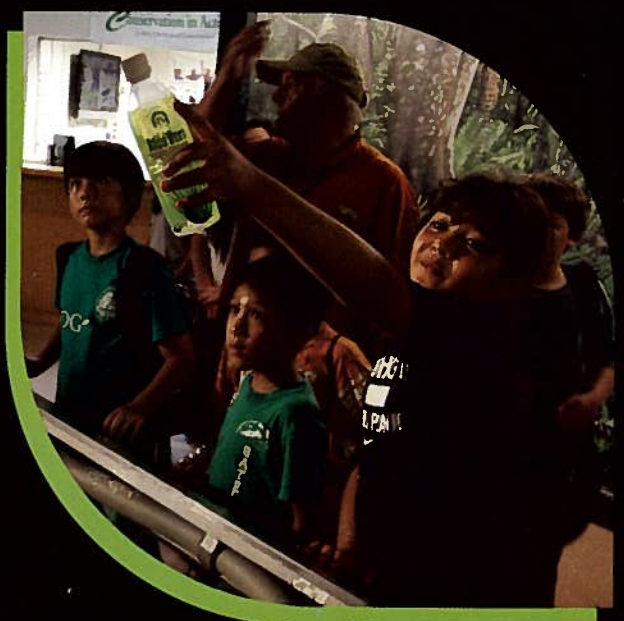


2011 2012

Biennial Report

Extension
In Action



A Message From the Dean/Director

Buenas,

Most likely when you ask a resident of Guam what programs or activities are you most familiar with at the University of Guam? They will answer 4H, Rhino beetle eradication, EFNEP (Expanded Food and Nutrition Education Program), or a variety of summer programs that their children attended through the cooperative extension program at UOG. At least, as the Director, that is what I would expect them to say!!!

What makes a land grant university, as the University of Guam, different from other publicly funded institutions? Land Grant institutions have extensive community outreach programs that have the potential to reach both served and underserved populations in any county or district in a state or territory.

Our main programmatic mission is to diffuse "practical information in the areas of agriculture, home economics, rural energy and other subjects not readily available to persons who are otherwise enrolled in academic programs of colleges and universities."

The stories told in our 2011 – 2012 Biennial Report - Extension in Action is a composite of highlights we have accomplished over the past 2 years. We are proud of these accomplishments and we continue our mission of helping the citizens of Guam now and for the next 100 years. In 2014, help us celebrate the first 100 years of Cooperative Extension Service in the US Department of Agriculture.

LEE S. YUDIN
Dean/ Director

A Message From the Associate Director

Hafa adai!

In the year 2014, the University of Guam (UOG) Cooperative Extension Service (CES) would have been in existence for forty-two years. I am quite proud to be among the personnel that help created the beginnings of UOG CES. Having begun my career with CES in 1973 as a program aide, then a faculty member, and eventually one among its administrators, I have experienced first hand the ups and downs of our growing organization. And with any organization, challenges are always a mainstay. Suffice it to say, though, ours have been mostly positive and quite rewarding.

Yet, our biggest challenge continue to remain the same, that is, finding ways to ensure that we maximize the use of our somewhat static and limited resources as the cost of operation continue to rise. More so, we must continue to be flexible so as to retrofit our non-formal education programs to appropriately address the ever-changing social and economic issues faced by our clientele – the residents of our island community. However, with a deep appreciation of our roots and our committed resolve to serve, we will continue to help create a better future for our clientele. We shall continue to use our limited resources wisely and seek other resources, including partnering with others, to ensure our viability as an outreach education program.

With the above in mind, we trust this report will give you a sampling of the type of program endeavors we deliver. It is our desire as well for this report to invoke ideas among those we serve on how we can better serve their non-formal education needs.

In closing, I extend my deepest appreciation to all CES faculty, associates, assistants and program staff for their dedication and steadfast support of our multifaceted programs. We at UOG CES like to think that we are PEOPLE HELPING PEOPLE! Kudos to all.

