



## USDA-ARS CRIS Funding for Pulse Crop (Grain Legume) Genetics and Physiology (GLGP)

### Research Unit

Pullman, WA and Prosser, WA

FY 2027 - \$4,500,000

**Background:** The Pulse Crop (Grain Legume) Genetics and Physiology (GLGP) Research Unit located at Washington State University in Pullman, WA and Prosser, WA includes six research scientists-- two plant geneticists, two pathologists, and one soil microbiologist. Support staff for this unit includes seven technicians, one admin staff, and one maintenance staff. This unit was established in 1970 with additional scientists gained through industry support in 1998 and 2002. It was recently reorganized to include the three scientists housed at the Prosser facility. It is the sole ARS research lab devoted to pulse crops in the USA (i.e. dry peas, lentils, chickpeas, and dry beans). As an ARS facility, the GLGP research unit provides national leadership for the US breeding programs for pulses. We have witnessed significant growth in the pulse market along with increased production over the past several years. This growth presents both emerging challenges and opportunities that we must address urgently. There is a need for additional research to provide essential information and solutions, as well as for more efficient, cohesive cultivar development for U.S. growers. This is critically important for the U.S. industry to maintain this momentum and ensure competitiveness against other exporting countries, such as Canada and Australia. *This Research Unit should receive increased support. Additionally, it should be renamed as the Pulse Crops Genetic and Physiology (PCGP) Research Unit to indicate its leadership in Pulse Crops in the US.*

**Funding for the US pulse breeding program is significantly lower than that of the global competitors.** Canada invests over \$4 million in breeding programs alone each year, and Australia's national breeding program budgets over \$10 million per year. Even India, currently a major importer, invests more in pulse breeding programs than the US does. The recent reorganization of the research unit, which combined Prosser and Pullman, has increased the investment of the ARS breeding program to nearly \$2.5 million, including grower contributions, but it is still a significantly small program worldwide considering they breed for all major pulse crops with a national perspective. All scientists in this unit need increased funding, as pathology and soil microbiology work have become integral parts of the breeding pipeline, along with essential expertise in regenerative agriculture which pulse crops play a critical role.

**Growth of US Pulse Crops:** The planted acreage of dry peas, lentils, and chickpeas has rapidly expanded over the last ten years, rising from 500,000 total acres in 2000 to about 2.8 million acres, and exceeding 4 million acres when combined with dry beans 2025. When the PCGP Research Unit was established, there was one variety of dry peas and one variety of lentils in the US, while chickpeas were not supported. Presently, there are two classes of peas, six classes of lentils, two classes of chickpeas, and the unit is developing fall-seeded cultivars with winter hardness. Dry bean varieties and classes have also expanded across the USA. To keep up with the industry growth, the breeding program needs further expansion to fill pipelines for each pulse crop and class, increase seed production and testing capacity, and adopt new breeding strategies and tools to increase genetic gains. This will enable the ARS to deliver the industry desira. This expansion in needs and complexity of the crops continues to require increased investment by ARS, and it is critical to the success of the growing pulse industry in the US.

**Growers support the national breeding program.** USA Pulses, representing the check-off organizations from WA, ID, MT, ND, NE, SD and MN, provides grower funds directly to the USDA-ARS PCGP Research Unit each year. In direct response to increased needs, the investment from growers in research has increased from nearly \$250,000 in 2005 to over \$950,000 in 2018. Trade and FDA impacts severely decreased the program funding in 2019 and 2020 and drought in 2021 continued this trend. In addition to direct financial support, the USA Pulses National Research Committee, as well as variety release and licensing committees, provides strategic leadership and prioritizes research/breeding goals. The ARS Research Unit also has access to a state-of-the-art plot combine as a result of direct investment by the member organizations of the USA Pulses.

**Industry supports research investment from variety royalties.** Licenses on new varieties developed by the PCGP have been approved by the leadership of the industry, and the royalties provide additional research funding for the PCGP Research Unit up to \$200,000 per year. These royalties are being paid by growers choosing to support the PCGP variety development program directly. The industry is committed to supporting research with check-off funding and royalty funding generated by sales of these products and seed stocks developed by the PCGP Research Unit.

**Recent releases of Autumn Sown Varieties increase the need for well-funded programs.** The recent release of three fall-sown pulse varieties has provided valuable tools for farmers, contributing to soil health, integrated pest management (IPM) through improved crop rotation, and additional income from winter crops. It is essential to maintain a robust breeding pipeline with superior germplasm and utilize modern breeding tools and technologies to keep this momentum. As the acreage of pulse crops expands across the country, the industry is looking to the USDA-ARS for solutions to address high yields, root and foliar diseases, develop new varieties with enhanced nutritional and quality traits, and create varieties better adapted to drought and heat stress. Fall-sown varieties show promise as a potential solution to the challenges faced by pulse crops.

**The variety of uses increases breeding needs.** Increased utilization of pulses as ingredients such as pulse flours, protein, and starch is putting demands on the pulse breeders to create varieties with enhanced levels of protein and better pasting characteristics. The consumer is also demanding more sustainable features, such as low water use and a low carbon footprint. This demand requires varieties with better drought tolerance and improved nitrogen fixation. All of these new characteristics increase the need for resources for this research unit.

**Request for continued support of the Pulse Crop (Grain Legume) Genetics and Physiology (GLGP) Research Unit.** USA Pulses supports additional funding to support the PCGP Research Unit, particularly to support all scientists based in Pullman and Prosser, WA. Each of these scientists is underfunded by \$750,000. **We request that an additional \$4,500,000 per year be allocated to support the newly named Pulse Crops Genetics and Physiology Research Unit.** With growing acres and increasing expansion of pulse crops into new growing regions, USDA-ARS must increase its investment in research into genetics, physiology, and crop improvement of pulse crops.