

CHLORTHAL - A NEW HERBICIDE TOOL IN ORCHARDS AND VINEYARDS

W.J. Burke

Diamond Shamrock Chemical Co., New South Wales

Chlorthal (dimethyl ester of tetrachloroterephthalic acid) is well known as a selective pre-emergence herbicide in vegetables, annual flowers and ornamentals. Recently it has been demonstrated to have useful potential in orchards and grapevines, including trees and vines in the pre-bearing stages.

In a series of tests conducted in New South Wales and Victoria over the past two years no sign of crop injury has occurred in apples, pears, citrus, peaches and grapes. Normal vegetable crop application rates were applied: 4.5 lb to 10.0 lb a.i. per acre (4.5 to 10.0 kg per hectare) for sandy to heavy mineral soils respectively, with usually a triple rate application to confirm that tolerance was greater than marginal. Except for the two grapevine trials all sprays were directed at the base of the plants and only limited wetting of the foliage occurred. In all cases the chlorthal was surface applied without incorporation.

In sandy loam at Kulnura, N.S.W., 2 year old EUREKA lemon trees were safely treated with 6.0 lb and 15.0 lb a.i. per acre (6.0 and 15.0 kg per hectare). At Pokolbin, N.S.W. in medium to heavy loam 3 month old cuttings of White Pinot and Black Shiraze grapes were treated with 7.5 lb and 22.5 lb active chlorthal per acre as overall foliar sprays without any sign of injury. When either 15 ozs a.i. of simazine or diuron was added to the 7.5 lb a.i. per acre (7.5 kg per hectare) chlorthal treatment a chlorosis lasting for 10 to 14 weeks occurred. In the Shepparton and Cobram areas of the Goulburn Valley established apple, pear and peach trees 4 to 12 years old were treated with rates up to 22.5 lb a.i. per acre (22.5 kg per hectare) without any sign of injury.

As a pre-emergence herbicide chlorthal consistently gave good weed control under sprinkler irrigation systems, and also under drip and flood irrigation in areas where the water covered the treated surface. Weed control was poor on ridges irrigated by upward moisture seepage. It is apparent that for effective weed control surface applied chlorthal must be leached into the top-horizon of the soil by the downward movement of rain or irrigation.

Common weed species in the trials which were controlled included *Echinochloa crus-galli*, *Setaria verticillata*, *Digitaria sanguinalis*, *Eleusine indica*, *Chenopodium album* and *Portulaca oleraceus*. *Arctotheca calendula* and *Galinsoga parviflora* were

not controlled by chlorthal alone but were removed completely when Diuron was added to chlorthal on 1:8 active ingredient ratio basis.

In situations where standing weed growth occurred initially, paraquat was added to the chlorthal spray. Apparently only an additive reaction occurred between the herbicides. Complete contact kill by the paraquat was important for success, as chlorthal showed no post-emergence activity.

Weed control of susceptible species by normal rates of chlorthal lasted for 6 weeks to more than 15 weeks, depending on site. The shorter control occurred under the typical heavy summer irrigation programmes of the Goulburn Valley while longest control was achieved under dryland conditions.

#### CP44939 - A NEW HERBICIDE FOR THE CONTROL OF *CYPERUS ROTUNDUS*

W.H.L. Hazard

Department of Primary Industries, Queensland

#### INTRODUCTION

CP44939 is an experimental pre-emergence herbicide developed by the Monsanto Company. It was made available to the Queensland Department of Primary Industries in 1968 for testing against nut-grass (*Cyperus rotundus*). A chemically similar compound, CP31675, had been evaluated by the Department from 1963 to 1968 for a similar purpose, with very encouraging results.

#### THE HERBICIDE

The formulation tested was a 48% w/v emulsifiable concentrate. The compound has a relatively high water solubility (1,280 ppm) and an acute oral LD<sub>50</sub> for rats of 1,945 mg per kg body weight. While full details of the influence of environmental factors on the performance of CP44939 are not available, it has been observed that the