GRAZING MANAGEMENT SYSTEMS IN FAT LAMB PRODUCTION

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Summary

Observations were made on four grazing management systems for fat lamb production on 8 properties in Tasmania. The systems studied were (a) rotational grazing (normal farm practice), (b) set stocking, (c) creep rotational grazing, and (d) creep set stocking.

Each system had its advantages, although rotational grazing was inferior to the other three practices. The suitability of each system was governed by defined environmental conditions, the most important of these being season of lambing, stocking rate, and paddock size.

Creep set stocking was the most adaptable system and gave excellent results in terms of both stocking rate and turn-off of quality lambs under a wide range of conditions.

I. INTRODUCTION

It is estimated that at least 20-30 per cent. of fat lambs produced in Tasmania cannot be marketed off their mothers. In addition to presenting management difficulties for the producer these unmarketable lambs contribute to inefficient meat production.

The conventional system of grazing management for fat lamb production in Tasmania is rotational grazing, with lambing taking place in June and July when pasture growth is negligible. Carrying capacities are commonly as low as 2 to 3 ewes per acre.

The potential for improving fat lamb production by the adoption of more efficient management procedures was examined in field observations on four management systems. The observations were carried out on 8 properties which differed in terms of management skills, rainfall, soil type, pastures, sheep breeds, and lambing time. For the most part, therefore, only general conclusions based on subjective assessments can be drawn.

II. DESCRIPTION OF THE MANAGEMENT SYSTEMS

(a) Rotational Grazing (RG)

This system involves the movement of stock around a series of 4 or 5 paddocks, a complete cycle taking from 2 to 4 weeks. Stock movement is determined by the amount of pasture present, due consideration being given to control of internal parasites. It is desirable here to restrict the grazing area available to the ewe flock during the last two months of pregnancy (i.e., grazing on some paddocks in the cycle is deferred) to provide an accumulation of pasture feed at lambing time.

(b) Set Stocking (SS)

This system is a combination of rotational grazing and continuous grazing. From the advent of the autumn rains and through the winter months of feed

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scarcity rotational grazing is customarily adopted. Continuous grazing begins at lambing, which should coincide with the first flush of pasture growth in the spring. Ideally, the pasture should be about 3 in. to 5 in. high at this time. Ewes and lambs are moved into those paddocks in which grazing has been deferred during late pregnancy. When the estimated carrying capacity of a paddock is reached no further stock are added, and the flock remains undisturbed until the lambs are either marketed or weaned. Should herbage growth become excessive, cattle are introduced to control the pastures.

(c) Creep Rotational Grazing (CRG)

There are no reports on the use of this system in Australia or New Zealand. The flock moves around a series of 4 or 5 paddocks (as for rotational grazing), but at lambing creeps are provided in the paddock fences to permit lambs to graze one paddock ahead of the ewe flock. The creeps are built into plain wire fences, at intervals of 50 to 75 yards, by separating wires with 9 in. sawn droppers, a piece of wire mesh is used to cover the creeps when they are not in use.

(d) Creep Set Stocking (CSS)

In this system the procedures described above for set stocking are adopted until lambing time. The ewes and lambs are then moved into their permanent paddock, a portion (one-fifth to one-seventh) of the area being fenced off. Creeps are built into the sub-divisional fence so that the lambs are provided with an area of grazing not accessible to the ewe flock.

III. RESULTS

At no time was it possible to compare the four systems on the same property, but valid comparisons between systems were possible on the different properties. Table 1 summarizes the conclusions drawn from these comparisons, based on the bodyweight gains of the lambs and on the number of lambs reaching market weight.

<table>
<thead>
<tr>
<th>System for Comparison</th>
<th>Comparisons</th>
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<tbody>
<tr>
<td></td>
<td>RG</td>
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<tr>
<td>Rotational grazing (RG)</td>
<td>*</td>
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<tr>
<td>Set stocking (SS)</td>
<td>SS superior</td>
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<tr>
<td>Creep rotational grazing (CRG)</td>
<td>CRG superior</td>
</tr>
<tr>
<td>Creep set stocking (CSS)</td>
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* No valid comparison.
† Another comparison on another property.
In further instances where no direct comparisons were possible an assessment was made of the advantages and disadvantages of the different systems.

(a) Rotational Grazing

Table 1 shows that rotational grazing was inferior to creep rotational grazing on two properties and to set stocking on one. On another property, however, no differences were observed between rotational grazing and set stocking.

The principal advantage of rotational grazing is its suitability for winter management. When continued into the spring months, however, the system is unsatisfactory, and even under good management the turn-off of lambs is uneven, with up to 20 to 30 per cent. of the flock failing to reach market weight.

(b) Set Stocking

Set stocking was superior to rotational grazing in one comparison, but did not differ in the other. It was inferior to creep rotational grazing, but did not differ from creep set stocking.

The system gave excellent results with a very even turn-off of lambs when adequate feed was available. Preparation of the paddocks in the pre-lambing period is the major key to success, but the correct estimation of carrying capacity is also of great importance. For this reason the stocking rate should be a little below the estimated potential to allow for the vagaries of the season. The system is suited to paddocks of 5 to 50 acres. The observations showed that set stocking failed if there were no build-up of pasture at lambing time.

(c) Creep Rotational Grazing

This system was superior to rotational grazing (two comparisons). It showed a slight superiority over set stocking (one comparison), but was inferior to creep set stocking (one comparison).

The system is suitable for winter or spring lambing. Heavy stocking rates are necessary to encourage the lambs to creep, since in lightly stocked paddocks there is little urge for lambs to leave the ewe area. In these studies lambs were not allowed to, creep until about 6 to 8 weeks of age. Commencement at an earlier age (2 to 4 weeks) would probably have produced more beneficial results. Paddock size may influence the success of the system, because in areas greater than 15 acres lambs have to walk long distances away from their mothers and are easily disturbed.

(d) Creep Set Stocking

This system was found to be superior to creep rotational grazing, but not to be different from set stocking. The creep area permits higher stocking rates; for the system to show its true potential high stocking rates must in fact be introduced in order to give lambs an incentive to creep. Paddock size should not exceed 15 acres.

In all observations under a wide range of environmental conditions creep set stocking has been associated with good growth rates and a high turn-off of quality lambs.

IV. DISCUSSION

Since rotational grazing in the pre-lambing period is common to the four systems examined, the main comparisons are between two basic systems of grazing in the post-lambing period (RG and SS). Each of these has been modified by the introduction of a creep (CRG, CSS).
At low stocking rates set stocking is superior to rotational grazing, but at high stocking rates or where lambing coincides with a feed shortage set stocking loses this advantage. These conclusions are in keeping with the observation of Muirhead (1954) and the experimental evidence of Lambourne (1956).

The provision of a creep makes more feed available to the lambs at the expense of the ewe, and enables stocking rates to be increased. Although the technique of making the lamb take advantage of the creep area needs further study, there is no doubt of the considerable potential for increased production of quality lambs through the adoption of creep grazing systems. This point is supported by the results of Large (1959), Spedding and Large (1959), and Dickson (1959, 1960). These workers found that creep grazing gave 11 lb greater liveweight increase, 50 per cent. more lambs fat off their mothers, and a 50 per cent. reduction in worm burden.

The varying results from creep rotational grazing suggest that it inherits the disadvantage of the parent system (RG), so that creep set stocking, which has been successful under all conditions, is preferred.

V. ACKNOWLEDGEMENTS

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VI. REFERENCES

Dickson, G. R. 1960.-Agrie. 66: 446-449.