

MAXIMUM WEED CONTROL IN ONION USING FLUMIOXAZIN AND OXYFLOURFEN. Chad M. Herrmann, Bernard H. Zandstra, and Rodney V. Tocco, Graduate Research Assistant, Professor, and Research Assistant, Michigan State University, East Lansing, MI 48824.

The poor competitive ability of onion requires that season long weed control be practiced. Recently, herbicides have become available that appear to improve weed control while minimizing crop phytotoxicity. Experiments were conducted at the MSU Muck Research Farm in 2008 to assess usage patterns of several newly formulated and recently labeled onion herbicides. Plots were 25 feet long and contained three rows of onions. Cultivars planted were the yellow storage types 'Sherman', 'Santana', and 'Festival'.

In one field trial, the experimental design consisted of a 3 X 5 factorial, in which flumioxazin was applied at 0.064, 0.032, or 0.0 lb/ac alone or tank mixed with maximum labeled rates of either pendimethalin (Prowl H2O or Prowl EC), *s*-metolachlor, or dimethenamid-P. Applications were made at the 2 leaf stage (LS) and again at the 4 LS. When flumioxazin was applied alone or tank mixed with Prowl H2O no significant injury or yield loss occurred in any of the cultivars, regardless of the rate of flumioxazin applied. In tank mixes with Prowl EC, *s*-metolachlor, or dimethenamid-P all cultivars suffered significant height reductions, delayed development, and yield loss. In another experiment assessing flumioxazin's preemergence potential, flumioxazin was applied at 0.032 lb/ac and provided good preemergence control of several broadleaf species but did not provide preemergence control of yellow nutsedge or large crabgrass. Preemergence application of flumioxazin did not reduce stand count or yield.

In an experiment assessing the crop tolerance and efficacy of different formulations of oxyflourfen, oxyflourfen (Goaltender or Goal XL) was applied at 0.031, 0.063, 0.125, or 0.188 lb/ac to onions at the 1 LS. Identical applications were made again at the 2 LS and 3 LS. The 0.188 lb/ac application of Goal XL resulted in significant reductions in onion height, leaf number, and yield among all cultivars. Goal XL applied at the 1 LS produced visual injury symptoms in the Festival and Santana cultivars when applied at rates of .063 lb/Ac or greater. Goaltender applied at the 1 LS to the same cultivars did not produce significant injury unless applied at 0.188 lb/ac. Further testing will help refine usage patterns for flumioxazin, oxyflourfen, and other onion herbicides.