

Budget, Finance, and Economic Development Committee on 2022-04-13 9:00 AM

Meeting Time: 04-13-22 09:00

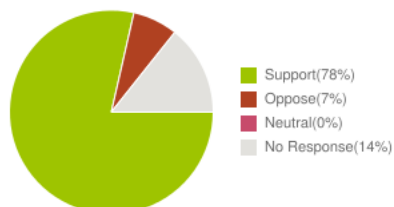
eComments Report

Meetings	Meeting Time	Agenda Items	Comments	Support	Oppose	Neutral
Budget, Finance, and Economic Development Committee on 2022-04-13 9:00 AM	04-13-22 09:00	2	14	11	1	0

Sentiments for All Meetings

The following graphs display sentiments for comments that have location data. Only locations of users who have commented will be shown.

Overall Sentiment

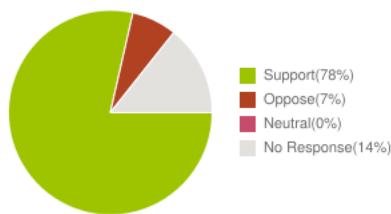


Agenda Name	Comments	Support	Oppose	Neutral
A G E N D A	1	0	0	0
BFED-1 Reso 22-80 PROPOSED FISCAL YEAR 2023 BUDGET FOR THE COUNTY OF MAUI (BFED-1)	13	11	1	0

Sentiments for All Agenda Items

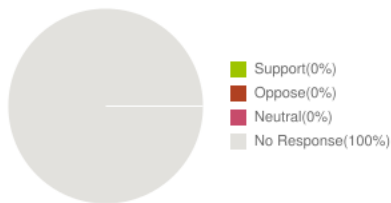
The following graphs display sentiments for comments that have location data. Only locations of users who have commented will be shown.

Overall Sentiment



Agenda Item: eComments for A G E N D A

Overall Sentiment



Guest User

Location:
Submitted At: 12:35pm 04-13-22

Aloha Mayor Victorino, County Council Members, and others,

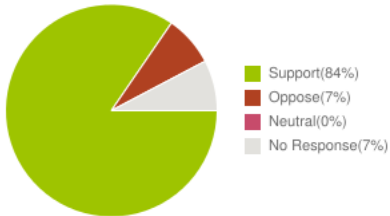
My name is Lexie Nellis and I am testifying for BFED-1 support of Maui Economic Development Board's Economic Development Grant under the Maui County Office of Economic Development. I am an eighth grader at Lokelani Intermediate School. I am a part of the STEMworks AFTERSchool Program. I have learned so much from joining this club. It has given me so many opportunities and new skills that I would have never seen myself doing in the future. I have made jewelry, learned how to create a business and podcast. I really enjoyed all these things because we had freedom and could be as creative as we would want. When I grow up I want to focus on being a SPED teacher but because of this club I have been inspired to start my own small business. This program has taught me how to price, make, and enjoy having business but most of all I have learned is to show off my creativity no matter how crazy it is.Please continue approve the budget for MEDB so that we can have

opportunities of a lifetime and help others like me be creative.

Thank you,
Lexie Nellis

Agenda Item: eComments for BFED-1 Reso 22-80 PROPOSED FISCAL YEAR 2023 BUDGET FOR THE COUNTY OF MAUI (BFED-1)

Overall Sentiment



Guest User

Location:

Submitted At: 5:11pm 04-13-22

Dear County Council:

Please fund the entire amount request by KHAKO for the FY 23, FY 24 grant period.

KHAKO requested \$815,000 to operate both of our homeless shelters, Wailuku and Lahaina.

To be able to do the work we do at the shelter and to cover the costs/expenses we requested \$815,000, however, the mayor proposed to fund only \$671,000 annually. This is a drastic \$144,000 difference in much needed funding. This is a significant reduction in the request which will have a very deep cut in services the agency provides. As the need for utilities to be paid is ever present, we would be forced to consider to eliminate 4 key employee positions to include the Food Services Manager, Disability Case Manager, and two operation/security workers.

The Disability Case Manager (DCM) is responsible to assess, coordinate and advocate for appropriate care for participants with disabilities in shelter. The DCM ensures proper documentation of disability and length of homelessness for chronically homeless participants to assure Permanent Supportive Housing placements. The DCM splits their time between the Central and Westside Shelter and the Ka La Hiki Ola Mobile Hygiene Unit to ensure maximum services are offered.

The Operations Team is familiar with KHAKO's programs, maintains close contact with participants and conducts unit inspections to gauge progress and implementation of Step-Up principles. These workers also work 24/7 to provide safety and security at the facilities.

The Food Services Manager (FSM) is responsible for the daily operation of the shelter's cafeterias, ensuring that proper food handling procedures are followed and maintaining the food services' budgetary specifications. The FSM also ensures that participants and unsheltered individuals and families seeking KHAKO services have access to food, and three (3) quality and nutritious meals a day, 365 days a year, with efforts to be respectful of dietary needs for a diverse population in a mass feeding environment and to assure satisfaction with dining experiences.

The agency has only had nominal increases in funding but it is not enough to keep up with the rising costs of utilities and maintenance for the aging buildings. The participants in the shelters are asked to pay program fee's that help to offset the expenses, however, their ability to pay is limited. This means the agency must cover the bulk of the

It is crucial that the county's largest homeless provider, who has been assisting the homeless in Maui for over 30 years get the funding it needs to fully operate and offer vital services.

Mahalo piha for the work that you do in our beloved community.

Sincerely,
Monique R. Ibarra
Executive Director

Monique R. Ibarra, MSW | Executive Director
Pronouns: She/Her/Hers (what's this?)
Ka Hale A Ke Ola Homeless Resource Centers, Inc.
670 Waiale Road
Wailuku, HI 96793
Ph: (808) 446-8133
www.khako.org

"Breaking the Cycle of Homelessness"

Guest User

Location:
Submitted At: 1:20pm 04-13-22

Aloha County Council,

It is vital that we take care of our oceans and get rid of injection wells!
Please approve the Regional Wastewater Plant in Maalaea. The wells in that area are some of the worst offenders on the island. I am a condo owner in Maalaea, Maui resident and long time Hawaii resident. We desperately need to shut down these aging systems and see Maalaea Bay restored to a clean and healthy environment for corals, fish, and humans alike. It is the right thing to do! Why would we wait?? The right time to do the right thing is NOW.
Please vote to approve the \$9.5m project.

Mahalo,
Tracey Cannon
280 Hauoli St A17

Guest User

Location:
Submitted At: 1:18pm 04-13-22

Support of Lana`i Kina`ole's request for support of the expansion of long term care services for Lanai kupuna through the adult day care proposed project

Aloha, I am supporting Lana`i Kina`ole's (LK) request to continue to provide long-term care services to the kupuna on Lana'i through the expansion of their services to include an adult day care (ADC) and/or an adult day health (ADH) program, especially since Lanai's population is about 30% over the age of 60 years. Support through funding would assist LK initiate building consultation, securing field expertise, and going through the required permitting, land assessments, and design. The current LK office is located on land owned by the Pulama Lanai company, and it will partner with entities to ensure that this expansion will move forward if Maui County and other funding are secured. Currently, LK is seeking additional funds from different entities, such as private foundations, state government, and individual donors, as well as internally through reimbursement for existing service delivery through its licensed home health program. Support through the County of Maui would greatly enhance LK's efforts to develop a much-needed adult day care/health program for the community of Lanai. Mahalo, Judith Mikami

--

Judy Mikami
(808) 658-0710 (c)
(808) 553-5603 (h)

Guest User

Location:
Submitted At: 1:16pm 04-13-22

Testimony on BFED-1 in support of Maui Economic Development Board's Economic Development Grant under the Maui County Office of Economic Development.

To Whom it may concern,

My name is Shannon Rowe and I am an Automotive Technology teacher at Maui High School. I am writing to you today to ask that you please continue to support Automotive High school programs in Maui County through Maui Economic Development Board. This grant has been a catalyst for maintaining strong high school Auto programs at not only Maui High School, but also Baldwin High, King Kekaulike and Lahainaluna High Schools. Most recently this grant has helped to obtain a new teacher at Baldwin High School. (Baldwin was in danger of losing their program due to not having a qualified Auto Teacher). As high schools across the state continue to see declines in their Industrial Arts classes, with the help of this grant and MEDB Maui schools have been able to not only maintain, but also improve our Auto programs.

