

Control of *Oxalis corniculata* in turf

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Summary In Australia broadleaf weed control in turf has for some time been limited to a small number of active ingredients. These chemicals have generally not performed well on difficult to control weeds.

A trial was conducted to evaluate the performance of a new broadleaf weed turf herbicide containing MCPA, clopyralid and diflufenican on *Oxalis corniculata*.

The results showed the new herbicide Chipco Spearhead to provide good long-term weed control when compared with an industry standard.

Keywords *Oxalis corniculata*, turf, broadleaf weed.

INTRODUCTION

Broadleaf weed control in turf is an important component of a turfgrass management programme. Broadleaf weeds can provide many problems in recreational and sportsturf situations. These include:

- creating a poor playing surface for sport (e.g. flatweeds on bowling greens),
- creating a slippery surface (e.g. clover on race tracks),
- attracting bees to recreational lawns, and
- being a hazard (e.g. bindii burrs in domestic lawns).

Broadleaf weed control in turf in Australia has relied on six main active ingredients; MCPA, dicamba, 2,4-D, mecoprop, bromoxynil and bentazone. The chemicals represent two herbicide mode of action groups, C and I.

Difficult to control weeds like *Oxalis corniculata* are not well controlled by current herbicides registered for use in turf in Australia.

A trial was established at Mortdale Bowling Club in NSW to evaluate the performance of a new broadleaf weed herbicide, Chipco Spearhead™, on the control of *O. corniculata*. This herbicide contains MCPA, clopyralid and diflufenican. Two of the active ingredients are new to use in turf in Australia and diflufenican represents a new mode of action to the other turf herbicides.

MATERIALS AND METHODS

The trial site was a *Cynodon dactylon* bowling green at Mortdale Bowling Club in the southern suburbs of Sydney. The soil was a fertile sandy loam.

Treatments were applied 9th November 2000 to a randomised complete block design with 4 replicates of each treatment. Plot were 4 m² in size (2 m × 2 m). The treatments are shown in Table 1.

The industry standard used was Chipco Fairway which contains MCPA (280 g L⁻¹), bromoxynil (140 g L⁻¹) and dicamba (40 g L⁻¹). Chipco Spearhead contains MCPA (300 g L⁻¹), clopyralid (20 g L⁻¹) and diflufenican (15 g L⁻¹).

All treatments were applied in 416 L ha⁻¹ of water with a gas-powered min-plot sprayer.

Assessments were made on the percentage *O. corniculata* cover in each plot. Prior to treatment all plots had 100% weed cover.

An ANOVA was performed on the data with comparisons made using the Duncan's multiple range test with statistical differences between treatments determined at the 5% level.

RESULTS

In the first two weeks Chipco Fairway quickly caused necrosis and death of the *O. corniculata* leaves and stems. On the other hand Chipco Spearhead at 3 and 5 L ha⁻¹ caused an initial bleaching of the leaves, but the plants showed very little other damage. Chipco Spearhead at 10 L ha⁻¹ did cause some initial death of the weed population in the first two weeks (Table 2).

As the trial progressed the Chipco Fairway treatment continued to have increased cover of *O. corniculata* as it recovered from the initial herbicide damage.

In the Chipco Spearhead treatments the weed cover decreased at assessments to 54 DAT (days after treatment). At the 108 and 132 DAT the weed cover in the Chipco Spearhead treatments had increased but it was still significantly less than the UTC (untreated

Table 1. Treatment list.

	Product rate (L ha ⁻¹)
1. Untreated control	–
2. Chipco Fairway	5
3. Chipco Spearhead	3
4. Chipco Spearhead	5
5. Chipco Spearhead	10

control) and the Chipco Fairway treatment. At 227 DAT there was no significant difference between the treatments.

DISCUSSION

Chipco Fairway is a traditional hormone type of herbicide. The characteristic symptom of these types of herbicides is the rapid ‘burn-down’ which they provide to broadleaf weeds. While the rapid death of plants in most turf situations is an advantage it may be a disadvantage in controlling some weeds.

Weeds with significant underground parts (rhizomes, bulbs, strong root systems) are often not well controlled by traditional herbicides. Initially the above-ground parts are quickly killed, but soon re-growth occurs from the underground parts of the plant.

Chipco Spearhead has been tested on a range of broadleaf weeds (Kaapro, unpublished data) and the common characteristic of its performance has been its slow rate of activity. Weed control often takes 5–7 weeks.

The slow rate of activity can be a benefit in controlling weeds like *O. corniculata*. Figure 1 shows that initially the weed control provided by Chipco Spearhead is quite slow, but superior weed control is achieved within four weeks and maintained for over four months.

Chipco Spearhead will be a useful alternative for broadleaf weed control in many turf situations.

ACKNOWLEDGMENTS

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Table 2. Percentage *Oxalis corniculata* cover.

DAT*	Days after treatment					
	11	26	54	108	132	227
UTC	100 a	99 a	96 a	70 a	80 a	81 a
Fairway	39 b	68 b	79 b	66 a	80 a	81 a
Spearhead 3 L	63 c	3 c	8 c	16 b	35 b	76 a
Spearhead 5 L	60 c	0 c	1 d	3 c	6 c	79 a
Spearhead 10 L	34 b	0 c	0 d	2 c	4 c	69 a

Means followed by same letter do not significantly differ.

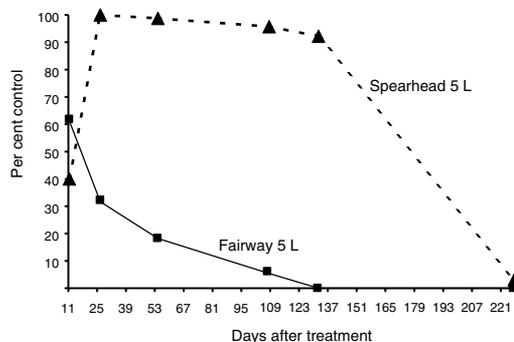


Figure 1. *Oxalis corniculata* control with Chipco Fairway and Chipco Spearhead at 5 L ha⁻¹ (per cent control is calculated from comparing the weed cover of the treatments with that of the untreated control at each assessment date).