Weed Control in Strawberries with GoalTender and other Herbicides

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Weed control in strawberry is normally accomplished with fumigants. However, since fumigants do not control many common strawberry weeds such as little mallow (cheeseweed), California burclover, Indian sweetclover and filaree, there is a need for herbicides for strawberry. Additionally, fumigants cannot kill weed seeds that blow into the field after fumigation such as hairy fleabane, common groundsel and common sowthistle. Herbicides also may be useful in areas where buffer zones, and proximity to sensitive sites limit fumigant rates. Where drip fumigation is used, the furrow bottom is not fumigated, and herbicides are useful to keep the furrow bottoms relatively weed free. Fields with a history of weed problems and those rotated into strawberries from non-competitive vegetable crops often require multiple weeding operations if clear plastic mulch is used. Weeding through plastic deteriorates the mulch and is time consuming resulting in seasonal costs of up to $700 per acre. Additionally, weeding diverts labor that can otherwise be utilized for fruit harvest.

In studies in Monterey County, CA pre-transplant herbicides Napropamid (Devrinol) and DCPA (Dacthal) provided near 80% control of some broadleaf weed but only 50% or less control of little mallow and sweetclover. Sethoxydim (Poast) and Clethodim (Prism) controlled grasses but missed broadleaf weeds.

Eight studies evaluated oxyfluorfen (Goal XL and GoalTender) in Ventura and Monterey Counties of California pre-transplant following either methyl bromide flat fumigation, Telone C35 or prior to 1,3 D +chlorpichrin (InLine) drip fumigation. No crop injury was observed where strawberries were transplanted through plastic tarp, installed after oxyfluorfen application. However, where no tarp was in place at time of transplanting, oxyfluorfen caused injury to about 8% of plants at Ventura and reduced fruit yield 21% at Monterey. Even in the presence of plastic mulch oxyfluorfen (Goal XL) may cause transplant injury if the large holes around the transplants allow codistillation and vapor-to-plant contact. Narrow planting holes cut with blade knife provide sufficient plant protection from the herbicide injury. The data showed that transplants in bare beds and in large planting holes can outgrow injury in about 5 weeks but fruit yield during the first 3-4 harvests is significantly reduced.

Both oxyfluorfen formulations provided excellent (72 to 100%) control of little mallow at full rate (2 pints /acre for Goal XL and 1 pint /acre for Goaltender) and half-rate at either location. The full rate of oxyfluorfen treatment provided partial control of sweetclover (75-100%) at Monterey and California burclover (67%) at Ventura. However, none of the oxyfluorfen rates controlled hairy fleabane in Ventura County trials. Fleabane was especially troublesome in transplanting holes were soil disturbance during hole cutting and planting likely reduced oxyfluorfen activity and enhanced weed seed germination.

Oxyfluorfen at full rate reduced total weeding time 38% to 61%, compared to no herbicide in three Ventura studies. Estimated material and application costs were less

than the potential savings in the weeding costs, suggesting that oxyfluorfen treatment provides cost-effective weed control. Lack of fleabane control in one study resulted in similar weeding costs as in untreated control. These studies show that oxyfluorfen may provide excellent and economical control of the weeds difficult to control with alternative soil fumigants, such as little mallow. However, application of plastic mulch is required before planting to prevent injury to strawberry plants. If soil moisture is lacking in a bed, light sprinkler irrigation should be applied to activate the herbicide.