Thank you very much for your consideration.

Sincerely,
Shannon Rowe
Maui High School

Guest User

Location:

Submitted At: 1:14pm 04-13-22

Testimony for Lana'i Kinaole's County Grant

Aloha County Council members and staff. My name is Robin Kaye, and I'm a long-time Lana'i resident.

Thirty-one percent of Lana'i's population is over 60 years of age — almost one third of our total population. [REPEAT]

That is a higher percentage than that of Maui County (24%), the entire state of Hawai'i (24%) and the national population (21.8%). Twenty-seven percent of Lana'i residents are over 75 years of age — again, higher than Maui County, State of Hawaii or the entire United States.

Yet despite those staggering numbers, there is no adult day or adult day health care or a long term care facility of any kind on the island of Lana'i.

I love this island. My family and I have lived on and off Lana'i since purchasing our 1935 plantation house in 1978. I've worked in the pineapple fields. I've helped neighbors and friends build their homes. I've volunteered for many of our community's nonprofit organizations, and helped to create two of those. And I want to

Page 2 of 4

share with you one-little-known-yet-incontrovertible fact about this island. You cannot be born here — and you cannot die here.

The birth part is largely due to the unavailability of equipment and specialists for premature births. I know this for a fact, given how we had to fly out to Honolulu when my son was about to be born.

The dying part we know well, as we've seen many of our friends shipped out to other islands so they could end their lives in care facilities. On Lana'i, WE HAVE NO CARE HOMES

WHATSOEVER. NONE. We have apartments for seniors but without any healthcare provisions. If you have to spend the remaining years of your life in a place with medical assistance — you must move away.

To change that dynamic, we now have on island an incredible collection of passionate, educated and well-trained individuals, who

not too long ago began providing home care for our kupuna — while simultaneously developing a much-needed non-tourism-based workforce. Without Lana'i Kinaole, those who've wanted to stay in their homes as they've aged would be severely challenged to do so; they would have to leave Lana'i.

Page 3 of 4

Less than a year ago, our community raised thirty thousand dollars and hired the University of Hawaii to undertake a needs assessment for kupuna care. The study, by a team from UH's Department of Urban and Regional Planning and the School of Architecture, provides insight into the status of long-term k_puna care on the island based on in-depth interviews with over 50 k_puna, family members who are caregivers, service providers, a focus group of elderly residents, and a survey of existing health care facilities conducted between November and December 2021. Here are some highlights:

Quote:

- The results indicate that the majority of the k_puna interviewed preferred to remain independent in their homes as they age, but are all too aware that it might not be possible, without day care and ultimately long-term care;
- All the groups of study participants mentioned the lack of longterm care alternatives on the island and stressed the need for adult day care or adult day health care, for expanding home care, and for having a facility on L_na'i that offers long-term care for k_puna who can no longer live independently.

Page 4 of 4

- They preferred any new facility to be located centrally for a sense of connectedness to the community

What do we need to do? We need to enhance existing services, and we need to provide a new facility to meet the growing need for short- and long-term care for seniors on the island. And, equally important, to provide a respite for our kupuna's caregivers. Since the mid-1800's Lana'i has been almost completely owned by one landowner. There is little we can do about that; it is a fact of life here on Lana'i. Given that, I would argue that the commitment of a long term lease is the best possible solution for moving forward towards a much needed kupuna care facility.

Please approve the requested allocation so we can care for our kupuna here. Not someplace else.

Guest User

Location:

Submitted At: 10:46am 04-13-22

In response to the Council's request for more detailed information regarding the County's ARPA expenditures, Director Teruya responded that the Mayor has created several private Task Forces on various issues to provide suggestions on the County's ARPA expenditures.

I do not see anything in the Charter language that gives the Mayor the power to create private Task Forces to advise on the expenditure of County funds. The Council has exclusive authority to pass the FY Budget including all estimated appropriations and expenditures.

Why, in April 2021, did CM Rawlins-Fernandez propose adding Section 27 to the General Budget Provisions to give the Mayor the authority to expend all appropriations in his "best judgement"? Please do not add any similar language to the FY 23 General Budget Provisions. This only encourages secrecy, unaccountability and the exclusion of the public from the discussion over how the County's federal covid relief funds should be spent.

Guest User

Location:

Submitted At: 9:04am 04-13-22

Budget request for Maalaea Wastewater Facility

This is letter in support of the request to include \$9.5 million of funding for a new Ma'alaea Regional Wastewater Reclamation Facility in the 2023 budget, and support for Kelly King's proposed amendment.

=====

Mark Juergensmeyer

30 Hauoli St, #106, Ma'alaea, Wailuku 96793

juergensmeyer@gmail.com

BFED Committee

Location:

Submitted At: 8:56am 04-13-22

Testimony received from BFED Committee.

Guest User

Location:

Submitted At: 8:12am 04-13-22

Maalaea Water Treatment System budget proposal

Aloha Kelly,

Thank you very much for supporting Maalaea. I am a homeowner at Kanai A Nalu since 2001 and appreciate all the time and energy you've put into this budget proposal for wastewater treatment in Maalaea.

I tried to write the county clerk in support of adding the Maalaea treatment system to the proposed 2023 budget and the email address wasn't accepted. So I decided to write you in support of your proposal. I firmly believe is is justified for our area to protect the livability for years to come. Please include this email with any other documentation you need for support of your proposed amendment.

Thank you,
Pam Thompson
Kanai A Nalu
250 Hauoli Street #301
Wailuku, HI 96753

Guest User

Location:

Submitted At: 8:10am 04-13-22

Butch Gima

POB 630400

Lanai City, HI 96763-0400

bg325@hotmail.com

559-9566

Testimony before the Maui County Council BFED committee, April 14, 2022

Good morning,

I am unable to provide testimony as I am Oahu for a medical appointment. I am in support of L_na'i Kinaole's (LK) Phase I, FY 2022-2023 budget request of \$250,000.00 for planning and design of a Adult Home Health (ADH) and Adult Day Care (ADC) facility on the island of Lana'i.

When appropriate, I will provide further testimony for LK's Phase II budget request of \$750,000.00 for construction costs.

The foundation for my testimony is rooted in the following:

- a. My 31+ years working in Adult Mental Health
- b. My multi-year participation in the Lana'i Aging Network Council, Eldercare Infrastructure Committee and current Long-Term Care project
- c. My assistance with off-island friends whose Lana'i parent(s) needed assistance with coordination of health, medical and long-term care needs
- d. My ongoing advocacy for the Office on Aging's on-island presence, staffing and policy development and
- e. Caring for my elderly Mom who eventually had to go to Oahu for long-term care and later died.

The need for LK's budget request has been well documented. There have been numerous studies over the last 5 years that have established a need for ADH and ADC. Most recently, the University of HI's Architecture and Urban Planning Departments completed their Needs Assessment. Here are excerpts from their Conclusions:

The growing aging population of Lana'i will increase pressure on health care and social services.....The results indicate that the majority of the Kupuna interviewed preferred to remain independent in their homes as they age.....study participants mentioned the lack of long-term care alternatives on the island.....They stressed the need for ADC or ADH care, expanding home care and a facility that offers long-term care for kupuna.....

The study provided both empirical and anecdotal data that recommended building a new facility, expanding home health care, developing affordable housing to support the health care workforce to name a few.

There is an urgency to fund LK's request; especially after the County kicked the proverbial can down the road when a similar endeavor was scuttled by the County Administration, Office of Aging and the Office of Economic Development.

LK is doing its due diligence by seeking multiple sources of funding which include federal, state, in-kind and donations. The County share would be just one piece of the pie, not the entire pie. As with other funding methods, County funding will help LK to leverage other types of funding and support. In addition, an ADH program will enable LK to be reimbursed for services; another funding stream.

Leveraging could also mean land acquisition or long-term leasing. Many of you may be unaware that Pulama Lana'i leases ~95% of the commercial property. Only a few churches and a coffee shop own their property. Consequently, business infrastructure development are rare on Lana'i due to the very, short term leases.

