EverGraze
More livestock from perennials

More perennials
Better livestock
Healthier catchments

Actions

Management of Native Pastures in Victoria

Kangaroo Grass seed head

Native pasture in NE Victoria

Actions summary

- ***Learn to identify native grasses and invasive annual species.***
- ***Increase grazing pressure in early-mid spring to reduce competition from annual grasses and legumes.***
- ***Remove stock in late spring – early summer to allow native grasses to seed.***
- ***Graze native pastures in mid-late summer.***
- ***Use rotational or cell grazing.***

What is a native pasture?

Native pasture is any pasture where native grasses are the dominant perennial species.

Perennial native grasses play a very important role in these pastures for reducing salinity, preventing wind and water erosion, increasing biodiversity, and improving soil health (ground cover, nutrient recycling, organic matter, moisture retention).

Native perennial grasses can also increase stock performance. Many are summer active and respond to out of season rainfall, providing quality green fodder in summer on low fertility, acidic soils.

While a large proportion of the high rainfall zone of Australia is “native pasture”, farming practices such as tree clearing, introduced species, grazing techniques, fertiliser and herbicides have resulted in much of the area being invaded by annual grasses and weeds with only a small proportion of natives remaining in many paddocks.

This EverGraze Action provides current best management practices for increasing the health of native pastures and making the best use of them.

Further research currently underway in EverGraze will provide additional information on ways to manage native pastures.

Perennial native pasture species

Learn to identify native grasses and invasive annual species and adjust management according to the species present.

Over 1000 grasses can be considered native to Australia.

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Wallaby grass

Austrodanthonia spp

The most important species in southern Australia are identified and described in the EverGraze native pastures fact sheets for Victoria, Namoi and Bundarra districts (see www.evergraze.com.au).

These sheets contain information on how to identify the different species, pasture quality, response to grazing and fertiliser, frost tolerance, drought tolerance and seasonal growth pattern.

Recognition of native species and knowledge of these attributes will enable improved management of native pastures on your farm.

There are three steps that lead to the recruitment of native grasses in southern Australia:

- Reduced competition from annual plants to ensure that native grass seedlings germinate and persist,
- Management that gets more native grass seed in the soil, and
- Open spaces and soil moisture for the seeds to germinate.

Reducing competition from annuals:

Heavy grazing in spring at stocking rates greater than 30 DSE/ha and down to a pasture availability of 800-1000 kg/ha makes use of high quality legume and annual grass growth and creates space for early growth of summer active native perennials.

When this is done after stem elongation, but before seedhead emergence for most annual grasses, it can also reduce the amount of annual weed seeds.

However, higher stock densities (>100 DSE/ha) are required for this to be successful. Hard grazing in spring is especially important if fertiliser is applied (see the fertiliser section for more detail).

In pastures containing spear grass (spear grass, Austrostipa spp. and wire grass, Aristida ramosa), heavy spring grazing can reduce seed contamination of carcasses and fleeces.

Getting more seed into the soil:

Native grasses set seed after rainfall during late spring and early summer. Removing stock from the pastures when seeding occurs is critical to increase the amount of native grass seed in the soil seed bank.

If rainfall occurs in late summer/early autumn, native grasses may seed again, providing another opportunity without competition from annuals.

Seedling recruitment is uncommon and the seasonal conditions after germination will determine survival of the seedlings. It appears that some grass seeds remain dormant in the soil for more than one germination opportunity.

Open up spaces for germination:

Graze native pastures in mid-late summer (January/February) when the seeds become mature to create spaces for germination in autumn. This practice also increases seed/soil contact through animal trampling.

If germination and follow-up rainfall occurs in autumn, reduce or defer grazing for about 6 weeks to allow new seedlings to establish. Intermittent grazing of native pastures during summer provides good quality stock feed when the availability and quality of introduced annual and perennial pastures is declining on other parts of the farm.

This practice can also help to open up spaces for seedlings to germinate in autumn.

However, pastures must not be grazed below 70% ground cover on undulating landscapes or 90% ground cover on steep hills.

Managing for persistence

For improved persistence and production, use rotational or cell grazing to allow recovery after grazing.

Like all perennials, natives are favoured by short periods of moderate to high intensity grazing and long rest periods (40-180 days) for regrowth.

Annual grasses and legumes are favoured by continuous grazing or set stocking. Many studies have shown the benefits of rotational or cell grazing on native pasture production and animal performance.

The Land Water and Wool project in Tasmania showed that high intensity rotational grazing allowed stocking rate to be lifted from 2.5 DSE/ha to 5 DSE/ha and ground cover from 58% to 95% compared to set stocking. Early results from the Orange EverGraze Proof Site show that dry matter production on a

Red grass

Bothriochloa macra

weeping grass (Microlaena stipoides), wallaby grass (Austrodanthonia spp.) and red grass (Bothriochloa macra) pasture has also substantially increased using rotational grazing.

If native grass density is adequate, rotational grazing through summer can make use of high value green feed from natives while encouraging their persistence without needing them to set seed.

