

Investigation of Planter Parameters for Maximizing Peanut Emergence

S. VIRK, W. PORTER, S. MONFORT and C. PILON, Department of Crop and Soil Sciences, University of Georgia, Tifton, GA 31793; and S. HOLLIFIELD and P. SAPP, UGA County Extension Agents.

Correct selection of planter parameters based on existing field conditions can help in achieving optimum seeding performance during planting, which generally leads to uniform and maximized crop emergence. Multiple studies were conducted across the state of Georgia to evaluate the effect of critical planter parameters (seeding depth and planter downforce) on crop emergence in peanuts. The selected study sites in Central, Southeast and Southwest Georgia differed by soil type and prevalent field conditions. Two studies were conducted at University of Georgia's research stations located in Central and Southwest Georgia. These studies consisted of planting peanuts at three seeding depths (1.5", 2.5" and 3.5") and three planter downforce settings (100, 200 and 400 lbs.) with four randomized replications of each treatment within the fields. Two other studies were implemented as on-farm trials in growers' fields in Southeast and Southwest Georgia. For these trials, three soil EC zones within each field were delineated to run replicated downforce strips across the field. Test treatments consisted of one grower selected downforce and two other downforce treatments consisting of 50% and 150% of the grower selected value. Data collection for all these studies consisted of stand counts at one, two, and three weeks after planting (WAP) to evaluate the effect of depth and downforce treatments on crop emergence. Emergence data analysis indicated a strong depth-downforce interaction when planting peanuts. An early and uniform emergence was observed in the peanuts planted at 2.5" and 3.5" depth which is typically desired when aiming for higher crop yields. Results from on-farm studies suggested that planter downforce requirements could vary with changes in soil texture (soil EC) within the field. This indicated that growers should consider the in-field soil variability when selecting downforce settings for planting peanuts. On-farm studies have shown that fields with heavier soils (more clay content) require more downforce to achieve the desired seed depth compared to medium downforce requirements in fields with lighter soils (sandy or sandy loam soils). The results from these studies emphasize the importance of understanding and quantifying prevailing field conditions at planting, and the need to optimize planter settings (depth-downforce) based on field conditions to obtain a higher