Funding LK's budget request(s) will significantly impact LK's ability to negotiate either a long-term lease (30 years+) or a land purchase with Pulama Lana'i. Based on my experience with Pulama Lana'i and its predecessor, it would be short sighted for the Council, the County to wait on the landowner before making a funding commitment to Lanai's Kupuna and community.

To summarize, LK has established itself in its few years of existence in serving our community's kupuna, working collaboratively with our community's health care providers all the while being creative in establishing its budget. The funding of LK's request will fill a gap now, while the rest of the Eldercare Infrastructure is developed. Most importantly, this is what Lanai's Kupuna want and need.

Thank you considering my testimony and the needs of our community.

Sincerely,

/s/

Butch

Guest User

Location:

Submitted At: 7:52am 04-13-22

Megan Nakashima, President

Testifying on behalf of the Kekaulike High School Foundation

Written Summary of Verbal Testimony

We support the additional proposed budget earmarked for the Kekaulike High School Foundation.

Kekaulike High School Foundation

- New nonprofit and was created because there was an initial need for a non profit organization to accept large donations slated for the Kekaulike complex public school programs
- A separate entity from the King Kekaulike Foundation for the Performing Arts which is intended to support and maintain the Performing Arts Center
- Encompasses the entire Kekaulike Complex and is meant to provide support for all aspects of school, including athletics, the arts, STEM, and everything else.

“Upcountry Eats for Education” (first fundraiser)

- March 2022
- Participating eateries were asked to donate 10% of their sales that day to the foundation
- Advertising: Radio time was donated and we relied on social media (FREE)
- Expenses: mostly for printing and postage
- Outcome: We made about \$1200 and the eateries received extra publicity and patronage that day. We hope that they made a few new customers as well!

Other donations already received:

- \$8000 in donations earmarked for scholarships for the current graduating class. The scholarship committee is currently reviewing applications, the deadline was this past Monday.
- Donations earmarked for public school libraries and for various other programs. We are slated to complete our grant application process very shortly for educators to access those funds.

What the proposed \$25,000 will be used for:

- Continue our fundraising efforts
- Hold events that are family friendly and affordable
- During these events, we want to be able to fundraise and bring awareness to the areas of our public school complex that need a little help and to raise funds for our general fund, which can also provide grants on a case by case basis.
- Example: Color Run Upcountry
 - o Need funds for a registration and timing program, event insurance, supplies, refreshments, support personnel, music, etc.
 - o We would hope that a portion of this would be donated or discounted, but we can't expect that.

Why does Kekaulike High School Foundation deserve this:

- We're a brand-new foundation, therefore no surplus of funds.
- We're not well established with generations of community members supporting it.
- Not only does it support the current students, but it also gives alumni a way to give back and reconnect with the community we grew up in.
- We have already proved that we can hold a fundraiser, that we are frugal when it comes to expenditures, and that we have a process to provide funds raised to those who need it.
- We want to be able to do more and strengthen that bridge between the community and Upcountry public schools. This proposed funding would help us do just that.

SUPPLEMENTAL INFORMATION – KEKAULIKE HIGH SCHOOL FOUNDATION

Two of the biggest statements that have been posed to us regarding this funding:

1. The County does not give to Public Schools.

a. Is this a law? Has this been historically true?

b. We understand that it may be best practice to let the State handle public education, we would like to confirm this.

c. If so, we apologize for taking up your time.

d. Does the County support the public school system in other ways?

2. The County does not give to School Foundations. If you give to one, you have to give to all.

a. As a product of the Upcountry public school system, I was taught to share what I have and to think out of the box when problems arise.

b. We suggest that the amount of money proposed for the Kekaulike High School Foundation be split amongst all of the Maui complexes: Baldwin, Maui, King Kekaulike, Lahaina, Hana, Lanai and Molokai.

c. What would be a great gift for us to uplift the public schools in our complex, we know will also be a wonderful gift for our counterparts in the other complexes.

Guest User

Location:

Submitted At: 3:11pm 04-12-22

Testimony of

Mufi Hannemann

President & CEO

Hawai'i Lodging & Tourism Association

Maui County Council

Budget, Finance, & Economic Development Committee

Bill 71 (2022)

April 13, 2022

Chair Rawlins-Fernandez and members of the Committee, mahalo for the opportunity to submit testimony on behalf of the Hawai'i Lodging & Tourism Association, the state's oldest and largest private sector visitor industry organization.

The Hawai'i Lodging & Tourism Association—nearly 700 members strong, representing more than 50,000 hotel rooms and nearly 40,000 lodging workers—has long supported programs and initiatives that would protect Native Hawaiian culture and the arts and practices that comprise it.

In the Maui County budget currently proposed by Mayor Michael Victorino, there exists plans to fund the construction of H_lau of __iwi Art which will be dedicated to the study, practice, celebration, and perpetuation of hula and other cultural arts and practices connected to hula. It stands to be the first center of its kind and the largest investment by any county in the study of hula.

To finance the center and other budget priorities, Mayor Victorino has proposed the issuance of general obligation bonds via this bill. As HLTA recognizes the importance of the local culture, its people, and its practices, we feel strongly that the Committee should support this measure and the construction of the H_lau of __iwi Art.

Personally speaking, throughout my career in public service and the private sector, the perpetuation of the Hawaiian culture has always been a priority of mine, and I feel strongly that it must be done, and it must be done correctly. The establishment of a center like H_lau of __iwi Art ensures that this will be so.

For these reasons, HLTA supports Bill 71 (2022).

Mahalo for the opportunity to provide this testimony.

Guest User

Location:

Submitted At: 12:50pm 04-12-22

I am Alexis Kahue and I am the new Automotive Technology Teacher at Baldwin High School and I am testifying on BFED-1 in support of Maui Economic Development Board's Economic Development Grant under the Maui County Office of Economic Development. Through MEDB I was able to start reviving the Automotive program at Baldwin High. From what I understand there was no qualified teacher for the position for over 4 years. I was originally recruited by another teacher, but when I decided to jump on board the school did not have the budget yet to hire me as one of their teachers. As a "consultant" under MEDB I was able to start and receive a small amount of funds to start teaching students online. I was able to buy small equipment and tools needed for the students to start MLR 1 (maintenance and light repair) lessons. Baldwin High now has 120 students in the automotive program ranging from grades 9-12. With the continued support from MEDB we can continue to build the program, purchase much needed tools and equipment, and revive the drive from our students to succeed especially in a CTE course and continue on to higher education.



UNIVERSITY
of HAWAII®
MĀNOA

CTAHR Leverages Maui County funded Molokai Garden & Grindz project into a \$350K USDA-Rural Health and Safety Education grant to take the program Statewide!
Thank you so much! Please Support the UH CTAHR Maui Cooperative Extension Line Item

Good Morning, my name is Cindy Reeves and I am the Maui County Administrator for UH CTAHR Cooperative Extension. I would like to thank you for your support in the past, and I am here today to request your continuing support of our current budget line item this year. Our FY 21 report is attached to my testimony, and the following FY 22 projects would not have happened without Maui County funding:

Projects currently underway:

- **Multigenerational Gardening Education as a Strategy to Address Self-Sufficiency for Households in Hana, Lanai City, and Kula;** Project Manager: Heather Greenwood-Junkermeier, Jennifer Hawkins, Rosemary Gutierrez-Coarite, Nancy Ooki
- **Investing in the Preservation and Distribution of Protea in Maui County.** Project Manager: Hannah Lutgen
- **Workforce Development through 4-H Programming on Lānaʻi;** Project Manager: Nancy Ooki
- **Multipurpose Covered Area for Livestock Producers and 4-H Youth in Maui County.** Project Manager: Kyle Caires
- **Innovative Solutions to Increase Soil Health for Molokai Farmers;** Project Manager: Jennifer Hawkins
- **Evaluation of onion yield under organic and conventional soil fertilizers and irrigation systems;** Project Manager: Rosemary Gutierrez-Coarite and Jennifer Hawkins

What I really want you to know is that CTAHR is here to support Maui County 4-H youth, families and communities, and agricultural and landscaping producers and businesses to be successful and economically viable.

