

IGEM Grant Report

⊙ Progress (due January 1) Annual (due July 31) Final (due August 31)

IGEM Grant # IGEM26-003 Principal Investigator: Owen McDougal

Name/Full Title of Project: Valorizing Potato Juice and Oat Pulp to Food Ingredients

Submission Date: 12/16/2025 Primary Institution: Boise State University

Section 1: Summary - The purpose of this project is to develop and deploy an economically viable process to upcycle surplus and off-grade potatoes into ingredients: starch, fiber, and protein. Our goal is to create a new business that produces these ingredients in Glens Ferry, ID.

Section 2: Project accomplishments - An integrated process pipeline has been developed to upcycle raw potatoes into starch, fiber, and protein ingredients. Using this process, >1 kg of ≥80% pure starch, ~0.5 kg of potato fiber and about 300 g of ~60% pure protein has been obtained from Gogu Valley and Norkotah varieties of potatoes. Within the next six months, equipment will be acquired to improve process efficiency and yield that includes a shaking sieve, spiral flash dryer, rasper, and ceramic membranes.

Section 3: Budget expenditure summary - Project spending is on track for full expenditure by the end of the project period. To date, ~\$50K has been spent on salary and fringe benefits, and \$17K on other direct costs. Equipment expenditures total \$29K with all remaining equipment ordered. No travel costs have been incurred to date.

Section 4: Economic development/impact - Industry involvement and private sector engagement includes the following: (1) Genesis Organics has provided potatoes, (2) Streamline Precision has facilitated equipment acquisition, (3) Glanbia Nutritionals has advised product quality and process steps, and (3) Jobs created include Dr. Ali Sadeghi as a full-time Sr. Scientist.

Section 5: Participants - Faculty: Dr. Owen McDougal (PI), Dr. Rohollah (Ali) Sadeghi (Sr. Scientist); Students: Caleb Renshaw – PhD candidate: method development, protein/starch/fiber analysis, potato processing, and Carter Bateman - Ugd: Potato processing, starch/fiber analysis.

Section 6: Sustainability plan – By 6/26, evaluation of food grade ingredients will inform techno-economic analysis to justify new business startup commitment by our industry partners.

Section 7: Expenditure Report

Upcycling of Potato and Oat Byproducts to Promote Economic Returns for Idaho Businesses

Grant No.	IGEM26-003	Start Date:	7/1/2025
BSU Reference	2000003534	End Date:	6/30/2026

Project Budget	<u>Budget</u>	<u>Expended</u>	<u>Encumbered</u>	<u>Remaining</u>
Salary	\$130,974.00	\$40,588.02		\$90,385.98
Fringe	\$39,477.00	\$8,996.21		\$30,480.79
Other Expense	\$55,869.00	\$16,587.77	\$10,000.00	\$29,281.23
Travel	\$5,225.00			\$5,225.00
Capital	\$104,955.00	\$28,690.25	\$75,735.75	\$529.00
Student Costs				\$0.00
Total	\$336,500.00	\$94,862.25	\$85,735.75	\$155,902.00