

FOOD WASTE AND SUSTAINABILITY

War on Waste

Food science Professors Stephanie Jung and Amanda Lathrop receive USDA grant to discover ways to combat food waste

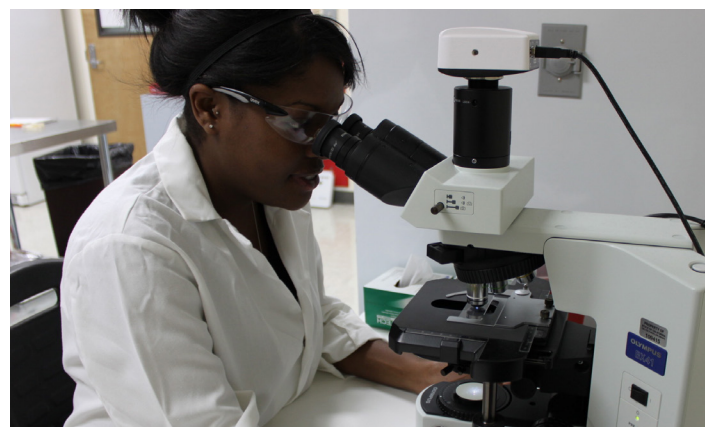
BY STEPHANIE JUNG

Food waste. Everyone is aware of the problem but what can we do about it? Here are some facts. Every year, consumers in industrialized countries waste almost as much food as the entire net food production of sub-Saharan Africa (222 million tons wasted vs. 230 million tons produced). The amount of food lost and wasted every year is equal to more than half the world's annual cereals crops (2.3 billion tons in 2009-10). In the U.S., organic waste is the second highest component of landfills, which are the largest source of methane emissions, and 30-40 percent of the food supply is wasted, equaling more than 20 pounds of food per person per month (http://www.worldfooddayusa.org/food_waste_the_facts, December 2016). Since 2013, the Department of Agriculture (USDA), in collaboration with the Environmental Protection Agency launched the U.S. Food Waste Challenge, calling on others across the food chain — including producer groups, processors, manufacturers, retailers, communities and other government agencies — to join the effort to reduce, recover and recycle food waste.

The first step to solving the problem of food waste is education. Thanks to a program of the USDA's National Institute of Food and Agriculture, Cal Poly students will be able to work alongside Professors Stephanie Jung and Amanda Lathrop on identifying solutions



Food Science student using extruder in Pilot Plant.



Food Science student observing enzymatic transformations under a microscope.



Food Science graduate students

that could contribute to resolving the issues around food waste. Earlier this year, Cal Poly's Food Science and Nutrition Department was awarded a nearly \$250,000 grant through the Food and Agricultural Sciences National Needs Graduate and Postgraduate Fellowship program. "This program will expose fellows to an array of academic, intellectual and global themes pertaining to food waste and the ways to overcome the challenges associated with it," said food science Professor Stephanie Jung. "Students will address the economic, environmental and social burden of food waste." The grant will be used over the course of four years to enroll a total of six graduate students in an agriculture master's program with specialization in food science. The first fellow started in fall 2017 and is identifying ways to add value to carrot pomace, a low-value stream collected during the processing of carrots. Fellows receive a stipend of \$18,000 per year for two years, plus partial tuition. Students with a bachelor's degree in food science, chemistry, biochemistry and engineering are encouraged to apply. A total of 11 faculty with a wide area of expertise including industrial packaging, food safety, product development, food processing and engineering, and animal science and engineering, could be involved in the mentoring of the fellows. Some potential research topics are: extrusion technology to maximize utilization of food processing by-products; utilization of overripe, underripe or partially ripe strawberries in novel food applications; extraction of polyphenols from apple waste for addition to hard cider

to improve quality attributes; consumer assessment of the utilization of vegetable pomace in food applications; extraction of bioactive compounds from cheese whey; and development of packaging systems to enhance shelf life and improve quality through distribution by developing and validating modified atmosphere packaging systems that extend the shelf life while retaining the quality of fresh or minimally processed produce on domestic and global distribution.

The program includes a mandatory internship and mentoring/teaching opportunities. A strong partnership with the food industry is key to the success of this program. We encourage companies that are interested in collaborating on food waste-related projects to contact our department.

To learn more about the master's program, contact Professor Stephanie Jung at stjung@calpoly.edu or Professor Amanda Lathrop at lathrop@calpoly.edu.