2021 Annual Report

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COLLEGE OF TROPICAL AGRICULTURE AND HUMAN RESOURCES UNIVERSITY OF HAWAI'I AT MĀNOA WITH KAHEALANI

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Waimānalo Research Station: Cooperative Extension trials documented that the use of screenhouses resulted in up to a seven-fold increase in marketable yields in the production of (non-pollinated) cucumbers, as compared to cucumbers grown outside.

CON H

Aloha from the College of Tropical Agriculture and Human Resources!

The founding college of the University of Hawai'i, today CTAHR is one of the most diverse colleges in the UH system. It comprises six interdisciplinary academic departments, four centers, and county operations on Kaua'i, O'ahu, Moloka'i, Maui, and Hawai'i Island.

CTAHR faculty are categorized as Agents, Instructors, Researchers, and Specialists. Non-Faculty are categorized as Administrative, Professional, and Technical (APT); Casual; Civil Service; Executive/Managerial; Graduate Assistant; Lecturers; and Non-Compensated.

Academics

CTAHR offers undergraduate programs in Animal Sciences, Biological Engineering, Dietetics, Fashion Design and Merchandising, Food Science and Human, Nutrition, Human Development and Family Studies, Molecular Biosciences and Biotechnology, Natural Resources and Environmental Management, and Tropical Agriculture and the Environment.

It also offers Masters programs in Animal Sciences, Entomology, Food Science, Molecular Biosciences and Biotechnology, Natural Resources and Environmental Management, Environmental Management, Nutritional Sciences, Tropical Plant and Soil Sciences, and Tropical Plant Pathology. It also offers PhD programs in Entomology, Molecular Biosciences and Biotechnology, Natural Resources and Environmental Management, Nutritional Sciences, Tropical Plant and Soil Sciences, and Tropical Plant Pathology.

Through these programs, we taught 846 undergraduate students and 227 graduate students a total of 21,545 student semester hours.

Research

In 2021, CTAHR faculty researchers brought in \$25,405,328 in extramural grants and contracts, an increase from \$14.0 million in 2019. Faculty have grown increasingly successful at identifying grant opportunities and producing competitive proposals for various research, education, and extension activities. While the total number of awards remained more or less the same across the years, the average award value per individual faculty Principal Investigator has increased substantially.

Extension

During the pandemic, the Cooperative Extension Service took the most significant hit. Of the 30 faculty positions lost or frozen, 43% were Extension Agents and 27% were Extension Specialists. Before the pandemic, our 30 Agents and 20 Extension Specialists worked closely with agricultural producer groups and civic and elected leaderships in the counties while bringing the research-based information from UHM to solve problems and social issues that Hawai'i residents face.

Aloha,

Ania

Dr. Ania Wieczorek Dean and Director (Interim)

2021 - By the Numbers	
132	Faculty (111 Permanent, 21 Temporary)
390	Non-Faculty (116 Permanent, 274 Temporary)
21,545	Student Semester Hours
846	Undergraduate Students Enrolled
227	Graduate Student Enrolled
\$25,405,328.00	Extramural Grants and Contracts

CTAHR Strategic Positioning and Visioning 2022-2027

CTAHR launched its strategic positioning process in the Fall of 2021 to map our future for the next five years. To initiate this effort, a group of 25 CTAHR members (14 faculty, three staff, four administrators, two students, and two outside stakeholders) was assembled to represent the college's departments and units, and was charged with developing a strategic vision for the future positioning of CTAHR. What follows is the result of the work of the college's faculty, staff, and stakeholders and a vision for the future success of the college.

The process was designed to generate a comprehensive, forward-looking, transformational vision of a future that would guide the college through the post-pandemic years while remaining relevant and effective in providing impactful services to the people we serve. This will build a more robust college with more resilient departments and units. Five Core Values were articulated through the strategic positioning process and developed based on CTAHR's Mission and Vision.

