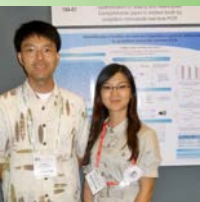


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IMPACT REPORT

Q3

THIRD QUARTER



Of Innovation,
Collaboration,
and Compassion



**College of Tropical Agriculture
and Human Resources**

University of Hawai'i at Mānoa

*The founding college of the
University of Hawai'i, established 1907*

www.ctahr.hawaii.edu

1907

THIRD QUARTER

Q3

College of Tropical Agriculture and Human Resources **Of Innovation, Collaboration, and Compassion**



"We have to be able to transfer science-based information from the lab to a wider audience, to translate research so people with varying levels of scientific knowledge can understand it."

Translations. I've been thinking lately about the interchange of knowledge, where data from the field are incorporated into scientists' work and research results are made usable by the community. Different stakeholders require different levels of information: Some need to know the names of the pathogens that infect our food; others want practical information on how to prevent or neutralize them so consumers won't get sick. We have to be able to transfer science-based information from the lab to a wider audience, to translate research so people with varying levels of scientific knowledge can understand it. We also have to listen to and learn from our clientele, as the information they share can inform the research undertaken. This communication interchange is foundational to improving people's lives and Hawai'i's food and agriculture system, a mission unique to CTAHR and land-grant colleges.

The stories in this quarter's Impact Report show this knowledge exchange. Many independent tea planters have been basing their methods on information shared within the community or on trial and error; while there's no substitute for experience, the Hawai'i-Grown Tea report also offers them, and new entrants to the field, solid research to guide their decision-making about planting, cultivating, harvesting, processing, and marketing. I'm excited to see where this new agribusiness will go. From the start, research by the Center on the Family has had far-reaching effects for diverse sectors of our society: Families can access information directly, while knowledge is also put in the hands of the professionals who work with them and the lawmakers who make policy affecting them. And finally, the work that the College's food microbiologists do is all about information gathering and disseminating—concrete data is necessary for those who make and enforce the regulations that keep our food safe, as well as for those who work to make it safer through technological advances. Looking at all these stories, thinking about the diverse audiences for research they represent, I'm heartened to realize how many sectors of the community our work impacts and how far from the "ivory tower" mentality CTAHR is.

Aloha,

A stylized, handwritten signature in gold ink, reading "S. Yuen".

Sylvia Yuen
Interim Dean and Director of CTAHR

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Families Matter

“Call it a clan, call it a network, call it a tribe, call it a family: whatever you call it, whoever you are, you need one.”

– Jane Howard

The concept of family is universal. But not only does every individual need a family; most families could use a place like Center on the Family (COF), which conducts research on numerous issues to improve the quality of life for Hawai‘i’s families, including children and elders, and to aid those who work with them. Here are a few of their accomplishments:

The Data Center <http://uhfamily.hawaii.edu/Cof_Data/datacenter.asp> is the most comprehensive collection of information on Hawai‘i’s families, children, and elderly. Its many indicators in health, education, safety, economic security, family well-being, and community engagement help to increase public awareness and inform decision-making with respect to policies, programs, and services. A newly redesigned Data Center, with updated and expanded information, will be launched this fall.



COF’s early childhood focus seeks to improve young children’s school-readiness by supporting educators, care providers, and families. One project, Hui A’o Mua, improves early literacy skills of at-risk preschool children in Head Start classrooms by giving teachers



intensive professional development and support for implementing an evidence-based curriculum. Teachers receive workshops, in-class coaching, technical assistance, and college courses, while families participate in workshops and a weekly home curriculum. Teachers, parents, and students all attest to the success of the project, which has served about 1,000 children on O‘ahu.

The Center also conducts applied research on quality-of-life issues. For example, they have partnered with the state’s Homeless Programs Office to analyze and disseminate homelessness service utilization data to inform policies, improve programs and services, and increase public awareness. Because of this research, the homeless services budget was doubled after COF’s first report (2006) and sustained in the following years, and the planning and resource allocation process was tuned to reflect a better understanding of the homeless population. COF has corrected many myths about homelessness in Hawai‘i while promoting important public and policy dialogues aimed at ending it altogether.

The Center has impacted numerous individuals, families, and community organizations throughout its 20-year history of research, education, and outreach, and it looks forward to many more decades of fostering strong, healthy families supported by their communities.

