

control with the other four herbicides, linuron, metribuzin, bifenox and glyphosate, which were also included in this experiment.

THE INFLUENCE OF WEED SPECTRUM AND SOIL TYPE ON THE CHOICE OF SYSTEM FOR WEED CONTROL IN DIRECT-SEEDED TOMATOES

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Effective chemical weed control is essential to the success of direct-seeded tomatoes. Weeds may emerge prior to and during the emergence of the tomato seedling, providing strong competition to an establishing crop. Since mechanical cultivation cannot control weeds close to the tomato plants there is a need for a selective herbicide.

Diphenamid or napropamide were shown to give excellent control of grasses - *Echinochloa crus-galli*, *Eleusine indica*, *Digitaria sanguinalis* and *Eragrostis* spp. *Solanum* spp. were found to be tolerant while *Portulaca oleracea*, *Amaranthus* spp., *Capsella bursa-pastoris*, *Chenopodium album* and *Chenopodium vulvaria* were only partially controlled.

Investigations carried out over three seasons at Richmond, Mudgee, Cowra and Trangie showed that a virtually weed-free tomato crop can be grown by using either diphenamid or napropamide as a pre-emergent blanket herbicide and following up with a post-emergent blanket application of metribuzin. With this system the pre-emergent herbicide controls the grasses and some broad-leaf weeds while the post-emergent herbicide controls the escaping broad-leaf plants. Metribuzin will not control *Solanum nigrum*, which must be hand chipped. The major weakness of this system is the fine degree of selectivity of metribuzin, which cannot be applied safely until the tomato plants have reached the five-true-leaf stage.

Another effective system involves band treatment. Diphenamid or napropamide is applied in a 30-cm band over the seed row and paraquat is applied later as a directed spray to control weed growth in the remaining area. The tomato plants are protected from paraquat spray drift by shields. Paraquat is applied two-three times until the crop is sufficiently advanced to compete against the weeds. Metribuzin may still be applied but this