CTAHR Mission

Our responsibility is to provide exceptional transdisciplinary education, research, and Extension in tropical agriculture, natural resources, and human well-being to local and global communities.

CTAHR Vision Statement

An educated community, healthy population, and sustainable food system and environment that strengthens the well-being and economic development of the people of Hawai'i.





Core Values

These apply to all CTAHR administration, faculty, staff, and students.

Mālama - Care for others and the environment.

- We treat everyone equally and ensure their safety and protection.
- We embrace everyone's individuality.
- We nurture those in our learning community to promote growth, education, and academic success.
- We protect and preserve the natural resources and ecosystems of our islands to maintain sustainable communities and resilient agriculture.

Pono - To be righteous in thoughts, speech, and actions that reflect integrity and reciprocity.

- We build relationships that are honest, open, and transparent.
- We treat others with respect.
- We honor and protect the 'āina and the people of Hawai'i.

Kuleana - Take responsibility and accountability.

- We are responsive and accountable to the needs of the environment and its people.
- We strive to be more efficient and properly utilize human, natural, and financial resources.
- We encourage self-awareness of one's own individual contribution and fulfillment of CTAHR's mission toward teaching, research, and Extension.

Loea - Resourcefulness, Resilience, and Innovation.

- We think outside the box to address societal issues toward people, places, and environments.
- We encourage open-mindedness by listening to all ideas.
- We strive to build continual curiosity in everyone to promote lifelong learners.

• We generate opportunities that challenge ineffective ways of thinking.

Laulima - Inclusive and collaboratve in service and society.

- We foster active listening.
- We provide opportunities for team-building.
- We build multidisciplinary teams to tackle pressing issues in our community and society.
- We strive to be CTAHR's 'ohana and strengthen the greater community.

Grand Challenge Initiatives

The natural world, human communities, and agriculture are intrinsically connected. CTAHR strives to understand all three elements holistically while addressing the grand challenges we face:

- Resilient and Thriving Community Health
- Vibrant Tropical and Pacific Island Agriculture and Food Security
- Ecosystem Health
- Workforce and Economic Development





Academics

CTAHR academic programs transitioned to online classes during the pandemic. Despite this disruption, the college saw an increase in enrollment, culminating in Fall 2021 having the highest total enrollment of our 100-year history. During the past three years, with one exception, all CTAHR undergraduate programs have grown 3% to 40%. The fastest-growing programs were Animal Sciences and Molecular Biosciences and Biotechnology. The following are a few examples of the many activities hosted by CTAHR's Academic and Student Affairs Office (ASAO) throughout the school year.

Students Make Their Pitch

The return of in-person events meant that after a twoyear hiatus, the CTAHR student 3 Minute Elevator Pitch (3MEP) Competition was on! This competition follows the spirit of the 3 Minute Thesis (3MT)® competition that originated at the University of Queensland, Australia.

The session offered an opportunity for students to showcase their innovative and significant research to a broader audience, challenging them to consolidate their ideas and research discoveries so that they could be presented in an informative and concise way. In 2021, the CTAHR student Ambassadors coordinated the event, held on March 19th at the Architecture Building auditorium, with a total of 23 presenters.

The competition was fierce, but in the end, the following four students won \$1,000 each with the top scores in their category:

- Undergraduate: Socheatha Tork (MBBE)
- Early Graduate: Ty Shitanaka (MBBE)
- Later Graduate: Rina Carrillo (MBBE)
- People's Choice: Nikki Preston (NREM)



Internship Opportunities for Students!

ASAO introduced a pilot internship program to increase student access to internships and opportunities for CTAHR students' research and leadership experiences. Many students graduate college without a plan of where to go in their careers; the hope is that this connection between stakeholders and our CTAHR community will help create successful employment paths for both undergraduate and graduate students. Although the program is in its first stages, a team of organizations has already partnered up to offer rewarding internships. • Hawaiian Host

- Ultimate Innovations
- Sumida Farms
- Hartung Brothers
- Mālama Kauaʻi
- Uhling Consulting
- And more that are currently in the works!

