

## DIRECTIONS IN PASTURE WEED EXTENSION

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**Abstract** Information regarding the attitudes and practices of graziers to weed management has implications for extension activities. Results from the Temperate Pastures Sustainable Key Program Producer Survey in 1994 has provided valuable information relating to training and extension needs for pasture producers in high rainfall areas in southern Australia. Producers recognise that there are gaps in their knowledge of weed management and are particularly interested in grazing strategies, biological control and herbicide technology to manage weeds. Producers who are able to vary grazing pressure are more likely to adopt innovations in pasture management to maintain pasture quality. The aim of extension programs should be to stimulate interest in grazing management and demonstrate that changing pasture management practices is a feasible and effective approach to managing weeds.

### BACKGROUND

The objective of the Temperate Pastures Sustainability Key Program (TPSKP) Producer Survey was to establish baseline data to enable comparisons to be made between pasture management systems and changes in producer attitudes towards pasture management that may occur during the period 1994-2000 (Lees and Reeve, 1994). The Program has since been renamed the Sustainable Grazing Systems Program. Survey forms were mailed out in 1994 to a total of 2016 producers across 9 grazing districts which included Glen Innes, Tamworth, Orange, Canberra, Wagga Wagga, Rutherglen, Hamilton, Victor Harbor and Tasmania. The overall response rate for the survey was 36.9%.

**Results of the TPSKP Producer Survey** Just over one half (55%) of all respondents reported that they believed there were pasture management problems in need of research. Among those reporting problems, weed control was the most frequently reported problem, being mentioned by 35% of respondents. The proportion of respondents who believed there had been pasture decline on their property in the last three years ranged from 82% in the Glen Innes district to 30% in the Tasmanian north Midlands and East Coast. Of those reporting pasture decline, 69% across all districts surveyed reported that the decline was manifested by an

increase in weeds. Relatively fewer respondents (34%) regarded weeds as the cause of pasture decline.

In an open question on what producers regarded as the most important factors in maintaining good quality pastures, weed control was the most frequently identified factor, 46% of respondents compared to 20% mentioning grazing management as an important factor. However, in a fixed response question about which practices were believed to be worth doing to maintain good quality pastures, 82% of respondents indicated grazing management, while 59% indicated that they believed it was worth spraying to control weeds.

Two thirds of respondents had used large stock numbers to control weeds. Of these, 40% said grazing to control weeds was successful, 50% said the practice was partly successful and 5% felt it was unsuccessful. The reasons given by those respondents who felt grazing was unsuccessful in controlling weeds included: selective grazing by the stock used, weeds were hard to control, seasonal conditions made it difficult to apply, and type of stock used were inappropriate. Two thirds of the respondents had destocked at certain times of the year to favour desirable pasture species. Of these respondents 91% felt that destocking to favour desirable pasture species was successful.

The types of information favoured by greater numbers of respondents as useful for choosing grazing management options to maintain pasture included: seeing the method working on a local property, talking to a local producer who is using it, having the method explained at a local field day, and articles in the local newspaper or the press. The sources of information favoured by relatively few respondents included: trying the method out on a computer decision support system, watching a video that explains how the method works, and learning about the method at an industry workshop.

**Implications for extension programs** In reviewing the findings of the TPSKP Producer Survey Reeve, Kaine, Lees and Crosby (1999, in press) suggested that, from the perspective of Rogers' (1983) theory of the diffusion of innovations, extension of grazing

management as a means of maintaining pasture quality faced a number of obstacles. However the Producer Survey showed that there were a number of factors that would favour the adoption of grazing management practices, given appropriate extension approaches. These included:

- the relatively high levels of concern about pasture decline,
- the large proportion of producers who believed that grazing management was worth doing, even if it was not something they normally think about for maintaining good quality pastures,
- about two thirds of producers have used destocking to encourage desirable species and most of those trying it have found it successful, and
- at least one fifth of producers have the flexibility in grazing management to carry out the practices needed to maintain good quality pastures.

This suggests that the majority of producers may be able to adopt innovations in grazing and weed management, particularly when seasons are favourable. Kaine (1995), in further analysis of the findings of the Producer Survey, argued that the aim of extension programs should be to stimulate interest in grazing management and demonstrate that changing management practices is a feasible and effective alternative to existing approaches to pasture problems such as weeds. Reeve, *et al.* (1999, in press) also suggested that, because of the existing skills base among producers in the use of herbicides for weed control, it was important that grazing management approaches be integrated with chemical methods, rather than being presented as an alternative. From this approach to extension, it is hoped that adoption of alternative pasture management practices will flow onto other producers through farm discussion groups, although it has to be recognised that there will always be a subset of producers who will not have the flexibility for grazing management practices and possibly not have the financial resources needed to invest in the necessary fencing and other infrastructure.

**Current Weed CRC pasture weed extension** The Weed CRC has made use of the information in the TPSKP Producer Survey when designing extension information and activities. Weed identification is the first step in managing weeds so a Pasture Weed Identification Workshop has been developed. The

workshop involves applying weed identification theory in the paddock, which is consistent with the TPSKP Producer Survey finding that producers prefer to learn new pasture management skills at a field day, particularly on a local property.

The Pasture Weed Kit is a guide for managing weeds in southern Australian perennial pastures, which emphasises the importance of a systems approach to weed management, particularly through the principles section. The main messages of the Pasture Weed Kit are to prevent bare ground through over use, maintain good ground cover and encourage a healthy, competitive pasture to manage weeds. Changes in grazing practices to favour the pasture will keep weeds to a minimum and maintain production in the long term.

The Pasture Weed Kit is in two distinct sections. The first section covers the principles of managing pastures to reduce weeds. Information on how weeds become a problem, why and when they should be controlled and, as recommended by Reeve, *et al.* (1999, in press) details on the options available to manage them include grazing strategies, biological control, and herbicide technology. The principles section also contains case studies. The case studies come from producers who have had first hand experience in using a number of techniques to manage weeds. This approach was adopted in view of the TPSKP Producer Survey finding that producers prefer to learn through the experience of other producers.

The second section discusses the management of 9 individual weeds including Bathurst burr (*Xanthium spinosum*), blackberry (*Rubus fruticosus*), nodding thistle (*Carduus nutans*), Paterson's curse (*Echium plantagineum*), saffron thistle (*Carthamus lanatus*), scotch and Illyrian thistle (*Onopordum* spp.), serrated tussock (*Nassella trichotoma*), St John's wort (*Hypericum perforatum*) and vulpia (*Vulpia* spp.). Information in the individual weeds section provides the best management options from the most recent research. The Pasture Weed Kit has been written to complement the Pasture Weed Identification Workshop and the weed management course currently being designed by the Weed CRC in cooperation with staff from Agriculture Victoria.

## CONCLUSION

The information presented in the TPSKP Producer Survey shows that weeds are considered a major problem in pastures. Field days and workshops complemented with articles in the local press were considered extremely useful training activities by producers.

The Weed CRC has developed materials and workshops to demonstrate initiatives in pasture management that match producer needs in training. It is hoped that use of these materials and workshops may lead to increased awareness among producers of weeds as symptoms of pasture decline rather than as causes. Such awareness should assist in making the link between grazing management and the incidence of weeds more understandable and lead to changes in grazing management that will maintain pasture quality for long term production.

#### ACKNOWLEDGMENTS

The assistance of the then Meat Research Corporation in providing the funding for the TPSKP Producer Survey and making the findings available to the Weeds CRC is gratefully acknowledged.

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