

Grazing Native Grasslands for Biodiversity and Profit-A Victorian Study

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In the past 150 years, Victoria's grasslands have been extensively altered by grazing, cultivation and sowing of exotic pastures. Native temperate lowland grasslands now cover less than 1% of their original extent (Lunt *et al.*, 1998) and are often considered less productive than their exotic counterparts. However in recent times awareness of their intrinsic, functional and economic value has increased and a concerted effort is now underway to retain and manage our native grasslands.

The Ecologically Sustainable Agriculture Initiative (ESAI) *Grazing for Biodiversity and Profit* project is a joint initiative between the Department of Sustainability and Environment and the Department of Primary Industries. The team consists of agronomists, ecologists, botanists and economists. The four-year project aims to achieve a better balance between biodiversity and agricultural productivity in native grasslands on Victorian farms. It aims to provide farmers and other land managers with current information and associated skills to manage their native grasslands. The project involves social, economic and ecological research, with experimental sites located across the Volcanic Plains of Western Victoria.

The Volcanic Plains study is examining the effect of 'rest' periods (no grazing) on native and exotic plant cover, diversity and habitat structure on three sites on the Volcanic Plains. Evidence suggests that exclusion of grazing at particular times of the year may promote an increase or decrease in the abundance of particular groups of species and may impact habitat structure (Dowling *et al.*, 1996). Six experimental treatments are being examined, these are (1) *Winter Rest*, (2) *Spring Rest*, (3) *Combined Spring/Summer Rest*, (4) *Summer Rest*, (5) *Set-Stocking* and (6) *No Grazing*. The economic viability of the various treatments are also being assessed using simple partial budgets to test the likely effects (\$/ha) of the various pasture rest options, as well as rotational grazing. Stocking rate is the main variable influencing results.

Data analysis from the Volcanic Plains study is currently being carried out however a few patterns are emerging. Results appear to indicate the timing and duration of the 6 grazing treatments have some effect on pasture composition, variability of the sward, total number of species, % bare ground and feed on offer. The treatments *no grazing* and *combined spring/summer rest* had the lowest % bare ground over the duration of the experiment, however the *no grazing* treatment had the lowest number of species per plot compared with all other treatments at the end of the study. It may then be suggested that a decrease in inter-tussock gaps may prevent seedling establishment or perhaps the over-dominance of existing species (for example *Themeda triandra*) may shade out those already present. Analysis is continuing and trends in the data appear promising, yet it is clear the 2-year experiment requires more time if more results are to become statistically significant.

In regard to the economic analysis, resting pastures in the spring (providing extra feed in summer), combined with the use of the spring flush from sown pastures elsewhere on the farm could increase the gross margin if the stocking rate is lifted from 2.5 dse/ha to 4 dse/ha. The combined spring/summer and winter treatments may lead to a net loss.

This project has important implications for 'best-bet' grazing management guidelines and provides an exciting opportunity for on-going research in the area of deferred grazing management research.

References

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