



**USDA-ARS Western Regional Plant Introduction Station (WRPIS, W6) Pullman, WA
FY 2027-\$1,000,000**

Background: The USDA/ARS Western Regional Plant Introduction Station (WRPIS, W6), one of the oldest and largest NPGS genebank units, manages over 100,000 accessions and 5,200+ taxa of approximately 24 major primarily seed-propagated crops, including pulses and their subspecies and wild relatives, as one of their largest collections. In light of current challenges in agriculture due to unpredictable weather patterns and the necessity of creating healthier, nutrient-dense, and more affordable food for US consumers, the role of genebanks is more important than ever. Their plant germplasm has been the foundation of many pulse research and cultivar development. The plant germplasm collections are a primary source of novel traits/genes for many traits of interest, including abiotic and biotic resistance/tolerance, nutrients, and end-use quality. For example, pulse breeders at USDA_ARS Grain Legume Genetics and Physiology Research Unit have utilized pea wild relatives to introduce powdery mildew and Fusarium wilt resistance in the breeding program.

Current Status: W6 is currently facing challenges due to critical staffing vacancies and a lack of administrative support. There are significant backlogs, including accession backup at NLGRP, germination and viability testing, pathogen testing, pathogen clean-up, and accession regeneration. Moreover, there is an absence of established procedures for germination and viability testing as well as efficient regeneration of accessions. Additionally, there is no comprehensive program for genotypic characterization, and limited in situ conservation efforts are being made for certain species. Given the increasing volume and demands for these accessions, particularly pulses, the program urgently requires an additional \$1 million to maintain current activities and reduce critical backlogs for pulse crops and their relative species. This research unit has been actively pursuing funding from Pulse Crop Health Initiative, USA Pulses research programs and other sources. Their research includes novel genes and trait discovery from their pulse accessions, developing foundational high-throughput phenomics technologies for agronomic and nutrient traits, and engaging in pre-breeding efforts to improve cultivar development. Enhancing the base funding is essential to implement these outstanding research outcomes into the center's activities effectively and to maximize the utility of germplasm accessions and services.

Justification for Research: The research at W6 is crucial for managing the increased number of pulse accessions and reducing backlogs in various processes, such as accession back-up, germination/viability testing, pathogen testing, and accession regeneration. The research aims to develop efficient methods for these processes and participate in a comprehensive NPGS program for genotypic and phenotypic evaluation through high-throughput technologies. This will ensure the availability of high-quality germplasm with comprehensive passports, DNA sequences, and trait information for pulses and support the conservation of genetic diversity. This change will significantly benefit the pulse research and breeding community by allowing pulse breeders to select the best germplasm and create new cultivars that require fewer inputs, increase US farmers' profitability, and improve the health of the US consumers.

Research Objectives: Increasing the Genebank annual budget, cold room, greenhouse space, field space, and technical staff. These increases will expand W6's operational capacity to manage the increased number of accessions, reduce backlogs, research efficient methods for germination/viability testing and regeneration, and participate in comprehensive NPGS programs for genotypic and phenotypic evaluation.

Where Would It Fit? The research and operational expansions at W6 will enhance the management and conservation of genetic resources for pulses and other crops. The increased capacity will ensure the availability of high-quality germplasm for breeding and research purposes. The improvements will also contribute to the conservation of genetic diversity and the development of new crop varieties with desirable traits. To ensure continuous service and progress of the W6 programs, the USA Pulses is requesting an increase of \$1 million to the appropriation for USDA-ARS Western Regional Plant Introduction Station (WRPIS, W6) Pullman, WA, and beyond to complete the funding of this critical programs.