INTERACTION BETWEEN SEQUENTIAL APPLICATIONS OF DICAMBA AND GLUFOSINATE

G.L. Priess
J.K. Norsworthy
L.T. Barber
M.C. Castner
University of Arkansas
Fayetteville, AR

Abstract

The commercial launch of Xtend crops enabled the use of dicamba and glufosinate over-the-top of XtendFlex cotton and Xtend soybean; however, label requirements do not allow for a mixture of dicamba and glufosinate. Therefore, should the contact (glufosinate) or systemic (dicamba) herbicide be applied first for sequential applications? A greenhouse experiment was conducted in Fayetteville, AR to evaluate groundcover of Palmer amaranth following the use of dicamba alone and dicamba in combination with glufosinate. The experiment was constructed as a randomized compete block design with three replications. Palmer amaranth was planted at a density of 50 plants per tray. Applications of Xtendimax at 22 oz/A and Xtendimax at 22 oz/A + Liberty at 32 oz/A were we made using a spray chamber that delivered 20 gallons per acre through flat fan nozzles. A cannon sx610HS was made stationary at the same height and black backdrop was placed under the area used for the photography. Photos of the flats were made periodically after the application. The images were analyzed in Turf analyzer a software program that produced the proportion of green pixels of each image, thus giving an accurate representation of percent groundcover. Data was regressed and a biexponential growth curve was fit. Inverse prediction and standard errors of mean were used to determine reduction in percent ground cover. Dicamba alone reduced groundcover of Palmer amaranth 36, 55, 65% after a time interval of 60, 120, 1000 minutes, respectively. The combination of dicamba + glufosinate reduced groundcover 36, 48, and 70% at the same time intervals. The reduction in groundcover of Palmer amaranth following an application of dicamba may result in a decreased rate of sequentially applied herbicides.