Reviewed October 07 No. 40/2002

Department of Agriculture

Farmnote

SMALL LANDHOLDER SERIES

Annual Pasture Establishment for Small Landholdings in the Central Swan Coastal Plain and Hills Region

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Subterranean clover is the legume in widest use in the region but it does not dominate new sowings to the same extent as in earlier years. The release of varieties of new species has expanded the choice available to landholders and mixtures of species and two or more varieties of each species are recommended. Mixtures are preferred because of the variation that occurs within paddocks and between seasons.

Determine why you need to reseed

Begin your planning in the year **before** reseeding by investigating the site. Find out why the pasture has deteriorated and whether it needs reseeding, or simply if a change of management will restore productivity?

Is the soil too acid, low in nutrients, waterlogged, mildly saline, dominated by weeds and insects, or has the deterioration resulted from poor pasture grazing management? Do you wish to improve the current pasture by the introduction of a wider diversity of species?

Spring weed control

Effective weed control is essential before reseeding. Weedy paddocks can be greatly improved by spray topping pasture with 0.6 L/ha glyphosate to minimise weed seed set for the following year and to ensure high palatability of residual dry matter for summer grazing. Hard grazing (but not overgrazing) in spring also lowers seed set.

Soil testing

Soil testing can show the status of major nutrients such as phosphorus, potassium and sulphur. These nutrients must be at adequate levels otherwise there will be serious reductions in productivity.

Soil testing will also include a pH test (calcium chloride). When soil pH falls below 4.5 lime is required when reseeding. Common rates are 2.5 t of agricultural lime per hectare. Cultivate the lime into the top 5 cm of soil during seedbed preparation.

Figure 1: Landholders benefit from attending pasture field days.

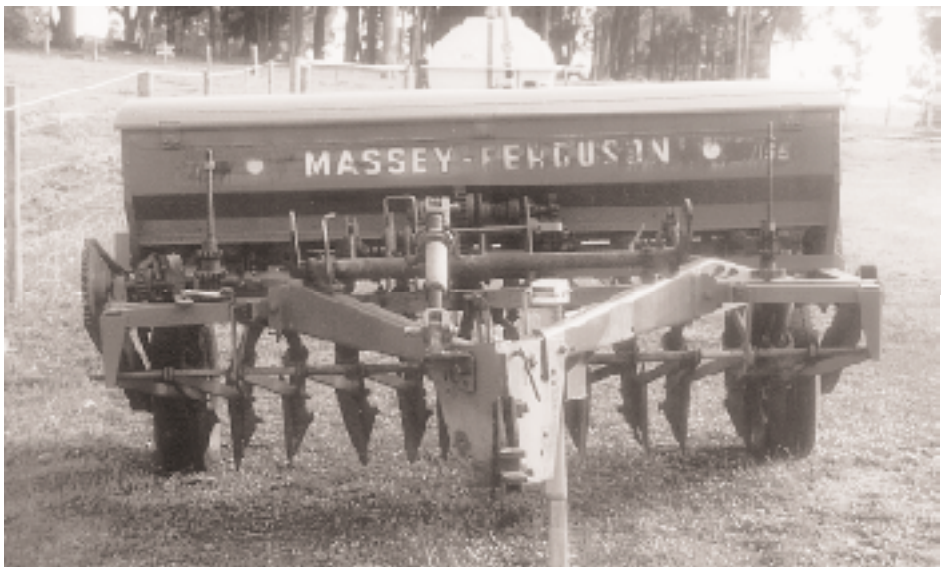

Figure 2: Disc drills are ideal for sowing pasture seed.

Soil testing is best carried out after the soil has dried. Take at least 20 core samples (bulk into one) from the 0 to 10 cm soil profile for each paddock or soil type, preferably on marked transects that can be resampled in later years. Have the soils tested at an accredited laboratory. Request that either a phosphorus retention test or reactive iron test be included in the analysis.

Annual Pasture Establishment

It is important to remove as much dry grass material as possible before reseeding. Seedbed preparation should be completed early to take advantage of any early autumn rainfall so that seeding can be completed while the soil temperatures are still high.

Method

Autumn - Graze heavily (but do not overgraze) to remove dry matter.

April - Burn if sufficient dry matter is present to carry a fire.

April - Lightly cultivate to < 5 cm and harrow to prepare a final seedbed.

April-May - Wait for complete germination of weeds.

April-May - Spray weeds with glyphosate at 2.5 L/ha.

May - Mix seed and fertiliser in the fertiliser box of a combine broadcaster by dropping the mixture with the hoses out.

Harrow with chain harrows to cover seed.

Apply methidathion 400 g/L at 200 mL/ha immediately before germination for bare earth treatment to control redlegged earth mite (RLEM) and lucerne flea.

The established pasture can be lightly grazed six to eight weeks after germination, but aerial seeding species such as balansa must be left ungrazed in the spring to encourage seed set. During the first summer, the dry pasture should be grazed hard to remove the bulk of the dry material so that the seed is exposed to high soil temperatures to soften the seed. This encourages excellent germination at the break of the season in the late autumn.

Land Management Units

Dry Bassendean sands

Soils carrying mainly banksia are non-wetting and they are the most difficult soils to establish pasture on. They are also the least productive soils and should only be sown to pasture when other land use options such as commercial tree and fodder shrub production have been rejected.