VICTOR T. ARTERO
Interim Associate Director

The year 2014 will mark the 100th Anniversary of the nation's largest non-formal, outreach education system known as the Cooperative Extension Service. Established by the U.S. Congress via the enactment of the Smith-Lever Act of 1914, the Cooperative Extension Service was designed as a partnership of the U.S. Department of Agriculture and the land-grant universities/colleges. Legislation in the various States and Territories has enabled local governments to become partners in this education endeavor. The congressional charge to Cooperative Extension Service is far ranging. Today, this educational system includes professionals in each of America's 1862 land-grant universities (in the 50 States, Puerto Rico, the Virgin Islands, Guam, Northern Marianas, American Samoa, Micronesia, and the District of Columbia) and in the Tuskegee University and sixteen 1890 land-grant universities.

In summary, the mandate of the Smith-Lever Act endeavors to diffuse among its citizenry useful and practical information in the areas of agriculture, home economics, rural energy and other subjects not readily available to persons who are otherwise enrolled in academic programs of colleges and universities. In essence, Cooperative Extension work consists of the development of practical applications of research knowledge and giving of instruction and practical demonstrations including the distribution of educational publications of existing or improved practices or technologies.

On Guam, Cooperative Extension Service (CES) was officially created in 1972 when U.S. Congress, via legislation, granted the University of Guam (UOG) the status Land Grant University. While UOG CES has only been around 42 years, it's strength is backed by a partnership that has been around for 100 years. With this partnership, UOG CES Extension professionals and staff assistants have devoted time and effort in providing non-formal education programs and projects to island residents in the following areas: Agriculture Production; Natural Resources Management; Home Gardening; Nutrition and Health; Food Preparation/Safety; Community and Economic Development; 4-H and Youth Development; Leadership Development.

Among the most recent and significant endeavors made by UOG CES is a child obesity prevention program funded in 2011 through an extramural grant under the Agriculture and Food Research Initiative (AFRI) program of the National Institute of Food and Agriculture, USDA. A team of University of Guam Extension faculty members, in partnership with colleagues from the University of Hawaii, University of Alaska, College of the Northern Marianas, Community College of American Samoa and the College of Micronesia, successfully secured a \$23.2 million grant for their proposed program entitled: "CHILDREN'S HEALTHY LIVING (CHL) Program for Remote Underserved Minority Populations in the Pacific Region." Of the total amount of the grant, \$2.8 million is Guam's share. The grant period is for a total of five (5) years.

Other extramurally funded programs/projects secured over the years include: Coconut Rhinoceros Beetle Eradication; CYFAR Sustainable Teen Entrepreneurial-ship; Farmer to Chef; Master Food Preserver; Integrated Pest Management; NOAA Seamanship; Guam DOE STEM; EFNEP; Western Plant Diagnostic Network; Micronesia Bio-security; Healthy Aging; and Micronesian Migrant Study.

The UOG CES is proud to be a member of an organization that is celebrating its centennial anniversary this coming May 8, 2014.

HAPPY 100TH ANNIVERSARY COOPERATIVE EXTENSION SERVICE

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Agriculture & Natural Resources

The Agriculture and Natural Resources (ANR) program is the point of contact for agriculture information and technical assistance in the Western Pacific region. It engages in the dissemination and application of applied research knowledge of agricultural and environmental sciences to benefit people and communities in Guam and the Pacific Islands. For complex issues, it employs multi and interdisciplinary approaches using a broad range of partners. The ANR program consists of five faculty, two agriculture field agents, and support staff. Areas of expertise of the faculty include agriculture economics, animal health and production, entomology, plant pathology, and horticulture. Field agents provide technical assistance in crop production and ornamental horticulture for farmers, homeowners, and government agencies. The ANR program have an array of fact sheets and manuals which are on the University of Guam website.

