

CARRYOVER EFFECTS OF AMINOPYRALID, CLOPYRALID, OR AMINOCYCLOPYRACHLOR ON SPRING-PLANTED TREE SEEDLINGS. A.E. Gover, Penn State Univ., Univ. Park, and R.K. Wagoner, PA Dept. of Conservation and Natural Resources, Harrisburg.

ABSTRACT

Glyphosate at 3.4 kg ae/ha, alone or in combination with aminopyralid at 0.12, clopyralid at 0.55, or aminocyclopyrachlor plus chlorsulfuron at 0.26 plus 0.11 kg/ha was applied October 27, 2009 to a riparian area (Brinkerton silt loam) at Canoe Creek State Park, Hollidaysburg, PA, to be planted spring 2010 with tree seedlings. The treatments were applied to 2.7 by 12 m plots arranged in a randomized complete block with three replications. At treatment, vegetation consisted primarily of sparse regrowth of reed canarygrass (*Phalaris arundinacea* L.) resulting from a June 2009 application of glyphosate at 3.4 kg ae/ha. On April 30, 2010, each plot was planted with seedlings of silver maple (*Acer saccharinum* L.), river birch (*Betula nigra* L.), flowering dogwood (*Cornus florida* L.), black walnut (*Juglans nigra* L.), black locust (*Robin pseudoacacia* L.), and American sycamore (*Platanus occidentalis* L.), and each seedling was enclosed in a 1.5 m tall tree shelter after measuring the height of the terminal bud. The predominant vegetation at tree planting was a sparse stand (approximately 10 percent cover) of field horsetail (*Equisetum arvense* L.).

The seedlings were visually assessed for injury August 2, 2010 using a 0 to 3 scale (0=no injury, 1=slight, 2=moderate, 3=severe/dead), and height of the terminal bud on living trees was measured September 23, 2010. Data were subjected to analysis of variance, using a randomized complete block with a split-plot treatment arrangement, with herbicide treatment as main plot and tree species as sub-plots. Herbicide treatment, averaged over species, was a significant effect only for tree mortality on September 23. Glyphosate plus clopyralid treated plots had 33 percent mortality, which was significantly higher than glyphosate alone or with aminocyclopyrachlor plus chlorsulfuron (0 and 6 percent, respectively). Plots treated with glyphosate plus aminopyralid had 17 percent mortality, which was not significantly different from any of the other treatments. Species effect was significant only for tree height, which was analyzed as the difference between planting height and final height. Dead trees had a final height of 0 cm, and therefore had a difference that was the negative of their planting height. Living stems that suffered tip dieback, resprouted lower on the stem and were shorter than when planted also had negative heights. Black locust had the greatest average growth (85 cm), and was not significantly different from sycamore (52 cm) and birch (47 cm). Maple (41 cm) was significantly lower than locust, and dogwood (-9 cm) and walnut (-19 cm) were significantly lower than all other species.