We have an **edible crops agent** on Maui who works closely with commercial growers to provide hands-on support and guidance to help them maintain their farming operations. We have **two edible crops agents on Molokaʻi** who are working tirelessly to combat food insecurity. We are also currently hiring a **DHHL Homestead Agent** and a **Farm to School Agent** on Molokai. Our livestock agent, Kyle Caires, leads the training in our **4-H youth livestock** program, while supporting our local livestock producers; and he is championing the **evolution of our Haleakalā Research Station into a premier livestock education and outreach facility**. Our ornamental and landscape agent is working closely with growers to support their needs; including providing a distribution of protea cuttings from our unique collection later this year. Our family and consumer science agents are providing workforce development through our **4-H youth programs, supporting grandparents who care for their grandchildren**, and addressing **food security issues in households on Maui, Molokai and Lanai**. We also have a very active **Master Gardener program consisting of 125 volunteers** who provide gardening and pest information, conduct soil samples, answer consumer questions and provide training to other participants on beekeeping and other topics.

CTAHR is here for the Maui community, and all of you, as a resource to help you find answers to the questions you need to make decisions for the good of Maui County. Special kudos to JoAnn and her team at OED for all their hard work managing all the grant programs! Thank you again, for your support in the past, as I humbly request your ongoing support of our line item in this current budget cycle. Thank you!

Maui Extension Office, 310 Kaahumanu Ave, Building 214

Kahului, Hawaiʻi 96732

Telephone: (808) 244-3242 Fax: (808) 244-7089

Email: kahului@ctahr.hawaii.edu Website: www.ctahr.hawaii.edu

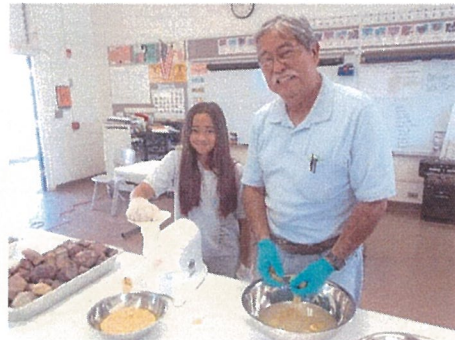
An Equal Opportunity/Affirmative Action Institution United States Department of Agriculture Cooperating

RECEIVED AT BFD MEETING ON 4-13-22
(CINDY REEVES)



WE ARE CTAHR: FY 21 REPORT

Landscape and Turfgrass
Integrated Pest Management
Economic Development
Family Financial Security
 Intergenerational Programs
UH CTAHR MAUI COÖPERATIVE EXTENSION
4-H Youth Programs
Food Safety
Master Gardener Helpline
Nutrition and Health
Ag and Natural Resources
Cut Flowers
Invasive Species
Edible Crops



UH CTAHR FY 21 Report (G5348)

1. Establish On-Farm Pollinator Friendly Habitat Using Native Hawaiian Plants to enhance edible crop production and food security on Maui, Moloka'i & Lanai. Project Manager: Dr. Rosemary Gutierrez-Coarite

Summary

- 1) Insect pollinators identification.
- 2) Data analysis.
- 3) Workshop organization for Lanai Island at the community garden.
- 4) Field day at Kula Agricultural Park.

Report Narrative:

A. Summary of Program status in relation to goals, objectives and scheduled action steps outlined in the grant proposal

- The progress of the project has advanced about 95%. Native Hawaiian plants have been established and some species are already flowering, serving as a source of pollen and nectar for insects' pollinators.
- Data collection of pollinators, predators, and parasitoid insects have all been collected, and data analysis is being conducted.
- Workshops and field days have been conducted on Maui and Lanai Island.

B. Progress in meeting performance standards

Goal: The goal of this study is to increase the population of pollinators in agricultural landscapes by enhancing their habitat using native Hawaiian plants.

- Objectives of Goal 1 and 2 have been conducted for this quarter, as evaluation of the species diversity of pollinators has been completed, and educational workshops and field days for growers have been conducted.
- The project performance is on time to achieve its objectives and goals (**Goal 1:** The goal of this study is to increase the population of pollinators in agricultural landscapes by enhancing their habitat using native Hawaiian plants **Objective 1.** Evaluate the species diversity of pollinators under the different treatments. **Goal 2:** Disseminate the results of the study to growers in Maui County **Objective 1:** Host educational field days for grower).

C. Numbers and descriptions of people or businesses served

- Workshop in Lanai (Community Garden): 18 growers attended.

- Field day in Maui (Kula Agricultural Park): 25 growers attended.

D. Any major adjustments that have been necessary or will be proposed

- No major adjustments were necessary at this point of the project.

E. Past and/or future marketing and/or public outreach efforts

Workshops and field days were conducted during this quarter. Stakeholders have been informed with the results of this project and they are aware about the importance of the establishment of on-farm pollinator friendly habitats using Native Hawaiian plants.

F. Next major steps for this project

- Write a CTAHR publication about this project and share it with stakeholders statewide. This publication will be attached to the final report of this project.

G. Describe how the funds allocated for this project were used during this reporting period

- About 90% of the total funds have been expended and the other 10% will be expended as soon as possible.

H. Efforts towards economic self-sufficiency

- Efforts of economic self-sufficiency were not reached yet; it is programmed for the end of the project.

2. Agriculture Education as a Tool to Address COVID-19 Food Insecurity of Molokai's Families. Project Manager: Heather Greenwood-Junkermeier

Agriculture Education as a Tool to Address COVID-19 Food Insecurity of Molokai's Families

Final Report Narrative: January – December 2021

Team members: Heather Greenwood-Junkermeier, Jennifer Hawkins, Nancy Ooki

A. *Summary of program status (goals, objectives, action steps)*

UH Manoa Maui County Cooperative Extension will utilize the 12-hour family-based educational program Ohana Garden and Grindz Program (OGG) to respond to Molokai's unique food insecurity challenges have been exacerbated by the economic crisis stemming from the COVID-19 global pandemic.

Goal 1: Develop resources to address food insecurity issues facing Molokai's children, youth and families.

Goal 1 Objectives	Goal 1 Objective Outcomes
Objective 1: Hire and train a project associate.	Completed February 2021
Objective 2: Implement two OGG series (cohorts) on Moloka'i Performance measures: • 2 cohorts • 16 families registered • 16 families completed • 16 evaluations analyzed	• 2 cohorts completed • 14 families participated • 12 families completed/graduated from the program • 20 hours of education per participant • 810 hours of educational instruction provided for the 2 cohorts which includes: ○ 390 hrs of education for adult participants ○ 420 hrs of education for youth participants • 2 faculty and 1 staff provided all educational instruction • 20 pre- and post- assessments were completed; only 6 families completed both the pre- and post- assessments and could be analyzed for changes in knowledge and skills Note: Registration and completion were lower than anticipated as the program schedule did not work for all families who expressed an interest in the program.

Goal 2: Implement a sustainability plan to maintain and expand the OGG program in Maui County

Goal 2 Objectives	Goal 2 Objective Outcomes
Objective 1: Create one updated/final OGG curriculum manual Performance measures: • 1 updated curriculum manual	• 1: Number of curriculum manuals under revision. Note: revision will be completed Mar 2022 • 7: Number of CTAHR faculty (in addition to faculty listed on this project) who reviewed provided feedback to the curriculum manual to facilitate project expansion and sustainability to all of Maui County • 1: Number of Project Associate manuals initiated to support effective project expansion to all of Maui County • 11: Number of online learning assignments adapted to increase family participation, knowledge gain, and skill demonstration • 5: Number of videos created to support online learning component of at-home assignments (current online learning platform is Google Classroom) (handwashing, measuring liquid/dry ingredients, garden containers, saving seeds, lasagna) • 13: Number of videos at some point in development (topics: planting process, soil prep, post plant watering, making refrigerator food safe, wash kitchen kit, slug jug, swiss chard harvesting, swiss chard cooking, using food thermometer, transplanting beans, composting, germination, stir fry) • 4: Number of video scripts drafted to support online learning component of at-home assignments (topics: germination, stir fry, slug jug, composting)
Objective 2: Submit a USDA grant proposal to fund project continuity on Molokai and expand to other areas in Maui County Performance Measure: • 1 grant submitted	• 1: Number of USDA grant proposals submitted • 1: Number of USDA grant proposals awarded • \$350,000: Amount of USDA grant awarded • 2021-2023: Years in which the USDA grant will sustain this project on Molokai.

