

Using land manager workshops to develop serrated tussock best management practices

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Summary Beginning in March 2007, a national land manager workshop project was conducted to determine regional farmers' 'Best Practice' solutions to control serrated tussock. Over 200 land managers participated in eight workshops across Victoria, New South Wales, ACT and Tasmania. Land managers involved in the workshops were given the opportunity to engage with professionals and peers to develop a serrated tussock management plan based upon their own situations. The outcomes from these workshops are contributing to the development of a national 'Defeating the Weed Menace – Serrated Tussock Best Management Practice' handbook. The workshops have also contributed ideas and directions for future research.

Keywords Serrated tussock, *Nassella trichotoma*, integrated weed management, workshops.

INTRODUCTION

Serrated tussock (*Nassella trichotoma* (Nees) Hack. ex Arechav) is a Weed of National Significance and is causing major agricultural and environmental impacts to Australia (Thorpe and Lynch 2000). Despite years of research, there are still limited control options for managing serrated tussock in Australia (Michalk *et al.* 1999). The only registered herbicides for its control in pastures are flupropanate, glyphosate and 2,2-DPA. In addition, the recent identification and potential spread of serrated tussock resistance to flupropanate has highlighted the importance of developing integrated management strategies for this weed (McLaren *et al.* 2006). The potential loss of flupropanate as a control option could have serious repercussions on serrated tussock containment and control programs.

This paper reports on a project designed to share information about serrated tussock management through a series of structured workshops between farmers, natural resource managers (weeds officers, district agronomists, Shire environmental officers) and weed scientists. As scientists, we are looking for 'nuggets of information' from farmers that may help us design some better tools for controlling this weed.

Farmers are innovators, inventors and observers of nature, and know the weed well. This project aims at letting farmers relate and share their serrated tussock experiences with their peers while also hearing about the latest serrated tussock research discoveries and observations.

MATERIALS AND METHODS

This 'Weed Management Workshop' program was developed by the Victorian Department of Primary Industries and the CRC for Australian Weed Management (Weedman 2000). The workshops were structured in a focus group format and participants were invited to share their experiences and knowledge within the six components of the workshop that included:

- Description of the weed situation. Each participant had an opportunity to describe their particular situation and how serrated tussock was affecting them;
- Problems/benefits caused by the weed;
- Biology and ecology of the weed;
- Successful control measures;
- Unsuccessful control measures; and
- Development of an integrated weed management plan.

Prior to the workshop, each participant was sent a pre-workshop booklet to fill in (dot points above), so they had done some thinking about their particular situations before attending. Each participant also received a 'Weed management tools for an integrated approach' handbook (Bedggood 2000) so that they had the tools to begin developing an integrated weed plan for their own property/situation.

Eight serrated tussock management workshops were conducted in Victoria, NSW, ACT and Tasmania between April and December 2007 to identify and develop 'Best Management Practices' guidelines for serrated tussock. Workshop participants were selected from respondents to a national serrated tussock survey (McLaren *et al.* 2006) and through close collaboration with local weeds officers and agronomists.

RESULTS AND DISCUSSION

A total of 206 people attended eight workshops across Victoria, NSW and Tasmania. The majority of participants were farmers (61%), natural resource managers (19%) and scientific officers (19%). A summary of workshop outcomes is provided in Table 1.

There were several issues that came out strongly through the workshops. Probably the greatest was the challenges that relate to changes in land use. Changes result from land subdivision and lifestyle changes occurring through a proliferation of hobby farms, absentee landowners, land purchased for developer speculation, and government regulation (Green Wedge). A comment made was 'we need government to help facilitate share farming on these smaller land units to contain the weeds while also making a viable farming business'. Absentee landholders and untreated serrated tussock on public land provides a major source of airborne seed for re-infesting agricultural land that in some cases gave farmers a fatalistic 'it's too hard' outlook.

The workshops showed that serrated tussock had resulted in significant landuse changes with many farmers now cropping (at least rotationally) where they had previously only grazed stock.

The workshops highlighted that there is no excuse for having serrated tussock on arable land and emphasised the importance of continued monitoring and follow-up control measures. The real challenges for serrated tussock are in the non-arable and steep escarpment country where the only real incentives to control it is the threat of legislative prosecutions and being a good neighbour to stop it spreading. However, several good suggestions were put forward including afforestation (potentially for carbon credits), use of

tea-tree, and for smaller areas the strategic use of glyphosate for spot spraying using a specially adapted lance to ensure accurate herbicide application. Use of trees as windbreaks to reduce serrated tussock seed spread was prominent in the Victorian workshops (Table 1).

