

TOLERANCE OF POTATO MINI-TUBERS TO PRE AND POST HERBICIDE APPLICATIONS. Calvin F. Glaspie*, Wesley J. Everman, Christopher M. Long and Andrew J. Chomas, Graduate Student, Assistant Professor, Extension Specialist, Research Assistant, Michigan State University, Department of Crop and Soil Sciences, East Lansing, MI 48824.

Demand for disease free potato seed in Michigan is high due to an increased economic return upon planting disease and virus free seed potatoes. Using aseptically grown plants produced from tissue culture, potato mini-tubers can be planted as a clean seed source. However, many generally accepted cultural practices for managing mini-tubers are adopted from cut seed piece, including weed management programs. Field trials were conducted at the Montcalm Research Farm near Entrican, MI in 2008 and 2009 to evaluate the effect of labeled herbicide programs on three cultivars of potato mini-tubers. Potato cultivars Atlantic and two Frito Lay (FL) varieties were planted in 34 in rows, 2.5 in deep at 8 in spacing and hilled at planting. Fifteen herbicide treatments were arranged in a split plot design with four replications. Treatments included PRE applications of dimethenamid at 0.66 lb ai/A, imazosulfuron at 0.4 lb ai/A, KIH-485 at 1.26 lb ai/A, linuron at 0.5 lb ai/A, *s*-metolachlor at 1.27 lb ai/A, metribuzin at 0.5 lb ai/A, pendimethalin at 0.72 lb ai/A, rimsulfuron at 0.023 lb ai/A, *s*-metolachlor plus linuron, *s*-metolachlor plus linuron plus metribuzin at 0.09 lb ai/A, *s*-metolachlor plus metribuzin at 0.09 lb ai/A plus pendimethalin at 0.24 lb ai/A, and *s*-metolachlor plus metribuzin at 0.09 lb ai/A plus pendimethalin at 0.24 lb ai/A plus glyphosate at 0.77 lb ai/A plus ammonium sulfate at 3.5 lb/A; PRE followed by (fb) POST treatments of *s*-metolachlor plus linuron fb rimsulfuron at 0.0016 lb ai/A plus non-ionic surfactant (NIS) at 0.05 gal/A, *s*-metolachlor plus linuron fb metribuzin at 0.28 lb ai/A plus rimsulfuron at 0.0016 lb ai/A plus NIS at 0.05 gal/A and a non-treated control with all plots maintained weed free by hand. The study was managed according to local production practices. Visual injury was rated throughout the season on a 0-100% scale and yield data was collected at end of season for tuber yield and quality. Injury was observed in both years and was similar across varieties tested. Treatments of *s*-metolachlor plus linuron in both years caused leaf chlorosis and malformation while rimsulfuron and dimethenamid were only observed to cause injury in 2009. Imazosulfuron and treatments containing POST applications of rimsulfuron were found to reduce yields in 2008 while *s*-metolachlor alone and *s*-metolachlor plus metribuzin plus pendimethalin with or without glyphosate reduced yields in 2009. This study indicates several currently labeled herbicides may cause visual injury during the season and yield reductions on potato mini-tubers.
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