B. Progress in meeting performance standards

Goal 1: Develop resources to address food insecurity issues facing Molokai's children, youth and families.

Objective 1: Hire and train a project associate.

- Met performance measure in 1st Quarter FY2021

Objective 2: Implement two OGG series on Molokai (16 families complete program & evaluations analyzed)

- Exceeded total participant goal by 8 participants (participant goal=32, total participants = 44, total participants who graduated/completed=39)
- Met performance measure for number of series completed
- Did not meet goal of 16 families (14 registered, 12 completed). Registration and completion were lower than anticipated as the program schedule did not work for all families who expressed an interest in the program.
- Evaluation results.
 - o Pre-assessment: 13 of the 14 registered families completed the pre-assessment survey
 - o Post-assessment: 7 of the 12 families who completed the program also completed the post-assessment survey
 - o Pre- and Post- assessments: 6 families completed both the pre- and post- assessment surveys. Of those who completed both assessments the following changes were reported:
 - 66% indicated an increase in frequency in cooking together
 - 83% indicated an increase in gardening knowledge
 - 50% indicated an increase in garden safety knowledge
 - 50% of families indicated they had a family garden at the beginning of the program. At the end of the program 100% reported having a family garden.
 - 50% indicated that they either started a compost area or increased their composting activities

Goal 2: Implement a sustainability plan to maintain and expand the OGG program in Maui County.

Objective 1: Create an updated/final OGG curriculum manual.

- Currently finalizing the updated OGG curriculum manual; will be complete 3/2022
- Exceeded goal in the following ways:
 - o Included 7 CTAHR faculty outside of Maui County to participate in curriculum manual revision
 - o Began working on 1 Project Associate manual to support project expansion to all of Maui County
 - o Adapted and improved 11 online learning assignments
 - o Created 5 videos to support online learning component of at-home assignments
 - o Began creating an additional 13 videos to support online learning component of the project.
 - o Of the 13 videos currently under development, 4 video scripts have been drafted

Objective 2: Submit a USDA grant proposal to fund project continuity on Molokai and expand to other areas in Maui County.

- Met goal of submitting 1 USDA grant proposal
- Exceeded goal in the following way: goal was to submit proposal in 2021 for funding in 2022. Proposal was submitted in early 2021 and funded in late 2021

C. Numbers and descriptions of people or businesses served

Note: This project was an educational program for families (multiple generations) aimed at decreasing food insecurity of Molokai families through an educational process which increased gardening and food preparation knowledge and skills. The proposal never intended to service farms.

- Quarter 2:
 - Businesses served: N/A (see Note above)
 - Individuals served in FY2021
 - 6 households registered for the second OGG series.
 - 5 households completed the second series.
 - Due to confidentiality of program participants, individual families are not identified in quarterly or final reports.

D. Major adjustments

No adjustments were necessary.

E. Past and/or future marketing and/or public outreach efforts

All marketing and recruitment efforts were completed during Quarter 2. Evaluation analysis that was conducted during Quarter 4 will be used in future marketing and outreach efforts.

F. Next major steps

In FY2022, the following steps will take place

- Project is sustained on Molokai with federal funding
- Project is expanded to Maui and Lanai through funding from Maui County Office of Economic Development

G. Funds used during the project

Expenditures during GY 2021 included materials & supplies, salaries, fringe, and indirect expenses.

H. Economic self-sufficiency

As a result of federal funding, the project will be sustained on Molokai through 2023 and project managers will continue to seek federal or state funding to sustain the project on the islands of Maui and Lanai.

3. Managing disease, evaluating and sharing best practices to maintain Hawai'i's unique Proteaceae in Maui County. Project Manager: Hannah Lutgen

A. Summary of Program status in relation to goals, objectives and scheduled action steps outlined in the grant proposal.

Continue to work on objective I to IV focusing on finalizing vitro fungicide efficacy trials, analyzing data from potted plant fungicide trials, and producing extension materials to help Maui County growers manage fungal pathogens and improve plant health of Proteaceae.

B. Progress in meeting performance standards.

Objective I. Identifying host-pathogen interactions:

This quarter 26 samples from 4 different protea growers' properties in Maui were collected and submitted to USDA ARS PBARC for pathogen analysis. This year (from August to November 2021) a total of 83 plant samples were collected from Maui Agricultural Research Station and protea farms in Maui County. USDA ARS PBARC pathologists processed, isolated, and identified numerous fungal genera and/or species from 119 sub samples. Symptoms, climatic and geographic information, and photographs of the symptoms were collected. Results of these samples will be provided in the final report. The following genera continue to be the most common fungal pathogens affecting Proteaceae with *Neofusicoccum*, *Lasiodiplodia*, *Pestalotiopsis*, *Phomopsis*, and *Alternaria*. Common genera were identified to species levels. Refer to sections J, K, L below.

Objective II. In vitro fungicide efficacy tests:

USDA ARS PBARC are still testing Eagle, Spectro 90, Cleary's 3336, Trigo, Pageant, and Tebuconazole are being tested against fungal pathogens amended Potato Dextrose Agar (PDA) and the control in non-amended PDA lab in Hilo, Hawaii. Preliminary results suggest that myclobutanil (Eagle 40 WP, FRAC 3) thiophanate-methyl (Cleary's 3336 WP, FRAC 1), tebuconazole (Quali-Pro Tebuconazole 3.6F, FRAC 3) chlorothalonil and thiophanate-methyl (Spectro 90 WDG, FRAC M5 & 1) inhibited fungal growth on plate culture potentially suggesting that these protectant/curative fungicides could be applied on a FRAC rotating schedule to suppress fungal pathogens. According to Brian Bushe, USDA ARS PBARC pathologist and grant collaborator, "disease identification will prove critical before specific pesticide recommendations can be made based on tolerance of the fungi to the various compounds that were tested" (Brian Bushe, 2022). Furthermore, field testing of fungicides on symptomatic Proteaceae plants is needed (Brian Bushe, USDA ARS PBARC, 2022 email correspondence).

Objective III. Potted plant fungicide trials:

Mild to moderately symptomatic Protea and Leucospermum sp. were sprayed with Eagle (myclobutanil: a-butyl-a-(chlorophenyl) Pagent (pyraclostrobin) and Triathlon

(biofungicide *Bacillus amyloliquefaciens* strain D747) to evaluate differences in disease severity to predict field efficacy of fungicides and help growers manage diseases. Data including plant health, disease severity ratings, and disease symptoms have been recorded and photographs have been collected. The potted plant fungicide trials ended. The plants were potted into 1-gallon pots and received fertilizer (Refer to section M). Hannah is still monitoring plant health, disease severity, analyzing and interpreting data. This trial will be repeated as soon as we obtain adequate plant material ideally using new plants of the same cultivar for statistical significance.

Preliminary results suggest that Triathlon sprayed on *Lsp. spp.* and *Protea sp.* provided the highest performance for overall plant health, followed by Eagle fungicide applications applied to symptomatic *Protea sp.* However, we are still running statistical analysis, analyzing, and interpreting data. The results of this trial will be shared in the final report. Furthermore, the results may help us understand and develop best management practices to suppress fungal pathogens in *Proteaceae*.

C. Numbers and descriptions of people or businesses served

This quarter, a total of 26 symptomatic plant samples from 4 different *Protea* growers' properties were collected and submitted to USDA ARS PBARC collaborators for pathogen analysis. From August 2021-November 2021, a total of 57 plant samples from 10 different *Protea* farms in Maui County were collected. Materials and supplies were purchased at local horticultural supply stores in Maui County, stimulating the local economy. These supplies are essential for collecting diseased plant materials and implementing the potted plant trial.

D. Any major adjustments that have been necessary or will be proposed.

No adjustments were needed at this time. Mahalo nui to Maui Office of Economic Development for the grant extension. Hannah and the USDA ARS PBARC collaborators are grateful for support and additional time to complete the grant objectives.

