

**JOHNSONGRASS RESISTANCE TO GLYPHOSATE AND ARYLOXYPHENOXYPROPIONATE
HERBICIDES: IMPLICATIONS FOR MANAGEMENT IN COTTON**

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Abstract

Johnsongrass escapes and infestations have been a growing issue for cotton producers across the mid-South in recent years. This could be due to reliance on specific herbicides such as glyphosate and acetyl CoA carboxylase-inhibitors. To determine if johnsongrass from cotton-producing states is resistant to aryloxyphenoxypropionate herbicides and glyphosate, a greenhouse study was conducted in Fayetteville, AR in 2020 and 2021. Johnsongrass seeds were collected from a total of 70 different locations within 2 states, Arkansas and Oklahoma. These accessions were then seeded in the greenhouse and treated with fluazifop at 0.9 lb ai/acre, quizalofop at 0.04 lb ai/acre, and glyphosate at 0.77 lb ae/acre. The goal was to determine if johnsongrass populations resistant to any of these three herbicides were present throughout cotton-producing areas in these states. Overall, all herbicides resulted in 100% control of some johnsongrass accessions, but quizalofop was the only herbicide that controlled all accessions 100%. There were some plants that escaped fluazifop, but all accessions were controlled greater than 90% outside of 1 accession from Crittenden County, Arkansas. Glyphosate resulted in variable control across accessions ranging from 10% to 100%. Overall, the accessions from Oklahoma were controlled 100% by all herbicides tested while Arkansas showed much higher levels of variable control and more potential for resistance.