

## **Identification of U.S. Germplasm Resistant to Peanut Smut.**

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Peanut smut, caused by *Thecaphora frezzii*, is an emerging threat to global peanut production. Found in 100% of Argentinian peanut growing regions, smut infestation can result in substantial yield reductions. Although peanut smut has not been reported outside of Brazil and Argentina, immediate proactive measures must be taken so that global peanut production will not be threatened. The first step in preventative breeding for resistance to peanut smut is to identify key sources of resistance. Therefore, the objective of this study was to identify sources of resistance to *T. frezzii* that can be used to incorporate smut resistance into cultivars optimized for key areas of U.S. peanut production. In this study, peanut genotypes, including accessions from the USDA Peanut Germplasm collection purified by single-seed descent and U.S. cultivars, were screened for resistance. Trials were planted in test plots where peanut smut is prevalent near General Deheza (Córdoba Province), Argentina, and arranged in an augmented grid design with three replicates. For screening purposes, entries were retained for future testing if they scored 10% or less disease incidence. Among the entries tested in the 2017-2020 growing seasons, potential new sources of peanut smut resistance were noted. Eight USDA peanut mini-core accessions were identified as near-immune, demonstrating 0% incidence for three years. Proven resistant sources are being used to incorporate this resistance into peanut cultivars suitable for production in all growing regions of the U.S.