

EFFECT OF HALOSULFURON, GRASS HERBICIDES, AND ADJUVANTS ON CUCURBITA SPECIES INJURY AND GRASS CONTROL. Kate J. Kammler, S. Alan Walters, and Bryan G. Young. Graduate Research Assistant and Associate Professors, Plant, Soil and Agricultural Systems, Southern Illinois University, Carbondale, IL 62901.

Halosulfuron is the only postemergence herbicide registered for control of broadleaf weeds in pumpkins. Growers often need post-emergent control for both grass and broadleaf weed species which requires a tank-mixture of halosulfuron with sethoxydim or clethodim. The label for halosulfuron does not allow for the use of oil-based adjuvants due to concerns of excessive pumpkin injury and potential yield loss. However, the use of oil-based adjuvants is required for applications of sethoxydim and clethodim. Two greenhouse experiments were conducted during the winters of 2004 and 2005: 1) evaluation of various adjuvants with halosulfuron to assess pumpkin cultivar injury, and 2) determination of tank-mix compatibility of halosulfuron applied with sethoxydim or clethodim with nonionic surfactant (NIS), crop oil concentrate (COC), methylated seed oil (MSO), and a surfactant/oil blend for control of giant foxtail, smooth crabgrass, and large crabgrass.

The application of halosulfuron injured all pumpkin cultivars by 7 DAT ranging from 13 to 21%. Only slight differences in injury were observed between cultivars. The least amount of growth reduction (5% or less) was observed for *C. pepo* 'Howden,' *C. pepo* 'Appalachian,' and *C. moschata* 'Libby's Select' at 21 DAT. The specific adjuvant used with halosulfuron did not influence the level of pumpkin injury or dry weight.

The addition of halosulfuron to clethodim antagonized control of giant foxtail by 15% when applied with only COC. Tank-mixing halosulfuron with sethoxydim antagonized control of giant foxtail when applied with NIS and smooth crabgrass when applied with COC. Combining halosulfuron with either sethoxydim or clethodim was antagonistic for control of large crabgrass when applied with NIS or COC. Control of large crabgrass was reduced by up to 41% with these herbicide combinations. No antagonism was observed for any herbicide tank-mixture or weed species combination when MSO was used.