

The Effect of Speed on Planter Performance for Furrow Depth and Seed Placement.
2021 crop season. R.S. Tubbs, W.M. Porter, S.S. Virk

Planting speed is an important consideration that is sometimes forgotten. The faster the seed plate spins, the less time there is for a seed to settle into place. Increasing seeding rate exacerbates the problem since the seed plate spins even faster. Inadvertently traveling too fast may cause the potential for a replant situation. This costs additional time and inputs compared to simply maintaining a slightly slower planting speed initially. An experiment was conducted in Tifton, GA to compare the effect of planting speed and amount of downforce applied at planting. Plant stands, seeding depth and seed placement were evaluated. Four speeds were tested. To assess planter/seed placement uniformity, downforce was also a variable. Speeds included 2.5, 3.9, 5.3, and 6.8 mph. Downforce was set at 100, 200, 300, or 400 psi, and all were represented with each of the speeds in factorial combination. The seeding rate was 6.0 seed/ft in single row pattern.

Plant stand was assessed at 10, 14, 17, and 21 days after planting and again at harvest. The stands were affected by speed for all sample dates. As speed increased, plant stand decreased. Yield was highly correlated with final plant stand. This is similar to previous research on the topic.

Yield was equal for planting speeds of 5.3 mph or less. However, yield declined when speed was increased to 6.8 mph. Although, plant stand decreased when speed increased from 3.9 to 5.3 mph. Therefore, planting at speeds in excess of 3.9 mph involves risk of sub-optimal plant stand and could cause additional problems such as increased risk of tomato spotted wilt. Data for seed placement (uniformity/distance between each seed placed in the furrow) and depth has not been fully analyzed at this time and will be included in the lead graduate student's (Hayden Godwin) M.S. Thesis and subsequent journal publication.

	Harvest Stand	Yield
<u>Speed (mph)^a</u>	Plants/ft	lb/ac
2.5	3.0 A	4627 A
3.9	2.6 A	4492 A
5.3	2.1 B	4155 A
6.8	1.4 C	3164 B

^a Averaged over all downforce treatments.