1-1-1969

Pasture establishment in the wheatbelt

M L. Poole
IMPORTANT DISCLAIMER

This document has been obtained from DAFWA's research library website (researchlibrary.agric.wa.gov.au) which hosts DAFWA's archival research publications. Although reasonable care was taken to make the information in the document accurate at the time it was first published, DAFWA does not make any representations or warranties about its accuracy, reliability, currency, completeness or suitability for any particular purpose. It may be out of date, inaccurate or misleading or conflict with current laws, polices or practices. DAFWA has not reviewed or revised the information before making the document available from its research library website. Before using the information, you should carefully evaluate its accuracy, currency, completeness and relevance for your purposes. We recommend you also search for more recent information on DAFWA's research library website, DAFWA's main website (https://www.agric.wa.gov.au) and other appropriate websites and sources.

Information in, or referred to in, documents on DAFWA's research library website is not tailored to the circumstances of individual farms, people or businesses, and does not constitute legal, business, scientific, agricultural or farm management advice. We recommend before making any significant decisions, you obtain advice from appropriate professionals who have taken into account your individual circumstances and objectives.

The Chief Executive Officer of the Department of Agriculture and Food and the State of Western Australia and their employees and agents (collectively and individually referred to below as DAFWA) accept no liability whatsoever, by reason of negligence or otherwise, arising from any use or release of information in, or referred to in, this document, or any error, inaccuracy or omission in the information.
The value of legume based wheatbelt pastures is so great that considerable care is warranted during their establishment. Without such care patchy establishment or even complete failure is likely to occur.

In the Wheatbelt too many farmers still put less effort into their seeding of pasture species than their seeding of crops. This may be because both compete for the farmer's time in the busy seeding period and it is the cereal crop which possesses the obvious cash value. However, the total value of a good pasture has to be assessed over a period of several years because of its beneficial effects on soil fertility and erosion, wool production, and the supply of nitrogen to subsequent crops.

For consistent establishment of good pastures the same types of factors have to be considered as for a good wheat crop: land preparation, fertilisers, lack of weed competition and time of planting are just as critical. This article outlines some of the points to consider.

Choose a suitable variety for district and soil

The varieties of the four annual legumes sown most commonly in the wheatbelt and some of their soil requirements are shown in Table 1. Detailed information is available from the Department of Agriculture bulletins listed and from District Agricultural Advisers:

Use good seed

Buy certified seed where possible. Certified seed contains no noxious weed seed and no more than 2 per cent. dirt, straw and other impurities. Its strain purity is

<table>
<thead>
<tr>
<th>Species</th>
<th>Varieties</th>
<th>Some soil requirements</th>
<th>Bulletin No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subterranean clover</td>
<td>Geraldton</td>
<td>By far the most widely sown legume in the Wheatbelt. Sow on medium loamy to light sandy soils with gravel or clay near the surface (15 in.).</td>
<td>3565</td>
</tr>
<tr>
<td></td>
<td>Daliak</td>
<td></td>
<td>3568</td>
</tr>
<tr>
<td></td>
<td>Dwalganup</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Uniwager</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medics</td>
<td>Cyprus</td>
<td>Both grow well on the heavy brown forest soils of the eastern wheatbelt. Harbinger also grows well on the yellow loamy sands of the northern wheatbelt.</td>
<td>3363</td>
</tr>
<tr>
<td></td>
<td>Harbinger</td>
<td></td>
<td>3476</td>
</tr>
<tr>
<td>Rose clover</td>
<td>Kondinin</td>
<td>Will grow on most well drained soils. Sown mainly in the south-eastern wheatbelt, often mixed with sub. clover. Do not tolerate waterlogging.</td>
<td>3422</td>
</tr>
<tr>
<td></td>
<td>Sirint</td>
<td></td>
<td>3504</td>
</tr>
<tr>
<td></td>
<td>Hykon</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Troodos</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Olympus</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cupped clover</td>
<td>Yamina</td>
<td>As for rose clover.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Beenong</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
at least 95 per cent. and at least 80 per cent. of the seeds are capable of germinating in the establishment year.

If the chosen variety is not certified, ensure that the seed is clean and sound.

**Inoculate and lime pellet**

Inoculation and lime-pelleting of seed (Bulletin 3391) is necessary if the area has not grown the particular pasture before. Check that the correct strain of fresh inoculum is used and that it has been stored in a cool place. Do not use systemic insecticides such as Rogor on inoculated seed.

