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R.A. Bettenay

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DAIRY FARMING IN THE BUSSELTON-MARGARET RIVER DISTRICT

PART 3—FODDER CONSERVATION

By R. A. BETTENAY, B.Sc. (Agric.), Adviser, Dairying Division

An analysis of fodder conservation indicates that farmers in the Busselton-Margaret River district are conserving less than half the amount of fodder considered desirable.—Third in a series reporting a survey of farm practices in the district.

IN the Busselton-Margaret River area pastures are mainly annual, based on subterranean clover with Wimmera ryegrass and other volunteer annual grasses. Most of the pasture growth occurs in the spring months from September to November.

On many soil types it is possible to grow perennial grasses but only small areas of these are sown. Even where perennials are established they make little growth during the dry period from January to March, except in selected summer-moist areas.

During mid-winter the feed does not become entirely dormant but in most years little growth is made in the cold wet period from June to August.

In favourable seasons with opening rains in early autumn it is possible to have a surplus of autumn grown pasture to carry stock through the less productive winter. However with a later start to the season these pastures do not get ahead of the cows and a critical feed shortage can occur in winter.

Under this type of seasonal fluctuation in pasture growth there are a number of possible approaches to making the fullest possible use of pastures. These are:

- **Buying and Selling Stock According to the Feed Supply:** There is only a limited scope for this on a dairy farm.

- **Irrigation:** There is some potential for farm irrigation plants, and no doubt these will become more popular in the future. At present, with labour and money shortages, and big areas of undeveloped and partly developed country, little irrigation is practiced. Of the 100 farms in the survey only one did any irrigation of pastures, and then only on a small scale.

- **Purchase of Concentrates or Hay:** There is evidence that at present prices it does not pay to purchase concentrates for feeding to cows on a farm selling its produce on a butterfat basis. All farms were being paid on a butterfat basis although some were selling cheemilk and received an additional allowance for skim milk.

- **Seasonal Production:** All farmers in the survey were producing on a seasonal basis. The aim being to calve all cows in April, May and June. Production reaches very low levels in February-March.

- **Fodder Conservation:** Under present conditions fodder conservation is the best means of increasing carrying capacity and evening out the amount of feed available over the year. This article gives details of the various types of fodder conservation being practiced and points out that the amount of fodder being conserved is less than half of the amount which has been set as a desired standard by the Dairying Division of the Department of Agriculture.
Table 1.—Fodder conservation—total on 100 farms

<table>
<thead>
<tr>
<th></th>
<th>Number of farms</th>
<th>Total area of pasture</th>
<th>Area Cuttable</th>
<th>Area cut 1962—</th>
<th>Purchases—</th>
<th>Details giving the total quantities of all forms of conservation are given in Table 1.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td></td>
<td>conservation as hay, with relatively small amounts of silage and summer crops.</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td>Conservation as Hay</td>
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<tr>
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<td></td>
<td></td>
<td>Only three farmers cut no hay. Two of these had a farm in the process of</td>
</tr>
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<td></td>
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<td></td>
<td>development and intended to start conservation as soon as level paddocks were available. In the meantime a limited amount of hay was purchased annually. The other claimed to do very well without conserved fodder, by buying concentrates for periods of shortage, and with the assistance of some bush grazing.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>With two exceptions, where some kind of sweep was used, all hay was baled. Some of the larger farmers owned their own equipment, whilst others worked as members of a syndicate. Many did their own mowing but relied on contractors to do the baling.</td>
</tr>
<tr>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>Almost all hay was made from normal pastures, with a few acres only of oaten hay. In a number of cases hay was cut from a paddock planted in the same year to oats for early feed; in these cases the</td>
</tr>
</tbody>
</table>
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Table 2.—Conservation of hay

<table>
<thead>
<tr>
<th></th>
<th>Area cut per farm</th>
<th>Tons obtained per farm</th>
<th>Number cutting more than 75 per cent. of cuttable area</th>
<th>Number cutting 50-75 per cent. of cuttable area</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>29.2 ac. (12.8 per cent of pasture area)</td>
<td>54.0 (yield per acre 1.82 tons)</td>
<td>13</td>
<td>36</td>
</tr>
</tbody>
</table>

oats was more or less grazed out before the paddock was closed.

Quality of meadow hay was variable but often very poor, largely because of the poor quality pasture in the paddocks closed for hay. Chief among the reasons for poor quality are the following:

- Most farmers have a very restricted area level enough to cut, and have to cut the same paddocks year after year. These paddocks tend to become capeweed—erodium dominant.
- In conjunction with too-frequent cutting, potash deficiency is common. Few farmers are using sufficient potash on old hay paddocks, although many have obtained spectacular responses when heavy applications of 1 to 2 cwt. per acre have been used.
- Where hay paddocks are not producing well, farmers close them early, with a consequent further deterioration in quality.

It will be seen that 49 of the farmers cut more than half of the area level enough to cut in the season being investigated. The real position is even worse than this as much of the remainder of the area level enough to cut was never cut for one reason or another, and many farmers cut the same few paddocks year after year.

**Conservation as Silage**

Of the 100 farms surveyed, silage was conserved on only four in 1962. In all 81 acres were cut for a total yield of 270 tons (3.3 tons per acre). This is a lower yield per acre than would normally be expected and it is believed that the district average is about 5 tons per acre. Although silage was a useful addition to the ration of cows on the few farms where it was actually made, it can not be considered as contributing much to the overall fodder conservation programme of the surveyed farms.

There seems to be considerable scope for improvement in both quantity of silage made and in means of preventing wastage once it has been stored.