In furtherance of its mission, ANR engages directly and indirectly in a number of grants or special projects ranging in time from a few months to several years and in dollar value from a few thousand to millions. These funds support activities not covered by annual appropriations to UOG. These funds are used to hire limited-term workers, purchase equipment, and engage off-island expertise. This report highlights some of these activities. Funding sources for these grants and special projects include WSARE, EIPM, RREA, WIPM, WDPN, US forestry, Guam Legislature, Chamorro Land Trust Commission, Farmers Cooperative Association, USDA- APHIS, USDA- NRCS and the US Navy.



Goats Enjoy Local Feed

Live goats on Guam cost about 200-300 dollars per head. But even with such an attractive farm price, goat production is still an undeveloped industry on Guam.

One of the major reasons for the low production is poor nutrition. Grazing or tethering goats on unimproved pasture areas are the main feeding systems that farmers practice. Minimal grain supplements are either inadequate or completely lacking. Low reproduction and growth rate of the goats are the results.

A grant from Western Sustainable Agriculture and Research Education (WSARE) was conducted to process feed materials such as breadfruit, taro, bananas and coconut for goat feed. Nutrient contents (crude protein, fiber, ash, etc) of local materials were analyzed to come up with an appropriate feed formulation out of these local feedstuffs. Several varieties of leguminous plants and forages such (Moringa sp., pigeon pea, mulberry, tangan-tangan, Sesbania sp.) were propagated and fed to the goats. Crude protein analysis of these fodders varied from 16% to 25%.

Goats fed with both legumes and local ration improved in their physical and health appearances. The leguminous plants can be planted around the goat farm for a “cut and carry” feeding system to supplement daily nutritional requirements. One goat farmer planted two varieties of legumes in his farm. A total of 100 farmers, agricultural professionals/agents and students visited demonstrations sites and attended workshops.



Goats feeding on Moringa (drumstick or horse radish tree) leaves and stems. Feed analysis of fodder showed an 18.8% crude protein.

Agriculture & Natural Resources



Goats feeding on legumes and local ration.



Forage demonstration of *Indigofera* sp., *Sesbania* sp., and *Cajanus* sp. Demonstration sites were conducted at the University of Guam campus and Department of Agriculture Breeding station.

Grants for this reporting period:

- 1.) WSARE - \$20,742 "Local Feed Formulation for Goats."
- 2.) Regional 9 Water Quality - \$7,000

"Goats fed with both legumes and local ration improved in their physical and health appearances."



The Battle to Save Guam's Coconut Trees

The University of Guam continues work towards stopping the destructive Coconut Rhinoceros Beetle (CRB) from killing Guam's coconut trees. On islands where the CRB has established, if left unmanaged, over half if not all coconut trees are killed within the first five years. To date, the CRB population on Guam is still considered very low and can be contributed to the ongoing CRB eradication efforts.

Public engagement has proven to be an invaluable tool against this invasive pest as residents report sightings to the newly established "Guam Invasive Species Hotline" at 475-PEST (7378). Reported sightings and daily trap surveillance are used to track where CRB populations are on the rise or if they have moved into new areas.

Key to control of CRB is the management of all identified or potential breeding sites. Sanitation, by way of the removal of dead coconut and other organic materials that is or could become potential breeding sites, is crucial. The biggest challenge in the CRB eradication is the large unmanaged green waste piles accumulating around the island. Unless the island green waste problem is addressed, the CRB will continue to grow in population and spread.





To protect your coconut trees, crown management practices must be adopted. Managed coconut trees are found to have a lower incidence of CRB damage than unmanaged trees. This involves removal of coconut inflorescences and dead fronds. Accumulation of organic matter and detritus attracts CRB to breed in the coconut treetops. Unlike other Pacific islands, Guam shows high incidence of CRB arboreal development in coconut trees because of the lack of birds and rodents foraging in treetops resulting from the Brown Tree Snake.

