

PEANUT RESPONSE TO DIURON

Eric P. Prostko, Chad C. Abbott, and Taylor M. Randell



INTRODUCTION

Diuron is frequently used for pre-plant burndown or preemergence weed control programs in cotton. Unfortunately, unintentional application and/or sprayer contamination events of diuron have occurred in Georgia peanut fields over the last few years (Figure 1). Limited research has been conducted on the effects of diuron on peanut. Therefore, the objective of this research was to determine the effects of diuron on peanut growth and yield when applied postemergence (POST).



Figure 1. Peanut leaf chlorosis from diuron spray-tank contamination, 13 DAT, 2018.



Figure 2. Peanut injury caused by Diuron 4L applied at 90 DAP, 12 DAT, 2020.

MATERIALS AND METHODS

Irrigated, small-plot field trials were conducted in 2019 and 2020 at the UGA Ponder Research Farm near Ty Ty, Georgia. Twin-row 'GA-06G' peanuts were planted on April 30, 2019 and May 4, 2020. Treatments were arranged in a randomized complete block design with a 3 (timing) X 4 (rate) factorial arrangement with 3-4 replications. POST timing dates were 30 days after planting (DAP), 60 DAP and 90 DAP. Diuron 4L rates were 0, 4, 8 and 16 oz/A. Treatments were applied with a CO₂-powered backpack sprayer calibrated to deliver 15 GPA (40 PSI, 3.5 mph, 11002AIXR nozzles). The plot areas were maintained weed-free using a combination of labeled herbicides and hand-weeding. Data collected included visual estimates of peanut leaf injury (chlorosis, necrosis), stunting, and yield. All data were subjected to ANOVA using PROC GLIMMIX and means separated using the Tukey-Kramer Method (P=0.10).

RESULTS AND DISCUSSION

1) Generally, POST applications of diuron caused various degrees of peanut injury in the form of leaf chlorosis/necrosis and overall plant stunting. These injury symptoms tended to increase with diuron rate. Peanut plants recovered from visual injury symptoms caused by earlier applications of diuron (Figures 1, 2, 3, and 4).

2) For peanut yield loss, there was a significant interaction between time of application and rate (Figure 5).

- Less yield loss occurred when diuron was applied at 30 DAP in comparison to 60 and 90 DAP. No differences in yield were observed between 60 and 90 DAP.

- When applied at 30 DAP, diuron, at any rate, did not significantly reduce peanut yields. Yield loss was ≤ 10%.

- When applied at 60 DAP, 4 oz/A caused a 24% yield loss, 8 oz/A caused a 28% yield loss, and 16 oz/A caused a 49% yield loss.

- When applied at 90 DAP, 4 oz/A caused a 25% yield loss, 8 oz/A caused a 38% yield loss, and 16 oz/A caused a 57% yield loss.

Figure 3. Peanut Leaf Chlorosis from Diuron 4L (100 DAP).

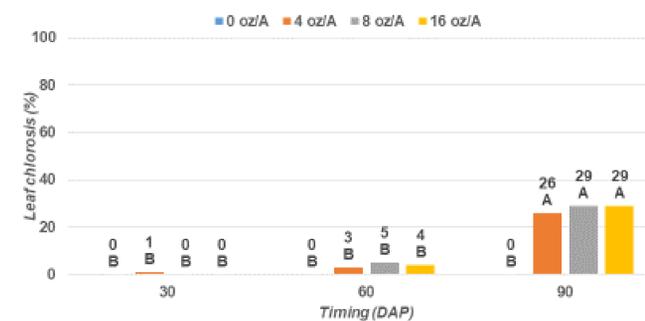


Figure 4. Peanut Leaf Necrosis from Diuron 4L (112-120 DAP).

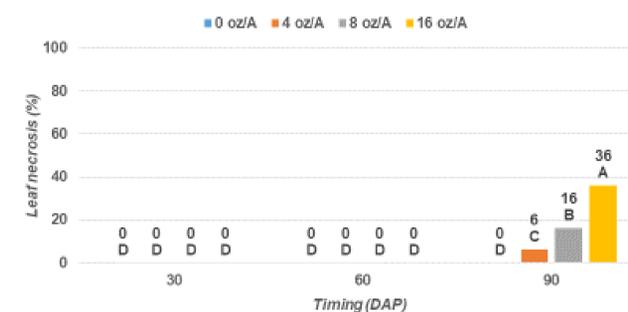


Figure 5. Peanut Yield Loss from Diuron 4L.

