

**MANAGING PALMAR AMARANTH WITH XTENDIMAX® AND LIBERTY® WITH AND WITHOUT
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Dicamba tolerant cotton systems were introduced in 2016 and provide a new opportunity to manage glyphosate resistant populations of Palmer amaranth. The use of glufosinate (Liberty® 280 SL) plus a residual herbicide applied postemergence in a dicamba system may not only improve the management of glyphosate-resistant Palmer amaranth, but also be effective against rapid development of herbicide resistance to new modes of action. A field study was conducted in Lubbock, Texas in 2018 in a non-crop environment that contained a dense population of Palmer amaranth to determine the influence of sequential order when applying XtendiMax® with VaporGrip Technology® and Liberty® 280 SL on Palmer amaranth when initiated at three different weed sizes. Additionally, this study examined the benefit of adding Warrant (acetochlor) in tank mixture in one of the sequential postemergence applications. When evaluated 7 days after initial application, treatments containing Liberty averaged greater control than treatments containing XtendiMax across all weed sizes. However, when evaluated 21 days after the sequential application, less than 4-inch Palmer amaranth treated with XtendiMax followed by (fb) XtendiMax and XtendiMax fb Liberty controlled Palmer amaranth at 92-93%, which was greater than the control provided by Liberty fb XtendiMax and Liberty fb Liberty (86-88%). Palmer amaranth 4-8 inches in size were controlled 74% when treated with Liberty fb XtendiMax when evaluated 21 days after the sequential application, which was greater than XtendiMax fb Liberty (69%). No treatment controlled Palmer amaranth more than 55% when applied to Palmer amaranth over 12 inches in size. Warrant improved weed control when added to several tank mixes, such as Liberty + Warrant fb Liberty (91%) compared to Liberty fb Liberty (86%) for less than 4 inch weeds when evaluated 21 days after the sequential application.