THE GROWTH-RATE OF WEANER SHEEP ON IRRIGATED PASTURES

A. D. WILSON*

Summary

Groups of six to nine Merino lambs were weaned in September (May drop) and December (September drop) on to three types of irrigated perennial pasture—perennial ryegrass (*Lolium perenne*), Ladino white clover (*Trifolium repens*) and lucerne (*Medicago sativa*), and one irrigated annual pasture—subterranean clover (*Trifolium subterraneum*). The weight gain of the weaners on white clover was superior to that on perennial ryegrass. Weaner growth on lucerne and on green subterranean clover was similar to, but less than, growth on white clover.

I. INTRODUCTION

Large grazing properties in semi-arid areas often have small areas of irrigation and Moore, Shelton and Robinson (personal communication) have shown that these may best be used for depasturing Merino weaners over the dry summer and autumn months when the native pastures are of poor quality. Irrigated pastures are also frequently used for the production of prime lambs.

Rae et al. (1963) and Rae, Brougham and Barton (1964) have shown that the growth rate of young sheep is greater on short-rotation ryegrass (*Lolium perenne* L. × *L. multiflorum* Lam.) than on N.Z. perennial ryegrass (*Lolium perenne* L.) and greater on both grasses when grown with white clover. Since many perennial and annual species can be grown on irrigated areas, information is required on their nutritive value for grazing sheep.

Some observations of the weight gains of weaner sheep grazing different pasture species at the Falkiner Memorial Field Station, Deniliquin, are reported here.

II. METHODS

Areas of three perennial and one annual pasture were grazed by Merino weaners during two periods: September 9, 1964 to December 18, 1964, and December 19, 1964 to April 25, 1965.

(a) Pastures

(i) N.Z. perennial ryegrass

This pasture contained up to 12% clover (Table 1) and was grazed at 12 sheep/acre in the first period and 15 sheep/acre in the second period.

(ii) Ladino white clover (*Trifolium repens* L.)

This pasture was free of grass and was grazed at 12 and 15 sheep/acre for two periods.

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TABLE 1
The quantity of available feed at three stages

<table>
<thead>
<tr>
<th>Pasture</th>
<th>Available Feed (lb dry matter/acre)</th>
<th>13.x.64</th>
<th>16.xi.64</th>
<th>10.ii.65</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perennial ryegrass</td>
<td>1840(low)*</td>
<td>2840(12)*</td>
<td>3870(12)*</td>
<td></td>
</tr>
<tr>
<td>White clover</td>
<td>2640</td>
<td>3080</td>
<td>4350</td>
<td></td>
</tr>
<tr>
<td>Subterranean clover</td>
<td>—</td>
<td>4120(79)*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Percentage clover shown in brackets.

(iii) **Lucerne** (*Medicago sativa* L.)

This pasture contained a small proportion of grass and was grazed at 8 and 18 sheep/acre for the two periods.

The above three pastures were watered at regular 7-14 day intervals.

(iv) **Clare subterranean clover** (*Trifolium subterraneum* L.) and annual grasses (Table 1),

This pasture was grazed at 12 and 4 sheep/acre for the two periods. Watering of this pasture ceased on November 10, 1964 and commenced again on February 18, 1965 but little feed was available until April.

No nitrogen fertilizers were applied. The stocking rates were conservative for these pastures as the periods of grazing were favourable to pasture growth. The amount of feed available was measured from pasture cuts taken on October 13, 1964, November 16, 1964 and February 10, 1965 (Table 1).

(b) **Sheep**

Merino lambs, born in May and September 1964, were weaned in September and December respectively. Groups of six to nine weaners were selected on the basis of bodyweight so that the mean bodyweight of each group was similar. The perennial **ryegrass** pasture was replicated but the other pastures were not. Where pasture areas were sufficient, May born weaners were retained after December 18, 1964 and grazed in common with the September born weaners.

All sheep were drenched with thiabendazole before being put on the pastures, again after two weeks and thereafter at monthly intervals. All sheep were weighed, without prior yarding, at intervals of four weeks.

III. RESULTS

The rates of bodyweight gain of the sheep are shown in Table 2. These results have been divided into three periods which approximate to the spring November 9, **1964-December 18, 1964**, summer December 18, **1964-March 2, 1965** and autumn March 2, **1965-May 25, 1965** seasons.

For the perennial pastures, weight gains were greatest on white clover and least on perennial **ryegrass** in each of the three comparisons. Weight gains on lucerne were similar to, but less than, the gains on white clover. Weight gains on the annual subterranean clover pasture were high in spring and autumn when the pasture was green.

The amount of feed available to the sheep is shown in Table 1. These values indicate that the availability of pasture in the spring and summer periods did not limit animal performance. No data relevant to the autumn period is available.
TABLE 2

Bodyweight gain of Merino weaners

(kg/week)

<table>
<thead>
<tr>
<th>Sheep</th>
<th>Pasture</th>
<th>Spring (9.ix.64 to 18.xii.64)</th>
<th>Summer (18.xi.64 to 2.iii.65)</th>
<th>Autumn (2.iii.65 to 25.v.65)</th>
</tr>
</thead>
<tbody>
<tr>
<td>May born</td>
<td>Perennial rye</td>
<td>0.63</td>
<td>0.62</td>
<td>0.18</td>
</tr>
<tr>
<td></td>
<td>White clover</td>
<td>1.17</td>
<td>—</td>
<td>—</td>
</tr>
<tr>
<td></td>
<td>Lucerne</td>
<td>1.01</td>
<td>0.91</td>
<td>0.18†</td>
</tr>
<tr>
<td></td>
<td>Subterranean clover</td>
<td>0.96*</td>
<td>—0.01†</td>
<td>0.51</td>
</tr>
<tr>
<td>September born</td>
<td>Perennial rye</td>
<td>—</td>
<td>0.91</td>
<td>0.18</td>
</tr>
<tr>
<td></td>
<td>White clover</td>
<td>1.37</td>
<td>0.79</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lucerne</td>
<td>1.18</td>
<td>0.57†</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Subterranean clover</td>
<td>0.24†</td>
<td>0.87§</td>
<td></td>
</tr>
</tbody>
</table>

*9.ix.64-24.xi.64.
-Subterranean clover pasture dry.
†Death of lucerne and subsequent transfer to new pasture.
§2.iii.65-27.iv.65.

IV. DISCUSSION

These results show that species differences are of importance in determining the individual weight gains of young sheep on irrigated pastures. In these observations the two perennial legume pastures and the annual clover-grass pasture (during its growing period) were superior to the one perennial grass pasture but as only one grass pasture was included, the relative merits of legumes and grasses, as a whole, cannot be assessed. Furthermore, no assessment can be made of the relative value of mixed grass-clover pastures, as the responses may not be additive. However, they do indicate that in situations where bloat and oestrogens are unimportant, the role of grasses in pastures deserves further examination.

The poorer weight gains of the sheep on perennial ryegrass are similar to the results obtained by Rae et al. (1963) and Rae, Brougham and Barton (1964), although they did not have a pure clover pasture. John, Ulyatt and Glenday (1963) have discussed the possible reasons for such differences and suggest that the observed differences in growth rates were due to differences in the rate of digestion and intake and to differences in the fermentation products.

V. ACKNOWLEDGMENTS

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VI. REFERENCES

