



# Peanut NPGS Germplasm - Smut Resistance

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The production of peanut (*Arachis hypogaea*) is a multi-billion dollar global industry. One of the largest exporters of peanut, Argentina, faces devastating effects of the fungal pathogen peanut smut. Through a collaboration between Argentina and the United States, 208 peanut genotypes were screened for smut resistance in a multi-year study to aid the peanut industry in Argentina and prevent the effects of peanut smut from impacting U.S. and global production. This evaluation identified 8 resistant accession that can be used to protecting the future of peanut production.



Photo by Kelly Chamberlin

Smut resistant peanut accession.

## PROJECT GOALS

- ✓ Identify peanut accessions with resistance to peanut smut for future breeding

### Problems Addressed

Peanut smut, a soil-borne fungal disease present in every peanut production field in Argentina, causes yield reductions as high as 51%. This is a significant threat for Argentina, the largest exporter of peanut globally. Peanut smut is not yet present in the United States or other countries, but proactive measures are needed to protect the global peanut production industry that has a value of \$47 billion, with over \$1 billion attributed to the U.S. crop.

### Solutions Developed

208 diverse peanut genotypes representing erect, bunch, spreading, and prostrate growth habits, were selected for a three-year screening. The germplasm, principally derived from the USDA National Plant Germplasm System (NPGS) peanut collection in Griffin, Georgia, was bred by single seed descent and sent to Argentina where it could be evaluated in a field with pressure from this disease. Eight NPGS accessions were found to have no peanut smut occurrence. Resistance from this germplasm has the potential to be incorporated into improved peanut cultivars, proactively combating peanut smut.



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