

WEED AND COTTON RESPONSE TO TOPICAL APPLICATIONS OF LIBERTY PLUS ROUNDUP

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Abstract

Liberty-based programs were adopted on nearly half of the Georgia cotton crop during 2012. Greater use of these programs has led to more grass escapes, especially goosegrass. A study was conducted to determine if mixtures of Liberty plus Roundup could provide control of both glyphosate-resistant Palmer amaranth and goosegrass. The experiment was conducted in Moultrie, GA and included 9 herbicide treatments with each treatment applied sequentially having an 18 day interval between applications. Herbicide treatment options included Liberty at 32 or 43 oz/A, Roundup WMax at 32 oz/A, and mixtures of Liberty (32 or 43 oz/A) plus Roundup WMax at 22, 32, or 44 oz/A. A non-treated control was included and weed control from 15 to 18 days after the sequential application as well as cotton injury is reported. The study was conducted at two locations with the first location having Palmer amaranth 4- to 6-inches and goosegrass 2- to 4-inches tall while at the second location Palmer amaranth was 6- to 8-inches and goosegrass was 3- to 5-inches tall.

Palmer amaranth was controlled 10 to 30% by Roundup. Liberty was more effective than Roundup controlling Palmer amaranth 61 to 74% with Liberty at 32 oz/A and controlling Palmer 84 to 93% with Liberty at 44 oz/A, smaller plants were controlled more effectively. Mixing Roundup with Liberty did not negatively impact control by Liberty and control was improved (8-12%) when Roundup at 32 to 44 oz was mixed with Liberty at 32 oz/A.

Goosegrass was completely controlled by Roundup WMax. Control with Liberty at 32 oz/A ranged from 7 to 45% while Liberty at 44 oz/A provided 26 to 74% control. At the first location, mixing Liberty with Roundup reduced control (10-11% less control) compared to Roundup alone but improved control compared to Liberty alone with 69 to 90% control noted. At the second location, Roundup provided complete control once again. Mixtures of Liberty (either rate) plus Roundup at 32 or 44 oz/a provided control similar to Roundup alone with control ranging from 94 to 97%; less control was noted with the tank mixture when Roundup at 22 oz/A was mixed with Liberty (80% control).

Maximum cotton injury was 0, 5, and 9% with Roundup WMax, Liberty 32 oz/A, and Liberty 44 oz/A systems, respectfully. Tank mixtures caused more injury than either herbicide applied one with at most 12 to 16% injury detected. These maximum levels of injury were noted at 5 d after treatment with less than 6% injury noted with all treatments by 10 d after treatment.