**Fertiliser and seeding rates**

Choose rates of seed and superphosphate to suit the district, soil type, phosphate history of the paddock, and rate of development required. The seed rates* commonly used in the wheatbelt are:

<table>
<thead>
<tr>
<th></th>
<th>Low lb./ac.</th>
<th>Medium lb./ac.</th>
<th>High lb./ac.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub. clovers</td>
<td>6-8</td>
<td>10-15</td>
<td>20-25</td>
</tr>
<tr>
<td>Medics</td>
<td>3-4</td>
<td>6</td>
<td>9-12</td>
</tr>
<tr>
<td>Rose clovers</td>
<td>2</td>
<td>4</td>
<td>6-10</td>
</tr>
<tr>
<td>Cupped clovers</td>
<td>2</td>
<td>4</td>
<td>6-10</td>
</tr>
</tbody>
</table>

In most situations the low rates are too low and the medium rates are required to give good second year stands. High seeding rates are necessary to obtain a dense first year stand.

**New land**

On new land which has received very little superphosphate, 180 lb. per acre superphosphate drilled with the medium rate of clean seed is adequate to give good second year stands. Higher rates of superphosphate up to 250 lb. per acre can be drilled on very gravelly soils.

**Old land**

On old land which has received a number of superphosphate dressings in the past, smaller amounts of superphosphate can be used, depending on soil type and phosphate history.

**Rapid development**

If stock numbers are being built up rapidly and grazing is required in the year of establishment, higher rates of superphosphate and seed can be used.

On most soil types germination is reduced if superphosphate rates above 200 lb. per acre are drilled in contact with the seed—even when the seed is lime-pelleted. If high rates of superphosphate are used, 200 lb. per acre should be drilled with the seed and the rest top-dressed.

For rapid development on new land, the high rates of seed with 360 lb. per acre superphosphate (180 lb. per acre drilled, 180 lb. per acre topdressed) should be used.

**Drill seed and superphosphate together**

For maximum benefit from the fertiliser, drill the seed with the superphosphate. Sow lime pelleted seed either mixed with fertiliser or through the grain box using a reduction gear.

**Apply adequate trace elements**

Check that adequate amounts of copper, zinc and molybdenum have been applied. If they have not, apply the rates recommended in Bulletin 3614 when sowing the clover.

**Don't sow too deep**

Sow 1/2 to 1 inch deep. It is difficult to maintain a consistent sowing depth over a paddock but the following measures will help:

- Burn stubble.
- Sow on a level seed bed.
- Set up combine correctly.
- Check depth when moving from one soil type to another.

**Establishing pasture**

The average wheatbelt farmer faces three alternatives when deciding on time of planting for pasture.

- Dry sowing before the opening rains—in late April-early May.
- Early wet sowing at the time cereal crops are normally planted—in late May and June.
- Late wet sowing soon after the cereal crop has been planted—in late June and July.

Early wet sowing with good weed control gives best results. Dry sowing is satisfactory on new land and on old land where

---

*The seeding rates quoted are in pounds of clean seed per acre. Lime-pelleting increases seed weight by about 50 per cent. for sub. clovers (e.g. 10 lb. clean seed is equivalent to 15 lb. per acre of lime-pelleted seed).
the weed seed population is low. Late sowing is not recommended.

Mixtures

Although it has been the custom to sow pastures with only one legume variety many farmers, particularly in the south eastern wheatbelt, are now sowing mixtures containing two or more legumes. Commonly, such mixtures contain 5 to 8 lb. of subterranean clover, 2 lb. rose clover and 2 lb. of cupped clover. Mixtures may provide species suited to the variable soils found throughout paddocks although an obvious risk is that stock may concentrate on a particular species if it is especially palatable at a certain growth stage. So far however, there has been little evidence of selective grazing and mixed pastures are performing satisfactorily. Mixtures may also reduce the potency of high oestrogen subterranean clover pastures and for this reason some old Dwalganup pastures have been oversown with rose and cupped clovers.

Reduce grass seeds

If the areas to be sown to pasture are very grassy the grass seed population should be reduced as much as possible in the year before sowing. Heavy grazing of the grass pasture in spring, followed by heavy summer grazing or burning, can considerably reduce the grass problem.

Undersowing is risky

Sowing pastures with crops increases the risk of failure. Crop yield losses of 2 to 4 bushels per acre must be expected and losses could be as high as 7 bushels per acre. Undersowing has often been unsuccessful in the northern and eastern wheatbelt but moderately successful in the south-eastern wheatbelt.

For most of the wheatbelt such losses rarely compensate for the time gained by sowing clover under a crop.

Oats are often sown with clover for protection against wind blast and to provide early winter feed. If this is done on oat seeding rate of 10 to 15 lb. per acre should be used. The oats should then be completely grazed off by the end of July so that the clover does not have to compete with them when flowering and setting seed.

