EFFECT OF VARIOUS GLUFOSINATE APPLICATION RATES AND TIMINGS ON WEED CONTROL IN COTTON

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Abstract

Research was conducted at the LSU AgCenter Dean Lee Research and Extension Center in Alexandria in 2008 investigating the effect of various glufosinate application rates and timings on weed control in cotton. Treatments included three application rates of glufosinate (22, 29, and 43 oz/acre of Ignite) applied at two or three application timings in glufosinate-tolerant cotton. For a comparison, two treatments of three glyphosate applications at 22 oz/A (Roundup PowerMax) (with and without fluometuron preemergence) were included in glyphosate-tolerant cotton. To accomplish these treatments, a glufosinate-tolerant cotton variety (FiberMax 1735 LLB2) and a glyphosate-tolerant cotton variety (FiberMax 1740 B2F) were seeded. Application timings of glufosinate and glyphosate to the correct herbicide tolerant variety were to 4-, 12-, and 19-node cotton. Regardless of glufosinate rate, both 4-node application timings of glufosinate and glyphosate controlled Johnson grass, barnyard grass, Palmer amaranth, entireleaf morningglory, and hophornbeam copperleaf greater than 90% 15 days after treatment. Following two applications of glufosinate and glyphosate (4-node followed by 12-node), all treatments provided greater than 90% control of the above mentioned weeds and browntop millet except two applications of glufosinate at 22 oz/acre which controlled barnyard grass 83%. Additionally, all treatments controlled weeds greater than 90% at season-end, except two applications of glufosinate at 43 oz/acre which provided less than 90% control of barnyard grass. There were no yield differences among glufosinate-tolerant cotton treatments or among glyphosate-tolerant cotton treatments; however, the glufosinate-tolerant cotton variety yielded more than the glyphosate-tolerant cotton variety. The observed difference in yield between varieties was not correlated to weed control. Weed efficacy data indicate that three applications of glufosinate are needed for season-long weed control and the glufosinate-tolerant cotton weed management system is comparable to the glyphosate-tolerant system.