Most offer PAID internships, which students can use toward their credit courses or simply for employment experience. For example, there has already been a FSHN student matched with Sumida Farms, where they will be further exploring the nutritional components of their famous watercress.



Students Stock Up at the CTAHR FoodStack Grab and Go

These businesses include:

More than 100 students signed up for the CTAHR Food-Stack Grab and Go of fresh fruits, vegetables, canned goods, and pantry items. The event occurred at Gilmore Court- yard as part of CTAHR's Welcome Week and followed strict COVID-19 mitigation protocols.

A big mahalo to our following supporters, whose generous donations made this an epic successful event:

• Urban Garden Center's Fruit Hui (Cooperative Extension): papaya, breadfruit, pomelo, citruses, and other fruits



- Coalition to Stop Campus Hunger (UHM RIO): fresh produce, canned goods, and pantry items
- CTAHR Sustainable Organic Agriculture Program (SOAP): heirloom tomatoes
- · Aloha Harvest: canned goods and pantry items
- UHM Newman Center: canned goods and pantry items

Did you miss this fantastic opportunity for free shopping? No worries, there's more to come! CTAHR plans to repeat this event once a month. To stay informed, just continue reading our ASAO weekly newsletter, delivered to your inbox every Monday morning.



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Research

Research efforts continued to grow at a healthy pace. CTAHR faculty have grown increasingly successful at identifying grant opportunities and producing competitive proposals for a range of research, education, and extension activities. In FY 2021, the value of extramural funding reached \$25.4M.

All awards came from a mix of extramural sponsors, with federal agencies providing 60% of the funding, state agencies providing 25%, and other entities (nonprofit organizations, foundations, industry, and U.S. universities) providing 15%.

Most of the federal funding was obtained from competitive programs managed by the National Institute of Food and Agriculture, U.S. Dept. of Agriculture (NIFA/USDA), while the National Science Foundation (NSF) awarded six grants to six different Principal Investigators, including two NSF CAREER grants.

Notably, the NSF grants have gone mostly to younger faculty: one from the Dept. of Plant and Environmental Protection Sciences, one from the Dept. of Human Nutrition, Food and Animal Sciences, one from the Dept. of Tropical Plant and Soil Sciences, one from the Dept. of Natural Resources and Environmental Management, and two from the Dept. of Molecular Biosciences and Bioengineering.

Refereed Journal Articles

The academic scholarship of CTAHR faculty is also captured in the quality and impact of their refereed journal publications. In terms of numbers, faculty had 225 peer-reviewed articles published in 2021.

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Key Wildlife Projects

A \$1M grant will continue DLNR-CTAHR-FWS research on endangered Hawaiian species

Of the more than 500 species of yellow-faced bees worldwide, many are found only in Hawai'i, such as Hylaeus akoko (only on Hawai'i Island), or

Hylaeus anomalus (only on Oʻahu). With extremely narrow ranges and sparse numbers (not to mention, human development), it's no wonder they're endangered.



But with new funding from the U.S. Fish and Wildlife Service's (FWS) Competitive State Wildlife Grant program, Hawai'i is among 16 states that can continue its efforts in protecting key wildlife species: Hawaiian yellow-faced bees, land snails, and 'elepaio birds.

"The project aims to understand the resource needs of and threats to endangered native species, including the yellow-faced bees, with the goal of developing management tools or strategies to recover their populations," explains Paul Krushelnycky of the Dept. of Plant and Environmental Protection Sciences. "Yellow-faced bees are Hawai'i's only native bees, and they are

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Across the Pacific

A \$10M grant will enable Children's Healthy Living to build resilient food systems

The award-winning Children's Healthy Living (CHL) program just got a booster shot, to the tune of \$10M.

With this game-changing grant from the USDA's National Institute of Food and Agriculture, Sustainable Agricultural Systems Program, CHL will create a 'Food Systems Model' that will identify the drivers of resiliency in food supply chains and promote them



throughout the Pacific Basin.