Biocontrol of CRB is making an impact on reducing the CRB population with the dissemination of the Green Muscardine Fungus (GMF) that specifically targets the adult and larval stages of CRB. Successful auto dissemination of GMF has been confirmed as dead CRB are found in non-GMF infested areas. Research on the *Oryctes* virus as another biocontrol agent against the CRB is currently being conducted.

Extension agents respond quickly to tomato production threat

Agriculture & Natural Resources

Tomatoes are grown throughout the year on Guam. In 1999, an estimated 84,700 pounds of cherry tomatoes and 42,598 pounds of regular tomatoes were produced by local farmers.

In the spring of 2011, Bernard Watson and neighboring farmers John Mesa and Mark Pieper began noticing severe leaf curling and stunted growth of young plants of the cherry tomato variety Season Red. By October, Watson's tomato crop was a total loss and symptoms were now appearing in Vicente Valasquez's farm.

A whitefly transmitted Begomovirus was identified as the causal agent and several control strategies were recommended to the farmers such as growing transplant seedlings under netting to exclude vectors, not transporting plants from infected areas, rotating tomatoes with plants that do not promote buildup of white fly populations, and growing Begomovirus resistant tomatoes.

In fall of 2011, Mr. Watson decided to switch varieties and began growing TYLCV resistant ones from Lefroy Valley vegetable seed company. For the past year, Mr. Watson has grown varieties Carmine, Felicity and Martyni and found they do well. "It is always rewarding to work with Bernard. He is a passionate farmer who wants to take advantage of research and modern diagnostic tools to make informed decisions about his crops and he allows us complete access to his fields to monitor and assist," says Extension Associate Jesse Bamba.

Funded by USDA Western IPM, UOG Cooperative Extension, WPTRC



Tomato yellow leaf curl resistant tomato varieties Carmine (left), Felicity (center), and Martyni (right) from the Lefroy Valley vegetable seed company.



Plants infected with TYLCV at the transplant stage fail to grow (left). Plants infected after transplanting are stunted (middle) in comparison to a healthy plant (right).



Dr. Anand Persad researcher and lecturer at Davey Institue talks to ironwood tree workshop participants at Mangilao Golf Course.



Presenters and supporters of the ironwood tree.



Extension assisant Joe Afaisen demonstrates the height of a 5 month old ironwood sappling in a US Forest Service supported tree evaluation trail on the island of Guam.

A Brighter Future For The Gago

Agriculture & Natural Resources

It has been ten years since then Extension agent Dr. Robert Schlub was asked by local farmer Bernard Watson for the cause of his wilted ironwood trees and what could be done about it. The answers to those two simple questions have turned out to be anything but simple. In the past two years, Dr. Schlub has presented his findings at international workshops, and has secured additional external funding to supplement his 2008 WSARE research and education grant. The current funding from US Forestry Service, WIPM, RREA, WSARE, and Guam Cooperative extension has allowed for experts such as Dr. Anne Alvarez, Dr. Cathie Aime, Dr. Phil Cannon, and Dr. Anand Persad to travel to Guam and unravel this complex problem. Funding by US Forestry has enabled the establishment of a provenance tree trial in 2012, which will advance our knowledge of ironwood decline and will lead to selection of decline resistant trees in the future.



Invasive Species & Biosecurity

Agriculture & Natural Resources

Invasive species are arriving and establishing on Guam at an unprecedented high rate. Thirty-seven species of animals new to Guam were detected between January 2010 and September 2012 (22 insects, 9 arachnids, 1 snail, and 5 reptiles). A list of newly detected weeds and other plants detected during the same period has yet to be compiled. Members of the Agriculture and Natural Resources Program (ANR) are working with other UOG biologists and government agencies to minimize damage to Guam's agriculture and natural ecosystems caused by these new arrivals. ANR is also working to slow down the influx of new pests by improving Guam's biosecurity.