For calculating total conservation as hay equivalent 3 tons of silage was considered equivalent of 1 ton of hay.

**Conservation of Summer Crops**

Twenty-nine farmers grew an area of summer crop, although the area was not extensive in most cases.

In terms of bulk of feed produced, the most important was maize, of which 50 acres were planted for an average calculated yield of 11.5 tons green material per acre. Some excellent crops yielding over 20 tons per acre were seen but in other cases, particularly where germination was poor, the yield was as low as 5 tons per acre.

Next in importance was Sudan grass of which 61 acres were grown and the calculated yield was 6.3 tons per acre. Small areas of Sudan grass—Japanese millet mixture, Japanese millet, lucerne, saccharine and elephant grass were also grown.

The total area of all summer crops was 142 acres, with a calculated yield of 1.143 tons of green material (8 tons per acre).

For calculating total conservation as hay equivalent, 3 tons of summer crops was considered to equal 1 ton of hay.

**Purchased Supplements**

Of the 100 farms surveyed 43 purchased concentrates for feeding to the dairy herd. Two farmers purchased hay.

Few farmers fed more than a token amount of concentrates in the bail, nearly always less than 2 lb. per day. By far the most common were bran and pollard although in a few instances other supplements were fed including crushed oats, crushed wheat, oat husks, molasses and proprietary dairy meals.

Most farmers who fed concentrates did so as a means of getting the cows to take
mineral supplements—either cobalt or phosphate.

In calculating total conservation as hay equivalent, 1 ton of purchased concentrates was taken as equal to 1 ton of hay.

Perennial Pastures

As mentioned earlier, the great need for fodder conservation is brought about by the seasonal nature of pasture growth. If the farm, by virtue of summer moist land, is capable of supporting perennials and producing green feed is the summer, the amount of hay required will be reduced proportionately.

Couch, and in particular the vigorous strain known locally as Indian couch, covered a large area of sandy soil in the northern half of the district surveyed. It is not considered to be particularly productive but does give a green pick in the summer months and this probably stimulates the appetite for dry feed. The average area of couch was about 20 acres per farm.

The average area of all other perennials was a further 20 acres per farm, by far the most important being kikuyu followed in importance by paspalum and perennial ryegrass.

The area of perennial clovers was negligible and would not total more than 20 acres between the 100 farms.

No allowance was made for out-of-season production from perennial pastures in calculating total conservation as hay equivalent.

Hay Equivalent

Hay equivalent (in tons) was calculated from tons hay made plus tons concentrates purchased, plus one third of conserved silage in tons plus one third of the estimated tonnage of summer green fodder.

<table>
<thead>
<tr>
<th>Type of Fodder</th>
<th>Total</th>
<th>Per Dairy Cow</th>
<th>Per Large Beast Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hay</td>
<td>5,399</td>
<td>1.22</td>
<td>0.74</td>
</tr>
<tr>
<td>Silage</td>
<td>90</td>
<td>0.22</td>
<td>0.01</td>
</tr>
<tr>
<td>Summer Crop</td>
<td>286</td>
<td>0.06</td>
<td>0.04</td>
</tr>
<tr>
<td>Purchased</td>
<td>296</td>
<td>0.06</td>
<td>0.04</td>
</tr>
<tr>
<td>Total</td>
<td>6,071</td>
<td>1.37</td>
<td>0.84</td>
</tr>
</tbody>
</table>
Table 4.—Number of farms grouped according to conservation as hay equivalent

<table>
<thead>
<tr>
<th>Conservation per Milking Cow</th>
<th>Number of Farms</th>
<th>Conservation Per L.B.U.</th>
<th>Number of Farms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 0.50 tons</td>
<td>7</td>
<td>Under 0.50 tons</td>
<td>22</td>
</tr>
<tr>
<td>0.51 - 0.75 tons</td>
<td>9</td>
<td>0.51 - 0.75 tons</td>
<td>27</td>
</tr>
<tr>
<td>0.76 - 1.00 tons</td>
<td>18</td>
<td>0.76 - 1.00 tons</td>
<td>31</td>
</tr>
<tr>
<td>1.01 - 1.25 tons</td>
<td>19</td>
<td>1.01 - 1.25 tons</td>
<td>13</td>
</tr>
<tr>
<td>1.26 - 1.50 tons</td>
<td>17</td>
<td>1.26 - 1.50 tons</td>
<td>4</td>
</tr>
<tr>
<td>1.51 - 2.00 tons</td>
<td>23</td>
<td>1.51 - 2.00 tons</td>
<td>3</td>
</tr>
<tr>
<td>Over 2.00 tons</td>
<td>7</td>
<td>Over 2.00 tons</td>
<td></td>
</tr>
</tbody>
</table>

On this basis it is shown in Table 3.

Total conservation as hay equivalent, per milking cow was 1.37 tons and per large beast unit (L.B.U.) was 0.84 tons. This compares very unfavourably with the recommended 2½ tons per milking cow which has been standard target for a number of years.

The range of fodder conservation as hay equivalent is shown in Table 4.

On a milking cow basis, 70 per cent. of the farmers conserved less than 1½ tons per cow. On a L.B.U. basis the position appears much worse—90 per cent. of the farmers conserved less than 1½ tons per L.B.U.

This failure to conserve sufficient fodder for periods of shortage must reduce carrying capacity, and the farmer in turn can do one of two things:

(a) He can reduce stocking rate to the number he can carry in times of shortage, or

(b) He can severely underfeed stock for part of the year.

In fact both (a) and (b) seem to be occurring together on many farms as the farmer endeavours to compromise by carrying more stock than he should in times of shortage, so as to be able to make better use of surplus spring feed without increasing conservation.