

INFLUENCE OF HALOSLFURON, GRASS HERBICIDES, AND ADJUVANTS ON JACK-O-LANTERN INJURY, YIELD, AND WEED 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.

Pumpkin production can be a successful economic endeavor, but weed control is a major issue that growers must address due to the limited herbicide options available for weed control. Many of the current registered herbicides have problems due to their potential crop injury, high cost, and inadequate weed control. Field studies were conducted in 2004 and 2005 to evaluate halosulfuron with the grass herbicides sethoxydim and clethodim, and various adjuvants in tank-mixtures in an attempt to identify better management practices for weed control in pumpkins. Treatments were evaluated for crop injury, weed control, and pumpkin yields.

Following the applications of the tank-mixed herbicides and adjuvants, pumpkin plant injury at 28 days after treatment (DAT) was 14% with halosulfuron alone, 20% with halosulfuron + sethoxydim, 16% with halosulfuron + clethodim compared with less than 8% injury for the grass herbicides applied alone. The addition of oil-based adjuvants to halosulfuron did not increase pumpkin injury compared with using a nonionic surfactant. Redroot pigweed control was reduced from 86% with halosulfuron alone to 66% with halosulfuron + sethoxydim and 42% with halosulfuron + clethodim. In these instances, the application of the grass herbicides effectively removed the grass competition and may have allowed for more growth or emergence of pigweed. The addition of halosulfuron to sethoxydim did not antagonize control of smooth crabgrass, regardless of adjuvant. The addition of halosulfuron to clethodim reduced control of smooth crabgrass from 87% for clethodim applied alone to 73% for the tank-mixture when applied with nonionic surfactant. However, applying halosulfuron + clethodim with a crop oil concentrate or an oil/surfactant blend did not result in any antagonism of smooth crabgrass control compared with clethodim applied alone with the respective adjuvants. No herbicide treatments provided similar pumpkin yields to the handweeded control. The yield of any treatments that utilized postemergence herbicides was at least 50% less than the handweeded. The low yields were possibly related to a combination of pumpkin injury from the herbicide applications and from insufficient weed control. Therefore, improvements in pumpkin weed management are still necessary for growers to realize maximum yields and profit.