

time as a band to control escaping weeds in the seed row.

When these herbicide systems were evaluated in the four localities the result was season-long weed control. In spite of effective weed control not all crops were high yielding and uniform. At Richmond, Mudgee and Cowra the crops were high yielding and uniform but at Trangie yields were low and crop growth uneven. This difference in crop response was due to a difference in soil type affecting irrigation efficiency.

In the diphenamid or napropamide/metribuzin system mechanical cultivation of the soil prior to the application of metribuzin significantly increased yield compared with the same system without cultivation. Cultivation not only increased water penetration but also controlled those weeds tolerant to the pre-emergent herbicides. The metribuzin then controlled the tolerant weeds close to the tomato plants and weeds which germinated following cultivation.

Where cultivation is necessary to facilitate water penetration there is no place for paraquat. Diphenamid or napropamide is still applied as a band treatment over the seed row and, if necessary, metribuzin can be applied over the row as a 'stand-by' for weed control. The crop inter-row is cultivated both to assist water penetration and to check weed growth.

These systems are based on herbicides which complement each other and overcome the inability of any one herbicide to control weed species infesting a direct-seeded tomato crop. Furthermore, they have been devised to meet the need or otherwise for mechanical cultivation to facilitate water penetration on different soil types.

#### WEED CONTROL IN OILSEED RAPE

A.R. Leys and B.D. Hill

Department of Agriculture, New South Wales

Although the rapeseed acreage has decreased in recent years, development of improved varieties may allow this crop to become a more acceptable alternative in the better rainfall areas of New South Wales.

Once sufficient leaf area has developed rape competes

vigorously with weeds and suppresses low densities of weeds and weeds germinating late in the season. On the other hand, experimental data suggest that rape is sensitive to high weed densities. In a trial at Cowra in 1974, 17 capeweed plants per square metre reduced rapeseed yields by up to half a tonne per hectare, while in a trial at Wagga Wagga, ryegrass infestations exceeding 300 plants per square metre also caused yield reductions of up to half a tonne per hectare.

#### CHEMICAL WEED CONTROL

In several trials since 1972, trifluralin applied pre-planting at  $0.5 \text{ kg ha}^{-1}$  has given reliable ryegrass control. Napropamide, at rates between  $0.5$  and  $2.0 \text{ kg ha}^{-1}$ , has also given excellent ryegrass control and has the added advantage of controlling a wider range of broad-leaf weeds than trifluralin. Aziprotryne does not control ryegrass but is effective on broad-leaf species, particularly capeweed. Aziprotryne, however, is not as selective in rape as napropamide or trifluralin.

The post-emergence herbicides, 2,2-DPA, TCA and carbetamide, applied to rapeseed crops at the three- to four-leaf stage, all caused a yellowing of the crop, leading to leaf scorch at the higher rates. In addition most of these herbicides delayed flowering.

However, Reeves (1974) found that rape is more tolerant of 2,2-DPA applied at the cotyledon stage than applied at the two-leaf stage, so an earlier application may reduce crop damage.

The results indicate that both grass and broad-leaf weeds can be effectively controlled in rape by the use of appropriate herbicides.

#### THE EFFECT OF RAPE ON WEED POPULATIONS IN FOLLOWING CEREAL CROPS

Evidence suggests that rape will best fit into a cropping rotation as the first crop after a clover ley. Batten and Osborne (1975, pers. comm.) have shown that the growth of rape is greatly enhanced by high soil fertility. As wheat is prone to lodging under these conditions, rape is better able to utilize the higher fertility after the ley.

If weeds can be controlled under the rape crop, the benefits may carry over to following wheat crops. Reeves and Smith (1975) have shown that annual ryegrass populations during the cropping phase can be markedly reduced by cultural practices that control ryegrass prior to cropping. A similar effect may be obtained by growing rapeseed with the appropriate herbicide.

Where weed populations can be reduced prior to cropping, it