**Liveweight gain of lambs on lucerne, other legumes and perennial grass-sub clover pasture over summer**

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The importance of legumes for improving the quality of summer-autumn pasture was investigated in grazing trials on three soil types at the Pastoral Research Institute, Hamilton.

## Methods

On at least one of three soil types, the liveweight gain of weaned lambs grazing lucerne (cv. WL 318), red clover (cv. Grasslands Hamua), white clover (cv. Haifa), subterranean clover (cv. Mt. Barker) or Persian clover *(Trifolium resupinatum;* cv. Maral) was compared with gains on pastures sown with subterranean clover and either perennial ryegrass (cv. Victorian), cocksfoot (cv. Porto) or tall fescue (cv. Demeter). Lambs grazing strawberry clover on reclaimed swampland were also studied. Stocking rate was kept constant between treatments and was 14 and 13 sheep/ha in year 1 (Corriedales) and year 2 Corriedales and Merinos) respectively. Other lambs were fed a ration of strawberry clover hay and lupins in a feedlot.

## Results and Discussion

**TABLE 1 : Cumulative liveweight gain of separate drafts of weaned lambs (kg/hd)**

| Treatment | Sown Species[1] | LWG (kg)[2] 7/1-14/4/80 | Sown Species[3] | LWG (kg)[2] 26/11/80-28/4/81 |
|---|---|---|---|---|
| | Year 1 | | Year 2 | |
| Gravelly loam | | | | |
| Per. ryegrass + sub. | 1 (40) | $1.6^{de}$ | 6 (54) | $-1.4^{f}$ |
| Lucerne | 91 | $8.4^{b}$ | 88 | $9.3^{ab}$ |
| Silty loam | | | | |
| Per. ryegrass + sub. | 1 (20) | $0.4^{e}$ | 14 (49) | $1.0^{e}$ |
| Cocksfoot + sub. | 4 (13) | $2.2^{d}$ | 18 (29) | $0.8^{e}$ |
| Lucerne | 71 | $8.9^{b}$ | 83 | $8.7^{ab}$ |
| White clover | 32 | $8.7^{b}$ | 29 | $4.9^{c}$ |
| Red clover | 48 | $9.5^{b}$ | 19 | $3.5^{cd}$ |
| Persian clover (Resown 1980) | 69 | $9.4^{b}$ | 80 | $10.1^{a}$ |
| Subterranean clover | - | - | 71 | $2.2^{de}$ |
| Clay loam | | | | |
| Per. ryegrass + sub. | 8 (20) | $2.7^{d}$ | 12 (29) | $3.3^{cd}$ |
| Tall fescue + sub. | 11 (12) | $1.8^{de}$ | 23 (28) | $4.7^{c}$ |
| White clover | 43 | $9.9^{b}$ | 37 | $8.0^{b}$ |
| Reclaimed swamp | | | | |
| Strawberry clover | 89 | $11.7^{a}$ | 36 | $10.0^{a}$ |
| Feedlot | | | | |
| Hay *ad lib.* + lupins (300 g/day) | - | $6.7^{c}$ | - | $9.3^{ab}$ |

[1] % green matter in December; figures in parentheses refer to perennial grass.
[2] Letter superscripts indicate Duncan's multiple range test (P = 0.05).
[3] % total dry matter in December; figures in parentheses refer to perennial grass.

The summer-autumn grazing trials have shown that: (i) lucerne has superior feeding value for weaner sheep compared with traditional pasture (perennial rye-grass and subterranean clover) on two soil types; (ii) some legume pastures, including the annual Persian clover, have superior value to grass-

subterranean clover pasture; (iii) Mt. Barker subterranean clover dominant pasture has a relatively low feeding value.