



UPPER RIVER TORRENS
LANDCARE GROUP

Data Sheet

Pasture Establishment and Management

The value of well managed perennial plants to the stability of watercourses and the general health of the catchment, is underestimated and are essential in creating a buffering zone.

The establishment and management of perennial pastures as an aid to improving water quality and, more importantly, reducing soil degradation, cannot be over-stressed.

This data sheet deals predominantly with introduced (exotic) grass (based) pastures (phalaris, cocksfoot, perennial ryegrass and tall fescue) which need to be grazed and actively managed to ensure persistence.

Perennial pastures for watercourse buffering

The reality of farming in the Mt Lofty Ranges is that, apart from viticulture and horticulture, the majority of the land is under some grazing or cropping regime.

With sensible management, first and second order streams—where shallow—can be sown with pasture and treated as part of the paddock. If they become waterlogged in winter, it may be necessary to fence them to (temporarily) exclude stock. As they dry out in Spring, they could provide feed into early Summer. This strategy assumes that the watercourse is not well-defined and there is no risk of any banks eroding.

Third and fourth order watercourses, many with bed widening and deepening, flow through much of the grazing land in the upper and outer reaches of the sub-catchments. They harvest water for the main channel which may be a fifth order watercourse for much of its length. The main channel, and high winter volume orders feeding it, should have total stock exclusion. These should be managed to maintain at least 70% cover.

Establishment and management

It is important to recognise that what is present in a pasture is a product of its management. It is therefore more important to get management practices right before concentrating on pasture establishment. Otherwise sown pastures will quickly deteriorate to their previous state.

Many people assume that if they haven't got the perfect pasture, they need to re-seed. This may not be the case.

If a pasture has 20 perennial grass plants and 60 subclover plants per square metre, it should be possible to resurrect it with good management. This means providing adequate fertility and correct grazing management.

If perennial grass and subclover numbers are both below the critical levels, resowing is necessary. If only one is low, it may be possible to over sow whichever is lacking.

Advantages of perennial pasture

- Slow the velocity of water moving across the soil, reducing soil erosion and pesticide runoff, thereby improving water quality in the watercourse.
- Improve water infiltration through the soil profile.
- Extensive permanent root systems of perennial grasses increase water usage which in turn reduces salinity by lowering water tables. The rate of acidification is also reduced.
- Provide a longer growing season (earlier in autumn and later in spring) allowing increases in stocking rates. However, this needs to be managed carefully to avoid overgrazing problems.
- Subclover is a legume, fixing nitrogen which is beneficial to the grasses, and providing high protein feed. These mixed pastures provide more, higher quality feed.

There are two keys to managing these pastures; **fertility** and **grazing management**. Without paying attention to these issues, resowing can be a waste of time and money.

The following points should definitely be considered when planning your management regime:

• Soil testing

Clover and perennial grasses have a high demand for nutrients and maintaining fertility is essential to achieve vigorous growth. The only way you can be confident that you are providing balanced nutrition, including trace elements, and addressing soil pH, is to do a full soil test. This ensures that there is nothing limiting production and avoids over-application of nutrients that may not be required.

• Another way to test soil - Biological analysis

The only way to be confident about the health of your soils is to have the organic life analysed. A food web test will focus on the drivers of soil health which can be made up of billions of bacteria, actinomycetes, fungi protozoa and nematodes. This invisible world beneath our feet can be viewed in various publications and on-line.

Soil food web testing is available in the South Australia.

• Grazing management

Perennial grass/subclover pastures benefit from rotational grazing throughout the year. Ideally they should be grazed from approximately 12-15cm down to 5cm and then allowed to regrow to 12-15cm. However it is essential not to overgraze pastures and expose soils to the risk of erosion. Ground cover should be kept above a minimum of 70% with at least 3cm cover at all times.

Restricting stock to smaller areas increases the grazing pressure on that area for a short period of time. The optimum is to restrict stock to an area where they will eat the feed down to 5cm within a few days, allowing several weeks of rest for the pasture to regrow, during which the stock are rotated around other similar areas. This forces stock to eat the feed within that area and helps overcome selective grazing. Separating land classes also assists rotation management.



Contractor Kym Gladigau sowing pasture

Golden rules for establishing pasture

Renovating pastures in the Mt Lofty Ranges

This seasonal schedule of activities for renovating a pasture was compiled from a number of other pasture calendars. It aims to simply lay out the steps that should be planned to prepare for and complete a successful pasture renovation.