Animal production, rate of regrowth and competition against weeds in all pasture is maximised if pasture availability is kept between 2000 kg/ha and 1000 kg/ha (or 3cm) using rotational grazing. Pasture growth can be monitored to predict the length of time stock can remain in a paddock, and how long it will take to recover.

Monitor and adjust management

Regular monitoring can be used to understand pasture condition, the species present and the likely response to seasonal grazing pressure. See the Making More from Sheep manual and More Beef from Pastures Manual for full details of how to monitor pastures. Some of these tools are described below.

Ground cover: In autumn, when pastures are at their lowest feed on offer, estimate the proportion of ground cover in a square of 25cm x 25cm tossed 30-50 times across the paddock (Tool 6.2 - Making more from sheep has photos to help you to decide on the ground cover %). Take the average and monitor over time. Walk the same transect each time to minimise variability. Ground cover should not fall below 70% on undulating country and 90% on land prone to erosion.

Perennial Grass Persistence: Also in autumn when the perennial plants are easiest to see, using the same square from above, determine the average number of perennial plants in 25 cm x 25 cm and multiply by 16 to determine the average number of plants per square metre. Monitor this number over time to determine if your management is increasing the perenniality of your pasture.

Composition: Throw a stick with a nail on the end 30-50 times and record the species the nail lands on each time. Calculate the % of each desirable and undesirable species and monitor over time. Use the EverGraze native pasture recognition fact sheets to help you to identify the species.

Food on offer: Use the MLA pasture ruler to measure the average kg/ha pasture available. Pasture availability should be kept in an envelope of 1000 – 2000 kg/ha for maximum pasture production. The pasture ruler is only useful when the pasture is vegetative (before it has run to head) and of moderate density.

Grazing days: Record the number of days and number of animals that graze the pasture in each season, and monitor the change in response to different management techniques.

Programs such as Prograze, Landscan and Beefcheque provide skills to conduct these measurements and adjust management in response to the results. A new “EverGraze Grazing Management of Perennials” program will be available in 2010.

Fertiliser use & managing annuals.

Phosphorus fertiliser increases production and feed quality in native pastures, particularly through increased growth of clovers. Legumes also add nitrogen to the soil, further increasing grass production. Native grasses have evolved under low fertility conditions and are therefore less responsive to fertiliser than introduced annual grasses and legumes. However, some natives such as weeping grass, red grass and wallaby grass are more responsive to fertiliser than others such as kangaroo grass (Themeda triandra). Fertilising these latter pastures will most likely lead to replacement with annual grasses, clover and/or broadleaf weeds. There is also some evidence that lime will further enhance competition from annuals.

Managing annual species in native pastures appears to be more important in winter rainfall areas where the annuals are particularly vigorous in winter and early spring while summer active perennials are relatively dormant. The key strategy for controlling competition in fertilised native pastures in winter rainfall areas is to increase grazing pressure during spring to suppress excess clover and annual grass production.

Rotational grazing improves pasture quality

EverGraze experiments at Albury/Wodonga and Orange are testing fertiliser application combined with rotational grazing to increase production and maintain native grasses. Results from these experiments will provide the best information on the profitability of fertiliser applications to native pastures given current input costs and more challenging climatic conditions. See www.evergraze.com.au for latest results from these research sites.

Effect of herbicides on natives

Strategic use of herbicides can be part of management to control weeds in native pastures. However, there are very few herbicides registered for use on native pastures due to the low level of use and research undertaken.

NSW Department of Infrastructure, Planning and Natural Resources published a database detailing research results from a number of studies. There are very few safe herbicides for the control of grass weeds in native pastures, but use of MCPA for broadleaf weed control may be an option.

Current research in south west Victoria is screening herbicides to control onion grass (Romulea rosea) and broadleaf weeds for use on native pastures. Local agronomic advice should be sought before using herbicides on native pastures.

Further Information

EverGraze Fact Sheet – Native Pastures for Sustainable Agriculture – NE Victoria http://www.evergraze.com.au/fact-sheets.htm

EverGraze Fact Sheet – Native Pastures of Eastern Namoi http://www.evergraze.com.au/fact-sheets.htm

EverGraze Fact Sheet – Native Pastures of the Bundarra District http://www.evergraze.com.au/fact-sheets.htm

Central West CMA "Native pasture management" http://www.cw.cma.nsw.gov.au/pdf/Information/BMPs/CWCMA_Information_BMP_0279_NativeVeg_Paturemanagement.pdf

Land Water and Wool project "Productive Native Pastures in the High and Medium Rainfall Zones" http://lwa.gov.au/files/products/land-water-and-wool/px030509/px030509.pdf

Making More from Sheep producers manual www.makingmorefromsheep.com.au

More Beef from Pastures producers manual http://www.mla.com.au/TopicHierarchy/IndustryPrograms/SouthernBeef/Morebeeffrompastures/The+producers+manual/default.htm

SGS Tips and Tools for Sustainable Grazing Systems – Grazing to Manage Annual Grass Weeds in Pastures http://www.eksa.com.au/SWCC-Salinity

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For further details of EverGraze and to find out about activities in your area go to www.evergraze.com.au or write to Geoffrey Saul, National EverGraze Coordinator, 98 Leura Lane, Hamilton, VIC 3300.

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