"Our goals are to increase food and nutrition security, diet quality, and healthy body size among children," says Rachel Novotny of the Dept. of Human Nutrition, Food and Animal Sciences.

"Long-term, we aim to help prevent chronic disease in households and communities across the U.S.-affiliated Pacific insular area. This grant will help provide the data needed to guide policies so that Pacific food systems can assure the health of children, and thus a healthy future."

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Alpine Arthropods

PEPS grad student tracks insects atop Mauna Kea

High on the slopes of the world's tallest mountain, these alpine stone desert and subalpine mamane scrub habitats are home to the endemic Wekiu Bug, as well as some of Hawai'i's most iconic native flora and fauna.



But for natural resource managers who want to improve the conservation efforts of these endemic species, and better

understand the most problematic introduced species, more information is needed. Specifically: the arthropods' habits and dietary requirements, effects of introduced species on their trophic network, and flow of energy and resources between the alpine and subalpine habitats.

Enter Brad Reil, a graduate student researcher in the Dept. of Plant and Environmental Protection Sciences. Brad and graduate advisor Dan Rubinoff have traded in their T-shirts for warmer wear as they hike atop this massive mountain, collecting specimens necessary for food web construction and for analyzing the arthropod communities.

"Mauna Kea is a special place for many reasons," says Brad. "Ecologically, the endemic species that call the mountain home are found nowhere else on earth and have adapted to the harsh dry cold conditions on the volcano. At the summit, the aeolian stone desert ecosystem obtains much of its resources from wind-borne materials (bits of plants, dead insects, dust, etc.) instead of plant species, resulting in uniquely adapted inhabitant species such as the Wekiu Bug." neering Agronomic Traits." Frontiers in Plant Science. https://doi.org/10.3389/fpls.2021.739786.

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Anti-Obesity Therapy?

MBBE researchers identify a natural, critical biochemical target

It may not grab headlines the way Covid has, but obesity is one of the most serious public health problems of the 21st century. More than 600 million adults and 100 million children in 200 countries are considered obese.

In a new study from the Dept. of Molecular Biosciences and Bioengineering, researchers have taken a solid step toward developing a natural supplement that could reduce obesity.



In the world of natural products, dihydromyricetin (DHM), also called ampelopsin, is known to exert antidiabetic effects. However, the biochemical target of this isolate from the herbal plant Ampelopsis grossedentata is unknown. For this study, the primary goal of principal investigator Qing Li was to identify that biochemical target.

The team, which included C.Y. Hu of the Dept. of Human Nutrition, Food and Animal Sciences, as well as several MBBE students and visiting scholars, was successful and found that the chemical DHM can reduce lipid droplet formation in adipocytes. They also found DHM has direct interaction with a protein called "78-kDa glucose-regulated protein" (GRP78) – the object of their search.

"It was crucial to identify the biochemical target of DHM, and show how DHM is able to reduce lipid droplet formation in 3T3-L1 cells through a mode of action that is plausibly associated with direct interactions between GRP78 and DHM," says Qing. "Now we can be elucidating GRP78's physiological function and therapeutic value."

He adds, "It is quite exciting because the work shows how ampelopsin works as an anti-obesity agent. This study brings us a step closer to further development of this natural supplement in the clinical setting for combating obesity." of Applied Entomology = Zeitschrift Fur Angewandte Entomologie 145 (10): 1039–49.

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$Research \ {\rm - \ continued}$

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Pratibha Hits the Trifecta

MBBE prof is thrice honored in a week

Congrats to Pratibha Nerurkar, who on March 31 received the 2021 Presidential Citation for Meritorious Teaching at UH Manoa, on April 1 received the 2021 Western Region Award for Excellence in College and University Teaching in Food and Agricultural Sciences, and on April 6 received a \$500,000 grant from the USDA's National Institute of Food and Agriculture.

