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# IMPACT REPORT Q1

FIRST 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](http://www.ctahr.hawaii.edu)

## FIRST QUARTER

# Q1

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



*“While we like center stage as much as anyone, the faculty, staff, and students of CTAHR also know that what goes on behind the scenes, or at the margins, is just as important—just as necessary.”*

Sylvia Yuen  
Interim Dean/Director

Position—being in the right place—is important. That’s especially true of CTAHR’s research. Sometimes our discoveries bring us to the forefront, but often we’re behind the scenes, and that’s good, too. We’re making a difference wherever we are.

One of this quarter’s Impact Statements is about the recent release of Mite Away Quick Strip™, a new weapon in the battle against the varroa mite, a honeybee pest. It was the Department of Agriculture that licensed the miticide, and it’s Hawai‘i’s beekeepers who produce the sweet honey in their thriving hives. But it was the research of Mark Wright, Ethel Villalobos, and the rest of CTAHR’s Honeybee Project that generated the information that got the registration through so quickly. In the background, maybe—but necessary.

Or look at a stream or river. What do you see? Chances are, it’s the water flowing along that catches your eye. What’s growing on its edges doesn’t tend to be our focus, but it deserves investigation. Buffer zones of vegetation keep sediment and pathogens out of the water and keep the water clean and healthy. Primary Investigator Ali Fares and his team of researchers have discovered that variable-width riparian boundaries of native plants are just as effective as wider barriers that take more land from farmers, just as effective as barriers that use imported, invasive species. On the margins, yes—but necessary.

Finally, the statement on the Human Nutrition, Food and Animal Sciences (HNFAS) Dietetics program points out that it’s “not one of CTAHR’s more commonly known academic programs.” But the program, under the direction of Anne Shovic, exceeds all the benchmarks for its upcoming accreditation—some by a wide margin. And for over 20 years it’s been training Registered Dietitians to work in varied capacities throughout the Islands and beyond, keeping our people healthy through good nutrition. Not often in the spotlight—but necessary.

While we like center stage as much as anyone, the faculty, staff, and students of CTAHR also know that what goes on behind the scenes, or at the margins, is just as important—just as necessary.

Aloha,

A handwritten signature in red ink, appearing to read 'S. Yuen'.

Sylvia Yuen  
Interim Dean and Director of CTAHR

## Bee Happy!

In April 2007 the beekeeping community of Hawai'i was appalled to discover that the varroa mite (*Varroa destructor*), a devastating honeybee parasite, was widespread on O'ahu. A year later the mite invaded the Big Island. This February, however, research conducted by CTAHR's Honeybee Project helped bring good news to the local beekeepers and farmers: A new formic acid-based miticide, Mite Away Quick Strip™ (MAQS), has now been approved by the HDOA. CTAHR's bee team, led by Dr. Ethel Villalobos and Dr. Mark Wright, worked in collaboration with local beekeepers, the manufacturer, and the HDOA to evaluate the efficacy of this new bio-pesticide and to assess the impact of the treatment on honeybee colonies.

*Varroa destructor* is an external parasitic mite that feeds on the hemolymph (akin to blood) of pupae and adult bees and transmits pathogens, including deadly bee viruses. The field research conducted by the Honeybee Project team, which also includes Scott Nikaido, Tyler Ito, and Jane Tavares, provided the data needed for a local needs registration of MAQS, which provides effective mite control, does not leave chemical residues in the hive or interfere with honey collection, and is designed to work well in warm climates.

Since the mite arrived in Europe and the continental US, many control methods have been developed and tested. Synthetic miticides decrease in effectiveness over time as mites develop resistance, and their residues may have detrimental side effects on bee health. The UH Honeybee team and Hawai'i's beekeepers are now leading the way nationally in the use of non-synthetic chemicals to control the destructive mite. The approval of MAQS will help safeguard the health of Hawai'i's honeybee colonies and contribute to the sustainability of food production in the Islands.

For more information about MAQS and the UH Honeybee Project, please visit our Web site at [www.ctahr.hawaii.edu/wrightm/Honey\\_Bee\\_Home.html](http://www.ctahr.hawaii.edu/wrightm/Honey_Bee_Home.html)



(left to right) CTAHR Honeybee Project members Scott Nikaido, Mark Wright, Ethel Villalobos, and Tyler Ito (fifth from left) pose with collaborating beekeepers. Pictured fourth from the left is David VanderDussen, CEO of NOD Apiary Ltd. products and creator of MAQS.

Photo provided by Ethel Villalobos



Photo: Ethel Villalobos

## RBs: Growing Green by the Stream

**A**ll rivers flow to the sea, they say, but what flows into the rivers? When it rains, fertile top soil is lost, and everything from sediment to fertilizers and pesticides to soil pathogens get washed in. Then the streams silt up; pesticides and suspended sediments threaten stream micro-organisms and aquatic life. These negative impacts could extend into the receiving ocean.

