

## SELECTIVE CONTROL OF WANDERING JEW WITH FLUROXYPYR FOLIAR SPRAY

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*Summary.* Allergic contact dermatitis in a dog was caused by wandering jew, a widespread weed in gardens and wet shaded areas of coastal New South Wales. This prompted experimenting with fluroxypyr, as the methyl heptyl ester, on the weed. Fluroxypyr at 6 g acid equivalent/L of water resulted in complete brownout and residual stolon kill of wandering jew. Rates of 2 or 3 g/L fluroxypyr were almost as effective but there was a low level of regrowth. Lower rates were marginal. Fluroxypyr was selective to grasses and many ornamental plants, and proved to be an effective herbicide on wandering jew which had been difficult to control with other herbicides and hand-weeding was laborious and expensive.

### INTRODUCTION

Wandering jew, *Tradescantia albiflora* Kunth, (*T. fluminensis* auct. non Vell in North America) is a succulent creeping perennial herb which is widespread in moist shady situations especially along streams and gullies. This plant has caused high incidence of allergic contact dermatitis in the dog (1), and has been associated with nitrate poisoning of cattle (2). Allergic contact dermatitis in the author's boxer dog at Pennant Hills, New South Wales, in 1980 was caused by wandering jew. It became necessary to remove the weed and a herbicide spray as an alternative to laborious hand-weeding was sought. Fluroxypyr as the methyl heptyl ester had been effective on a wide range of broadleaf weeds in turf and garden areas and was used as a foliage spray in experiments to control wandering jew.

### METHODS

The efficacy of fluroxypyr on wandering jew was evaluated in 11 experiments between January 1980 and February 1993. Experiments included eight unreplicated trials with one or two concentrations and three dose response trials with 3-6 concentrations in a randomised complete block design with three replicates. A pneumatic knapsack sprayer with adjustable 1 mm cone nozzle was used to thoroughly wet leaves and stolons. Spray volume varied with weed density, from 3000 L/ha (100% ground cover) to 1600 L/ha (60% ground cover). No adjuvants were used. Plot size ranged from 1x2 m to 3x3 m. Wandering jew was 8-30 cm tall at application and the fresh weight at the time of early summer treatments in 1992 was 40 tonnes/ha. Trials covered wandering jew growing in various levels of shade. Treatment details are given in Table 1.

*Other weed situations*

Table 1. Outline of experiments on wandering jew

Expt.	Spray date	Growth stage <sup>a</sup>	Fluroxypyr (g/L) <sup>b</sup>	Plot size (m)	Reps	Last rating (daa) <sup>c</sup>	Respray mulch <sup>d</sup>
1	27.01.80	post	6	2 x 2	1	152	m
2	15.06.85	pre	3	2 x 3	1	183	m
3	19.09.89	pre	1.5,3	2 x 2	1	153	m
4	28.07.90	pre	1.5,3	1 x 3	1	152	m
5	25.08.90	pre	1.5,3	2 x 3	1	125	m
6	17.01.91	post	2,3	3 x 3	1	159	m
7	20.07.92	pre	2,3	2 x 2	1	179	m
8	12.08.92	pre	0.5,1,1.5, 2,3	1 x 2	3	152	r
9	05.10.92	flow	1.5,3,6	1 x 2	3	96	r
10	10.12.92	flow	0.5,1,1.5,2,3,6	1 x 2	3	80	r

<sup>a</sup> pre, pre-flowering; post, post-flowering; flow, flowering.

<sup>b</sup> Acid equivalent/L water

<sup>c</sup> Days after application

<sup>d</sup> m, mulched with grass clippings; r, resprayed with 3 g/L fluroxypyr.

Experiments were visually rated for % leaf brownout, % necrosis of the whole plant (leaves + stolons) and % regrowth suppression.

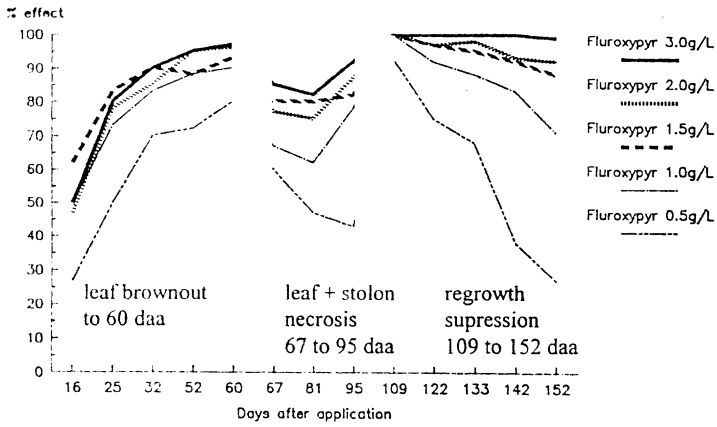
## RESULTS AND DISCUSSION

Fluroxypyr 6 g acid equivalent/L of water was the only rate used in the first experiment and gave complete necrosis of leaves and stolons of wandering jew 80 days after application (daa) and there was no regrowth 5 months after application. Subsequent results between 1985-1991 indicated fluroxypyr 3 g/L was almost as effective and superior to 1.5 g and 2 g/L.