"I am truly honored to receive these recognitions and awards," says Pratibha of the Dept. of Molecular Biosciences and Bioengineering. "I thank my students, MBBE and CTAHR colleagues, deans and all the staff for their continued support for all these years."



Pratibha is one of 13 UHM faculty (out of more than 625 initial campus-wide nominations submitted by faculty, staff, students and alumni) to be

recognized for her "dedication to the teaching enterprise through inspiration, ingenuity, and innovation," writes President David Lassner.

The Western Region is a partnership between NIFA, Virginia Polytechnic Institute and State University, University of Georgia, and Association of Public and Land-grant Universities. The award recognizes outstanding college faculty in agriculture, natural resources, veterinary, and human sciences.

Pratibha also landed a half-million dollar grant from NIFA to pursue her project, "Empowering Women and Underrepresented Undergraduates with Advanced Technology Research Training in Agriculture and Food Sciences."

"She herself is an empowered woman, so she can truly empower other women in science," says Dulal Borthakur, MBBE chair. "She brings glory to MBBE and CTAHR."

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The King of Corn

Dr. Brewbaker's works spanned seven decades

The year was 1950, and a young researcher at U. Colorado published his first scientific paper, *Physaria vitulifera*, *A Tetraploid Species of Cruciferae*.

And so began a 70-year span of almost 300 scientific publications authored by Dr. James Brewbaker, who came to CTAHR a few years later, stayed with the college for the next six decades, and was active long after retirement.

An incredibly productive

and innovative scientist in plant breeding, Dr. Brewbaker won numerous national and international awards for research excellence. He was instrumental in creating the



tropical sweet corn seed industry that did not exist when he began, but is now a major world industry.

For example, his "Hawaiian Supersweet #9," is a standard variety in Thailand, the world's largest producer of canned corn. Many varieties can be found across Hawai'i and internationally, including "Kahuku Sweet Corn" – all of them noted for resistance to tropical diseases and insects.

He mentored 52 Masters and Ph.D. students at UH; many would go on to leadership roles throughout industry and academia, notes Michael Kantar of the Dept. of Tropical Plant and Soil Sciences. "Dr. Brewbaker's curiosity and enthusiasm for knowledge was infectious and remained so his entire life. He was a highly inspiring and effective instructor – never deterred despite more than 70 years in research."

Not solely an academic, his driving ambition was to leverage science as a means to alleviate widespread hunger around the globe. His work always centered on the farmer and people, and how advancements should benefit the lives of the community. His final publication, a 2020 update of his seminal work *Agricultural Genetics*, was purposefully digital, and completely free, in order to facilitate its dissemination in developing countries. Today, he is credited for improving the diets of people throughout the tropics and subtropics.

Dr. Brewbaker's programs impacted the people at UH, not only with knowledge and education, but also in how they could live their daily lives and spend their careers.

He also cared deeply about the institutions of science and higher learning. Upon retirement, he donated \$1M to UH to continue work in plant breeding and global food security. Julian, Erik Hill, Rachael T. Leon Guerrero, Patricia Coleman, Jonathan Deenik, Carol Boushey, and Lynne R. Wilkens. 2021. "University of Hawai'i Cancer Center Connection: Pacific Tracker (PacTrac) Version 3.1 Diet and Physical Activity Assessment Tool for the Pacific Region." Hawai'i Journal of Health & Social Welfare 80 (7): 165–68.

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Stress, Coping, and Aging

HDFS adds to a widely used reference book

The 9th edition of the highly anticipated Handbook of the Psychology of Aging includes a chapter co-written by Lori Yancura of the Human Development and Family Studies program, part of the Dept. of Family and Consumer Sciences.



The chapter, "Stress, Coping, and Aging," is an integrative topic that includes the psychological, emotional, and physical aspects of adult development. This is particularly important in Hawai'i because the well-being of older adults, who are disproportionately affected by COVID and

economic downturns, influences the well-being of our communities here in the Islands.

