

**PALMER AMARANTH AND BARNYARDGRASS CONTROL AS INFLUENCED BY WEED SIZE,
GLUFOSINATE RATE, VOLUME, AND SPRAY TIP**

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Abstract

Palmer amaranth (*Amaranthus palmeri*) and barnyardgrass (*Echinochloa crus-galli*) are known to be two of the most common and troubling weeds in Arkansas cotton production. Liberty Link[®] cotton was introduced in 2004 and grown on 1.9% of total cotton acreage. In 2010 39% of total U.S. cotton acreage was established in Liberty Link[®] cotton.

In 2010 a trial was established at Rohwer, AR in a Hebert silt loam soil. The trial was arranged in a randomized complete block design with a factorial treatment arrangement of three factors (glufosinate rate, volume, and spray tip) and four replications. Glufosinate was applied at two rates 19 and 29 oz/A and four volumes 6, 8, 10, and 12 GPA. Tips used were Green Leaf Air Mix, Green Leaf AI XR, Tee Jet XR Flat Fan, and Tee Jet AI XR. Palmer amaranth and barnyardgrass control was recorded on a 0-100 scale with 0 being no control and 100 being complete control. Weed sizes evaluated were 12" and 18" Palmer amaranth and 12" barnyardgrass.

Twenty eight days after application Green Leaf Air Mix provided 66% control of 18" Palmer amaranth which was statistically lower than all other tips. Tee Jet AI XR provided lower control (96 and 87%) of 12" Palmer and barnyardgrass respectively. Lower control was noted with 19 and 29 oz/A rates of glufosinate at 6 GPA. At 6 GPA Tee Jet AI XR provided less weed control than all other tips. Weed control at 8, 10, and 12 GPA among tips and herbicide rates was equal. Treatments applied at 12 GPA provided the highest percent weed control.