

WEEDS OF HORTICULTURAL CROPS IN VICTORIA

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## THE SIGNIFICANCE OF WEEDS IN PRIMARY PRODUCTION

Weeds compete with horticultural crops for water, nutrients, light and space. In so doing they can drastically reduce the marketable potential of the crop. Particularly is this the case with annual crops such as vegetables or flowers or in the initial establishment year or two of tree fruits and vines.

Weeds harbour and often encourage, pests and diseases. A good example is the Common Sow Thistle (*Sonchus oleraceus*) which is the host of the aphid vector of lettuce necrotic yellows virus.

Weeds also may interfere with pest and disease control measures, thinning, fertilizer side-dressing and harvesting.

In vine and tree fruit areas, particularly in frost-prone situations, the presence of weed growth or for that matter, sown or volunteer cover crop increases the risk of frost damage at critical periods e.g. flowering and fruit setting. Prudent management in these situations requires care in the removal of the herbage and the achievement of a bare, compacted ground surface.

Cultivation for weed control necessitates the destruction of irrigation furrows and their re-establishment.

Weed seeds may give product contamination e.g. drying greens for dried vine fruits or interfere with orchard operations e.g. grape pickers kneeling on Three Cornered Jacks (*Emex australis*) or Gentle Annie (*Cenchrus pauciflorus*).

Weeds are not necessarily disadvantageous as volunteer weed growth can be effectively used to stabilize hilled orchard lands in southern Victoria for amelioration of surface soil waterlogging and used to restore soil structure.

## PRESENT PRACTICE OF WEED CONTROL

The swing away from weed control by cultivation made possible by herbicides is increasingly noticeable in commercial horticulture, possibly more so in vegetable crops than elsewhere. Present weed control measures rely heavily on herbicides, most commonly using pre-emergence materials but increasing use is being made of post-emergence forms. Generally speaking there is grower resistance to herbicides requiring soil incorporation. Cucurbitaceae is the only major vegetable group for which herbicides are not available.

Crop safety, the spectrum of weed control and ease of use rather than price are the major determinants for use. Correct seed bed preparation still plays a major role in achieving successful weed control with or without herbicides.

In tree fruits and vines either mechanical or chemical means are used to control weeds along tree lines and banks, not necessarily for the whole year but particularly in spring and summer. To some degree in southern Victoria and possibly to a lesser extent in the Goulburn Valley regularly mown sod management in inter-row areas is being used, often achieved with volunteer weed growth, more particularly among apples and pears rather than stone fruits.

#### THE EFFECTIVENESS OF RESEARCH, EXTENSION, AND LEGISLATION IN ACTUALLY CONTROLLING WEEDS

In few cases in horticulture is it necessary to control particular weeds, so that research and extension has been focused on general control of the broad spectrum of weeds found in any given situation. With the range of herbicides now available this is usually fairly readily achieved. The assessment of crop tolerance has, of course, been a major criterion as well as the spectrum of weed control given. In tree fruits and vines no great difficulty has been encountered in these investigations, although there is a tendency, particularly in the Mallee to be left with the resistant or tolerant weeds.

In vegetable production, a great deal more research has been and still is necessary in successful weed control. However, probably the most significant contribution to vegetable production over the past ten years has been the successful introduction of herbicides. Grower acceptance of herbicides would not have taken place so readily if the advantages had not been so readily demonstrated. Research and extension have been quite effective in weed control in most horticultural situations e.g. some 3,000 acres of vines are under weedicide management.

Nevertheless the task of introducing herbicides has been facilitated by the awareness of growers of the need to reduce costs and the practicability of achieving this through careful herbicide use. Where herbicides are properly incorporated into the management systems, such properties are noticeably neater and cleaner than those where herbicides are not availed of.

In most instances the direct effect of farm economics rather than legislation has motivated efforts to control noxious weeds.