ENLIST™ WEED MANAGEMENT SYSTEMS: TEXAS HIGH PLAINS COTTON

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Abstract

Russian thistle (*Salsola iberica*) and Palmer amaranth (*Amaranthus palmeri*) are troublesome weeds in Texas High Plains cotton. Russian thistle emerges before planting and can be difficult to control with burndown treatments such as glyphosate. Palmer amaranth can be controlled with glyphosate but resistant escapes are a concern. Enlist technology utilizes crop tolerance to a new innovative 2,4-D Choline formulation + glyphosate to manage difficult to control weeds including Russian thistle and Palmer amaranth.

Field studies were conducted in 2012 near Lubbock and Halfway, TX to evaluate preplant burndown control of Russian thistle and in-season control of Palmer amaranth with 2,4-D Choline and Enlist Duo in Enlist Cotton. The objective of these studies was to 1) evaluate 2,4-D Choline alone, glyphosate alone, and 2,4-D Choline + glyphosate (Enlist Duo) for preplant burndown (PPBD) control of glyphosate-susceptible Russian thistle and 2) evaluate Enlist Duo alone and in combination with glufosinate and several soil-residual herbicides for postemergence control of glyphosate-susceptible Palmer amaranth in Enlist Cotton.

Preplant burndown treatments included Enlist Duo, Enlist Duo + glufosinate, 2,4-D Choline + glufosinate, glyphosate, 2,4-D Cholone, and glufosinate. All PPBD treatments were applied to 2 to 4 inch Russian thistle. Palmer amaranth plots all received a preemergence application of Cotoran. Postemergence treatments included glyphosate followed by (fb) glyphosate, Enlist Duo (1.46 lbs ae/A) fb Enlist Duo (1.46 lbs ae/A), Enlist Duo (1.96 lbs ae/A) fb Enlist Duo (1.96 lbs ae/A), Enlist Duo + glufosinate fb Enlist Duo, Enlist Duo + glufosinate fb glufosinate, Enlist Duo + glufosinate fb Enlist Duo + glufosinate, glufosinate fb glufosinate, Enlist Duo + Dual II Magnum fb Enlist Duo + glufosinate, Enlist Duo + Warrant fb Enlist Duo + glufosinate, Enlist Duo + Staple fb Enlist Duo + glufosinate, Enlist Duo + Warrant fb Enlist Duo + glufosinate, and 2,4-D Choline + glufosinate fb 2,4-D Choline + glufosinate. Postemergence treatments were applied to 2 to 4 inch Palmer amaranth. Treatments were made using a CO_2-presurized backpack sprayer calibrated to deliver 15 gallons per acre. Plots, 4 rows by 30 feet in length, were replicated four times. Weed control was visually estimated based on a standard scale of 0 to 100% where 0 = no weed control and 100 = complete weed control and verified by weed counts.

Enlist Duo (93-95%) improved Russian thistle control compared to glyphosate or 2,4-D Choline alone (68-79%). Enlist Duo alone (95%) controlled Russian thistle as well as Enlist Duo + glufosinate or 2,4-D Choline + glufosinate (91-93%). At Lubbock, similar Palmer amaranth control was achieved 14 and 28 days after treatment (DAT) with glyphosate, Enlist Duo, or Enlist Duo + glufosinate applied EPOST (93-99%). At Halfway, Enlist Duo control EPOST was improved with the addition of a soil-residual herbicide (83-94%) compared to Enlist Duo alone (68%). Enlist Duo followed by Enlist duo mid-postemergence achieved>94% Palmer amaranth control at both locations.