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Stocking rates on Cyprus barrel medic in the northern wheatbelt

R.J. Parkin

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IN May 1963, some three weeks after germination, a 4th year stand of Cyprus barrel medic was stocked with Merino wethers. These same sheep are still grazing the area after three years.

Three groups of five sheep were used and grazed at 2, 3 and 4 wethers per acre. Grazing has been continuous over the period and the sheep have been removed only for a few hours each year for shearing.

When the trial started the sheep were rising 4-tooths and are now sound full mouth.

Their initial average liveweight was 62 lb. Some groups have reached 147 lb. and no group has fallen below 78 lb. during the period of the trial.

Wool production at 4 sheep per acre has totalled more than 150 lb. greasy wool per acre for the first 35 months of the trial.

**Site**

The trial is on the property of Mr. A. L. Yewers, of Yongarloo Farming Company, midway between Mingenew and Morawa. The soil is brown to grey-brown calcareous loam.

The rainfall over the trial period has been 24 in. in 1963, 22 in. in 1964, and more than 20 in. in 1965.

**Results**

**Wool Production**

The wethers have produced a high wool cut per head each year. Production per head has fallen slightly with increasing stocking rate.

<table>
<thead>
<tr>
<th>Stocking rate</th>
<th>April, 1963 (8 months growth)</th>
<th>April, 1964</th>
<th>April, 1965</th>
<th>March, 1966 (11 months growth)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 sheep per acre</td>
<td>9.9</td>
<td>14.4</td>
<td>13.2</td>
<td>12.9</td>
</tr>
<tr>
<td>3 sheep per acre</td>
<td>9.9</td>
<td>13.3</td>
<td>11.5</td>
<td>11.4</td>
</tr>
<tr>
<td>4 sheep per acre</td>
<td>9.9</td>
<td>13.9</td>
<td>11.4</td>
<td>12.0</td>
</tr>
</tbody>
</table>

Clean wool weight per head shows a more clearcut reduction with increasing stocking rate.

Increasing the stocking rate from 2 to 4 wethers per acre has resulted in a decrease of about 1 lb. of clean wool per head. However, wool cut per acre is markedly increased. The total wool cut per acre over 35 months of the trial period has been.

<table>
<thead>
<tr>
<th>Stocking rate</th>
<th>1964</th>
<th>1965</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 sheep per acre</td>
<td>9.5</td>
<td>8.7</td>
</tr>
<tr>
<td>3 sheep per acre</td>
<td>9.0</td>
<td>7.9</td>
</tr>
<tr>
<td>4 sheep per acre</td>
<td>8.4</td>
<td>7.6</td>
</tr>
</tbody>
</table>
Wool production per acre (35 months)

<table>
<thead>
<tr>
<th>Stocking rate</th>
<th>Wool per acre (greasy)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 sheep per acre</td>
<td>81.1 lb.</td>
</tr>
<tr>
<td>3 sheep per acre</td>
<td>108.7 lb.</td>
</tr>
<tr>
<td>4 sheep per acre</td>
<td>149.3 lb.</td>
</tr>
</tbody>
</table>

The 4 per acre group have cut 70 lb. more greasy wool per acre than the 2 per acre group over three years.

Liveweights

In each year, a rapid increase in liveweight occurred after the pasture germinated, reaching a peak four to six weeks after the end of the growing period. This peak was more or less maintained, or weights fell only slightly, until the end of March. Liveweight loss was rapid after this, particularly at the break of the season.

The 2 sheep per acre animals were clearly much heavier than those stocked at 3 or 4 sheep per acre groups at all times. The 3 and 4 per acre groups showed similar patterns and their weights were not significantly different.

The pattern of liveweight change is shown in Figure 1.

This trial is on Mr. A. L. Yewers' property, between Mingenew and Morawa, on brown to grey-brown loam. Annual rainfall has varied from 20 to 24 in. during the trial.

A well-established stand of Cyprus barrel medic has carried four wethers an acre continuously for three years without hand feeding, producing nearly 50 lb. of wool an acre per year.

Good seasons have contributed to the success of a high stocking rate, but it is reasonable to assume that 2 ewes per acre could be carried on pastures such as this.

Pasture Production

At the end of spring of each year, the pasture on the plots was sampled to measure the amount of dry material left for summer and also the burr produced.

The figures show a considerable reduction in both dry matter and burr in 1964 as stocking increased from 2 to 4 sheep per acre. In 1965, a much better season, there was little reduction in either component. The results suggest that the 2,800 lb. of dry matter left for the summer of 1964-65 was only just adequate, to
Support 4 sheep per acre through to the next green feed period without supplementation. This was a period of eight to nine months.

At the end of autumn 1964, there was very little dry matter left on the 4 sheep per acre plots and sampling showed only about 100 lb. burr remained, so a considerable amount of burr had been consumed. Despite the large consumption of dry matter and burr, no teat length increase, udder development or onset of milk production has been observed in any of the wethers over the trial period. Some effect could have been expected with continuous grazing of Cyprus barrel medic, as high levels of the oestrogenic substance, coumestrol, have been recorded particularly in summer (Francis and Millington, 1965). However the coumestrol level of the pasture measured in February-March, 1965, was only 65 parts per million, a level constituting little danger.

**Pasture Composition**

The differences between stocking rates were obvious after three months of grazing. These differences have become more marked over the three-year period. The four sheep per acre plots consist almost completely of Cyprus barrel medic. The 2 sheep per acre plots are extremely grass dominant (mostly barley grass). However despite the grass dominance Cyprus barrel medic is still a vigorous component of the pasture.

**SUMMARY**

While favourable years and a favourable soil type for Cyprus barrel medic have contributed greatly to the success of this trial it has nevertheless shown some interesting features. These are:

- Continuous grazing of Cyprus barrel medic pasture has been possible on this site with no detrimental effects to sheep or pasture at 2, 3 and 4 wethers per acre.
- Wool production has reached 153 lb. greasy wool per acre at the highest stocking rate since May, 1963.
The sheep obviously consume the burr of the pasture as the dry leaf and stem material is depleted. This was very obvious on the 4 sheep per acre plots at the end of the 1964-65 summer, when some 5 cwt. per acre of burr was eaten.

Drenching for worm control has not been carried out since the initial Thiabendazole drench in May, 1963.

No supplementary feeding has been carried out or deemed necessary at any stocking rate in any year.

There has been no sign of excessive teeth wear at any stocking rate.

The 2 sheep per acre plot in this trial was grossly undergrazed, indicating that at least 2 sheep per acre can be continuously carried on established Cyprus barrel medic pasture in these areas with a large safety margin for the drier years.

It is reasonable to assume that a continuous stocking rate of 2 ewes per acre could be comfortably carried on such pastures.

ACKNOWLEDGMENTS


Acknowledgment is made of the assistance of the Sheep and Wool Officers in scouring of wool samples and Plant Research Officers for drying of pasture samples.

The Department of Agriculture is indebted to Mr. A. L. Yewers, who generously provided the land, sheep, fencing and troughing for the conduct of this trial.
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