Important considerations include:

- apply a soil amendment such as fly ash or Alkaloam;
- apply 2.5 t/ha of agricultural limestone before cultivation (subject to soil testing);
- do not cultivate deeper than 5 cm;
- inoculate and lime pellet all legume seed;
- sow in late May when the soil is wet and further rainfall is assured;
- use a high seeding rate;
- if nodulation is slow, a small application of nitrogen fertiliser sometimes helps establishment;
- phosphorus requirement is low but requirements for potassium and sulphur are high;
- late sowings make RLEM control at the establishment stage crucial.

Species

- Because of the short growing season, we only recommend early maturing annuals. It is possible to establish drought tolerant perennial grasses in the late winter.

Annual species may include:

- Dalkeith subterranean clover;
- Hykon rose clover;
- Cadiz pink serradella;
- Charano yellow serradella;
- Wimmera annual ryegrass.

Perennial species may include:

- Rhodes grass;
- Kikuyu;

- Couch;
- Mission Veldt grass;
- Green panic.

Wet sands and duplex soils

Soils carrying mainly paperbark, marri and tea-tree can be highly productive, but careful use of fertilisers will be necessary because of nutrient leaching.

Important considerations include:

- waterlogged sites may require improved surface water drainage;
- use slow release fertilisers;
- phosphorus requirement is low but potassium and sulphur requirements are high;
- include a perennial component;
- apply 2.5 t/ha of agricultural lime (subject to a soil test);
- weed control is crucial;
- RLEM control is crucial;
- split fertiliser application into winter and spring (if trafficable in spring);
- seed while soil temperatures are high;
- be aware of the possibility of annual ryegrass toxicity in hay paddocks.

Species

Annual species may include:

- Gosse and Goulburn subterranean clover (south of Pinjarra), Trikkala subterranean clover (north of Pinjarra);
- Bolta balansa (south of Pinjarra), Paradana and Frontier balansa (north of Pinjarra);
- Nitro Persian clover;
- late maturing annual ryegrass (many available).

Perennial species may include:

- Palestine strawberry clover;
- Paspalum;
- Kikuyu;
- Phalaris;
- Cocksfoot;
- Rhodes grass;
- Bambatsi panic.

Gravels and gravelly sands

Undulating soils containing mainly marri and jarrah that are well drained offer fair to good production.

Important considerations include:

- earthworks may be needed for surface water management;
- phosphorus requirement is likely to be high (do a soil test);
- potassium and sulphur status will be difficult to predict (do a soil test);
- weed control is crucial;
- RLEM control is crucial;
- soils are likely to be variable, so include seeds with a range of maturity;
- seed while soils temperatures are high.

Species

Annual species may include:

- Trikkala, York, Junee and Dalkeith subterranean clover;
- Frontier balansa;
- Cefalu arrowleaf clover;
- Caprera or Flame crimson clover;
- Cadiz pink serradella;
- Santorini yellow serradella;
- Annual ryegrass.

Perennials species may include:

- Rhodes grass;
- Green panic;
- Kikuyu.

Waterlogged clays and loamy clays

Mainly flat, poorly drained soils containing mainly flooded gums and paperbarks with narrow slight rises of marri are typical in the region. These can be highly productive, particularly for haymaking.

Important considerations include:

- waterlogging, which may need some shallow earthworks for improved surface drainage;
- soil salinity;
- trafficability in winter;
- use of late maturing cultivars;
- avoiding deep cultivation;
- difficult weeds may exist, such as dock, *Juncus* spp. (eg *Juncus acutus*, spiny rush) and Cape tulip;
- weed control is crucial;
- phosphorus requirement may be high (do a soil test);
- may require potassium (do a soil test);
- unlikely to be sulphur responsive;
- weed control in the previous spring;
- seed early while soil temperatures are high.

Species

Annual species may include:

- Gosse, (south of Pinjarra), Goulburn, Trikkala subterranean clover;
- Bolta (south of Pinjarra), Paradana balansa (north of Pinjarra);
- Nitro Persian clover;
- late maturing annual ryegrass (many varieties).

Perennial species may include:

- Paspalum;
- Bambatsi panic;
- Rhodes grass (if not waterlogged);
- Perennial ryegrass.

Further reading

Department of Agriculture Bulletin 4302 *Productive Pastures Pay ($5.50)*

Department of Agriculture Bulletin 4357, March 1999 *Fertilisers for Pastures on Sandy Soils of the Swan Coastal Plain*

Farmnote No. 68/2001: *Summer Growing Perennial Grasses in the Central Swan Coastal Plain and Hills Region*

Farmnote No. 73/2001: *Sulphur for high rainfall pastures*

Farmnote No. 74/2001: *Potassium for high rainfall pastures*

Farmnote No. 75/2001: *Soil test and phosphorus rate for high rainfall pastures*

Farmnote 29/2001: *Alternative Annual Pasture Legumes*

Farmnote 46/2002: *Soil pH and Pastures*

Farmnote 19/2002: *Inoculating and Lime Pelleting Pasture Legumes*

Farmnote 6/1990: *Sprinkler Irrigated Pastures for Small Holdings*

Farmnote 79/1993: *Managing Waterlogging and Inundation in Pastures*

Farm Weekly Budget Guide (current issue) *Pasture Legume Recommendations*

Visit the small farm website:
www.agric.wa.gov.au/smallfarm

Acknowledgement: Some of the material in this Farmnote has been derived from Department of Agriculture Western Australia Bulletin No 4302 *Productive Pastures Pay,* compiled by Peter Arkell.

Acknowledgements

Produced in conjunction with the Swan-Canning Cleanup Program.

Figure 3: When capeweed dominates – consider reseeding.

00949/4/03-3000-inhouse

ISSN 0726-934X