

Pasture Improvement

Fact Sheet series for the
Small Rural Landholder

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The Issue

It is not uncommon for small property owners to have relatively unproductive pastures that can be improved.

This does not necessarily mean that paddocks will need cultivation and sowing down to new pasture.

The state of the pasture may be the result of a combination of factors or just one that can be corrected.

If pastures are to be improved there is no point unless you identify the problems.

Pasture improvement strategies will ensure feedgaps can be reduced and animal enterprises benefit by maximising seasonal conditions and improved liveweight gains.

Pasture improvements also benefit soil structure, reduce weed control costs, enhance biological activity and improve nutrient ability.

Poor pasture production – what to look for?

Soil type

Some soils are naturally low in fertility, may be poorly structured or only have shallow topsoil with limited capacity to grow much. If you are in a district where you can't see strong healthy pastures being grown, even by the better commercial producers, then it is probable that the land has only limited capacity to produce. Therefore your expectations for livestock production and enterprise need to take that into account. This will more than often be the case in lower rainfall areas (< 350mm)

Soil acidity

Naturally acid soils are a common feature of the landscape across Victoria and for many farms will be the key to reversing a decline in pasture production. As soil acidity increases, major nutrients including phosphorous become bound by chemical reactions in the soil and unavailable for plant growth.

In extreme cases, soil acidity may lead to greater availability of aluminium which will be toxic for pasture species. By applying lime we can increase the soil pH (measure of acidity) releasing beneficial soil nutrients for root uptake.

Soil microbiology

In soils where biological activity is low, organic matter is not being broken down by microorganisms to release and recycle essential nutrients, improve soil structure and reducing soil borne diseases.

Stocking rate

If the property has a history of overstocking or set stocking, with no pasture management strategy, then it is likely that broad leaf weeds such as capeweed and dandelion will dominate at the expense of more desirable pasture grasses. One, or a

succession of dry seasons, may also have the same affect with overgrazing selecting out the better species and promoting pasture weed growth when it rains.

Conversely pastures dominated by undesirable species such as Yorkshire Fog grass or Sweet Vernal grass, with little or no legume present, are typically an indicator of understocking.

Some options for improved pasture production

There are some management strategies we can use which don't require the expense of a major pasture renovation program. By monitoring over time for observable improvements, this will indicate strategies are working.

Broadleaf weed dominant species

For paddocks where broadleaf weeds are starting to dominate, but there is still a good population of pasture grasses and clovers, reducing the stocking rate is a good starting position. The subsequent implementation of a rotational grazing system, which involves short periods (1 week) of grazing followed by extended periods (4-5 weeks) of recovery for the pasture, will help encourage improved pasture species to grow.

There are also some selective broadleaf herbicides that can be used for what is called "spray grazing". This is where chemical is applied to the pasture, according to label instructions at a low rate early in the growing season. After ensuring the recommended withholding period is adhered to, sheep or cattle are then introduced at a heavy stocking rate to eat the sweetened and more attractive broadleaf weeds. Done properly this can be a very effective technique of "cleaning up" a pasture but it will NOT be successful if left too late in the season.



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COMMON GROUND



Key Management Strategies

Broadleaf weeds

Can be a sign of a poor grazing strategy. A rotational grazing strategy can reduce the burden of a weed dominant species and encourage improved species to be more productive. Spray grazing may also help 'clean up' a pasture to remove undesirable species but timely spraying and strict withholding periods need to be adhered to.

Grass dominant species

A short but intensive heavy grazing strategy or use of slashing to open the pasture canopy can reduce the dominance of grasses and enable favourable conditions for legumes (clovers, sub-clovers) to grow.

Acid soils

Can reduce the availability of important nutrients such as phosphorus and increase the availability of aluminium which can be toxic to plants. The addition of lime can address this issue but it may take time to see results depending on the application method (surface spread verses soil incorporation).

Compacted soils

Increase run-off and soil erosion, reduce water-holding capacity and limit root development down into the soil profile. Aeration of the soil can improve microbial activity, promote root growth, increase nutrient uptake and improve pasture productive capacity.



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For general information contact:

Western Port Catchment Landcare Network
info@wpcln.org.au
www.wpcln.org.au

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Grass dominant species

These paddocks may require short intensive periods of heavy stocking or slashing to open up the pasture canopy and allow any clovers present to compete with the grasses. Over a couple of years this can help improve the balance of the pasture. If no legumes appear, it can be effective to sow in some sub-clover and perennial clover species at the start of the season; even before the opening rains.

Acid soils

The ideal method to ascertain if soil acidity is an issue requires the correct taking of a representative soil sample to be sent off for laboratory analysis. This should give valuable information on nutrient status and soil acidity.

An indicative figure for pH can also be achieved by purchasing a basic soil pH test kit from a nursery and performing your own DIY test. This may be a worthwhile first step prior to sending a sample off for analysis.

The decision to go to the expense of applying lime should be based on a proper soil test followed by good agronomic advice from a consultant. Lime applied to the soil surface without any cultivation may take a couple of years to achieve noticeable pasture improvement.

If a new pasture is being sown, involving cultivation, then liming at this time will achieve a faster result. The lime particles incorporated into the soil profile can raise the pH more quickly in the root zone.

Compacted soils

Paddocks with a history of prolonged heavy stocking may have a compacted soil surface as well as an underlying hard pan beneath or within the topsoil layer. Rainfall usually runs off rather than penetrate these paddocks. There is limited capacity to hold either soil water or the air necessary for plant growth and soil microorganisms.

The use of machinery, that aerates the soil, may stimulate microbial activity and improve pasture growth. This strategy can be worth trying prior to deciding on a full cultivation to break up the compaction.

Where there is no evidence of a hard pan below the soil surface, cultivation may not be required. Sowing a new pasture can more easily be done using a broad-spectrum herbicide to reduce weed competition; followed by direct drilling seed and fertiliser using minimum tillage equipment and narrow sowing points to ensure minimum soil disturbance.

Productive pastures are an important component of livestock grazing systems. They provide the basis for ensuring adequate feed is available for a greater proportion of the year; thus reducing the reliance on and costs of supplementary feed.



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