"The Handbook is edited by the top scholars in the field and widely used as a reference," Yancura says. "It is very influential on many aspects of aging research, and an important resource for researchers and practitioners who study older adults around the world."

She adds, "This contribution will help establish UH as a valued source of expertise on stress and coping in older adults, especially during times such as now when they need our help the most."

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Global Challenger

NREM prof receives Pew fellowship to advance ocean conservation

The Pew Charitable Trusts have announced nine distinguished conservation researchers from around the world to receive a fellowship in marine conservation – and one of them is Kirsten Oleson of the Dept. of Natural Resources and Environmental Management.

From studying the ecological and socioeconomic benefits provided by coastal habitats to improving shark conservation and coral reef restoration practices, the new fellows will undertake a broad range of projects to deepen our knowledge of the ocean and advance the sustainable use of marine resources.

For her part in this global endeavor, Kirsten will use natural capital accounting to evaluate the contributions of coastal ecosystems to the Hawaiian economy and inform the management of marine resources. She will receive \$150,000



over three years to address some of the most critical challenges facing the marine environment.

"We, as a society, have ignored the natural foundations that support our lives and our economies, and that make us resilient to climate change," says Oleson. "Our island ecosystems are degrading, in part because we see the environment as infinite and 'free' – but this perspective rests on an incomplete and inaccurate accounting of our natural wealth."

She adds, "My project will build natural capital accounts – similar to economic accounts – that highlight the benefits to society from natural processes. The hope is to catalyze transformative change in public policy and decision-making. I'm really looking forward to working with state partners at DAR and DBEDT in this effort."

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The 'Poi Dog' Factory

Cattle-breeding technologies are positioning Mealani as an industry leader

by Mike DuPonte

I received my BS and MS in Animal Sciences from CTAHR and went to work for the college, but after a long career, I've hung up my spurs and retired. Before I say Aloha! and Mahalo!, I want to tell you about a special cattle-breeding project at Mealani Research Station.



Not that many years ago, the cows at Mealani

were all different sizes, colors and temperament. They were not well accepted by cattle buyers or businesses. They called us the 'poi dog factory' of the Hawai'i cattle industry. When state legislators got wind of this name, and why, they threatened to cut funding for our cross-breeding program.

So we got together and figured out our options. The 1-year plan was simple: sell the whole herd and use the money to bring in Angus specimens from the Mainland. The 3-year plan was sell half the herd, buy embryos, and insert them into our remaining stock.

But we chose the most difficult route: a 7-year plan to upgrade our existing stock using semen and artificial insemination. We set an ambitious goal to change the phenotype in three years, and genotype by year seven.

We measured Expected Progeny Differences and Pfizer 50K DNA. We developed our artificial insemination, semen collection, freezing protocols, embryo transplant and a sperm bank. We joined the American Angus Association, which meant we were now competing with the best of the best.

Every year, we got better. Today, our cattle grade is very high, and are welcome at the slaughterhouse. We sent 14 bull specimens to the American Angus Association: 12 were rated in the top 10%, 2 in the top 1% – nationally! Hawai'i Cooperative Extension delivers research-based, practical information to the people of Hawai'i in order to make their lives better.

2021 was a landmark year, as Extension continued to make major adjustments to its delivery of educational programs in the midst of a global pandemic. The crisis demonstrates the importance of Extension professionals and volunteers to their communities - something they've been doing for the past 100+ years.

