SEQUENTIAL LIBERTY APPLICATION TIMINGS FOR JOHNSONGRASS CONTROL IN LIBERTY LINK COTTON R.L. Landry D.O. Stephenson, IV B.C. Woolam LSU AgCenter Alexandria, LA

Abstract

Experiments were conducted at the LSU AgCenter Dean Lee Research and Extension Center near Alexandria, LA in 2011, 2012, and 2013. These experiments assessed glufosinate timings for control of johnsongrass [*Sorghum halepense* (L.) Pers.] in glufosinate-resistant cotton (*Gossypium hirsutum* L.). A three-way factorial arranged in a randomized complete block with four replications was utilized. Factors consisted of: (1) 2 or 3 total Liberty applications; (2) initial application timing of 2, 3, or 4 wk after planting (WAP); (3) sequential application timings of 2 or 3 wk after the initial application timing. Application rates for two applications were 43 oz/A followed by 29 oz/A; three applications are initial at 29 oz/A followed by 29 oz/A for the second and third applications. Johnsongrass control and heights (converted to percent of nontreated) collected 4 wk after treatment (WAT) and at harvest are presented and also cotton yield. All data were subject to ANOVA and means were separated with Tukey's HSD at the 0.05 level.

Two and three applications of Liberty controlled johnsongrass 64% and 89% respectively, 4 WAT. Following 3 applications of Liberty, a 25% increase in johnsongrass control over 2 applications was observed at harvest. Similarly, johnsongrass heights at harvest were reduced to 87% and 33% of the nontreated following 2 or 3 Liberty applications, respectively; a 54% reduction in johnsongrass heights was observed when applying 3 vs. 2 applications. No differences in cotton yield were observed following 2 total applications of Liberty initiated either 2 or 3 WAP (550 and 580 lb/A, respectively); however, cotton yields were increased to 330 lb/A following 2 total applications initiated 4 WAP. Furthermore, cotton yield following 2 total applications initiated 4 WAP did not differ from treatments containing 3 total Liberty applications regardless of timing. Cotton yields following 3 total Liberty applications initiated 2, 3, and 4 WAP were 980, 1070, and 950 lb/A, which were not different. These data indicate that Liberty applications are a viable tool for management of johnsongrass in Liberty Link cotton. However, more research is needed to incorporate Liberty into a weed management program for Liberty Link cotton.