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Peanut Response to Liberty®

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Introduction

Liberty® (glufosinate-ammonium) has become a popular postemergence herbicide in Georgia due to its ability to control herbicide-resistant Palmer amaranth when applied in a timely manner. Numerous field crops grown in Georgia, particularly cotton, soybean and field corn, have been genetically engineered for resistance to Liberty®. In 2012, nearly 51 percent of the cotton acres in Georgia were planted using cultivars that could be treated with Liberty®. The popularity of these Liberty®-resistant cultivars (e.g., Liberty-Link® and WideStrike®) has led to an increased potential for off-target movement and sprayer contamination of Liberty® to sensitive crops such as peanut (Figures 1-2).

Liberty/Peanut Symptomology

When evaluating peanut fields for potential herbicide injury, it is important to first rule out other potential causes such as drought, low soil pH, nutrient deficiency, nematodes and plant diseases. These types of problems often mimic herbicide injury symptoms. Examples of Liberty® injury symptoms on peanut plants are presented in Figures 3-6.

Figure 1. Peanut production field in Pulaski County, Ga., accidently treated with Liberty®.

Figure 3. Peanut injury caused by Liberty®.

Figure 5. Peanut injury caused by Liberty®.

Figure 2. Peanut research plot treated with Liberty®.

Figure 4. Peanut injury caused by Liberty®.

Figure 6. Peanut injury caused by Liberty®.

Liberty/Peanut Yield Loss

Research results on the effects of Liberty® on peanut yield loss in North Carolina and Georgia are presented in Tables 1 and 2.

Table 1. Estimated yield loss of Virginia market-type peanut (cv. Gregory) caused by Liberty® applied at 21 days after peanut emergence in North Carolina[a].

Liberty® Rate (oz/A)[b]	Peanut Yield Loss (%)
0.8	2
1.6	0
3.3	3
6.6	15
13.1	50
26.3	70

[a]Adapted from Jordan et al. 2011.
[b]Liberty® 2.34SL herbicide available from Bayer CropScience, 2 T.W. Alexander Drive, P.O. Box 12014, Research Triangle Park, NC 27709. The typical use rate for Liberty® is 29-32 oz/A.

Table 2. Estimated yield loss of runner market-type peanut (cv. Georgia-06G) caused by Liberty® in Georgia.

Liberty® Rate (oz/A)[a]	Peanut Yield Loss (%)		
	Time of Application		
	30 DAP[b]	60 DAP	90 DAP
2	7	13	13
4	13	17	17
8	26	26	26
16	51	44	42
32	100	80	76

[a]Liberty® 2.34SL.
[b]DAP = days after planting.

Summary

Depending upon the rate and time of application, peanut plants can be very sensitive to Liberty®. Growers must be conscious of wind speed/direction and utilize drift reduction strategies when applying Liberty® near peanut fields. Additionally, Liberty® containers must be properly labeled and stored to minimize potential mixing errors that could result in sprayer contamination. Sprayers should be adequately cleaned of Liberty® residues, as recommended on the label, before utilization in peanut fields.

References

Jordan, D. L., Johnson, V. A., and Fisher, L. R. 2011. Peanut response to simulated drift rates of glufosinate. Crop Management doi:10.1094/CM-2011-0802-02-RS. Available online at http://www.plantmanagementnetwork. org/sub/cm/research/ 2011/drift/

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