

TILLAGE AND PLANT GROWTH REGULATOR PRETREATMENTS ENHANCE REED CANARYGRASS CONTROL WITH SETHOXYDIM. Craig A. Annen, Consulting Ecologist, Michler & Brown, LLC, Belleville, WI 53508.

Long-term suppression of reed canarygrass (*Phalaris arundinacea* L.) can be difficult to achieve with herbicides, partly because this species can resurge (resprout) from its rhizomes whenever applications are suspended. A system of apical dominance may operate in reed canarygrass rhizomes, resulting in a persistent rhizome bud bank that must be depleted through repeated herbicide applications in order to achieve effective, long-lasting control of this species. Pretreatments (treatments applied prior to herbicide application) that short-circuit rhizome apical dominance may predispose reed canarygrass to more effective chemical control. Tillage and plant growth regulator (PGR) applications have been shown to short-circuit rhizome apical dominance and enhance chemical control in several invasive perennial grass species. I conducted a three-year experiment to determine if coupling tillage or PGR application to sethoxydim (Vantage[®]) application would enhance reed canarygrass suppression and reduce its resurgence capacity greater than sethoxydim application only. Compared to the herbicide-only treatment, tillage + sethoxydim treatments enhanced reed canarygrass suppression (up to 443% greater), reduced rhizome resurgence capacity (228% greater), and indirectly led to increases in native species abundance by surfacing the seed bank. Coupling PGR pretreatments to herbicide application reduced reed canarygrass resurgence capacity 26% greater than herbicide application only. Results of this experiment demonstrate that tillage and PGR pretreatments can enhance the effects of sethoxydim herbicide on reed canarygrass.