WEED MANAGEMENT SYSTEMS IN AUXIN TOLERANT COTTON

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Abstract

Palmer amaranth (*Amaranthus palmeri* S. Wats) is a native species to the southern United States. Glyphosate-resistant Palmer amaranth was first found in Georgia in 2005 and has rapidly spread across the entire cotton (*Gossypium hirsutum*) growing region. Two recently released herbicide resistant traits in cotton (XtendFlex™ and Enlist™) provide producers additional options to control troublesome weeds including glyphosate-resistant Palmer amaranth. Prior to the release of these traits, group O herbicides could not be applied during the cotton growing season and several counties in Texas have calendar application restrictions. To minimize the development of herbicide resistance, it will be critical to utilize weed management strategies that include multiple herbicide modes of action as well as mechanical weed control where feasible. The objective of this research was to evaluate season-long weed control in XtendFlex™ and Enlist™ cotton using several different weed management systems that include the use of dicamba in XtendFlex™ cotton and 2,4-D choline in Enlist™ cotton. A field study was established in a randomized complete block design in Lubbock, Texas using a number of weed management inputs at different application timings. All treatments included bed listing followed by rod weeding to ensure a clean start prior to the initiation of the trial. Weed management treatments included one or more of the following; trifluralin at 1.0 lb ai/a applied preplant; prometryn at 1.2 lb ai/a applied preemergence; S-metolachlor at 1.2 lb ai/a, dicamba at 0.5 lb ae/a or 2,4-D choline at 0.95 lb ae/a tank mixed glyphosate at 1.0 lb ae/a applied early and mid-postemergence; and interrow cultivation. In the XtendFlex™ cotton systems, differences in Palmer amaranth control ranged from 79% following the base treatment of two POST applications of dicamba and glyphosate to 100% when four additional weed management inputs were used during the growing season. Palmer amaranth was controlled e 86% following two weed management inputs plus the base treatment of two POST applications of dicamba and glyphosate. In the Enlist™ system, Palmer amaranth control ranged from 69% in the base two POST applications of 2,4-D and glyphosate program to 98% following four additional weed management inputs. Palmer amaranth was controlled e 76% following two weed management inputs plus the base treatment of two POST applications of 2,4-D choline plus glyphosate.