Effect of Plant Population and Replant Method on Peanut Production.


The University of Georgia Extension recommendation for optimum plant stand in peanut (Arachis hypogaea L.) is 13.1 plants m$^{-1}$, although previous work has shown that yield potential can be maintained at plant stands lower than optimum. The unpredictable and often extreme weather and the ubiquity of pathogens in the region often contribute to poor emergence and a resultant poor plant stand. When plant stand is adversely affected, a point is reached where replanting the field becomes economically viable. The objectives of this study were to i) determine the plant stand at which a peanut field fails to maintain yield and economic viability in single row pattern, and ii) determine the best method for replanting peanut when an adequate stand is not achieved. A field trial was established at the Southwest Georgia Research and Education Center in Plains, GA in 2011 to evaluate peanut production at six plant stands (3.3, 4.9, 6.6, 8.2, 9.8, and 11.5 plants m$^{-1}$) in combination with three replant regimes (no replant, destroy the original stand and replant at a full seeding rate, and add a reduced rate of seed to supplement the original stand) in a randomized complete block design. A plant stand of at least 8.2 plants m$^{-1}$ was required to maximize yield. There was a yield advantage for the supplemental treatment (6446 kg ha$^{-1}$) over the complete replant treatment (5455 kg ha$^{-1}$), meaning that it would be advantageous for a grower to add supplemental seed to an original stand below 8.2 plants m$^{-1}$ rather than chemically or mechanically destroying the original stand and replanting at a full seeding rate.