E. Past and/or future marketing and/or public outreach efforts.

This quarter, Hannah collected a total of 26 symptomatic plant samples from 4 different *Protea* growers' properties for disease analysis. Due to Maui's diverse microclimates the identification of fungal pathogens affecting *Proteaceae* across the island is important. This information helps us understand which pathogens are contributing to disease, where these pathogens are located and how to prevent and manage *Proteaceae* diseases to assist growers and maintain Hawaii's unique *Proteaceae*. We will continue to share the pathogen and nematode analysis results with growers and help them implement practices to reduce disease severity and improve crop health.

F. Next major steps for this project.

Hannah will analyze data and run statistical analysis based on the data obtained from the fungicide potted plant trials. At least 1 plant of each cultivar used in the potted plant fungicide trials will be submitted to USDA ARS PBARC for pathogen analysis after the last application of fungicides. Hannah will share the fungal pathogen and disease results with the Protea growers in Maui County and help them implement practices to reduce disease severity and improve plant health. An extension document and/or outreach program will be developed and implemented to educate growers on fungi affecting Proteaceae and appropriate disease management for protea. The project team will continue to finalize objectives I to IV. Spending will increase as supplies and materials are purchased for the fungicide trials and project objectives.

G. Describe how the funds allocated for this project were used during this reporting period

Materials and supplies were purchased to support the pathogen diagnostic services and in-vitro fungicide trials implemented by USDA ARS PBARC grant collaborators including but not limited to lab diagnostic materials, bags, and bins which were used to isolate, grow fungi hyphae and identify fungal pathogens via microscopy and PCR ITS sequencing. USDA ARS PBARC pathogen identification services are an essential component of this grant and benefits Maui County growers in numerous ways. For instance, thanks to Maui County's support and USDA ARS PBARC's pathogen diagnostics services, 10 protea growers in Maui County will now know which fungal genera and/or species are affecting their plants and potential methods to manage these pathogens and root-knot nematodes issues to improve Protea plant health. Furthermore, the results of the in-vitro fungicide trials and the potted plant trials may help us understand which fungicides/chemicals can be used in conjunction with cultural practices to suppress and reduce disease severity of Proteaceae crops.

H. Efforts towards economic self-sufficiency.

This project is economically viable in that fungicide testing will occur in the laboratory and subsequently in potted plant trials at MARC (a low-cost way of predicting field performance). This will reduce pesticide costs to growers and negative effects associated with using the wrong pesticide to treat a misdiagnosed pathogen. Disease identification and management strategies developed in the project will help producers recognize issues and purchase and utilize the correct fungicide or cultural method to reduce disease incidence and severity.

J. Commercial Growers Samples



Figure 2. Diseased protea samples collected at 4 different Protea Farms upcountry Maui, HI in



**K. Nematology
Roxanna**

Figure 1. Diseased protea at farm in upper Kula, HI. Note the red marginal firing may indicate canker disease on branch.

**report from Dr.
Myers, USDA ARS**

PBARC nematologist and grant collaborator



Figure 3. Large root galls on *Lsp. Blanche Ito* collected from a Protea farm in upper Kula and sent to USDA PBARC for pathogen and nematode analysis. Nematode report indicates galls formed by high levels of root-knot nematodes. Photo credit: Dr. Roxana Myers.

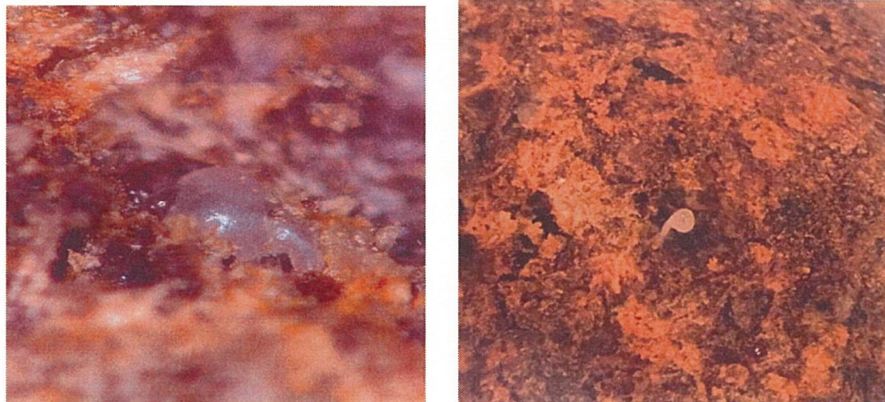


Figure 4. Root galls with egg masses caused from root-knot nematode infections (*Meloidogyne* spp.) inside *Lsp.* plants at grower's protea farm in upper Kula, Hawaii.

Protea Nematode Samples

Collected Kula, Maui 11/30/21

Roots Blended 12/09/21

Soil on Baermann Funnel 12/09-12/11/21

Sample No.	Farm	Type	RKN Roots	RKN Soil
SS90 (S1)	Polipoli protea farm	<i>P. cynaroides</i> King	0	10
SS72 (S2)	Upper Kula protea farm	<i>Lsp. Blanche Ito</i>	78,720	134
SS73 (S3)	Upper Kula protea farm	<i>Lsp. Candlelight</i>	0	0
SS75 (S4)	Upper Kula protea farm	<i>Lsp. Bolero</i>	960	2

Figure 5. Dr. Roxana Myers, USDA ARS PBARC nematologist, results of nematode extractions from commercial protea farms in Maui County.

L. Pathogen results of plant samples from Maui protea growers, from USDA ARS PBARC pathologists

Protea Samples from Maui Protea Growers
Revised on 01/18/2021

Date Received	LK Lab #	Maui Station Plant Description	Farm	sample	symptoms	morphology ID	ITS sequence ID
5/3/2021	050321-1A	LS, 72 Naomi Rooster Run	Farm 1	stem	stem canker		Neofusicoccum sp.
5/3/2021	050321-2A	LSP Cloud Bank	Farm 2	leaves	marginal leafspot		Pestalotiopsis sp.
5/3/2021	050321-2B	Protea King, lower field	Farm 2	leaves	leaf spot		Neofusicoccum sp.
5/3/2021	050321-2C	Protea King, 2yr old field	Farm 2	stem	stem canker		Neofusicoccum sp.
5/3/2021	050321-2D	No ID	Farm 2	stem	darkened and shriveled		Diaporthe sp.
5/3/2021	050321-3D	LSP, Pin, upper field 4	Farm 3	leaves	leaf tip necrosis		Colletotrichum spp.
5/3/2021	050321-3F	LSP Blanche Ito	Farm 3	stem	stem canker		Neofusicoccum sp.
5/3/2021	050321-3F	LSP Blanche Ito	Farm 3	stem	stem canker		Pyrenophora leucospermi
10/13/2021	102221-4	S4, Yellow Pin	Farm 4	leaves	pinpoint red spots	Neofusicoccum sp.	
10/13/2021	102221-4	S4, Yellow Pin	Farm 4	leaves	pinpoint red spots	Cladosporium sp.	
10/13/2021	102221-4	S4, Yellow Pin	Farm 4	leaves	pinpoint red spots	Diaporthe/Phomopsis	
10/13/2021	102221-10	S10, Red King	Farm 5	leaves	large marginal leafspot with brown center	Neofusicoccum sp.	
10/13/2021	102221-10	S10, Red King	Farm 5	leaves	large marginal leafspot with brown center	Pestalotiopsis sp.	
10/13/2021	102221-11	S11, King 16/17 go	Farm 5	leaves	circular dark black spot		Alternaria sp.
10/13/2021	102221-11	S11, King 16/17 go	Farm 5	leaves	large spot with light brown center and red halo		Alternaria sp.
10/13/2021	102221-11	S11, King 16/17 go	Farm 5	leaves	large spot with light brown center and red halo		Sacchara hawaiiensis/protearum
10/13/2021	102221-11	S11, King 16/17 go	Farm 5	leaves	large dark brown spot with light gray center	Neofusicoccum sp.	
10/13/2021	102221-15	S15, Protea, pink	Farm 5	leaves	no id		
10/17/2021	102221-1	S1, #43	Farm 4	leaves	large spot with gray center		Mycoasphaella scytalidi
10/17/2021	102221-1	S1, #43	Farm 4	leaves	large spot with gray center		Ygariaceae sp.
10/17/2021	102221-1	S1, #43	Farm 4	leaves	large spot with gray center	Neofusicoccum parvum	
10/17/2021	102221-1	S1, #43	Farm 4	stem	cracked with red spots	Neofusicoccum parvum	
10/17/2021	102221-2	S2, Yellow Pin	Farm 4	leaves	leaf tip dieback, gray		Neofusicoccum protearum
10/17/2021	102221-2	S2, Yellow Pin	Farm 4	leaves	orange colored with black spots	Neofusicoccum parvum	
10/17/2021	102221-2	S2, Yellow Pin	Farm 4	leaves	leaf tip necrosis, gray color	Neofusicoccum parvum	
10/17/2021	102221-2	S2, Yellow Pin	Farm 4	stem	stem with red spots	Neofusicoccum parvum	
10/17/2021	102221-5	S5, Hyb 3 3 rows up Candlelight	Farm 4	leaves	large red spots with black center		Amycosphaerella africana
10/17/2021	102221-5	S5, Hyb 3 3 rows up Candlelight	Farm 4	leaves	large red spots with black center	Neofusicoccum parvum	
10/17/2021	102221-5	S5, Hyb 3 3 rows up Candlelight	Farm 4	leaves	larger red spots with black center turning brown		Teratosphaeria ohnnowa
10/17/2021	102221-5	S5, Hyb 3 3 rows up Candlelight	Farm 4	leaves	larger red spots with black center turning brown	Mycoasphaella	
10/17/2021	102221-12	S12, Susara	Farm 6	leaves	large irregular leafspot	Pestalotiopsis sp.	
10/17/2021	102221-12	S12, Susara	Farm 6	leaves	large irregular leafspot	Sacchara hawaiiensis/protearum	
10/17/2021	102221-12	S12, Susara	Farm 6	leaves	medium light gray spot	Sacchara hawaiiensis/protearum	
10/17/2021	102221-13	S13, King	Farm 6	leaves	large tan brown spot with concentric rings	Neofusicoccum sp.	
10/17/2021	102221-13	S13, King	Farm 6	leaves	large tan brown spot with concentric rings	Sacchara hawaiiensis/protearum	

