

Controlling saffron thistle using grazing management.

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Introduction

Saffron thistle is a major problem in temperate pastures throughout much of New South Wales (NSW). One survey indicated it was the worst weed in NSW (Briese 1988) and another study reported that it costs Australian agriculture around \$111 million each year (Paul Jupp, unpublished data). Surprisingly, prior to studies reported in this paper, very little was known about the species or how to manage it in pastures.

Methods

The CRC for Australian Weed Management initiated research into the population biology of the species, how it responded to different grazing strategies and whether they may be useful in its management.

Experimental sites were established near Armidale (Northern Tablelands, NSW), Barraba (Northwest Slopes, NSW) and Canberra (Southern Tablelands, ACT). The number of seedlings that emerged (Grace *et al.* 2002a), their survival; and how many seeds were produced under different levels of grazing and pasture competition (Grace *et al.* 2004) were recorded. Thistle density on properties that used rotational grazing and set stocking (Grace *et al.* 2002b) were also studied. These results were combined into population models, used to simulate the effects of different grazing strategies.

Results

Key results were:

- Thistle numbers varied substantially between years and sites because of the complex environmental conditions necessary for seed germination and seedling establishment.
- Population models predicted that the best way to control the weed was to limit the number of seedlings that emerged each year.
- Even small amounts of ground cover (pasture or litter) from February to June dramatically reduce seedling emergence. Pastures with a good cover (at least 35%) of perennial grasses had very few saffron thistles (Figure 1).

- Pastures that were managed using some sort of rotational grazing had better ground cover and more cover from perennial grasses. These had fewer thistles.

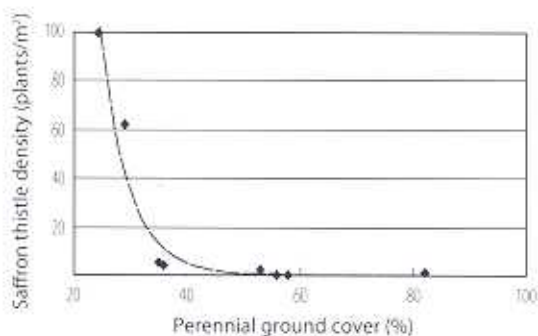


Figure 1 Effect of perennial grass present (as a percent of ground cover) on saffron thistle density (plants/m²) on eight properties in saffron thistle infested areas of NSW and ACT.

Conclusions

Saffron thistle can be controlled using grazing management that aims to maintain a high level of ground cover, particularly of perennial grasses, which reduces the number of saffron thistle seedlings. Rotational grazing is one means of achieving this goal.

Acknowledgments

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