Dose response results from treatment of dense pre-flowering, flowering and post-flowering wandering jew during winter, spring and summer seasons in 1992 indicated that single sprays of fluroxypyr at 2 g or 3 g/L was required for leaf and stolon desiccation and a high level of regrowth suppression. Fluroxypyr at 0.5 g and 1 g/L gave leaf brownout but inadequate stolon kill and 1.5 g/L gave variable stolon kill and too much regrowth occurred. Figures 1 and 2 show results from two replicated dose response experiments and a clear dose response was evident.

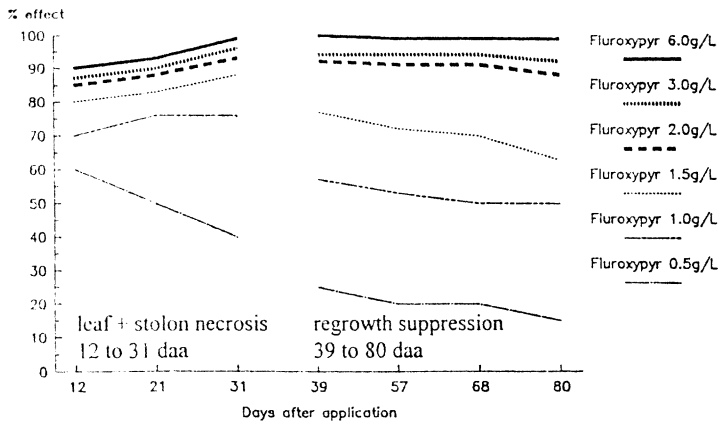
Leaf brownout and leaf plus stolon necrosis and the level of regrowth suppression increased with increasing concentrations of fluroxypyr in the spray. The effect on winter growth was slower than for spring and summer. The overall effect from the experiments is shown in Table 2.

Other weed situations



*l.s.d.* 15,  $P=0.05$ , 152 daa

Figure 1. Effect of foliage spraying fluroxypyr on pre-flowering wandering jew, August 1992.



*l.s.d.* 5,  $P=0.05$ , 80 daa

Figure 2. Effect of foliage spraying fluroxypyr on late-flowering wandering jew, December 1992.

*Other weed situations*

Fluroxypyr 6 g/L gave the best control of wandering jew. Fluroxypyr at 3 g/L applied as a thorough wetting foliage spray gave a mean of 96% regrowth suppression over nine experiments (standard deviation +/- 3%). The mean duration for regrowth suppression with this rate was 142 daa (s.d. +/- 18). Timing did not appear critical when soil moisture was considered adequate except for experiment 10 (Fig 2) where there was 8% regrowth 80 daa (1% with 6 g/L and 12% with 2 g/L fluroxypyr), which was possibly due to high rainfall following spraying and that maximum leaf and stolon necrosis only reached 94% at 39 daa compared to the mean maximum leaf and stolon necrosis of 98% at 95 daa.

Table 2. Overall effects of spray concentrations of fluroxypyr on wandering jew

Fluroxypyr <sup>a</sup>	No. expts	Max. leaf b'out %	Daa	Max. leaf+stolon		Regrowth	Suppression %	
				Necrosis %	Daa		Mean	Daa
6	3	100	21-49	99-100	39-100	99-100	99.3	80-152
3	9	100	21-63	94-100	39-129	92-100	96.1	80-183
2	4	98-100	31-63	92-98	39-142	88-97	93.2	80-179
1.5	6	95-100	31-60	75-93	39-109	63-88	81.0	80-153
1	2	85-96	31-60	54-85	39-109	50-71	60.5	80-152
0.5	2	75-85	31-60	25-68	39-109	15-27	21.0	80-152

<sup>a</sup> Fluroxypyr, g/L of water

As well as proving to be effective on wandering jew and less laborious and expensive than hand-weeding, 3 g/L fluroxypyr was selective to grasses and many ornamental plants when stem and foliage contact was kept to a minimum. Fluroxypyr 3 g/L is the preferred rate based on cost-efficacy and better selectivity to non-target broadleaf plants than the higher rate of 6 g/L.

REFERENCES

1. Kundle, G.A. and Gross, T.L. 1983. The Compendium on Continuing Education, Vol 5, No. 11, pp 925-930.
2. McBarron, E.J. 1983. In: Poisonous plants. Dept Agr. New South Wales, Inkata Press, p. 49.