Current Invasive Species Projects

During 2011 and 2012, ANR worked on projects targeting three invasive insects:

- **Coconut Rhinoceros Beetle (CRB)**, a large scarab beetle which kills coconut palms, the second most numerous tree in Guam's forests. After CRB arrived in Palau during the 1940s, 50% of coconut palms were killed. ANR staff are leading the Guam Coconut Rhinoceros Beetle Eradication Project aimed at saving Guam's palm trees (Fig. 1, Fig. 3).
- **Cycad Aulacaspis Scale (CAS)**, a small insect which has already killed 90% of Guam's fadang plants, *Cycas micronesica*, which was the most numerous tree in Guam's forests prior to the arrival of CAS (Fig. 2).
- **Little Fire Ant (LFA)**, a small ant which delivers painful stings to humans and other animals. This ant also causes major major damage to native ecosystems. LFA was first detected on Guam by a CRB survey crew during November, 2011 (Fig. 2).

Organizational Support

In addition to providing scientific expertise and 'boots on the ground' in combating the biological invasion of Guam, ANR staff are active members supporting several organizations involved in invasive species and biosecurity:

- **Guam Invasive Species Advisory Committee (GISAC)** is an ad hoc group of biologists and government officials who meet several times per year at UOG to discuss emerging invasive species problems. GISAC provides recommendations to the Guam Invasive Species Council.
- **Guam Invasive Species Council (GISC)** was established by the Guam Invasive Species Council Act of 2011. GISC was established for the special purposes of protecting Guam from alien species that threaten our economy, culture, ecosystem and human health; and providing policy direction, coordination, and planning among government of Guam departments and federal agencies to prevent the introduction of invasive species and the monitoring, control and eradication of invasive species throughout the island of Guam.
- **Regional Invasive Species Council (RISC)** meets twice a year to discuss emerging invasive species problems in Micronesia.



Cycad Aulacaspis Scale Insect



Coconut Rhinoceros Beetle



Little Fire Ant. (Image courtesy of April Nobile, www.antweb.org)

- **Invasive Species Advisory Council (ISAC)** advises National Invasive Species Council. ANR is proud of the fact that Roland Quitugua was nominated and appointed to serve on this prestigious committee.

- **National Plant Diagnostics Network (NPDN)** promotes and facilitates early detection and accurate identification of invasive species impacting U.S. agriculture. ANR offers annual First Detector training workshops with NPDN support.

- **Micronesia Biosecurity Plan (MBP)**. In support of the Military relocation to Guam and the CNMI (Guam Build-up) and the associated Environmental Impact Statement, the U.S. Department of Defense (DOD) has provided funding to proactively address terrestrial and marine invasive species risks to Micronesia. This unprecedented effort will help address both invasive species threats to the Military mission and invasive species concerns raised by the Micronesian Chief Executives and federal and regional partners. ANR staff have partnered with the UOG Center for Island Sustainability to help perform a peer review and write an implementation plan for the MBP.

Applied Research

Dr. Aubrey Moore has invented TransTrap, a miniature light trap which can be placed inside shipping containers to detect hitch-hiking insects (Fig. 8). Insects are attracted to a small light emitting diode during shipment and are captured on a sticky card. Upon arrival, quarantine inspectors can check the card for insect hitchhikers without having to unload and inspect cargo. Moore has applied for a patent for TransTrap in collaboration with co-inventor Dr. Darek Czokajlo, president of AlphaScents Inc.

Web Sites

ANR maintains has developed and maintains a couple of web sites to facilitate sharing information on invasive species, the damage they cause, and efforts to mitigate this damage.

guaminsects.net/gisac - This site supports activities of the Guam Invasive Species Advisory Committee (GISAC) and the Micronesian Regional Invasive Species Council (RISC) (Fig. 6).

aliens.guaminsects.net - This new site is being used to document alien species as they arrive on Guam. For each new introduction, there is facility to store images, maps, specimen data, and taxonomic details

Farmer-Chef Grill Night

Agriculture & Natural Resources

One evening during the Christmas season Ernie Wusstig's sweet corn farm saw a gathering of farmers, chef's, culinary students, agricultural professionals, and community members for the 4th Farmer Chef Farm Grill night.