Figure 6. A small section from the Pathogen analysis report from USDA ARS PBARC pathologists. Document credit: Lionel Sugiyama, Dr. Lisa Keith and Brian Bushe.

M. Potted Plant Fungicide Trial Photos



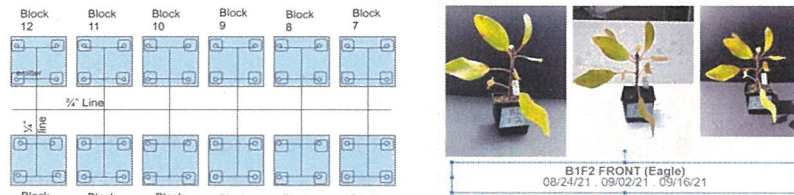
Potted Plant Fungicide Trial

Objective: to predict field efficacy of fungicides to help growers manage disease.





POTTED PLANT FUNGICIDE TRIAL



Fungicide	Active Ingredient	Group Code / Frack Codes
<u>Pageant</u>	pyraclostrobin*	Group 11 (strobilurin or Qol) and Group 7 (carboximide)
<u>Eagle</u>	myclobutanil: a-butyl-a- (chlorophenyl)	Group 3
<u>Triathalon BA</u>	Bacillus amyloliquefaciens strain D747*	



Figure 7. Plants used in potted plant fungicide trials at MARC were planted into 1-gallon pots. They are currently being monitored for

4. Multipurpose Covered Area for Livestock Producers and 4-H Youth in Maui County. Project Manager: Dr. Kyle Caires

A. Summary of Program status in relation to goals, objectives and scheduled action steps outlined in the grant proposal.

Meetings with project partners occurred via zoom (January and February) and on-site meetings (March, April and May) as planned. Much work has occurred towards completion of Objectives 1 and 2 at the station in terms of grounds work, and repairs to old shed and lab-prep area. Some site work was delayed due to (1) lack of local inventory of supplies, (2) shipping delays from the West Coast, and (3) and most recently following damage to our large John Deere tractor. The PI was involved in a work-related accident and was out on disability from mid-July until mid-December so very little activity occurred during Quarter 3. A significant increase in spending activity occurred during the end of Quarter 3, and during Quarter 4, as previously delayed items like the portable squeeze chute became available. A brief plan regarding our purchasing strategy for Quarter 4 is provided in section I. Outreach is ahead of schedule at present time, with workshops supporting ranchers and 4-H youth occurring in May, June, December (2021) and January 2022.

B. Progress in meeting performance standards.

Objective 1. Develop covered area to house livestock facilities and on-site workshops for livestock producers and 4-H youth

Meetings with project partners have occurred via zoom throughout 2021, as planned. Several meetings at the project site also occurred in March and April, which sparked the in-kind contribution of a backhoe rental that was used to remove a large number of trees and brush in the project site area in April. Shipping containers were procured in-kind to be incorporated into the multipurpose covered area. An unexpected in-kind contribution of a track-loader allowed for more site preparation to occur which included the clearing of fence lines and area for the chute/corral install.



Figure 8. Preliminary site work completed for installation of corral / covered

A large portion of in-kind contributions occurred in QTR 1 and 2 which contributed to the project outcomes. Purchase of some irrigation supplies and other items to prepare the project site have been made in QTR 2 and 3. During QTR 4, we purchased a Portable Cattle Chute with Palp Cage, Brisket Bar and Wheel Kit that represents a necessary cog for extension programming with cattle to occur at the site (and at other off-site locations) to allow for safe livestock handling to occur within the multipurpose covered area. The chute was ordered in July, received in late-December 2021, and assembled in January 2022 with a picture shown in Figure 2.



Figure 9. Portable squeeze chute with palpation cage and brisket bar.

A revised budget was submitted and approved by OED in December 2021, and at the same time, a no-cost extension was granted to extend the project period till June.

A significant amount of expenditures (\$11,900; ~38% of grant total) for remaining building materials is anticipated to occur from February through May 2022.

Discing and grading efforts needed to further prepare the site have been delayed because our large John Deere Tractor has been down for repairs due to: (1) vandalism that occurred to the fuel system, and (2) electrical damage due to rodents. Good news is that the tractor was repaired and operational by December 15, 2021, when the PI was able to return to work, so site work can be completed before the build out.

Despite those delays we have made progress towards the proposed goals of the project, hosting four topic-based workshops at local ranches to provide bovine (cattle) training opportunities in the areas of freeze branding, reproductive tract scoring, artificial insemination and pregnancy diagnosis adhering to social distancing guidelines. Because of restrictions to number of individuals at these trainings, two separate sessions were held for each workshop.

Youth events also occurred during this reporting period, as agricultural interns from MEDB, along with the program specialist, participated in a beef tenderness and sensory evaluation workshop held in the field lab in early July, and in term generated real-world data that local ranchers can use for decision support in their own livestock operations; two 4-Hers also participated in the event. MEDB interns also participated in hands-on learning activities regarding pasture establishment and invasive weed species control at the station, helping to plant cover crops to replenish bare ground following tree and brush removal, which led to purchasing of landscaping equipment and irrigation supplies. Forage and weed samples were also collected from over 20 local ranches for analysis to create a pocket almanac / identification manual to serve agriculturalists in Maui county.

Objective 2. Make necessary repairs and maintenance to wood deck platform, small lab prep area, outdoor cabinetry and items in the old barn/shed area.

Meetings with project partners occurred via zoom and in-person in January and February, as planned. Two meetings at the project site also occurred in late February. Repairs and maintenance to the field lab occurred in March and April, and we were able to repair the small lab prep area in the field lab, and repair/restore much of the existing outdoor cabinets.

