

Pasture establishment on non-arable land dominated by *Poa labillardieri*

M.H. Campbell¹, J.J. Dellow¹ and M.J. Keys²

New South Wales Department of Agriculture, ¹Orange and ²Queanbeyan

Animal production on the large areas of eastern Australia dominated by *Poa labillardieri* is low because *Poa* is invasive, of low nutritive value and unpalatable (1). On arable land it can be replaced by ploughing, cropping and sowing improved pastures (2). As no control method was available for non-arable land, experiments were undertaken to investigate this problem.

Methods

The site, south of Braidwood, dominated by *Poa* had an average annual rainfall of 786 mm, an altitude of 780 m and a soil derived from granite. Two types of experiments were set down between 1980 to 1983 inclusive: (i) effect of type and rate of herbicide applied on a number of occasions and sites in each season of the year (Table 1); and (ii) effect of spraying and sowing on the control of *Poa* (Table 2) where herbicides were applied before and after the autumn break and seed sown, four and one month later, respectively. Spraying and sowings were done by hand and there were four replications of each treatment. Results (% ground cover) were visually assessed.

Results and Discussion

Each herbicide was effective in reducing ground cover of *Poa* (Table 1); best seasons of application were winter and spring but commercially acceptable results were achieved in autumn and summer.

Reducing competition from *Poa* and associated species by applying herbicides was essential for the successful establishment and development of surface-sown pastures (Table 2). Herbicide application after the autumn break was more effective than before in assisting establishment because annuals that germinated in response to the autumn break were controlled thus reducing first year competition.

Table 1. Percentage reduction in ground cover of *Poa* due to herbicides.

Observation	Herbicide: Rate: kg a.i./ha	2,2-DPA		Glyphosate			Tetrapion	
		7.4	11.1	0.72	1.08	1.44	2.25	3.75
% reduction of <i>Poa</i>		51	72	66	83	87	58	76
No. of spraying occasions		8	14	11	5	6	6	9

Table 2. Effect of spraying and sowing on establishment and development of improved species and control of *Poa* three years after treatment.

Time of spraying re autumn break	<i>Poa</i>	<i>Trifolium repens</i>	<i>Phalaris aquatica</i> & <i>Festuca arundinacea</i>
	% ground cover#		
Before (18.3.81)	14b	20b	18b
After (24.4.81)	15b	27a	31a
Unsprayed	26a	12c	6c

Means (of 5 herbicide treatments) in columns, not followed by a common letter differ (P < 0.05).

Practical application of these results on 36 ha near Braidwood in 1983 (glyphosate or 2,2-DPA applied after the autumn break and seed sown one month later) resulted in a good kill of *Poa* and excellent establishment and development of improved pastures.

1. Fisher, H.J. (1974a) Agric. Gaz. N.S.W. 85: 5-7.
2. Fisher, H.J. (1974b) Aust. J. Exp. Agric. Anim. Husband. 14: 526-32.