2021 Highlights of Extension Programs

- 69,000 Direct Contacts with the Public. Extension agents and specialists work hand-in-hand with the public to share information and support the local community. Adding indirect contacts, such as phone calls and social media, Hawai'i Extension had 1.3 million total contacts with the public in 2021.
- 1,462 Workshops and Demonstrations with more than 30,000 Participants involved with hands-on teaching, in informal settings, is a primary method for Hawai'i Extension to transfer knowledge to the public.
- 81 Extramural Grants of \$11.5 Million in federal, state, and other sources support the public educational efforts of our Hawai'i Extension agents and specialists.
- 1,292 Volunteers Gave 27,256 Total Service Hours, a \$832,505 value. Trained by Hawai'i Extension agents and specialists, volunteers are the heart of our outreach mission.
- \$14.8 Million Extramural Support (Grants, Donations, and Volunteer Time). Hawai'i Extension faculty generate \$3 in support of Extension programming for every public dollar used to fund their Extension positions.
- 336 Extension Fact Sheets and Technical Bulletins published for the public benefit.
- 9,170 Recipients Adopted Practices or Changed Behaviors because of Extension educational programming.
- The Economic Impact of Coffee Berry Borer Extension management programs in Hawai'i is estimated at \$34 million dollars per year returned to the coffee growers of Hawai'i.

Impact Statements

In 2021, Extension continued to publish impact statements written by educators and specialists, which highlight successful programs representing Extension educational initiatives. The programs described in these publications demonstrate the positive results or outcomes that Extension makes in the lives of the residents of Hawai'i. Visit the Impact Statements webpage for more examples.



Click Me!



Extension Publications

Fact Sheets and Technical Bulletins overhaul the submission, editing, and publishing process

In October 2020, CTAHR overhauled the way Cooperative Extension publications are published, and after 12 months of piloting this new process, it is an unqualified success.

Extension publications are fundamentally important to CTAHR as the land grant college of the University of Hawai'i system. We have a federal obligation to provide practical, research-based information and education for the people of Hawai'i. Our Extension agents and specialists fulfill this very important "community outreach" function – and Extension publications are a primary tool for getting applied science and practical recommendations into the hands of residents and businesses across the state.

A committee of faculty and administration defined a publication process. We set a publishing goal of 90 days from submission. For the 30-odd manuscripts that were processed from October 2020 to October 2021, the average time has been much shorter – 11.6 days – and that figure includes weekends and holidays.

Quality is not suffering, but rather, has improved. The new process includes a basic level of review that was previously missing (however, it is not designed to match the level of rigor in national, peer-reviewed journals). We also raised the standard of scientific editing and formatting. The resulting papers have a consistent and recognizable look, and are higher in readability, clarity of information conveyed, and aesthetics.

Feedback is remarkably positive – from faculty authors to agency officials, to state legislators to UH leadership and professional contacts in industry and at land grant universities. If you haven't visited the **CTAHR Extension Publications** site recently, please do so.

In October 2021, CTAHR's Office of Communication Services (OCS) was instructed to drop "interim" from the guidelines and further streamline the process. The OCS Advisory Council is providing input before any further tweaks to the guidelines are disseminated. This 24-seat council represents all six departments, as well as CTAHR units, programs, Extension, and administration.

During the interim, authors could choose between an older publication design and a new one. The majority chose the latter. With the finalization of the guidelines, all Extension publications are now using the new format. This will increase efficiency and maintain timeliness, as well as uniformly brand CTAHR Extension Publications for our broad community of readers.

For more information, read the full **Submission Process** for CTAHR Extension Publications.

Banana is Back!

Extension distributes a disease-free culture to re-establish Hawai'i orchards

It was less than four years ago when our banana industry was reeling from the double punch of Panama Wilt and Bunchy Top Virus (BTV).

With the value of their product in freefall, Oʻahu farmers reached out to Extension. In response, Amjad Ahmad, Koon-Hui Wang, and Jari Sugano obtained a Specialty Crop Block Grant Program administered by the Hawaiʻi Department of Agriculture.

The grant allowed Extension's Jensen Uyeda to

screen fieldgrown banana plants using new Agdia Amplify **RP XRT** rapid DNA amplification technology. Extension then partnered with Dr. Ming Li of the Hawai'i Agriculture Research Center and East County Hawai'i Farm Bureau to move clean. **BBTV-free plants**



into tissue culture for multiplication.

