PREEMERGENCE AND POSTEMERGENCE HERBICIDE COMBINATIONS IN BOLLGARD II® XTENDFLEX® COTTON

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Abstract

Bollgard II® XtendFlex® cotton is an innovative technology with tolerance to dicamba, glyphosate and glufosinate. Combining three different modes of action could improve control of glyphosate resistant Palmer amaranth (*Amaranthus palmeri* S. Wats), and other troublesome weeds including morningglory (*Ipomoea* spp.), Russian-thistle (*Salsola tragus* L.), kochia (*Kochia scoparia* L.), field bindweed (*Convolvulus arvensis* L.), woollyleaf bursage (*Ambrosia grayi* A. Nels.), and Texas blueweed (*Helianthus ciliaris* DC.) compared to glyphosate applied alone. In 2015 studies were conducted on the Texas High Plains at two locations to evaluate Palmer amaranth and Texas millet (*Urochloa texana* Buckl.) control following preemergence and postemergence applications of a dicamba formulation alone (MON 119096) and a dicamba/glyphosate premix (MON 76832). Preemergence and postemergence residual herbicides also were compared.

The objectives of this study were to evaluate Palmer amaranth and Texas millet control with MON 76832 and MON 119096 applied preemergence or postemergence in combination with residual herbicides in Bollgard II® XtendFlex® cotton.

Field trials conducted near Lubbock and New Deal, TX in 2015 compared application timings and tank-mix combinations of MON 76832 and MON 119096. Preemergence treatments included Caparol 4L (32oz/A) + MON 119096 (22oz/A) and MON 119096 + Warrant (48oz). Early-postemergence treatments included MON 76832 (64oz/A) + Warrant, MON 76832 fb MON 76832, MON 76832 fb Liberty 280 SL (29oz/A), and MON 119096 + Warrant. Mid-postemergence treatments included MON 76832, Warrant, and Liberty 280 SL. Treatments were applied using a CO_2-pressurized backpack sprayer calibrated to deliver 15 gallons per acre. Weed control was estimated visually and recorded at each location.

Season-long control (100%) was achieved with a PRE application followed by sequential MON 76832 treatments tank-mixed with Warrant at one of the POST application timings. Palmer amaranth control was 98-100% when PRE application were followed by sequential MON 76832 treatments. Preemergence applications followed by MON 76832 EPOST fb Liberty 280 SL MPOST provided Palmer amaranth control ranging from 88-89%. The addition of Warrant improved Palmer amaranth control to 93-99%. Texas millet control ranged from 96-100% with all treatments; however, control was less than 80% when MON 119096 was applied POST, indicating the need for glyphosate to be included in the system.