

SEASONAL STRATEGIES FOR MANAGING GLYPHOSATE RESISTANT ITALIAN RYEGRASS**R. C. Bond****V. K. Nanduala****D. H. Poston****C. H. Koger****Delta Research and Extension Center****Stoneville, MS****Abstract**

To date, fifteen weed species have evolved resistance to glyphosate worldwide. In Mississippi, glyphosate-resistant horseweed (*Conyza canadensis*), Italian ryegrass (*Lolium perenne* ssp. *multiflorum*), and Palmer amaranth (*Amaranthus palmeri*) have been confirmed. Glyphosate-resistant Italian ryegrass in a field crop environment was first documented in Mississippi in 2005. Glyphosate is widely used in glyphosate-resistant cropping systems at burndown, postemergence, and preharvest application timings. Italian ryegrass residue present at planting creates challenges to farmers utilizing no-till or conventional tillage farming practices. Previous research documented that glyphosate-resistant Italian ryegrass was not effectively controlled with spring postemergence herbicide programs. The objective of the current research was to determine the appropriate application timing and residual herbicide(s) that provide the best control of glyphosate-resistant Italian ryegrass. Fall application and residual timing studies were conducted in 2006-2007 and 2007-2008 at an on-farm site near Tribbett, MS, with an established population of glyphosate-resistant Italian ryegrass. Fall applications of Dual Magnum at 1.6 lb ai/A and Command at 0.5, .75 and 1 lb ai/A provided 93% control 180 days after treatment and fall applications of Gramoxone Inteon at 0.5 lb ai/A plus Direx at 1 lb ai/A provided 93% control 140 days after treatment. Control of glyphosate resistant Italian ryegrass should be based on fall-applied residual herbicides. All combinations of Gramoxone Inteon plus a residual herbicide reduced biomass compared with nontreated check. Gramoxone Inteon plus Direx applied in the fall provided the best combination of postemergence and residual control of glyphosate resistant Italian ryegrass.