For decades regional agricultural needs assessments identified agricultural marketing issues at the top of farmers list of challenges. This grill night was the culmination of a 5 year effort to address Guam agricultural marketing issues.

As a point of reference in 2007 there were; no Farmer's Coops on Guam, no formal linkages between the agricultural community, limited sales to the tourism industry and little awareness among Guam's chefs of what produce is available and when. UOG CES and the Guam Sustainable Agriculture Program started the Farmer/Chef initiative 5 years ago to address these issues. Alliances were formed with the Micronesian Chefs Association (MCA), Farmers Co-Op, and Guam Hotel and Restaurant Association (GHRA). In the past two years a USDA Western Region Sustainable Agriculture Research and Education (WSARE) grant for \$132,000 was implemented. This enabled the Farmer Chef initiative to; guide major tourism events like "Pastries in Paradise" and "Taste Guam" in the celebration of local fruits and vegetables, to provide quarterly displays at the MCA meetings of seasonal local fruits and vegetables, and facilitation of

promotional activities between the chefs and farmers.

In the past year this initiative held 8 very successful and popular events. The four quarterly Farmer/Chef Farm Grill Night events involved farmers and chefs gathering at a farm around 4 pm till late at night and participated in farm tours, fruit and vegetable seasonality displays and other educational events. All while 3 chefs participated in a judged competition using a black box of local fruits and vegetables to prepare appetizers, salads, entries, and deserts for 75 people. Events were held in farmers' fields under canopy, on grills and portable burners. The Grill Nights are enormously popular, with many new partners expressing interest in joining. These led up to three Farmer/Chef Conferences in Guam, Pohnpei and Palau.

The 8th event the "Maila' Ta Fan Chesa" is a testament to sustainability of UOG CES's network building and facilitation. This sold out event was planned, funded and implemented by the MCA and the Farmer's Co-Op without UOG support. It featured four chefs paired with four farmers to highlight the produce of different villages on Guam. Its success is an indicator of the strength of the networks UOG CES developed under this farmer chef initiative.





Guam Master Food Preserve

The UOG Cooperative Extension Service (CES) and Guam Community College's Culinary program co-sponsored Guam's first Master Food Preservers (MFP) two week workshop completed by fourteen new volunteers. The Volunteers come from UOG Cooperative Extension, GCC Culinary Program and local community members. The curriculum followed the California Master Food Preserver program. This effort benefits those on Guam interested in preserving food and creating value added products. The first group of Master Food Preservers (MFP) will begin trainings for the general public in 2013. The program uses a "Train-the-Trainer" model to educate individuals on how to preserve foods. Participants learn how to safely freeze, dry, can, pickle, ferment fruits, vegetables and meats, also how to prepare jams and jellies. Techniques in food safety were emphasized. Part of the participants' certification is an annual amount of volunteer hours dedicated to training others in the community in these techniques. Once the next group is trained they must train other groups on how to preserve foods, and so on. By offering the MFP program the CES will encourage members of the community to preserve food grown in their gardens increasing island food security. Value-added products, such as jams and jellies, command a premium price and are a source of income to local farmers and gardeners. They also make wonderful gifts. The program is ideal for those who have a strong interest in learning about canning, pressure canning, freezing, drying, fermenting, and other ways to preserve foods. Once trained, MFP's will pass on this knowledge gained to others wanting to preserve foods.

Agriculture & Natural Resources



Participants inspect the pressure of the pressure canner.



Extension Associates remove jars for cooling.



Master Food Preservers.



Assortment of preserved foods.



