

**Opportunity Title:** USDA-ARS Processing Technologies to Produce High Quality Hawaiian 'Ulu Flour Fellowship  
**Opportunity Reference Code:** USDA-ARS-PW-2024-0237

**Organization** U.S. Department of Agriculture (USDA)

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**How to Apply** *To submit your application, scroll to the bottom of this opportunity and click **APPLY**.*

A complete application consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted.  
Click [here](#) for detailed information about acceptable transcripts.
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations
- A copy of an abstract or reprint of an article

All documents must be in English or include an official English translation.

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**Application Deadline** 10/25/2024 3:00:00 PM Eastern Time Zone

**Description** **\*Applications may be reviewed on a rolling-basis.**

**ARS Office/Lab and Location:** A postdoctoral research opportunity is available with the Tropical Crop and Commodity Protection Research Unit within the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS) located in Hilo, Hawaii.

The Agricultural Research Service (ARS) is the U.S. Department of Agriculture's chief scientific in-house research agency with a mission to find solutions to agricultural problems that affect Americans every day from field to table. ARS will deliver cutting-edge, scientific tools and innovative solutions for American farmers, producers, industry, and communities to support the nourishment and well-being of all people; sustain our nation's agroecosystems and natural resources; and ensure the economic competitiveness and excellence of our agriculture. The vision of the agency is to provide global leadership in agricultural discoveries through scientific excellence.

The mission of the Tropical Crop and Commodity Protection Research Unit in Hilo, Hawaii is to develop pre and postharvest technologies and management strategies for invasive pests, and to open and maintain market access and improved quality of tropical fruit, vegetable and ornamental crops grown in the Pacific Basin. The long-term goals of our research program are to develop and protect U.S export markets for fresh tropical commodities. An emphasis is placed on expanding and diversifying agriculture and agricultural exports in Hawaii and other states by providing



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environmentally sound, economically viable systems, treatments, or processes that control quarantine pests, ensure product quality, and increase product value while safeguarding the agriculture of other states.

**Research Project:** 'Ulu (breadfruit), one of the world's few perennial tree crops, has significant cultural importance to Hawaiians and is one of the original staple crops that fed the island nation for close to 1000 years with high starch, fiber, and protein contents. 'Ulu also has a low to moderate glycemic index when cooked and can help manage blood glucose levels in people with type 2 diabetes. Today, at nearly 2,500 miles from the US mainland, Hawaii imports greater than 85% of its food. Disruption to the supply chain can have catastrophic effects as evidenced during the COVID-19 pandemic. Since 2020, food insecurity has dramatically increased among the Islands, encouraging the expansion of stable crops and processing capabilities that support the long-term storage and distribution of processed foods derived from these staple foods.

Much of Hawaii 'ulu supply is sold as fresh produce. Mature 'ulu, once picked, becomes soft within 1-3 days without refrigeration; the short shelf-life reduces profit margins, generates waste, limits its distribution and export opportunities. The 'Ulu Cooperative, a collection of small, diversified 'ulu producers, helped develop processes to produce 'ulu flour in 2011, and is now projecting to produce 1 million pounds of fresh 'ulu by end of 2023. One of the biggest hurdles, however, to the processing of many of Hawaii's crops is the lack of industrial scale facilities. With Hawaii having the highest electricity retail price at nearly triple the US average, the cost of large-scale processing is prohibitive. Presently, processing of 'ulu relies on steamers and dehydrators, which are time consuming and do not produce the most consistent quality of end products. Improved processing methods are urgently needed to overcome the bottleneck of scaling up 'ulu production, increase market distribution, reduce waste, and foster local economies. Specific activities will include learning how to maintain and operate food processing equipment, experimental design, and nutritional and sensory analysis. Outcomes from this project will be useful on our 'ulu growers as well as other tropical commodities that are extremely perishable and in need of better processing methods.

**Learning Objectives:** The participant will be involved in learning engineering design phases for developing processing methods while considering the energy consumptions and the nutritional and sensory qualities of processed 'ulu. The participant will have the opportunity to interact with our commercial and academic collaborators, and present their research to a wide range of audiences in engineering and food science disciplines.

**Mentor:** The mentor for this opportunity is Peishih Liang ([peishih.liang@usda.gov](mailto:peishih.liang@usda.gov)). If you have questions about the nature of the research, please contact the mentor.

**Anticipated Appointment Start Date:** November 2024. Start date is flexible and will depend on a variety of factors.

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**Appointment Length:** The appointment will initially be for one year, but may be renewed upon recommendation of ARS and is contingent on the availability of funds.

**Level of Participation:** The appointment is full-time.

**Participant Stipend:** The participant will receive a monthly stipend commensurate with educational level and experience.

**Citizenship Requirements:** This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the [Guidelines for Non-U.S. Citizens Details page](#) of the program website for information about the valid immigration statuses that are acceptable for program participation.

**ORISE Information:** This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and ARS. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

**Questions:** Please visit our [Program Website](#). After reading, if you have additional questions about the application process, please email [ORISE.ARS.PacificWest@orau.org](mailto:ORISE.ARS.PacificWest@orau.org) and include the reference code for this opportunity.

**Qualifications** The qualified candidate should have received a doctoral degree in one of the relevant fields (Biological and Agricultural Engineering or Food Science and Technology). Degree must have been received within the past five years.

**Preferred Skills include:**

- Experience in food processing engineering
- Experience in food science and technology
- Excellent written and oral communication

- Eligibility Requirements**
- **Degree:** Doctoral Degree received within the last 60 month(s).
  - **Discipline(s):**
    - **Engineering** (4👁)
    - **Life Health and Medical Sciences** (2👁)
  - **Veteran Status:** Veterans Preference, degree received within the last 120 month(s).