

THE RESPONSE OF SEEDLING CONIFERS TO FLUMIOXAZIN. Michael W. Marshall, Bernard H. Zandstra, and Richard J. Robertson, Research Associate, Assistant Professor, and Professor, Department of Horticulture, Michigan State University, East Lansing, MI 48824, and Crop Science Department, North Carolina State University, Raleigh, NC 27695.

Weed competition, especially for light, hinders growth and development of the transplanted seedling conifers. Current recommendations for liner beds include preemergence application of oryzalin plus isoxaben followed by hand-weeding. In addition to herbicide cost, hand-weeding increases the labor cost for the nursery. Flumioxazin is a newly introduced herbicide labeled for field grown conifers; however, seedling conifers tolerance to flumioxazin is not known. Research studies were conducted at cooperator sites in 2005 near West Olive in west-central Michigan to compare response of seedling conifers to various rates of flumioxazin compared to oryzalin plus isoxaben and evaluate weed control as affected by different rates of flumioxazin. Herbicide treatments included flumioxazin applied at 0.12, 0.18, 0.24, and 0.36 kg ha<sup>-1</sup>, oryzalin plus isoxaben applied at 2.8 plus 0.94 kg ha<sup>-1</sup>, and an untreated control. Experimental design consisted of a randomized complete block with 4 replications with individual plot sizes of 1.8 by 1.8 m. Seedling conifers were transplanted at 5 cm spacing on 10 cm rows into individual liner beds on May 24, 2005. The following conifer species (1-year-old) were transplanted: Eastern red cedar (*Juniperus virginiana* L.), balsam fir [*Abies balsamea* (L.) Mill.], and concolor fir [*Abies concolor* (Gordon & Glend.) Lindl. ex Hildebr.]. Herbicides treatments were sprayed on May 26, 2005 with the heights of eastern red cedar, balsam fir, and concolor fir at 7.6 to 10, 2.5 to 5, and 7.6 to 10 cm in height, respectively. Conifer heights and injury ratings were collected 8 and 16 weeks after treatment (WAT), respectively. Large crabgrass (*Digitaria sanguinalis* L.) percent control ratings were evaluated 12 WAT. Conifer height and injury and weed control data were analyzed using ANOVA and means separated at the P = 0.05 level. No differences were observed between heights among the flumioxazin and oryzalin plus isoxaben treated eastern red cedar, balsam fir, and concolor fir. Very little (less than 1%) conifer injury was observed 12 WAT across the flumioxazin treatments; however, significant injury was observed with the oryzalin plus isoxaben treatment in balsam and concolor firs. All herbicide treatments provided greater than 83% control of large crabgrass at 12 WAT. Data indicated that flumioxazin provided season long control of large crabgrass without significant injury or growth reduction to the seedling conifers.