CYFFN

Communities, Youth, Families, Food & Nutrition



Community Development

Communities, Youth, Families, Food & Nutrition

As the nature of community development (CD) work changes with the issues and challenges specific to our island community, it has become important to source and develop relevant CD programming that support both our existing CYFFN programs and links to the broader UOG engagement interests. The CYFFN program's success represents continuing broad-based community collaboration with local and regional government, community based organizations. The CD approach aimed at addressing the public issues faced by communities and developing through strategic planning and needs assessments efforts proper and timely solutions for the benefit of our stakeholders. Meeting the knowledge and information needs should be increased. During this reporting period, the CD approach builds on past work roles and changing project

programming research needs. The recent conclusion of the Migrant Survey sponsored in part by the Federated States of Micronesia National Government highlights a key cooperative effort where all project stakeholders can have access to the latest study to advance other research interests and government planning.

Two initiatives address the needs of families and community resiliency through the sponsored CYFFN initiatives. The CD approach builds advances the goal area of empowering and improving community decision-making concerns. This includes providing the related technical support in capacity building necessary to address the myriad of challenges faced by collaborators and cooperators.

The CHL Project

Communities, Youth, Families, Food & Nutrition



The CHL Project was funded \$23.7 million by the USDA National Institute for Food and Agriculture (NIFA). The CHL project is a partnership among remote Pacific states and other jurisdictions of the US including: Alaska, American Samoa (AS), Commonwealth of the Northern Marianas Islands (CNMI), Guam, Federated States of Micronesia (FSM), Hawaii, Palau, and the Republic of the Marshall Islands (RMI). All jurisdictions have US Land Grant (LG) Colleges, which have united as the Pacific Land Grant Alliance (PLGA). The funding supports the CHL Project for five years (starting in March 2011) with Guam's funding at \$2.8 million. The goal of the CHL Project is to prevent young child obesity through community-based prevention programs, based on local needs assessment that identify culturally and economically sustainable approaches deemed appropriate for each PLGA jurisdiction. The project will also include an education and training component to build our existing pool of experts as a mechanism for preventing child obesity.

Community Meetings

Needs assessment was conducted in January 2012, when the Guam CHL team—which is made up of faculty from the University of Guam including: Rachael Leon Guerrero, Gena Rojas, Bob Barber, Yvette Paulino, and Margaret Hattori-Uchima—convened a series of community meeting/focus groups with community leaders, teachers and parents. The purpose of these meetings was to help brainstorm ideas to promote healthy eating and physical activity, reducing screen time among children. A total of 70 teachers and community leaders and 60 parents participated in the community meetings. The community meetings lasted approximately two hours and were held at the Holiday Resort Hotel in Tumon. The community meetings involved a cross collaboration of Guam Extension Service personnel serving as facilitators, note takers and typists. The meetings sparked a necessary conversation on best approaches to increase optimal health outcomes for children ages two to five years old; it was a major step the project team took to determine intervention strategies that would be implemented in the program once the



Community Focus Group Session

"Children's Healthy Living Program for Remote Underserved Minority Populations in the Pacific Region"

intervention started. Data transcription and analysis was completed by April 2012 and Guam data was combined with data from the other jurisdictions.

Baseline Data Collection

After extension training and standardization by the Hawaii CHL team experts, baseline data collection went into full swing in January 2013. Collected information such as height, weight, diet intake and physical activity of each participant will form the baseline data. The CHL staff worked with our community partners such as Head Start, elementary schools, day cares, mayor's offices, and churches in the recruitment of participants.

The team has gone a step further by being able to go out and measure participants not only in schools and community/senior centers, but outdoors as well. The Guam CHL team is willing to go just about anywhere to collect data — and they are equipped with pop up tents, tables, chairs, and even platforms designed to be used as a base for the stadiometers (height measuring device) and scales. With the team's ability to be mobile,

we were able to increase participation by working with neighborhoods within the village by coming directly to them. To date, the Guam CHL team completed measurements in the village of Yigo and is almost done with Yona, Sinajana, and Agat. Baseline data collection will be completed by mid-March 2013.



