

## **Speed Breeding with Lumigrow LED Light Accelerates Peanut Growth.**

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The growing season of cultivated peanut (*Arachis hypogaea*) ranges from 80 days to 150 days and the high yielding cultivars adapted to the US need 120 to 150 days to mature. At most three generations can be advanced for the US cultivars under greenhouse conditions. Supplementation of light was shown to accelerate generation advancement in various crops, a method called speed breeding. We installed a Lumigrow LED lighting system with full spectrum light intensity (18hr light, 6hr dark) in the greenhouse. In order to test the effectiveness of the light supplementation on peanut growth, twelve peanut genotypes were selected and grown either with or without supplemental light following a randomized block design. Among the selected genotypes, six of them belong to ssp. *fastigiata* and the remaining six are ssp. *hypogaea*. Half of each subspecies demonstrated either early or late flowering patterns in a preliminary study. Overall, earlier flowering and higher flower numbers were documented for plants grown under supplemental light. The plant size and density of foliage were greater for plants under Lumigrow than the natural light condition. The effect of light supplementation on pod maturity, yield, and biomass production will be evaluated upon harvest.