield in mixed pastures in southwest Victoria (Quigley *et al.* 1992). Offering adjacent monocultures of grass and clover in the same paddock may be a simple means for sustaining desirable components in the pasture and diet, and thereby increasing animal performance.

To investigate this concept, 4 replicates of 4 treatments were sown on a commercial property near Hamilton, western Victoria, in June 2002: 1) perennial ryegrass monoculture, 2) subterranean clover monoculture, 3) perennial ryegrass and subterranean clover sown in a conventional mix (average 11% clover), and 4) perennial ryegrass and subterranean clover monocultures sown adjacent in the same paddock ('choice'). On July 25th 2003, 194 pregnant, twin-bearing ewes (69 kg s.d. ± 5.1 kg) were allocated, 12 to a plot. The ewes lambed during August, and any failing to rear twin lambs were removed from the experiment. The remaining ewes grazed *ad libitum* pasture, of 2200 kg DM/ha, on average, for a total of 14 weeks.

Lambs grew 20-30% faster on both the pure clover and grass/clover choice treatments compared with those on the grass dominant pastures (Table 1). These differences were even greater for the ewes, with weight gains between 30-110% higher on the 'choice' treatment. The largest differences occurred during late pregnancy and early lactation.

Table 1. Mean liveweight change (g/head/day) of ewes and twin lambs grazing 4 pasture treatments (July-October 2003) with lambs finishing at 10 weeks of age. Ewe liveweight changes have been corrected to maternal gain by adding 130 g/day, since calculated full-term conceptus = 12.8 kg (Sheep Explorer© 2003).

	Mixed grass/clover	Pure grass	Pure clover	Choice grass/clover	l.s.d. (P=0.05)
Ewe maternal live-weight change (g/day)	86a	81 a	131 b	171 c	39.8
Lamb growth rate (g/head/day)	269a	246a	309b	329b	30.6

Values in rows with different superscripts are significantly different (P<0.05)

The differences between treatments in ewe and lamb performance reflected differences in the proportion of clover in the diet. However, dietary clover content alone does not explain all the variation in animal performance because ewes on pure clover ate 100% clover, yet ewes from the choice treatment gained more weight. Ewes with the grass/clover choice spent about 80% of their grazing time on clover and 20% on grass. Thus, adding grass to the diet is of benefit to the animal. Cosgrove *et al.* (2003) found that the use of adjacent monocultures on 15-20% of a farm's area can increase total lamb carcass production and farm profit in New Zealand. Similar results could be achieved in Australia where poor pasture and diet quality is often a major limitation to meeting targets for lamb growth rate and carcass weight.

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