Fast forward to now. With Extension's help, banana growers on O'ahu are re-starting new fields, using BBTV-free keiki plants derived from tissue-cultured mothers. Extension also developed a rotational insecticide program, designed to work in conjunction with BBTV tissue culture.

"We were about to stop growing apple banana," says Clyde Fukuyama of Kahuku Farms. "We are very excited and looking forward to increasing our plantings again. This will definitely help our farm."

To date, 875 tissue-cultured banana plants have been distributed to 22 growers, and Extension is optimistic the program can re-establish previously destroyed banana orchards, and enable growers to rebound from BTV and Panama wilt. The success has led to another grant secured to distribute 5,000-10,000 seedlings to statewide producers.

"We're hopeful the local banana industry will rebound quickly," says Sugano.

Alumni

2021 Highlights of the CTAHR Alumni Connection

- CTAHR Connections, the monthly Alumni Newsletter, reached 4,000 + Alumni each month.
- CTAHR Alumni & Student Mixers were held online and in person at Mānoa Chocolate.
- Launch of the CTAHR Alumni Annual Plant Sale.
- CTAHR CareerLaunch Program featured Alumni from Hawaiian Host Group, Terminix, U.S. Dept. of Agriculture, Hawai'i Dept. of Agriculture, and Hawai'i Dept. of Land and Natural Resources.
- Working with Alumni businesses to create Internship Pathways.
- "What's Cooking with the Dean?" cooking show, in which CTAHR Alumni asked the dean questions as he prepared his favorite meals.
- Alumni & Students gathered for a May Day Lei Making Event on campus.





Development

Future Development

\$1M grant kickstarts Hawai'i's next generation of farmers

American AgCredit (AAC) and CoBank increased their investment in the University of Hawai'i, College of Tropical Agriculture and Human Resources' farmer training program GoFarm Hawai'i with a \$1 million gift to establish a matching grant program for GoFarm Hawai'i graduates.



The gift rounds out

AAC and CoBank's \$3 million total investment in GoFarm Hawai'i by helping program graduates to grow their agricultural businesses, which enhances food security, provides local fresh food, and supports economic growth in the Hawaiian islands. Their first gift of \$2 million, made in 2021, directly supports GoFarm Hawai'i over five years.

"Agricultural production in Hawai'i is concentrated on smaller farms, and more than a third of Hawai'i's farmers have less than 10 years of experience," said then-CTAHR Dean Nick Comerford. "Supporting these young, beginning, and small farmers is important to help alleviate Hawai'i's reliance on imported food, which restricts access to fresh food and makes our island state especially vulnerable to disruptions in the food supply. This grant enables our GoFarm Hawai'i graduates to build farming businesses that benefit all of us here in Hawai'i."

Today, GoFarm Hawai'i stands as one of the largest and most successful farmer-development programs in the nation, graduating 480 participants since its inception in 2013. The program provides young, beginning, and small farmers with business technical assistance, educational opportunities, and access to a suite of resources designed to remove barriers to farming and agribusinesses.

"These additional funds are a direct investment into graduates who are now farming," says GoFarm Hawai'i director Janel Yamamoto. "The funds help to address a very common obstacle that new farmers face, which is access to capital."

"We focus on support for young, beginning, and small farmers and ranchers as a critical part of our cooperative's mission," says Fred Dixon, regional banking executive for American AgCredit's coastal region. "In our experience, to be successful these farmers need capital to get started, and they need resources like business training and support."

He adds, "We're pleased to partner with GoFarm Hawai'i to provide the foundation that young, beginning, and small farmers need — in terms of capital and skills — to kickstart their future, and agriculture, in Hawai'i."



To support CTAHR academic, research and extension programs, please contact Audrey Hirayama, Director of Development, at (808) 956-9172 or **audrey.hirayama@ uhfoundation.org.**







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COLLEGE OF TROPICAL AGRICULTURE AND HUMAN RESOURCES UNIVERSITY OF HAWAI'I AT MANOA