HERBICIDES AS ALTERNATIVES TO METHYL-BROMIDE FOR WEED CONTROL IN DAYLILY, AJUGA, and PERWINKLE. Daniel A. Little[1]*, Robert J. Richardson[2], and Bernard H. Zandstra[1], [1]Department of Horticulture, Michigan State Univ., East Lansing, MI, [2]Crop Science Department, North Carolina State Univ., Raleigh, NC.

The methyl-bromide (MeBr) phaseout has reduced the ability of ornamental growers to adequately control weeds. In 2004 and 2005, field and greenhouse studies were conducted to evaluate herbicides as alternatives to MeBr in nursery production. A standard control treatment of MeBr/chloropicrin (67:33) was applied at a rate of 392 kg/ha. The herbicides tested were granular flumioxazin (.28 kg ai/ha), granular oxadiazon (2.24 kg/ha), isoxaben (1.12 kg/ha), isoxaben plus dithiopyr (.28 kg/ha), isoxaben plus metolachlor (1.68 kg/ha), isoxaben plus oryzalin (3.36 kg/ha), dithiopyr (.28 kg/ha), metolachlor plus mesotrione (.28 kg/ha), metolachlor, granular pendimethlin (1.4 kg/ha) plus oxadiazon and an untreated control. Weeds present included large crabgrass, redroot pigweed, common ragweed, common lambsquarters and others. Crop injury and weed control were visually rated on a 0-100% scale, with 0% equal to no crop injury or no weed control and 100% equal to complete crop or weed death. The granular treatments and treatments containing metolachlor caused the most visible injury to the Ajugas, with injury up to 68% in the field and 83% in the greenhouse. In one field, the treatments of oxadiazon, flumioxazin, isoxaben plus metolachlor and metolachlor significantly reduced plant size of Ajuga compared to MeBr treatment, and in the other field all treatments reduced plant size. Some blade twisting was seen on daylilies with treatments containing metolachlor, oxadiazon and flumioxazin, but no reduction in plant growth was observed. Visual injury was rarely seen in Periwinkle, usually less than 10%, but seven treatments showed a decrease in plant size in the 2005 field. Many treatments had 80% or better control over a range of the weeds observed with flumioxazin and treatments containing metolachlor having the most promise. No treatment tested provided broadspectrum weed control and crop safety equivalent to MeBr.

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