Spraying for insects

Red-legged earthmite on the clovers and medics, and lucerne flea on the medics, can cause trouble. If attacked within six weeks of germination the pasture should be sprayed. See Department of Agriculture Bulletin 3433.

Graze first year pastures carefully

Graze first year pasture in such a way as to allow adequate seed set in the establishment year.

On weed-free new land and on wet-sown old land where good weed control has been obtained, grazing is not necessary in the first year. If moderate rates of seed and super have been used (10 lb. per acre seed, 180 lb. per acre superphosphate) the stands are better left to seed down undisturbed. Light summer grazing, at half a sheep per acre or less, can be carried out but heavy summer grazing may deplete seed reserves and is not advisable.

If high rates of seed and super have been used for rapid development, the stand must be stocked in the first year to justify the high capital outlay. The stocking rate used will depend on the farmer's assessment of carrying capacity. As the stand may be very nearly a pure clover pasture, stocking rates should be kept low during winter to allow the plants to develop a strong root system. A month to six weeks after germination, stands can be stocked at half a sheep per acre or less. The stocking rate can be increased to one sheep per acre in spring and then maintained over summer.

For dry-sown and weedy wet-sown stands, grazing is essential during the growing period to prevent weeds from shading out the clover and competing for moisture during flowering and seed setting. From germination, continuous stocking at about half a sheep per acre is generally adequate to control weeds although this rate should be varied to suit conditions. The stocking rate should be increased if grasses are "getting away," or reduced if the clover is being grazed too hard. "Flash" grazing of weedy stands with large mobs of sheep has not proved as successful as continuous stocking at low rates. Subterranean clovers can be grazed harder in the first year than rose, and cupped clovers, and medics.
Keeping up with research

Keeping up with research is quite a problem for the serious farmer, or for anyone else.

Original reports of much of the applied agricultural research in Australia are published in the

AUSTRALIAN JOURNAL OF EXPERIMENTAL AGRICULTURE AND ANIMAL HUSBANDRY

The Journal is published six times a year and each issue carries 20 to 25 reports. The wide range of topics covered is indicated by the reports listed.

The Journal is sponsored and financed by the Department of Agriculture in each State, the CSIRO, and the Wool, Meat, Wheat, Dairy and Tobacco Research Funds. You can see a copy in any office of the Department of Agriculture.

The reports come from officers in the State Departments of Agriculture, the CSIRO, and the universities. They are written primarily for fellow research workers and advisory officers. Popular accounts of this work often appear later in extension journals and the rural press, but several hundred Australian farmers and graziers feel it is worth subscribing to the Journal and getting the information at first hand.

If you would like to join this group and subscribe regularly or, as a first step to see a single copy at a much reduced rate, fill in the coupon below.

SUBSCRIPTION ORDER
The Australian Journal of Experimental Agriculture & Animal Husbandry,
Clunies Ross House, 191 Royal Parade, Parkville, Vic. 3052
Please enter my subscription to Experimental Agriculture for:

☐ One year
☐ Single concession copy
☐ Payment enclosed
☐ Please send invoice

(please tick appropriate squares)

RATES: Annual subscription (six issues) ………... $15.00
Single copies—Normal rate current and back numbers $2.50
Concession rate, if accompanied by this coupon ……... $0.50

Reports included in recent issues—
Early prenatal loss in a commercial sheep flock
Seasonal growth of creeping-rooted lucerne
Control of lodging in wheat with CCC
Breakdown and weight loss of apples in controlled atmosphere storage
Beef production from sorghum grain and sorghum stubble
Effect of management practices on barley grass content of annual pastures
Effect of time of application on pasture response to sulphur
Effect of clipping on yield of wheat
Field control of cereal smuts with a derivative of 1,4-oxathiin
Effect of breed, season and competition on mating behaviour of rams
Effect of calcium in protein diets on growing pigs
Preplanting control of skeleton weed in wheat
Wool growth of wethers in semi-arid Western Australia
Effect of seed harvesting ants on the persistence of Wimmera ryegrass
Losses of nitrogen from urine in soil

Journal of Agriculture, Vol 10 No 3, 1969
It looks like milk

It flows like milk

It's THIBENZOLE*

Not just a solution but the complete answer to worm problems

It looks good, it tastes good, it does good in sheep, cattle and horses

THIBENZOLE*

THE DRENCH YOU KNOW YOU CAN TRUST

MERCK SHARP & DOHME (Australia) Pty. Limited, Granville, N.S.W.

*Trademark MSDT 1252 VaAu 16.68

Please mention the "Journal of Agriculture of W.A." when writing to advertisers