

INVESTIGATION INTO POST-HARVEST CONTROL OF 2,4-D TOLERANT COTTON

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Abstract

Stalk destruction following cotton harvest for the Gulf Coast and Brazos Bottom regions of Texas is critical for the successful completion of the Boll Weevil Eradication Program. Chemical stalk destruction is an efficient method of managing regrowth and preventing the production of hostable squares for the boll weevil to reproduce. The Enlist™ Weed Control System which will include cotton tolerant to a new form of 2,4-D is currently under development by Dow AgroSciences. The purpose of this research was to find chemical alternatives to 2,4-D for post-harvest cotton stalk destruction. Two studies were conducted in TX and AR to evaluate the efficacy of various herbicides to control regrowth and hostable square production. Both locations were planted to cotton transformed to express the *aad-12* transgene which enables 2,4-D tolerance and is currently under development by Dow AgroSciences as Enlist™ cotton. Applications were made within two hours after the cotton stalks were shredded. Assessments of percent regrowth were made 2, 4, 6, and 8 weeks after application and percent plants with fruiting squares determinations were made 6 and 8 weeks after application. Promising alternatives to 2,4-D for destruction of post-harvest 2,4-D tolerant cotton stalks are treatments including dicamba (≥ 0.5 lbs ae/A), 2,4-DP (≥ 1.0 lb ae/A), Distinct (≥ 0.35 lb ae/A), and treatments combining dicamba + 2,4-DP at approximately 1:2 ratio (i.e., Superbrush Killer). Additional research should be directed at evaluating: sequential applications (2,4-DP, dicamba, MCPP) to control secondary regrowth and any emergence of volunteer plants; higher rates (> 1.0 lb ae/A) of 2,4-DP and MCPP; tank mixtures or premixtures of dicamba + 2,4-DP (i.e., Superbrush Killer) or dicamba + MCPP; and alternative adjuvant systems to improve herbicide uptake through woody cotton stems.

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