

WEED CONTROL IN THE HORTICULTURAL ENVIRONMENT

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The close proximity of horticultural enterprises to population centres places such enterprises under close scrutiny of community groups concerned with environmental issues.

Community attitudes to the responsible use of land and a concern for the environment in which these enterprises are conducted place constraints on the way land is used. These restrictions are likely to increase as pressure from urbanization reduces the availability of horticultural land.

Weed control is an integral part of responsible land use but weed control programs have not always achieved the desired objectives or have produced undesirable side effects. For example, the use of trifluralin in tomato crops in the Bowen area of Queensland has resulted in the failure of subsequent plantings of cover crops of Sudan grass. This has exposed high value land to the dangers of erosion during the December/March period of heavy rainfall.

Effects of herbicides on uptake of soil nutrients have been documented. Some less obvious undesirable effects of weed control programs involve the soil microflora. For example, benfen and diphenamid have been found to increase the incidence of *Rhizoctonia* damping-off in capsicums; trifluralin has been found to more adversely affect the growth of tomatoes infected with root-knot nematode than either the chemical or parasite singly.

Another issue of importance affecting the conduct of farming is the increasing demand for production of food at an economic price. With the trends in horticulture to increased mechanization in harvesting, particularly in vegetable production, the necessity for continued use of herbicides is obvious.

Thus, a situation exists where a concern for the way land is used and environmental issues must proceed simultaneously with the production of food at an economic price.

It is likely then, that future weed control research will place more emphasis on predictive data to ascertain the likely effects of a herbicide on the crop-weed-environment system. This has been used to a limited extent; for example, the measurement of soil organic matter levels to determine herbicide rates rather than broad recommendations. However, an extension of the scope of predictive measurements is required and is likely to receive more attention in the future.