The most common approach is to spray out weeds following the break of the season, followed by direct drilling of a selected pasture mix, but preparation in the year before sowing is an important part of the process.

Autumn - Winter (year before sowing)

Broadleaf weed control (April to July). Use a selective spray for annual broadleaf weeds such as salvation jane, capeweed and geranium.

Perennial weed control including dock, sorrel and guildford grass. These must be controlled in the year before sowing as the chemicals required to control them will kill clover.

Spring management

A critical time in the grazing calendar is early spring. Hard grazing at that time of year takes advantage of the early flowering nature of many annual weeds. It reduces the seed set of the weeds and puts them at a disadvantage to the late flowering perennial grasses. It also encourages subclover to branch more and results in high seed production.

Slashing can also be used to help reduce the seed set of annual weeds. Regrowth will be minimised if slashing is delayed until the weeds start to flower. Alternatively, spraytopping can be used to reduce seed set of some annual weeds, and can speed up the process of improving pastures. It is particularly valuable in the year prior to renovation to reduce the weed burden in the establishing pasture.

Spring (year before sowing)

Annual grass weed control. Spray top for annual grasses, including barley grass, silvergrass and annual ryegrass (September - early October). Spraytopping involves the use of low rates of paraquat (e.g. Gramoxone) or glyphosate (e.g. Roundup) based herbicides. Spray around flowering before weeds have had a chance to set viable seed.



Landholder David Bradley consulting with Peter Willmott, Rural Solutions SA, as they plan the management of dryland salinity

Summer (year before sowing)

Soil test paddocks planned for renovation (Dec to Feb). (Kits available from Mt Lofty Ranges Catchment Centre).

Graze paddocks to remove residues and aid establishment of seedlings in Autumn. Maintain 70% ground cover and do not over graze. Aim to have 3cm of pasture at sowing time.

Contact the contractor early to discuss the timing for spraying and sowing.

Autumn (year of sowing)

Apply lime and fertiliser according to soil test results.

Continue to graze residues. Maintain 70% ground cover and do not overgraze.

Remove stock a week prior to spraying out weeds.

Two weeks after opening rains, spray out weeds with Glyphosate (Roundup) or Sprayseed.

Direct drill pastures (late April to early June - best time May, dependent on conditions).

Sow a suitable pasture mix (usually perennial grasses and subterranean clovers, plus fertiliser if not previously spread).

Inoculate clover seed if old pasture lacked sufficient clover. Avoid sowing inoculated seed with super, unless lime pelleted.

If a suitable insecticide was not included with the herbicide, then young pastures should be sprayed to control red legged earthmite and lucerne flea.



Pasture ready for rotational grazing during winter using light grazing, with heavy stocking rates

Winter (after sowing)

Light grazing through to August, dependant on pasture growth.

When new pastures reach a height of more than 10cm, they can be grazed back to 3cm. (A number of light grazings with heavy stocking rates is preferred - best stock are sheep). N.B. If grazing horses keep them off newly renovated pastures until grasses have had time to flower.

Monitor pastures for insect pests and treat if necessary.

Spray-graze for broadleaf weeds if necessary (check the label to ensure the herbicide will not damage newly sown pastures).

Spring (after sowing)

Livestock should be removed in September to allow perennial grasses to run to head, enabling the establishment of stronger root systems for long term production. This is particularly important for phalaris.

Do not cut hay or silage in the first year of a newly sown pasture.

Summer (after sowing)

Rotationally graze through December to February. Do not overgraze. Maintain 70% cover.

Autumn (year after sowing)

Apply fertiliser at maintenance levels as recommended by an agronomist. Continue to rotationally graze.

Resources

Soil Foodweb Institute:

<https://www.soilfoodweb.com.au/>

Agriculture and Food (DPIRD WA):

<https://www.agric.wa.gov.au/small-landholders-western-australia/productive-pasture-management-small-landholders>

Contacts

Coopers Farm Supplies:

<https://www.coopersfarmsupplies.com.au/>

References

Lowenfels, Jeff and Lewis, Wayne (2010 revised edition). *Teaming with Microbes*, Timber Press Portland, Oregon.

Microbes measure ecological restoration success. University of Adelaide website (14/03/2017)

Nardi, James B (2007). *Life in the Soil*. University of Chicago Press.

What is happening to my soil microbes over Summer? With the Grain e-newsletter. (January 2017)

Data Sheet Technical Data supplied by Ian Becker (former Mt Lofty Ranges Catchment Programme, Small Property Advisor).

Data Sheet compiled by George King (© Upper River Torrens Landcare Group 2003).

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