AN ASSESSMENT OF A PHALARIS AND A HYBRID PHALARIS PASTURE FOR SHEEP PRODUCTION

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Summary

A commercial strain of Phalaris tuberosa and a phalaris hybrid (P. tuberosa x P. arundinacea) were grazed continuously at either six or eight breeding ewes per acre (15 and 20/ha) for three years.

Wool production per unit area at both stocking rates was greater from the commercial phalaris than from the hybrid grass. Lamb production (expressed as liveweight at weaning) was also greater from the commercial phalaris.

I. INTRODUCTION

The aim of plant breeders is to produce plants with superior attributes to plants currently in use. Extension of the growing season, and improvements in palatability, seedling vigour, autumn and winter growth, or dry matter yield are often achieved but these qualities do not necessarily result in higher animal production.

A Phalaris tuberosa x P. arundinacea hybrid bred by McWilliam (1962) at Canberra was promising under conditions that did not involve continuous grazing. However, P. arundinacea was known to be unpalatable (Roe and Mottershead 1962; Robards 1965) found that sheep preferred P. tuberosa to P. arundinacea and their hybrids.

This paper reports the results of an experiment on the Northern Tablelands of New South Wales in which breeding ewes were set-stocked on a phalaris or a phalaris hybrid pasture at either six or eight sheep per acre (15 or 20/ha) for three years.

II. MATERIALS AND METHODS

In March 1962, four acres (1.6 ha) of a red basaltic soil at Guyra were sown with Phalaris tuberosa and white clover (Trifolium repens) and four acres adjoining were sown with a P. tuberosa x P. arundinacea hybrid and white clover. The fertilizer regime and the management practices imposed on these pastures before the start of the experiment reported here have been described by McWilliam et al. (1965).

In February 1965, 56 unmated Border Leicester x Merino ewes aged 18 months were shorn and then allotted at random to the experimental pastures to give stocking rates of six or eight per acre. The mean initial liveweight of the ewes was 52 kg (115 lb). The ewes were given a cobalt bullet (Dewey, Lee and Marston 1958) and were joined in mid-April each year with fertile Dorset Horn rams; services were recorded each week. The rams were moved at weekly intervals

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between paddocks during the joining period. The ewes were weighed at approximately six-weekly intervals; drenching and crutching followed normal station practice. Lambs were identified and weighed at birth and again when weaned, 12 weeks later.

Sheep were given 2.7 kg (6 lb) of wheat per head per week when the average bodyweight on each plot fell below 40 kg (88 lb) during the drought of 1965/66. This feeding extended over 8 weeks (July/August) in 1965, 16 weeks (June/September) in 1.966, and 5 weeks (July/August) in 1967. A supplement of 0.9 kg (2 lb) of lucerne hay per head per week was also given during late pregnancy in 1966 and 1967.

The basal cover of the grass in each paddock was determined by the point quadrat method (Levy and Madden 1933) in August 1967.

III. RESULTS

The mean rainfall at Guyra is 34.3 1 inches (87.1 cm) and, during the period of this experiment, 22.70, 33.28 and 30.73 inches were recorded in 1965, 1966 and 1967 respectively.

Data on reproduction, liveweights and wool production for these three years are given in Table 1.

In August 1967, the basal cover of phalaris plants was the same for both species at six ewes/acre but at eight ewes/acre there were 11% more plants on the commercial phalaris paddock than on the hybrid grass. White clover had disappeared from all treatments by June 1965.

Similar numbers of lambs were born and weaned per unit area on each type of pasture but weaning weights of lambs from the commercial phalaris were 27% and 50% higher than those from the hybrid for the six and eight ewes per acre respectively in 1966, and 11% and 64% in 1967.

Wool production was also higher on the commercial phalaris pastures for both stocking rates in 1966 and 1967.

There were no significant differences between species or stocking rates with respect to ewe deaths which were a total of 10 in all treatments over the three years.

IV. DISCUSSION

McWilliam et al. (1965) observed that the main attributes of the hybrid phalaris were its long growing season and capacity to respond to summer rains, and its persistence under heavy stocking and through extended dry periods.

The high stocking rates in the present experiment were selected to stress the pastures and their effects were intensified by dry conditions in 1965 and 1966. Pastoral conditions in 1967 were more favourable and although there appeared to be more feed available on the hybrid pastures at most times the liveweights of the sheep were not as high as those on the commercial phalaris pastures. This difference in liveweights suggests that the amount of herbage available may only have reflected a lower intake by the sheep due to a low palatability.
<table>
<thead>
<tr>
<th>Pasture/Stocking Rate</th>
<th>1965</th>
<th>1966</th>
<th>1967</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C6</td>
<td>H6</td>
<td>C8</td>
</tr>
<tr>
<td>Liveweight of ewes at joining (kg)†</td>
<td>41.8</td>
<td>38.6</td>
<td>40.0</td>
</tr>
<tr>
<td>Ewes joined</td>
<td>12</td>
<td>12</td>
<td>16</td>
</tr>
<tr>
<td>Lambs weaned</td>
<td>8</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Lamb birth weight mean (kg)</td>
<td>4.27</td>
<td>4.20</td>
<td>3.84</td>
</tr>
<tr>
<td>Weaning weight per acre (kg)</td>
<td>59.9</td>
<td>44.0</td>
<td>17.1</td>
</tr>
<tr>
<td>Wool production per acre (kg)</td>
<td>19.3</td>
<td>20.6</td>
<td>25.4</td>
</tr>
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*10 months' wool growth 1967.
† Mean liveweight of each group 10 weeks before joining was 52kg.
The greater amount of hybrid phalaris herbage available could have been an advantage in pasture recovery when growing conditions were favourable, but there was little summer rain and a summer growth response as described by McWilliam et al. (1965) did not occur.

In both 1966 and 1967, there were more multiple births at both stocking rates from ewes grazing commercial phalaris than the hybrid, which might be attributed to their slightly higher liveweights at joining. The poor lambing performance in 1965 might have occurred because the ewes had not previously borne a lamb and there was a rapid loss of liveweight after the onset of drought conditions during their first pregnancy.

The weight of lamb weaned at both stocking rates in 1966 and 1967 was greater for the commercial phalaris than for the hybrid. Although the average birth weights of lambs were slightly greater from the commercial phalaris in 1966, the reverse was the case in 1967, when more multiple births occurred.

The results of the present comparison emphasize the need to assess any new pasture plants in terms of animal production as well as in purely agronomic terms such as length of growing season, dry matter production and seed yield. It is desirable that this should be done in many environments. The phalaris hybrid may be of value in the New England area when there are good summer rains.

V. REFERENCES