Flupropanate was the herbicide of choice for serrated tussock control across most workshops, particularly in Bathurst, Goulburn, Cooma and Bacchus Marsh (Table 1). However, strategic use of glyphosate for control of serrated tussock in native grasslands was promoted strongly at the Canberra workshop. Glyphosate was generally advocated for spot spraying only, unless for a kill-off prior to a pasture/crop renovation. However, spraytopping using low rates of glyphosate to prevent seeding was advocated in some workshops. Serrated tussock resistance to flupropanate was highlighted as a potential future issue at each workshop and emphasised the importance of an integrated control approach. Many farmers commented on their preference for flupropanate due to its selectivity and residual activity in preventing re-infestation for 3–5 years. However, it was commented that flupropanate loses its residual activity after fire. The main issues raised with flupropanate were its detrimental impacts on susceptible native grasses if sprayed at label rates, the potential development of resistance and the long stock withholding period after broadacre application. The issue with glyphosate is its non-selectivity that can result in a 'monoculture of serrated tussock' if replacement species are not planted in the areas treated. Some farmers preferred to use glyphosate as a cheaper option with an 'instant kill' and no long stock withholding period.

Table 1. Workshop summary of most commonly utilised techniques for serrated tussock control.

Preferred control technique	Bacchus Marsh	Geeelong	Hume	Bathurst	Goulburn	Cooma	Canberra
Chemical	f g	f g	f	f	f	f	g
Mechanical	ch cu b	ch cu b	ch cu b	ch	ch	ch cu	ch
Grazing	se r	se r	r	r	se	se	r
Pasture rehabilitation	cp fe	cp c	cp c	cp fe	cp	cp c	cp fe
Forestry	p s wi	e wi	wi	–	p w e	t s e	p s t e wi

Key: Chemical: f = flupropanate; g = glyphosate

Mechanical: ch = chipping; cu = cultivation; b = burning.

Grazing: se = set stock; r = rotational.

Pasture rehabilitation: cp = competitive pastures, c = cropping; fe =fertility

Forestry: p = pine; w = wattles, s = sheoaks; t = tea-tree; e = eucalyptus, wi = windbreaks.

Across all workshops, there were comments on the importance of pasture management in serrated tussock control using a range of grazing techniques and maintaining a good pasture (Table 1). 'Keep the pasture at a height of a beer-can on its side during a bad year and an upright beer-can during a good year' was a comment. 'We need to shift from managing for stock to managing for grass' was another comment.

Areas requiring further investigation included:

- Effectiveness of plantations, wind-breaks and ring-lock fencing to prevent serrated tussock seed dispersal and weed spread.
- Research on the effectiveness and establishment of tea-tree and other species for rehabilitation/containment of serrated tussock in steep gorge non-arable situations and potentially for carbon credits.
- Integrated management practices – moving to incorporating serrated tussock management into whole farm or other land-use planning.
- Shortening the withholding period for flupropanate.
- Assessing adjuvants (oils) for improving flupropanate and glyphosate effectiveness.
- Serrated tussock resistance to flupropanate.
- Application technology to get less off-target damage using glyphosate.
- Timing of chemical control to minimise impacts on beneficial plant species.
- Investigate strategic wide-scale containment/management (particularly from sources of 'seed-rain' from the west).
- Vendor declarations for sale of infested property and the production of a 'landowner information CD' to increase serrated tussock awareness when purchasing a new property.

Participants showed a strong passion for several issues that are at the forefront in serrated tussock control. Particular statements noted by the facilitator included:

'Its not a shame having serrated tussock but it's bloody shameful if you do nothing about it.'

'Lack of ownership of the issue by all parties.'

'Keep at it, keep at it, keep at it!!'

'Government departments are not setting clear targets for serrated tussock control.'

'New landowners are unaware of what serrated tussock is and their management obligations.'

'Lack of community spirit and money invested within environmental groups.'

'You have to adopt 'a holistic approach' to tussock control if want any chance of beating it'.

Whatever successful technique was being proposed, participants were unanimous on the idea that you must 'follow up, follow up, follow up' on your serrated tussock management and attack it when the infestation is small and manageable so that you have a better chance of controlling it. The next phase of this project will be getting this information into a 'Serrated tussock best management practice handbook' in the Defeating the Weed Menace series.

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