

Managing wireweed in spring-sown pastures.

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Introduction

The optimum sowing time for most dryland pastures is mid-autumn in southern NSW. However, in the drier than average conditions experienced in recent years where the autumn break has been delayed until late May or June, growers have had limited opportunity to sow pastures prior to winter. Under these conditions, spring sowing of pastures is often inevitable.

There are some advantages associated with the sowing of pastures in spring such as an increased opportunity to control winter grass weeds like silvergrass (*Vulpia bromoides*) and annual ryegrass (*Lolium rigidum*) prior to the pasture being sown. This is of particular importance when sowing perennial grass pastures as there are very few herbicide options available to control annual grass weeds in perennial grass-based swards. However, a major disadvantage of sowing pastures in spring is the threat of competition from summer weeds during the establishment phase. Wireweed (*Polygonum aviculare*) is a summer growing broadleaf weed common in many parts of southern NSW.

Materials and methods

A field experiment was sown on 26 August 2004 at Cootamundra in southern NSW. Chicory (*Cichorium intybus*), lucerne (*Medicago sativa*) and plantain (*Plantago lanceolata*) along with seven perennial grass

species were sown as monocultures in 6 x 4 m plots, replicated four times. The sowing rates were: 5 kg/ha for chicory cv. Puna, 6 kg/ha lucerne cv. Aurora, 4 kg/ha plantain cv. Tonic, 4 kg/ha phalaris (*Phalaris aquatica*) cv. Landmaster, 4 kg/ha cocksfoot (*Dactylis glomerata*) cv. Currie, 25 kg/ha grazing brome (*Bromus stamineus*) cv. Gala, 6 kg/ha Rhodes grass (*Chloris gayana*) cv. Pioneer, 8.3 kg/ha perennial veldt grass (*Ehrharta calycina*) cv. Mission, and 12.5 kg/ha of each tall fescue (*Festuca arundinacea*) cv. Demeter and cv. Fraydo.

Pre-emergent herbicide was not applied to any treatment, but all grass treatments (treatments excluding chicory, lucerne and plantain) were sprayed with 50 g/ha flumetsulam (Broadstrike[®]) on 23 September 2004 to control emerging wireweed. Plant density of sown species was counted at the end of October. Herbage yield and botanical composition was assessed in March 2005.

Results

All species were established at densities ranging from 34–148 plants/m² except Rhodes grass (1 plant/m²). Total herbage yield from emergence to March 2005 did not differ significantly between the pasture treatments sown, ranging from 700–2000 kg/ha. Each sward at this time consisted mainly of the sown perennial species, wireweed and various summer grass weeds. There was no difference in the proportion of grass weeds between treatments.

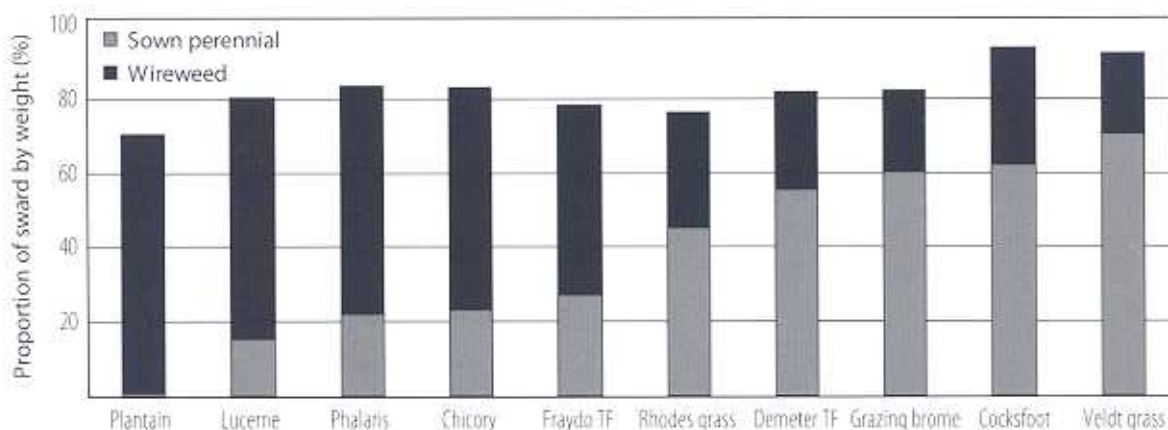


Figure 1 Proportion (%) of the sown perennial species and wireweed in 10 perennial pasture swards at Cootamundra.

However, the proportions of the sown perennial species and wireweed varied significantly ($P < 0.001$) between treatments (Figure 1).

Discussion

The non-grass treatments were not sprayed with a post emergent broadleaf herbicide because in the case of chicory and plantain, previous studies have shown the use of post-emergent broadleaf herbicides capable of controlling wireweed can lead to a reduction in yield of the sown species of between 30–100% (Lockley 2006). In this study post emergent herbicide reduced the proportion of wireweed in the veldt grass, cocksfoot, Rhodes grass, grazing brome and Demeter tall fescue swards by 59% compared to the unsprayed treatments. The control of wireweed was more variable in the phalaris and Fraydo tall fescue swards.

This experiment showed that in the case of chicory, lucerne and plantain where post emergent herbicide options are limited, wireweed can dominate spring-sown pasture swards. Post emergent broadleaf herbicides proved to be an effective control for wireweed in newly sown perennial grass-based swards. In pastures where post-emergent broadleaf herbicides are not an option, pre-emergent herbicides such as trifluralin can be used to control wireweed (Chambers and Dean 2004). Trifluralin is safe to use in lucerne pastures (Chambers and Dean 2004), but can reduce the herbage yield of chicory by up to 30% (Lockley 2006). However, trifluralin should not be applied prior to the sowing of plantain as it severely effects establishment (B. Hackney *pers. comm.*).

Conclusion

Pastures in southern NSW that are sown in spring are at risk of invasion from summer weeds such as wireweed in the establishment year. Although herbicide control is possible in most perennial-based pastures, there is often not a wide range of herbicides available to control wireweed in newer broadleaf forages such as plantain. Growers intending to sow pastures in spring need to be aware of the threat of wireweed, and implement an integrated weed control strategy involving herbicides, livestock and rotation to guard against it.

Acknowledgements

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References

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