TIMING OF FALL RESIDUAL HERBICIDES FOR GLYPHOSATE-RESISTANT ITALIAN RYEGRASS

Jason A. Bond
Thomas W. Eubank
Robin C. Bond
Vijay K. Nandula
Mississippi State University
Stoneville, MS

Abstract

Glyphosate-resistant (GR) Italian ryegrass (*Lolium perenne* ssp. *multiflorium*) was first documented in the United States in Oregon in 2003. Regionally, two populations of GR Italian ryegrass exhibiting a three-fold resistance were identified in field crops in Washington County, Mississippi, in 2005. Surveys from 2009 indicate that GR Italian ryegrass is now present in 12 counties in the Mississippi Delta. It has also become problematic in other southern states. Dense populations of GR Italian ryegrass are problematic for producers. This weed can jeopardize burndown programs, and few affordable postemergence herbicides are available. Previous research showed that residual herbicides applied in the fall offer the best opportunity for controlling GR Italian ryegrass.

Research was conducted in 2009 and 2010 at the Mississippi State University Delta Research and Extension Center in Stoneville to identify the most effective application timing for fall residual herbicides targeting GR Italian ryegrass. Treatments were arranged as a factorial of herbicide treatment and application timing in a randomized complete block design with four replications. Treatments included Command (2 pt/A), Dual Magnum (1.33 pt/A), pyroxasulfone (2.77 oz/A), Treflan (3 pt/A), or tillage applied in September, October, or November. Command, Dual Magnum, and pyroxasulfone were applied to the soil surface, and Treflan was incorporated with two passes in opposite direction with a tandem disk. Gramoxone Inteon (3 pt/A) was included with all herbicide treatments to control GR Italian ryegrass that was emerged at application.

Rainfall during fall 2009 reduced control from September and October treatments. No treatment provided complete control by spring in 2009-10. No treatment applied in September or October controlled GR Italian ryegrass >65% at spring evaluation in 2009-10. For November applications, only pyroxasulfone and Treflan controlled GR Italian ryegrass >84% by spring. At the spring evaluation in 2009-10, pyroxasulfone and Treflan controlled more GR Italian ryegrass than Command following November applications while control from Dual Magnum was intermediate between Command and pyroxasulfone or Treflan. Environmental conditions were extremely dry during the fall of 2010. Command controlled more GR Italian ryegrass than Treflan at late-fall evaluation in 2010. Under dry conditions, applications in November provided the best control at late-fall evaluations.

Fall weather patterns are a primary factor impacting efficacy of fall residual herbicides treatments for GR Italian ryegrass. A fall residual herbicide should be chosen based on the crop to be planted the following year. Control was optimized when fall residual herbicides were applied in November. However, delaying fall residual herbicide application until November did not overcome the need for postemergence treatment in the spring. Any fall treatment, i.e., residual herbicide or tillage, should improve efficacy of spring postemergence herbicide applications targeting GR Italian ryegrass.