

**USDA-ARS Autumn Sown Pulse Crop Plant Geneticist Position
Pullman, WA
FY 2027-\$700,000**

Background: Most commercial pulse crops (grain legumes) in the US are planted in the spring. Spring-sown legumes are vulnerable to yield loss due to planting delays in wet, cool springs and heat stress during flowering. To address this issue, breeders have begun developing autumn-sown grain legumes, which are cultivars of dry peas, lentils, or chickpeas selected for a tolerance to cold winter temperatures, enabling fall planting. These cultivars form rosettes in late fall and winter; then, in spring, they burst forth as temperatures warm. Current nurseries of autumn-sown legumes show 2.5 to 3.5 times the yields of conventional spring-sown varieties in the PNW. In addition to higher yields, seeding in the fall — when fields are more accessible — combined with earlier harvest dates, makes fall-seeded legumes much more attractive for growers.

Based on this preliminary research and the producers' need to boost the productivity of these pulse crops, the industry has proposed the creation of a pulse crop breeder focused on fall-seeded pulse crop breeding. The industry requested a USDA-ARS scientist based in Pullman at the Grain Legume Genetics and Physiology (GLGP) Research Unit.

Current status: In FY 2006, Congress approved the addition of an Autumn Sown (Winter) Pulse Crop (Grain Legume) Geneticist for the GLGP Research Unit at WSU in Pullman, WA. However, the funding was established at \$120,000 which does not fully support a research scientist. This additional funding request allows the GLGP Research Unit to focus a part of their breeding effort on the development of winter-hardy materials for further development. To properly focus the efforts of the breeding team, the Research Unit needs a fully funded autumn-sown pulse crop geneticist.

Proposal and Descriptions: The Autumn Sown Pulse Crop Plant Geneticist will be assigned to the USDA-ARS GLGP Research Unit in Pullman, WA. This geneticist would focus on developing breeding lines and varieties of dry peas, lentils, and chickpeas (pulses) adapted to winter weather conditions and suitable for planting in the fall. This position would complement work being done by researchers breeding spring-sown varieties of dry peas, lentils, and chickpeas.

Research Objectives: The Autumn Sown Pulse Crops (Grain Legume) Plant Geneticist would dedicate time to developing grain legume varieties for autumn-sown production primarily in the Pacific Northwest and Northern Plains, and some Central Plains growing regions of the US. Research objectives include:

- Develop high-yielding autumn-sown pulse varieties (dry peas, lentils, and chickpeas) for production systems.
- Adapt autumn-sown varieties through breeding to zero- and low-tillage production systems.
- Identify disease-resistant traits in adapted varieties of pulse crops (dry peas, lentils, and chickpeas) and incorporate them into new production lines.
- Work cooperatively with other USDA-ARS pulse crop plant geneticists and end-use researchers to develop autumn-sown varieties of pulses that are high in quality and suitable for domestic and export markets.

Where would it fit? Autumn-sown pulses have shown great promise in low-rainfall areas where water storage is critical. Including pulse crops in the farm rotation significantly alters farm activities. As farmers and agriculturalists search for crops to make North American farming systems more sustainable, autumn-sown pulses are one of the key solutions. Current cultivars show potential in eastern Montana, South Dakota, Colorado, Nebraska, Kansas, and central Washington state. Without a breeder focused on developing better winter hardiness and improved quality, the potential cannot be realized.

To ensure continuous progress with the autumn sown breeding program, **the USA Dry Pea & Lentil Council is requesting an increase of \$700,000 to the appropriation for the Grain Legume Genetics and Physiologic Research Unit at Pullman, WA for an Autumn Sown Pulse Crop (Grain Legume) Plant Geneticist and research program in FY 2027 and beyond to complete the funding of this important position.**