WEED MANAGEMENT IN OKLAHOMA COTTON

T.A. Baughman
R. W. Peterson
Oklahoma State University - Institute for Agricultural Biosciences
Ardmore, OK
R. K. Boman
J. R. Goodson
Oklahoma State University – Southwest Research and Extension Center
Altus, OK
D.L. Teeter
Oklahoma State University - Institute for Agricultural Biosciences
Ardmore, OK

Abstract

Research was conducted during the 2016 growing season at the Oklahoma State University Southwest Research and Extension Center near Altus, OK and the Tipton Valley Research Center near Tipton, OK to evaluate new cotton weed management technologies. The technologies include the Bollgard II XtendFlex cotton system in which both XtendiMax herbicide with VaporGrip technology and Engenia were evaluated, and the Enlist cotton system in which Enlist Duo was evaluated. Palmer amaranth and tumble pigweed late season control was at least 99% with XtendiMax, Engenia, and Enlist Duo postemergence programs. Red sprangletop control was 100% late season with Enlist Duo and when XtendiMax followed Treflan. This research indicated that successful control of problematic weeds in Oklahoma cotton could be achieved with each of these technologies.

Introduction

Weed management in cotton is often difficult due the typically slow growth rate and wide row spacing. This combined with the increasing spread of weed resistance has made new weed management technology development even more valuable. Two new weed management systems were evaluated in Oklahoma cotton. The first technology evaluated was the Bollgard II XtendFlex Cotton system. This technology is tolerant to dicamba, glyphosate, and glufosinate herbicides. Both the XtendiMax (diglycolamine salt of dicamba) with VaporGrip technology, Roundup Xtend (diglycolamine salt of dicamba + glyphosate) with VaporGrip technology, and Engenia (BAPMA salt of dicamba) formulations were evaluated within this system. The other technology evaluated was the Enlist Cotton system. This technology is tolerant to 2,4-D, glyphosate, and glufosinate herbicides. Enlist Duo (premix of the choline salt of 2,4-D and glyphosate) with the Colex-D technology was evaluated in this system. The objectives of these studies were to evaluate the performance of these technologies for weed management in Oklahoma cotton.

Materials and Methods

Cotton was planted June 9, 2016, at the Oklahoma State University Research Stations near Altus and Tipton. “Deltapine 1522B2XF” was planted in the XtendFlex trial and “Phytogen PX5005W3FE” was planted in the Enlist trial at Altus. “NexGen 3406B2XF” was planted in the Engenia trial at Tipton. Typical small plot research methods and normal farming techniques were used to conduct all trials. Treflan was applied at 1 qt/A to individual plots in late March and incorporated with a prepmaster bed condition followed by a rolling cultivator at Altus and Tipton (entire trial area). Gramoxone at 1 pt/A + Caparol at 1 qt/A was applied PRE to individual plots in the Xtend Cotton trial at Altus. Cotoran at 1 qt/A was applied PRE to all plots in the Enlist Cotton trial at Altus. Postemergence combination in the XtendiMax trial at Altus include Liberty (29 fl oz/A) + Warrant (1.5 qt/A) followed by Liberty (43 fl oz/A) and XtendiMax (2 qt/A) + Warrant (1.5 qt/A) followed by Roundup Xtend (2 qt/A). At Tipton, each of the Engenia early POST treatments were applied with Outlook at 12 fl oz/A and all POST treatments were applied with Agridex Crop Oil Concentrate at 1% v/v. Treatments in all trials were visually evaluated for stand reduction, cotton injury, and weed control during the growing season.

Results and Discussion

Cotton injury was 6% or less with all treatments and was transient in nature in the XtendFlex trial. Palmer amaranth control at Altus was less than 85% and red sprangletop control was less than 40% with Caparol prior to any

postemergence herbicide application. Treflan provide 99% red sprangletop control 2 weeks after planting. Late season Palmer amaranth control was less than 60% with Liberty + Warrant followed by Liberty. Palmer amaranth control was at least 99% regardless of PRE program when XtendiMax + Warrant followed by XtendiMax + Roundup was applied POST. Red sprangletop control late season was at least 99% when Treflan was applied PPI regardless of the POST program. Control was only 51% when Caparol was applied PRE and followed by the Liberty POST program and 80% when followed by the XtendiMax program. Early season tumble pigweed control was greater than 90% with all Engenia POST treatments. Tumble pigweed control was 100% late season when Engenia was applied with either Roundup or Liberty. Enlist Duo applied alone or in combination POST1 with Dual Magnum controlled both Palmer amaranth and red sprangletop at least 98% season long. This research indicates that when used in a program approach, each of these new technologies can provide excellent season long control of Palmer amaranth, red sprangletop, and tumble pigweed.

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