

THE CONTROL OF OXALIS LATIFOLIA

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Oxalis latifolia is extremely difficult to eradicate in commercial horticultural areas and in private gardens all over New Zealand north of Christchurch. This species sets no seed but is almost unique amongst dicotyledonous plants in forming bulbs. Under favourable growing conditions bulbs are readily produced and can quickly build up to numbers as high as 50 million, weighing 15 tons per acre.

Conventional mechanical methods of weed control only succeed in spreading the bulbs through the soil. Hoeing or mowing is an impractical control measure as defoliation must be sustained over many years. Because of its capability for dormancy, longer term husbandry methods involving fallowing, cover cropping, or grassing down, can only suppress oxalis.

Chemical treatments also have limitations. Foliar treatments have shown initial promise but in practice have not improved on mechanical defoliation. Soil sterilization with persistent chemicals implies subsequent loss of land use. Soil injection of a short-lived sterilant such as methyl bromide can give complete control but costs about \$NZ450 per acre - such a technique has been pioneered at Levin Horticultural Research Centre.

Suppression with selective residual herbicides has found some favour, particularly for cotton in East Africa and a new approach based on these chemicals could be useful in some horticultural situations.

INTEGRATION OF SELECTIVE RESIDUAL TREATMENTS

Levin trials have confirmed the value of soil incorporation of trifluralin, dichlobenil and chlorthiamid for oxalis control. One experiment which was treated in May 1967 with 'low' and 'high' rates of trifluralin (2 and 4 lb/ac) (2 and 4 kg/ha) dichlobenil and chlorthiamid (each at 4 and 8 lb/ac) (4 and 8 kg/ha) gave statistically significant reductions of *O. latifolia* when assessed two seasons later:-

<u>Treatment</u>	<u>No.</u>	<u><i>Oxalis latifolia</i> bulbs per 2 sq.ft sample</u>	<u>Wt. (gm)</u>
Untreated	2480		776
Herbicides, 'low' rate	1698		446
Herbicides, 'high' rate	979		237

Further work has shown that split applications can give results equivalent to a single full dose treatment. Applications of trifluralin at 1 lb/ac made in late September and repeated in late October and mid December were as effective as a single September application of 3 lb/ac. The same was true of split doses of 2 lb/ac of dichlobenil compared with a single application of 6 lb/ac.

This suggests that a 'little-and-often' technique holds promise for cropping land where success depends on a maintenance dose of herbicide in the soil sufficient to control oxalis growth. The required level of herbicide can be compatible with simultaneous crop production. Vegetables such as brassicas, peas, beans, carrots and tomatoes are tolerant to trifluralin as are several flower crops and a suitable cropping system would be timed in New Zealand as follows:-

<u>May-October</u>	Winter transplant cabbages
<u>October-January</u>	French beans or peas
<u>January-May</u>	Carrots or transplant tomatoes

At each sowing or planting trifluralin would be applied. Initially the dose would be 1 lb/ac and subsequent doses would be adjusted according to the level of residue.

In plantings of many perennial fruits and ornamental shrubs maintenance applications of dichlobenil or chlorthiamid could similarly be made.

In common with present long term husbandry methods such techniques are likely only to suppress, not eradicate, oxalis but they do offer the advantage of cheapness without the loss of land use.