RESULTS OF ALTERNATIVE APPLICATIONS ON WEED CONTROL IN A STRAWBERRY NURSERY

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Soil fumigation is essential to achieve phytosanitary certification and optimum growth in strawberry nursery production (Larson and Shaw, 1995). Fumigation also provides weed control. A number of fumigants and application techniqes are used in Nova Scotia transplant production but differences in the herbicidal activity of various fumigation treatments has not been documented. However MeBr, applied by US-based custom applicators, is generally acknowledged to give superior weed control. Its impending loss has highlighted the importance of understanding of the herbicidal properties of other fumigants and to develop alternative weed control methods for strawberry nursery producers. This 2-year study was initiated to (1) assess the herbicidal activity of current on-farm fumigation practices; (2) determine if certain herbicides can be safely used directly in the nursery crop; and (3) determine if the co-use of selected herbicides and plastic covers are a practical and cost-effective method of improving weed control with MeBr alternatives.

(1) Soils of 12 fields on two farms were systematically sampled before and after fumigation in fall 1996 and % weed control was determined from seedling counts in these soil samples. In fields with sufficient weed populations, Telone C17 at 425 L/ha (38 gpa) injected at 20-25 cm with conventional on-farm equipment gave about 85% control of a range of broadleaf and grass weeds. Custom application with the Rumstead applicator injecting Telone C17 at 335 to 425 L/ha (30 to 38 gpa) at 20 to 25 cm plus incorporating 225 L/ha (20 gpa) Vapam to 10 cm gave 85 to 98% overall weed control. No MeBr was used in Nova Scotia in 1996 so comparisons with MeBr could not be made. More fields will be monitored in 1997.

(2) Certification protocol does not currently permit the use of herbicides in Nova Scotia strawberry nursery production. Besides most herbicides used in strawberry fruit production (2,4-D amine, simazine, Sinbar and Devrinol) are known to cause vegetative damage and reduce runnering, but three (preplant incorporated Treflan, and postemergence Fusilade and Dacthal) were evaluated on 2 southern cultivars ('Selva' and 'Kamarosa') and found to have minimal observable effect by late summer. If found efficaceous, these herbicides could be registered in nursery production under Canada's 'Minor Use Program', and could be a cost-effective alternative to mechanical and hand weeding in fields with susceptible weeds.

(3) Late springs necessitate fumigation in the fall prior to planting the nursery crop in Nova Scotia. This 6 month interval may permit the co-use of several herbicides during the fumigation process. The use of volatile thiocarbamate herbicides with Telone has resulted in improved weed control in other crops (Busto et al., 1991; Gilreath et al.,1995). In fall 1997, we will assess the use of Treflan and Eptam with or without a plastic film cover in conjunction with conventional applications of normal and reduced rates of Telone to determine if practical improvements in weed control can be achieved without loss of nematode and Verticillium control. Improved weed control with herbicides may substantially reduce the high costs of handweeding.

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