

Determining Residual Length of Control for Soil-Applied Herbicides in Peanut

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Herbicide resistance development among weed species has impacted the sustainability and profitability for many cropping systems across the United States including peanut. In order to prevent herbicide resistance development, the use of preemergence (PRE) herbicides have been a foundational necessity for any program across the US. The utilization of PRE herbicides allows producers the option of more herbicide mechanisms of action (MOAs), reducing selection pressure on any one post-emergent chemistry. The use of herbicides producing long residual periods of control could lead to peanut production with decreased number of applications, mitigation of resistance development, and an overall reduced environmental impact. Therefore, studies were conducted in 2020 and 2021 at the R.R. Foil Plant Science Research Center in Starkville, MS, the Coastal Plain Branch Experiment Station in Newton, MS, and at a research field site in Tillar, AR to determine the length of residual control of common soil applied herbicides used in peanut production. Two treatments of herbicide combinations were also investigated to determine if the use of multiple MOAs in a single application resulted in greater duration of residual control. Visual weed control evaluations were taken weekly beginning 7 days after application and lasting until 50% weed control occurred for each treatment. Data were subjected to ANOVA using RStudio and means separated using Fisher's protected LSD ($\alpha=0.05$) where significance was observed. Regression analysis was also conducted with time as a factor to estimate week control exhibited by individual treatments following application. Data analysis of 2020 showed some differences among herbicide treatments with respect to residual duration, however 2021 data has not been collected at the time of writing this abstract.