Weed Control in Cucumber, *Cucumis sativus*, Pumpkin, *Cucurbita maxima*, and Summer Squash, *Cucurbita pepo* with Halosulfuron

by

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(Abstract)

Cucumber (*Cucumis sativus* L.), pumpkin (*Cucurbita maxima* Duch. ex Lam.), and summer squash (*Cucurbita pepo* L.) are economically important crops in Virginia. Only a few herbicides are registered for weed control in these crops. Halosulfuron is a sulfonylurea herbicide which controls several broadleaf weeds and yellow nutsedge (*Cyperus esculentus* L.). Cucurbit crops have some tolerance to this herbicide. The efficacy of halosulfuron for control of several weed species and tolerance of four vine crops to halosulfuron were investigated in field and greenhouse studies in 1999, 2000, and 2001. In the field, halosulfuron was applied to cucumber, pumpkin, zucchini squash, and yellow summer squash at 4, 9, 18, and 27 g ai/ha preemergence (PRE) and postemergence (POST) in combination with clomazone at 174 g ai/ha plus ethalfluralin applied PRE at 630 g/ha. Crop injury, weed control, and crop yield was collected from the field studies. Weed control by halosulfuron was dependent upon application method. Halosulfuron applied preemergence controlled only common ragweed (*Ambrosia artemisiifolia* L.) and smooth pigweed (*Amaranthus hybridus* L.). Postemergence halosulfuron controlled common ragweed, smooth pigweed, morningglory species (*Ipomoea* spp.), yellow nutsedge, and rice flatsedge (*Cyperus iria* L.). All four crops treated with halosulfuron produced yields equal to or higher than the crops receiving clomazone and ethalfluralin alone or the hand-weeded check. In the greenhouse,

tolerance of cultivars of each crop to halosulfuron was investigated with the same rates applied in the field. Cultivars responded similar to postemergence halosulfuron applications with respect to fresh and dry weights in all four crops. The response of several populations of acetolactate synthase inhibiting (ALS) resistant smooth pigweed to postemergence halosulfuron was also investigated. Halosulfuron activity against ALS-inhibitor resistant smooth pigweed was population dependent. In the greenhouse, postemergence halosulfuron at the same rates used in the field studies controlled yellow nutsedge.

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