Since the small lab prep area has been prepared, approximately 70 forage and legume samples have been collected, and preprocessed for further interrogation at the Maui Agriculture Research Center (MARC). Those samples will be submitted for proximate analysis of nutrients and wet-mineral chemistry, to generate real-world data that local farmers and ranchers can use for decision support in their own livestock operations. An example output of that work is shown in Figure 3, which represents an experimental mixed sample plot of grass and legumes with a relative forage quality index (RFQ) of 186.

Dairy One

FORAGE TESTING LABORATORY
DAIRY ONE, INC.
730 WANDER ROAD
ITHACA, NEW YORK 14850
607-257-1272 (fax 607-257-1350)

Sample Description
MMG PASTURE
PASTURE BARDCLOVER & WEEDS MMGA SAMPLE1

Analysis Results

Sampled Recvd Printed DT(CO)
05/03/2105/05/21

Components

As Fed DM

MOISTURE 31.5
DRY MATTER 68.5
CRUDE PROTEIN 10.5
AVAILABLE PROTEIN 9.6
ADICP 1.8
ADJUSTED CRUDE PROTEIN 10.5
SOLUBLE PROTEIN CP 42
DEGRADABLE PROTEINCP 68
NDICP 1.6
ADF 21.6
NDF 28.9
LIGNIN 4.2
HFC 22.4
STARCH 4
WSC (Water Sol. Carbs.) 11.2
ESC (Simple Sugars) 7.7
CRUDE FAT 1.5
TOTAL FATTY ACIDS 1.16
RUFAL 56
ASH 5.27
TDN 46
NEL, Mcal/lb 47
NEM, Mcal/lb 46
NEG, Mcal/lb 28
RELATIVE FEED VALUE 70
CALCIUM 1.02
PHOSPHORUS .30
MAGNESIUM .16
POTASSIUM 1.66
SODIUM .026
PPM IRON 71
PPM ZINC 25
PPM COPPER 6
PPM MANGANESE 41
PPM MOLYBDENUM 6
SULFUR .16
CHLORIDE ION .32
IVTD 48hr, % of DM 85
INDFD 48hr, % of NDF 65
Kd, t/hr 5.40
RELATIVE FORAGE QUALITY 186
MLK Lbs./Ton of DM 13,473
LYSINE .41
METHIONINE .14
MORE ->

Page 1

RELATIVE FORAGE QUALITY FOR HAY

MAJORITY OF HAWAII'S PASTURE GRASSES

CAIRES MMG PASTURE TRIAL

PREMIUM 140 - 199

GOOD 110 - 139

RFQ (RELATIVE FORAGE QUALITY)

Figure 10. Forage sample analysis. 2021 MMG pasture experiment.

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More work is ongoing and expected during this reporting period. Our JD tractor was repaired and operational by December 15, 2021, when the PI was able to return to work, so approximately 3.8 acres of land was disced and prepped for a new wave of grass and legume research to occur. A photo representative of the field preparation, one-month post



Figure 11. One month following disking and field prep work. Taken January 27, 2022.

disking is shown (Figure 4).

This is a step in the right direction for the project site to function as a demonstration farm and learning/service center for the livestock industry and 4-H youth. The old shed was originally constructed in the 1930's as a scale house and weighing station for livestock projects, and much of the existing construction is dilapidated. We have cleaned the brush and debris around the site and begun preparing that area for rehabilitation. A roll-off dumpster was ordered and placed in January 2022 to remove the debris at the site.

There has been a local lack of larger dimensional lumber to complete this task, along with necessary repairs to the wood deck platform. We have communicated with several local vendors and anticipate procuring materials in February and March 2022.

C. Numbers and descriptions of people or businesses served

Caires conducted four topic-based workshops, with multiple sessions to afford small groups and adhere to social distancing guidelines, working with 12 plus ranchers and 15 4-Hers during this project period. The PI also worked with 4-H youth and MEDB agricultural interns, engaging them in workshops and in hand-on learning opportunities that occurred at the project site. Local ranchers and agronomists provided in-kind contributions towards the project. Forage and weed samples were collected from over 20 local ranches for analysis to create a pocket identification manual to serve agriculturalists in Maui county. Materials and supplies were purchased at local businesses to stimulate economic development within the county.



Figure 12. Roll-off dumpster for debris removal

D. Any major adjustments that have been necessary or will be proposed.

We postponed some of the proposed site work and field prep work due to the ongoing repairs to our tractor and long-delivery time for the parts to do so. A large portion of the budget was committed to livestock handling supplies/equipment to create a functional site,

while scaling down the original proposed size of the covered area to meet our budget needs amongst the skyrocketing lumber and steel prices. The significant increase in the price of wood and steel have us looking weekly at supply prices and anticipated delivery times of landed dimensional lumber and steel. These are favorable options due to the in-kind contributions we have received.

E. Past and/or future marketing and/or public outreach efforts.

Dr. Caires is in weekly contact with farmers and ranchers throughout Maui county and works with them to tackle management and marketing issues that arise in their industry. The continued development of the livestock learning center will be a strong component to support applied research and outreach efforts designed to address the needs of agriculturalists in Maui county. A strong list of individuals and partners have already been identified for this project. Participant recruitment for infrastructure development will occur via word of mouth and through ecofriendly practices and listservers via the Maui County Farm Bureau, Maui Cattlemen's Association, Ag Working Group, etc. This demonstration farm will work in concert with facilities at the MARC in Kula to tackle industry challenges as they arise over time.

F. Next major steps for this project.

We are ahead of schedule on outreach and workshops for the livestock industry and 4-H youth. The project team will continue to complete remaining portions of objectives I and II. Necessary repairs to the large tractor was completed in December 2021, and we have begun to work on final site prep, and have begun land prep such that a new wave of forage research can begin in early 2022. A major component of the final quarter, to occur from now, till May, (the end of the no cost extension period), will be purchasing and procurement of remaining building supplies that representing a large portion of the budget (~\$11,529.07) needed for final assembly of the covered area. We also anticipate the pouring of the small concrete slab to occur in February 2022, pursuant to internal approvals at the University.

Current efforts with forages, legumes and weeds will continue, and additional samples will be analyzed to generate a priori of information needed to create a pocket identification manual for forages to serve agriculturalists in Maui county. The exploding axis deer population, two years of ongoing droughts, and feedback from local farmers and ranchers attending our workshops, necessitates that we conduct several experimental plantings for development of emergency pasture establishment strategies that will likely occur in early February through April. Zoom meetings will be held each month to keep stakeholders engaged of our progress and results in a timeframe must quicker than traditional publication will allow so they can use our information in real time within their own operations.

G. Describe how the funds allocated for this project were used during this reporting period.

A large portion of the activities that occurred in Quarter 1-4 were due to in-kind contributions of supplies, equipment, and volunteer time. The expenses within this period amounted to \$15742.93 for a variety of items related to irrigation supplies, tractor parts, agricultural supplies, and a Portable Cattle Squeeze Chute with Palpation Cage, Brisket

Bar and Wheel Kit. An increase in spending is anticipated between February and May for remaining materials and supplies to complete the multipurpose covered area.

H. Efforts towards economic self-sufficiency.

The equipment and supplies secured herein will be reusable for future programming. Cost sharing will occur with industry partners in the future, and partial cost recovery will occur with participants being charged a nominal registration fee. Published fact sheets will immortalize information and those can be maintained and updated with additional content in the future. Dataset gained from the research trials will be used as preliminary data to secure additional funding to support agricultural research that directly benefits farmers and ranchers in Maui county. We have obtained in-kind support for many items, including several items that were anticipated for in the budget, which is huge, because many of the budget supplies have increased greatly in cost due to increases in material costs associated with scarcity of resources and inflation due to the pandemic.

Many supporting photos/pictures will be included in the final report like I have in the past. Pictures are available on request for quarterly reports but are omitted at the present time for brevity.

Update on Maui CTAHR Critical Infrastructure Needs:

- A. Critical need to fix deteriorating and leaking 50-year-old water pipes to supply potable water to conduct lab work at the Kula Research Station (**Completed**)
- B. Replace Moloka'i greenhouse that was recently damaged beyond repair during hurricane Doug and is too old for the UH insurance to replace (built in 1984). (**In-Process**: We have had critical delays in shipping of some of the materials. Nearly all the materials have been ordered, but only half have been delivered to-date.)