

**COMPARISON OF LENGTH OF RESIDUAL PALMER AMARANTH (*AMARANTHUS PALMERI*)
CONTROL AMONG HERBICIDES**

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Abstract

Since the release of glyphosate-resistant cotton, weed management programs have shifted from the extensive use of residual herbicides to multiple applications of glyphosate throughout the growing season. The extensive use of glyphosate and less reliance on residual herbicides has led to widespread glyphosate resistance in several weed species, one of which is Palmer amaranth. Palmer amaranth is the most troublesome weed of cotton in many areas throughout the Southern US, partially as a result of its resistance to glyphosate. In fields in which glyphosate-resistant Palmer amaranth exists, growers have had to revert back to the use of residual herbicides in order to produce a harvestable crop. An experiment was conducted in Marianna, Arkansas, in 2010 to evaluate differences in length of control of glyphosate-resistant Palmer amaranth among residual herbicides currently labeled for use in cotton. The experiment was set up as a randomized complete block design with four replications. The following herbicides were applied at 15 gal/acre to a silt loam soil immediately after bedding: Direx at 1.5 pt/acre (diuron), Cotoran at 1 qt/acre (fluometuron), Caparol 2.8 pt/acre (prometryn), Prowl H20 at 2.1 pt/acre (pendimethalin), Dual Magnum at 1 pt/acre (*S*-metolachlor), Suprend at 1.5 lb/acre (fluometuron), Reflex 1 pt/acre (fomesafen), Valor 2 oz/acre (flumioxazin), Staple LX at 1.7 fl oz/acre (pyrithiobac), Envoke at 0.15 oz/acre (trifloxysulfuron), and Direx at 1.5 pt/A + Staple LX at 1.7 fl oz/A. Palmer amaranth control at 2 weeks after treatment was <30% with Envoke, Staple LX, and Prowl H20, whereas Valor, Reflex, Direx, and Caparol provided >90% control. Palmer amaranth control decreased over time, and by 5 weeks after treatment, only Reflex and Valor provided more than 90% control. Reflex and Valor have a similar site of action, and additional residual herbicides having activity on Palmer amaranth and tolerance to cotton are needed.