

An Examination of Downforce Settings at Varied Planting Speeds in Peanut

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Planting speeds have traditionally faced a hard limit of about 5 miles per hour, which is the speed most drive-wheel planters have been designed for. Without advances in metering technology, relatively few options remain to increase the threshold for planting in peanut. One of these options is adjusting the downforce, as theoretically higher downforces would stabilize the planter row units. Trials took place at the UGA Lang-Rigdon Farm in Tifton, GA and the UGA South Eastern Research Center in Midville, GA in 2021. The Tifton trial consisted of a Low(3mph) and a High(6mph) speed, repeated at each downforce setting available on the Monosem NG 4 Plus planter used, from 0lbs to 400lbs in 100-pound increments for a total of 5 downforce settings. The Midville trial had an equal matrix of a Low(3mph), Medium(5mph), and High(7mph) speeds paired with Low(0lbs), Medium(200lbs), and High(400lbs) downforces using the same planter. Each Speed-Downforce setting had a single pass which was separated into 4 40-foot plots in both Tifton and Midville, and planting took place in freshly tilled Tift series loamy sand. Emergence counts took place regularly post-cracking in Tifton while Midville has a final average, and yields were collected at the end of the season. In both trials, higher speeds had heavy penalties to final emergence at higher speeds, with Tifton showing a difference of ~50 percentage points lower than the low speed. Higher downforces did have some buffering effect which boosted emergence but compared to the speed penalty it is considered mostly negligible. Final yields were somewhat closer between the lower and higher speeds, though this may be attributed to the good soil condition at planting and during the year which encouraged compensatory growth in the treatments with poor emergence.