

Screening of Wild *Arachis* Germplasm for Resistance to Aflatoxin Contamination and Foliar Fungal Pathogens

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Wild *Arachis* species provide the genetic diversity needed for peanut breeding and production under stressful environments including those with disease and pest pressure. Among the eighty wild species described in the genus, only taxa within section *Arachis* cross readily with cultivated peanut (*Arachis hypogaea* L.). In the present study, a total of 150 accessions of 21 species of section *Arachis* from the USDA *Arachis* germplasm collection (PGRCU, Griffin, GA) were evaluated in the field for resistance to early leaf spot (ELS) and late leaf spot (LLS). On average, 16% of accessions showed symptoms of ELS, LLS, or both. Patterns of genetic variation within and among species were resolved with more than four thousand high-confidence single nucleotide polymorphism markers distributed across the ten peanut chromosomes. In addition, a set of 20 accessions from a wider range of *Arachis* species was evaluated for resistance to aflatoxin accumulation. We adapted our testing method to wild peanut species and quantified the main four aflatoxins B₁, B₂, G₁, and G₂ for each seed using ultra-performance liquid chromatography. Levels of aflatoxins B₁ and B₂ varied from 0 to 14,000 ng·g⁻¹ and from 0 to 155 ng·g⁻¹ of aflatoxin B₁ and B₂, respectively. Further studies are in progress to develop and validate resistant germplasm.