

## THE USE OF OXADIAZON AND SIMAZINE ON CONTAINER-GROWN ORNAMENTAL PLANTS

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*Abstract.* In recent years pre-emergence herbicides have been used instead of hand-weeding as an economically viable means of controlling weeds in nursery pots. Few incidences of phytotoxicity have been reported since 1984, when a granular formulation of oxadiazon was labelled for nursery use. However, we have observed that populations of mouse-eared chickweed, *Cerastium glomeratum*, and chickweed, *Stellaria media*, have increased in nurseries using oxadiazon. Oxadiazon has minimal herbicide activity on species belonging to Caryophyllaceae.

Experiments were conducted to compare the weed control efficiency and phytotoxicity of a granular mixture of oxadiazon and simazine with that of oxadiazon alone on 16 species of Australian native and exotic ornamental plants. Herbicides were applied at the recommended rates of 4.0 kg a.i./ha oxadiazon, and 1.0 kg a.i./ha simazine and at half and double these rates. Herbicides were applied to the surface of pots containing established rooted cuttings and were re-applied after 10 weeks. In a separate experiment herbicides were applied to pots sown with summer grass, *Digitaria sanguinalis*, bittercress, *Cardamine* sp., willow herb, *Epilobium* sp., chickweed, and mouse-eared chickweed.

Oxadiazon alone produced no symptoms of phytotoxicity, nor reduced shoot dry weight (DW) in any species. The combination of oxadiazon and simazine (4+1 and 8+2 kg/ha respectively) produced leaf burn in half of the species and depressed DW in *Dampiera*, *Grevillea* 'Boongala Spinebill', *G. hookerana*, *G. 'Pink Lady'*, *G. 'Royal Mantle'*, *Helichrysum* and *Westringia*. Even the lowest rate of oxadiazon and simazine (2+0.5 kg/ha, respectively) reduced the DW of *Grevillea* 'Royal Mantle' *G. 'Boongala Spinebill'* and *Helichrysum*.

All herbicides provided greater than 90% control of summer grass, bittercress and willow herb. None of the herbicide treatments effectively controlled chickweed. There were no significant differences between herbicide types in the control of mouse-eared chickweed, but there was a significant herbicide rate effect. The middle and highest rates provided 40 and 92% control, respectively.