

Growth Habit and Phenotypic Variation among Tifrunner, GT-C20, and Their F₁ Hybrids

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Tifrunner (*A. hypogaea* ssp. *hypogaea*) and GT-C20 (*A. hypogaea* ssp. *fastigiata*) have highly contrasting growth habits representing their botanical types. In order to study peanut genetic pathways regulating reproductive behavior and yield, the two genotypes and their F₁ hybrids from reciprocal crosses were planted in the field according to a randomized complete block design. Extensive phenotypic data were collected to quantify their growth habits and reproductive behavior. Compared to GT-C20, Tifrunner had larger canopy size, dry weight, total number of flowers, branch length, and yield, whereas the F₁ hybrids demonstrated hybrid vigor in all of these measured traits. As for the flower distribution, GT-C20 was the only genotype producing flowers on the mainstem confirming the recessive genetic inheritance of this trait. The F₁ hybrids had the largest pod size and, the pod size of GT-C20 was significantly larger than that of Tifrunner. RNA-seq analysis is underway to reveal the genetic controls underlying the contrasting growth habits among these materials.