

Best practice management of pasture weeds in southern Australia

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A thesis submitted for the degree of Doctor of Philosophy of the University of New England

March 2007

DECLARATION

I certify that the substance of this thesis has not already been submitted for any degree and is not currently being submitted for any other degrees or qualifications.

I certify that any help received in preparing this thesis, and all sources used, have been acknowledged in this thesis.



Mark Trotter

Dated: 5th March, 2007.

ACKNOWLEDGEMENTS

Thanks must firstly go to my wonderful wife Tienieke, thankyou for all your love, patience and kindness. My family have also provided great support throughout these PhD years. Brian Sindel, Ian Reeve and Jim Scott, my supervisors, have proven immensely patient and obviously this thesis would not be completed without your invaluable assistance. Meat and Livestock Australia provided the funding to allow this project to be undertaken. Thanks must finally go to the many farmers who took the time to assist me with this project.

ABSTRACT

Weeds are known to have a great financial impact on the Australian grazing industry. Integrated weed management is widely considered to be the solution to the pasture weed problem. Through surveying the indigenous knowledge of graziers this project sought to identify the best management practices for pasture weeds of southern Australia and the challenges that producers face in implementing them. In addition, this project also aimed to validate the producer perceptions which were relied upon for much of this study and identify the pasture weeds of most concern to graziers throughout southern Australia.

The project consisted of five major research activities which were: key informant interviews; a postal survey sent to 7,000 graziers; an on-farm validation study; telephone interviews; and producer focus groups.

Although preliminary in nature, the results of the validation study indicated that producers are able to report most weed densities to within 5% canopy cover. However, many producers were unable to identify the annual grass weed *Vulpia* spp.).

Respondents to the postal survey reported an estimated 328 plants as undesirable species, dominated by annual broadleaf weeds. The most commonly reported species included capeweed, Paterson's curse, saffron thistle, blackberry and barley grass.

The best management practices were examined for the most commonly reported weeds in four functional groups. The key to successful control of capeweed (annual broadleaf) appears to be the integration of proactive (e.g. promoting pasture competition) and reactive controls (e.g. boom spraying and spray grazing) in a strategic way to control established infestations and reduce future establishment through pasture competition. The most successful control of blackberry (perennial broadleaf) appears to involve the diligent and persistent application of

spot spraying and where possible the strategic integration of burning and proactive control methods. The key to the successful control of barley grass (annual grass) appears to be maintaining a competitive pasture. Success in serrated tussock (perennial grass) control involves the maintenance of competitive pastures and the diligent monitoring and control of isolated infestations by spot spraying or chipping. Across all these different weeds the producers that incorporate both proactive, pasture-promoting controls (e.g. grazing management, fertiliser application and sowing pastures) as well as reactive controls (e.g. boom spraying, spray grazing, spot spraying) appear to have more success than those reliant on only reactive methods.

The key challenges to the adoption of weed management strategies identified in this study included: resources and infrastructure limitations; the impact of the control on other parts of the farm system; a reduced profitability or expense involved in the control, or the availability of funds; the requirement for the control to be integrated with other methods; the influence of government regulation; a lack of extension programs; weed ecological influences; an incompatibility of the control with the beliefs and objectives of the producer; and climatic variability. These factors need to be taken into consideration when researching management strategies for pasture weeds, as well as when designing extension programs to encourage adoption.

This project demonstrates the value of producer knowledge to provide a unique assessment of a range of integrated weed management strategies

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