

## Timing of Termination for Supplemental Replanted Peanut to Maximize Yield and Grade.

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A common method of replanting a poor plant stand of peanut (*Arachis hypogaea* L.) is to plant a supplemental row parallel to the original row. When this occurs, there are plants at different stages of maturity growing in unison. This makes determination of optimum maturity difficult. The objectives of this study were to determine the plant population where peanut will benefit from replanting, the optimum timing for terminating growth to maximize yield and grade (total sound mature kernels or TSMK), and the effect of intra-row plant competition on fruit-set between the plants planted initially (larger and more mature) and the replanted plants (delayed and smaller in size). The experiments took place at the University of Georgia Lang-Rigdon Farm in 2014, 2016, and 2017. Peanut was initially planted in late April-early May each year and thinned by hand to plant populations of 13.1, 9.8, 6.6, and 3.3 plants/m of row. The 9.8, 6.6, and 3.3 plants/m populations were replicated three additional times and replanted with a supplemental seeding rate of 9.8, 13.1, or 16.4 seed/m for the respective populations to make final plant stands similar for all replant treatments. For each replant scenario, plant termination was made at three different timings that coincided with optimum maturity of the initial planted peanuts, the replanted peanuts, or averaged between those two dates. Averaged over all three years of data, with respect to plant population there was a positive linear correlation between plant stand and yield. Yield was greater at 13.1 (6506 kg/ha) and 9.8 (6297 kg/ha) plants/m than at 3.3 (5651 kg/ha) plants/m. Below the 6.6 plant/m point would be where a replant decision should be initiated. Stand was also inversely correlated with pod production per plant. Pod weight (g/plant) was not different for 13.1 and 9.8 plants/m populations, but increased by over 60% when stand was reduced to 6.6 plants/m and increased another 80% from 6.6 down to 3.3 plants/m. Even when replanting occurred, competition was evident. There were 22 to 42% more pods (g/plant) on the replanted plants adjacent to the original plant population of 3.3 plants/m when compared to the replanted plants that were next to the initial populations of 6.6 or 9.8 plants/m, respectively. When data was grouped over similar plant populations, overall yields were improved by replanting (6609 to 6627 kg/ha) compared to not replanting (5980 kg/ha). Yet there were no differences in yield among the three termination timings. However, there were increases in TSMK as termination timing progressed, with earliest termination having the lowest (73.2%), average termination in the middle (76.3%), and the latest termination having the greatest TSMK (77.5%). If supplemental replanting occurs, this data suggests the best recommendation is to delay termination by digging beyond the optimum maturity of the initially planted plants until closer to the maturity of the replanted plants to allow the late developing pods to gain maturity.