Brewing Change

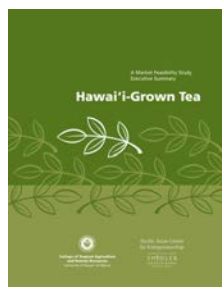
Fancy a cuppa tea, luv? The ubiquitous brew has moved far beyond its Asian roots and its obsessive allure for the Brits. In fact, tea (*Camellia sinensis*) is the most widely consumed beverage in the world, after water. Very little tea is grown in the U.S.—one place it does grow, though, is Hawai‘i. A recent report on the nascent tea industry in the Islands, presented to community stakeholders, legislators, and policy-makers by CTAHR in conjunction with Shidler College of Business, tells the story.

The cool, rainy volcanic slopes of the Big Island are well suited for tea growing, but there’s a lot more to the business than getting a good leaf. The questions and decisions keep coming: What is the appropriate density for growing the tea? CTAHR’s Mealani Research Station, which probably represents, according to the report, “the maximum yield under ideal conditions,” illustrates how many plants can be maintained per acre. Should the leaves be hand- or machine-processed? The report crunches the numbers to show the most cost-effective choice. Marketing is also an issue. Some tea growers have formed collectives to market their teas under a common label and take advantage of economies of scale. Others use related inducements such as ecotourism or high tea service offers to entice customers to their misty, emerald-glowing plantations.

Then there’s the need for improved regulation. Partially because of its novelty and rarity, and partially because of its superior qualities, Hawai‘i-grown tea commands a high price amongst tea aficionados. However, a concern detailed by the report is the difficulty of distinguishing tea grown here from numerous brands that only leverage the image of Hawai‘i to sell tea grown elsewhere. Label protection similar to that afforded 100% Kona coffee is a goal of the industry, in order to protect the unique reputation of the real brew, and the report explains how to achieve this.

Tea is ready to take its place among other products with iconically Hawaiian images such as macadamias and pineapple, potentially offering a boost to both the agriculture and tourism industries, but information is needed to take that step, and this is the information *Hawai‘i-Grown Tea: A Feasibility Study* offers.

Tea workshop presenters and attendees participate in a harvesting activity.



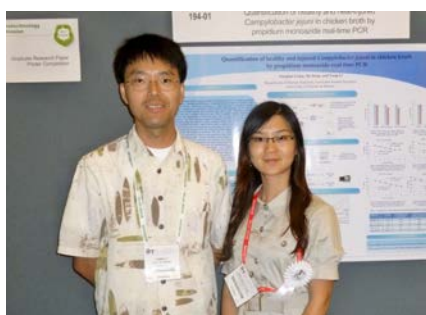
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Food Under the Microscope

A discipline that investigates the thin but important line between what helps and what harms is food microbiology. It looks both at the ways microorganisms are used to create the foods we love (think beer, kim chee, shoyu, bread, and yogurt) and the ways they can contaminate foods, like the pathogens *Salmonella* and *E. coli*. With the many outbreaks of food-borne illness lately, this issue is a growing concern.

CTAHR's food microbiologists include Soojin Jun (HNFAS), who among his many projects aims to save dairies time, money, and resources by altering their old methods of cleaning fouled milk from processing equipment—a task that must be done every 5 to 10 hours—by creating non-stick surfaces bacteria won't adhere to. Yong Li (HNFAS) is working on better ways to detect pathogenic bacteria in tropical fruit juices—a topic near and dear to Hawai'i's safety-conscious fruit growers. But this research field is expanding so fast that a new generation of students is already working to bring their insights to its issues.



CTAHR food microbiologist Yong Li with master's student Ningjian Liang at the Institute of Food Technologists Annual Meeting in New Orleans.

An up-and-coming recruit to the front lines of the microorganism wars is Ningjian Liang, who received her master's degree this past August under Yong Li's mentorship. Her research has provided valuable information for food manufacturers and regulatory agencies, successfully establishing a method for rapid detection of live *Salmonella* cells in lettuce, one of the most common vectors for food poisoning. Her work could greatly improve the accuracy of routine DNA-based testing. At the 2011 meeting of the Institute of Food Technologists, she won third place in the Biotechnology Division's graduate student poster competition for her work on *Campylobacter jejuni*, a pathogen that can contaminate poultry and dairy products. Last year she won a Student Excellence in Research Award, one of two awarded to CTAHR students out of only three university wide, and she's captured two awards at the Student Research Symposium as well. She currently oversees Quality Assurance and Food Safety for the Palama Meat Company in Kapolei.

It takes a strong stomach and a steel-trap mind to look at one's food with a microscope in hand instead of a fork. We're grateful that Ningjian and CTAHR's other food microbiologists are willing to look beyond that luscious cheeseburger to the creepy-crawlies that call it home.

*Enter the world of a food microbiologist.
Here are E. coli cells at 8,000x magnification
on a microwire sensor.*

Photo courtesy: Lin Lu

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