Final Report for: Herbicide (Valor) injury assessment and recovery of peanuts under a variable rate irrigation pivot. By: Chance Warren, Wesley Porter, Eric Prostko

Objectives

To determine the utility of utilizing irrigation to aid peanuts ability to recover from early season exposure to valor herbicide at the labeled rate as well as both a double and triple rate.

Materials and Methods

This trial was implemented at UGA's Southwest REC in Attapulgus, GA. The trial consisted of 5 blocks consisting of four herbicide (Valor) treatments, which included a non-treated control, a normal rate (3 oz), double rate (6 oz), and a triple rate (9 oz). Each block had four randomized plots for per treatment. The valor treatments were applied at cracking/emergence, guaranteeing injury to the young plants. Additionally, each treatment block was repeated and blocked by an irrigation treatment for the first month after planting consisting of no irrigation (0 in), a quarter inch (0.25), a half inch (0.5), three quarter inch (0.75), and an inch (1) of irrigation. Weekly rainfall was documented and if the rainfall did not reach the targeted irrigation application, the difference in rainfall and treatment irrigation amount was applied. The applications were split into two weekly applications.

Biweekly damage assessments were conducted by both drone flights and in field observations with the latter evaluating injury on a scale of 1-10 with 1 indicating no injury and 10 being fully dead plants. Drone flights were conducted at an image resolution of 0.51 cm/pixel, and subsequent images were stitched together using Pix4D software. Stitched images were then processed using ArcGIS Pro to delineate treatments. With the purpose of both being to visually track the extent of damage along with the recovery of the crop over time.

Results

Results from this study indicate that statistically both the non-treated control and the plots treated with the normal rate of 3 oz yielded the same. While the 6 oz and 9 oz rates were significantly lower than the UT, they had no difference between each other and the 3 oz rate. However, the non-treated control was significantly different from both the 6 and 9 oz treatments. Future work will be conducted to compare and monitor subsequent injury and recovery of the peanut crop across another growing season.

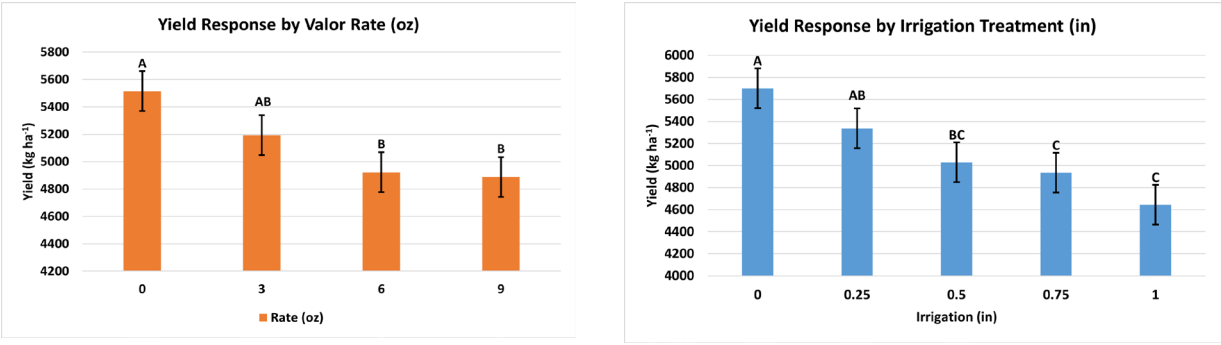

Figure 1. Depicts yield response based on herbicide treatment (Left) and yield response based on irrigation (Right)