DICAMBA AND 2,4-D WEED MANAGEMENT SYSTEMS IN WEST TEXAS K.R. Russell P.A. Dotray J.W. Keeling Texas A&M AgriLife Research Lubbock, TX

Abstract

Herbicide resistant weeds are a problem that likely every cotton (Gossypium hirsutum) producer encounters in West Texas. Heavy reliance of a single herbicide mode of action to control troublesome weeds in previous years has led to the development of glyphosate-resistant Palmer amaranth (Amaranthus palmeri S. Wats). XtendFlex[™] and EnlistTM are two recently released herbicide resistant traits in cotton that will provide producers additional options to control troublesome weeds including Palmer amaranth. Prior to the release of these traits, group O herbicides could not be applied during the cotton growing season and some counties have calendar restrictions. To minimize the impact of the development of herbicide resistance to these new products, it will be critical to utilize weed management strategies that include multiple herbicide modes of action as well including mechanical control in conventional tillage systems. The objective of this research was to evaluate season-long weed control in XtendFlexTM and EnlistTM cotton using several different management systems that include the use of XtendiMaxTM with VaporGripTM Technology (dicamba) in XtendFlexTM cotton and Enlist DuoTM (2,4-D choline and glyphosate) in EnlistTM cotton. A 2 by 2 by 2 by 2 factorial study was established in a randomized complete block design in Lubbock, Texas using a variety of herbicides at different application timings to best manage Palmer amaranth. All treatments include bed listing followed by rod weeding to ensure no weeds were emerged prior to the initiation of the trial. Weed management treatments included one or more of the following: trifluralin 4 E.C. at 32 fl oz./A applied preplant; Caparol 4L at 38 fl oz./A applied preemergence; Dual Magnum at 21 fl oz./A, Engenia at 12.8 fl oz./A plus Roundup PowerMax at 28 fl oz./A and Enlist Duo at 76 fl oz./A applied early and mid-postemergence; and interrow cultivation. The greatest end-of-season control of Palmer amaranth was observed from systems that included the base postemergence applications plus at least one additional weed management input. Differences in Palmer amaranth control varied from 91 to 92% when just the base postemergence applications were utilized to 99% when systems included one to five additional weed management strategies.