

Can We Enhance Suppression of Reed Canarygrass (*Phalaris arundinacea*) by Glyphosate-based Treatments in Revegetation Settings? A.E. Gover\*, J.L. Huffman, The Pennsylvania State University, University Park, PA.

Reed canarygrass is a cool-season, rhizomatous grass that forms persistent, near-monotypic stands in riparian and seasonal wetland sites. Current practice to suppress reed canarygrass to revegetate riparian sites with a spring seeding or planting is to treat two to three times with glyphosate between the preceding spring and the spring of planting, with the key timing the fall prior to planting. This regimen provides a window to establish the alternate vegetation, but reed canarygrass typically rebounds from rhizome remnants or seed. To determine if enhanced suppression could be achieved with tank mixtures, glyphosate was applied alone at 3.4 or 4.5 kg ae/ha, and alone at 3.4 kg ae/ha with triclopyr at 1.7 kg ae/ha, imazapic at 70 or 140 g ae/ha, or sulfometuron methyl at 52 or 105 g/ha. Treatment combinations were applied to a mixed stand of partially senesced reed canarygrass and goldenrods (*Solidago* spp.) that averaged 75 and 23 percent cover, respectively, on October 18, 2011. Suppression was rated August 31, 2012, and cover in untreated plots for total vegetation, reed canarygrass and goldenrod was 57, 33, and 23 percent, respectively. Only treatments with sulfometuron significantly reduced total vegetative cover (37 and 27 percent for 52 and 105 g/ha, respectively). All herbicide treatments significantly reduced reed canarygrass cover compared to the controls. Glyphosate alone or with imazapic produced similar results, with reed canarygrass cover ranging from 2 to 3 percent, and goldenrod cover increased from the controls, ranging from 38 to 52 percent. Adding triclopyr to glyphosate resulted in increased reed canarygrass cover (15 percent) and reduced goldenrod (24 percent) compared to glyphosate alone. The addition of sulfometuron at 52 or 105 g/ha resulted lower goldenrod cover (22 and 9 percent), and similar reed canarygrass cover compared to glyphosate alone.