

COTTON RESPONSE TO OVER-THE-TOP ENVOKE™ APPLICATION

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Envoke™ (common name: trifloxysulfuron sodium), is a new sulfonyl urea herbicide developed by Syngenta for over-the-top application to cotton. A two-year study was conducted with concurrent field and greenhouse experiments to determine the innate resistance of cotton to Envoke™ alone and tank-mixed with Touchdown IQ (glyphosate). Treatments used in the field study were: 1.) Untreated check, 2.) Envoke™ at 0.076 oz / A (5.3 g ai / ha), 3.) Envoke™ at 0.113 oz / A (7.9 g ai / ha), 4.) Envoke™ at 0.216 oz / A (15.8 g ai / ha), 5.) Envoke™ at 0.076 oz / A tank-mixed with Touchdown IQ at 1 qt / A, 6.) Envoke™ at 0.113 oz / A tank-mixed with Touchdown IQ at 1 qt / A, 7.) Touchdown IQ at 1 qt / A and 8.) Staple at 0.6 oz ai / A tank-mixed with 1.5 pints / A Round-Up Ultra. In the field study the response of two common picker varieties of cotton to Envoke™ application was investigated. Envoke™ application at the labeled rate (5.3 g ai / ha) did not significantly impact yields in any of the experiments. Envoke™ applications at 0.076 oz ai / A resulted in a transient chlorosis. The treatments that exhibited the most severe visual symptoms, treatments of Envoke™ tankmixed with Touchdown IQ or with Envoke™ at 0.216oz / A showed much more persistent injury and a reduction in dry weight accumulation at both 7 and 14 days after treatment (DAT). The net assimilation of carbon dioxide was measured with a Li-Cor 6400 portable photosynthetic meter. 1st, 3rd and 6th leaf application timings were compared in a greenhouse study. The 1st leaf application timing resulted in the most severe chlorosis, stunting and occasional necrosis. The 6th leaf application timing had the most rapid recovery period of the treatments. None of the treatments at any application time resulted in any impact on the timing of reproductive maturity. Net photosynthetic rate corresponded well with the visual injury ratings observed in the greenhouse.