To stop or at least minimize pollution of water resources, riparian buffer zones are used. These are areas of special plantings that capture the soil and nutrients and make use of them before they wash into the water. Constant-width riparian buffers (CWRBs) are effective in reducing sediment, pathogen, and nutrient loads from agricultural catchments into surface and groundwater resources. However, CWRBs use more valuable agricultural land than needed. Variable riparian buffers, known also as precision riparian buffers (PRBs), can be as effective as CWRBs but only use around 20% of the land along the stream banks. PRBs have not been evaluated in Hawai'i, though, until now. Researchers Ali Fares, Carl Evensen, Aly El-Kadi, and Catherine Chan-Halbrendt teamed up with other researchers and graduate students to evaluate the effectiveness of PRBs as soil-conservation and pollution-prevention management practices in Hawai'i's environment and to optimize their configuration. They tested the erosion-control ability of two native plants, Pili grass and Ahuawa sedge, as well as invasive Guinea grass, at research sites on the Leeward (Pioneer Hybrid, Wailua) and Windward (Kualoa Ranch) sides of O'ahu. They tested surface runoff entering and leaving these buffers for major water-quality indicators.

Preliminary results show that Pili grass and Ahuawa significantly reduced the sediment transported to streams by more than 50% at Pioneer Hybrid, Wailua site. The native and invasive plant species were equally efficient in removing sediment, but PRBs using native species will help biodiversity. A cost-benefit economical analysis found that PRBs are economically viable: The largest cost is the agricultural revenue farmers won't get from the land used for the buffers, but the reduced erosion and improved water quality make up for that. The PIs will be conducting several outreach activities to convince more farmers to consider adopting these PRBs—and to protect surface water flowing to the sea.



Photos provided by Ali Fares

*CTAHR Watershed Hydrology researchers Farhat Abbas, Ali Fares, and Amjad Ahmad survey and geo-reference the landscape, the first step in designing a PRB system at the Pioneer Hybrid, Wailua site. Below, researchers collect runoff samples resulting from a simulated rainfall.*



# Health Begins on the Plate

**T**he Didactic Program in Dietetics is not one of CTAHR's more commonly known academic programs. Yet for over 20 years, Anne Shovic has directed this rigorous accredited program, preparing UH students to become Registered Dietitians (RD). Students earn baccalaureate degrees in Food Science and Human Nutrition, through the Department of Human Nutrition, Food and Animal Sciences (HNFAS).

Dietitians work as part of health care teams assessing the nutritional status of patients and providing medical nutrition therapy. Others are important components of public health, improving targeted populations' nutritional well-being. Dietitians also manage food service operations in institutional and hospital-ity industries. They offer education and outreach, like HNFAS faculty members Naomi Kanehiro, Rachel Novotny, Corilee Watters, and Julia Zee. The program has close ties to the Hawaii Dietetic Association and is guided by a Dietetics Advisory Council made up of professional dietitians.

CTAHR strives to meet the growing demand for dietitians. The U.S. Bureau of Labor Statistics projects a 9-percent growth in demand for dieticians over the next decade.

HNFAS' Didactic Program in Dietetics must meet stringent standards established by the American Dietetic Association's Commission on Accreditation for Dietetics Education. In April 2011, the program will seek re-accreditation. Here are some of the standards the program must meet:

- Over a 5-year period, 90% of enrolled students will complete the program within 3 years. In the HNFAS program, between 2006 and 2011, **96% of the students completed the program.**
- 60% of the graduates will apply to a supervised practice program, or internship, the year they complete the program. Here **62% applied to internships.** In addition, 16% of the students were accepted into nationwide health-related institutions of higher learning such as medical, pharmacy, and nursing schools, departments of health and graduate schools.
- Graduated students must achieve a pass rate of 80% or above for first-time test takers of the RD examination. Here, **over 85% pass.**
- Within 6 months of graduating from a dietetics internship, 80% of the program graduates residing in Hawai'i must have obtained employment related to nutrition. Here, **100% were employed, most within 2 months.**

The dietitians doing good work throughout Hawai'i and the American Territories can thank Anne Shovic and the faculty of the FSHN program for their success—and so can those they help.

More information on the Dietetics Program can be found at [www.ctahr.hawaii.edu/hnfas/degrees/undergrad/dietetics.html](http://www.ctahr.hawaii.edu/hnfas/degrees/undergrad/dietetics.html)



*Dietetics Program students Catherine Tong and Dustin Lee collect data at a local open market.*

Photo: Corilee Watters

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