

# Peanut Response to Glyphosate

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## Introduction

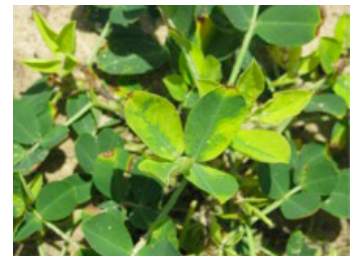
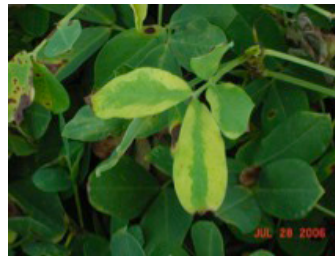
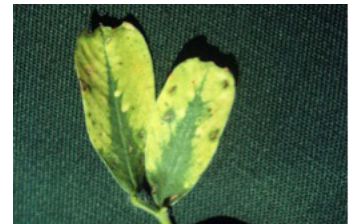
Since the introduction of glyphosate-resistant crops in 1996, glyphosate has become one of the most widely used herbicides in Georgia. Glyphosate is currently sold under many trade names, including Buccaneer®, Clearout®, Credit®, Durango™, Glyfos®, GlyStar® Plus, Honcho®, Mirage®, Rattler®, Roundup PowerMax® and Touchdown Total®. In the late 1980s, glyphosate (Quotamaker™) was registered for use in peanut as a growth regulator/yield enhancer. However, Quotamaker™ did not become popular at the farm level and this particular registration for glyphosate was discontinued.

Today, because of the abundance of glyphosate that is applied to adjacent crops and that accumulates around pesticide mixing locations, it has become common for peanut fields to be unintentionally treated with this herbicide. This usually occurs in the form of spray drift or sprayer contamination (Figure 1).

This publication provides county agents, peanut growers, crop consultants and agri-business personnel with information that can assist them in making appropriate management decisions after a suspected glyphosate drift or sprayer contamination problem has occurred.

## Glyphosate/Peanut Symptomology

When evaluating peanut fields for potential glyphosate drift/sprayer contamination problems, it is important to rule out other potential causes. Nutrient deficiencies and certain plant diseases can cause symptoms that often mimic herbicide injury. Examples of glyphosate injury symptoms on peanut plants are presented in the following pictures.



**Figure 1.** A Georgia peanut field unintentionally treated with glyphosate. (Photo: Ray Hicks, Screven County Extension Coordinator, 2007)

## Glyphosate/Peanut Yield Effects

Estimated peanut yield losses caused by glyphosate applications (based upon recent field trials conducted at North Carolina State University and the University of Georgia) are presented in Tables 1 and 2. From these data, it is apparent that smaller, immature peanut plants may be more sensitive to lower glyphosate use rates than older plants.

**Table 1.** Estimated average peanut yield loss caused by glyphosate applied at 28 days after planting.<sup>a</sup>

<b>Glyphosate Rate (oz/A) (4.0 lb ai/gal)</b>	<b>Glyphosate Rate (oz/A) (5.5 lb ai/gal)</b>	<b>Peanut Yield Loss (%)</b>
2.8	2.0	10
5.5	4.0	15
8.3	6.0	21
11.0	8.0	26
16.5	12.0	38
22.0	16.0	49
24.0	17.5	53
32.0	23.2	69

<sup>a</sup>Adapted from Lassiter et al., 2007.

**Table 2.** Estimated average peanut yield loss caused by glyphosate applied 75-105 days after planting.<sup>a</sup>

<b>Glyphosate Rate (oz/A) (4.0 lb ai/gal)</b>	<b>Glyphosate Rate (oz/A) (5.5 lb ai/gal)</b>	<b>Peanut Yield Loss (%)</b>
2.8	2.0	0
5.5	4.0	5
8.3	6.0	12
11.0	8.0	24
16.5	12.0	36
22.0	16.0	48
24.0	17.5	53
32.0	23.2	70

<sup>a</sup>Adapted from Grey and Prostko, 2010.

## Summary

Depending upon the rate and time of application, peanut plants can be very sensitive to glyphosate. Consequently, it is extremely important for growers to utilize drift reduction strategies when applying glyphosate near peanut fields. It is also critical that glyphosate containers be properly labeled and stored in order to minimize potential mixing errors that could result in undesirable sprayer contamination.

## References

Grey, T.L. and E.P. Prostko. 2010. Physiological effects of late season glyphosate applications on peanut (*Arachis hypogaea*) seed development and germination. *Peanut Science* 37:124-128.

Lassiter, B.R., I.C. Burke, W.E. Thomas, W.A. Pline-Srnic, D.L. Jordan, J.W. Wilcut, and G.G. Wilkerson. 2007. Yield and physiological response of peanut to glyphosate drift. *Weed Technology* 21:954-960.

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