CHL Staff



Intervention Planning

The 2-year intervention will begin in March 2013, and plans are already in the works. In Yigo, The Guam CHL team met with the new mayor to discuss the potential in developing walking trails with edible landscapes around the senior center and the baseball field. In Yona, St. Francis School hosted a workshop on "Starting a Garden with Sheet Mulch" in collaboration with several members of the Non-Communicable Disease Consortium (NCD) and the University of Guam Cooperative Extension Service. Seventy community members and children attended with great interest. The new mayor of Yona was in attendance and we discussed the potential of starting community gardens as well as a village night market. The mayor was very enthusiastic.

EFNEP

Expanded Food and Nutrition Education Program

Communities, Youth, Families, Food & Nutrition

The Expanded Food and Nutrition Education Program (EFNEP) has been on Guam for 30 years and has been helping local families and children acquire the knowledge, skills, and behaviors necessary for nutritionally healthy lifestyles. Our Guam EFNEP continues to target limited-income parents with young children and youth in general. The EFNEP Adult Program continues to educate parents on how to serve healthy meals to their families, and how to increase their ability to select and buy affordable food that meets the nutrition needs of their family. By the time participants complete the 8 Adult Nutrition Sessions, they gain new skills in food production, food preparation, food safety, and they learn how to manage their food dollars better along with related resources from federal and local food assistance agencies and organizations, such as WIC and SNAP. Also included in every Nutrition Session is the importance of Physical Activity. Guam EFNEP continues to adapt and use the “Eating Smart – Being Active” EFNEP curriculum developed by Colorado State University Extension Service. Our participants continually share their own success stories of how EFNEP has helped them to feed their families healthy meals through the knowledge gained from our Adult Program.

In continuing to address the high prevalence of child obesity and other chronic diseases on Guam EFNEP Youth Program continues to administer our Annual “Fitness, Food and Fun Summer Camp”. The camp runs 2—4 weeks at a time, with full-day sessions, and offers a fee waiver for participants whose parents are under public assistance programs in which 50% of our camper’s are from limited resource families. The camp continues to focus on daily physical activity sessions; making healthy food choices; preparing healthy meals and snacks; and using a hands-on approach towards food, nutrition, and fitness that is fun for kids. Camp participants range in age from 7-12 years. The camp





has 4 components (1) Nutrition and Food Budgeting Management Education which include pre and post assessments and trips to the grocery store (2) Food Preparation in which campers prepare their own healthy snacks and meals (3) Various examples of physical activity. Physical activities include: jogging around the campus as part of baseline assessments and weekly activity, calisthenics, on-camping walks, grocery store tours, hiking, volleyball, obstacle course relays, kick-boxing, zumba, yoga, karate demonstrations, soccer, Wii-Fit games, bowling, kayaking, kite flying, off-campus hikes, and a day full at the water park.

164 adults successfully completed the 8-Lesson Adult Nutrition Education Sessions

2,900 Community members on Guam participated in various food demonstrations & static displays for EFNEP program promotion.

54 children participated in our annual (full-day, 2-week) "Fitness, Food & Fun" Summer Camp

95% of the 2,216 children who participated in more than 5-Lesson Youth Nutrition Education Lessons increased knowledge of essential of human nutrition.

95% of adult EFNEP participants showed improvement in one or more nutrition practices including: planning meals; making healthy food choices; preparing foods without adding salt; reading nutrition labels or having children eat breakfast within two hours of waking up in the morning.

CYFAR Sustainable Teen Entrepreneurial Programs

Communities, Youth, Families, Food & Nutrition

Entrepreneurial youth
making a difference...

The Pacific Island Communities: Sustainable Teen Entrepreneurial Programs (STEPS) includes Pacific regional partners from Guam, and the Federated States of Micronesia Kosrae State (FSM). The project prepares youth, ages 13-18, with the knowledge and skills necessary to become entrepreneurial thinkers and contributors to their local economies.

In four years, 301 participants in the program have increased their knowledge and skills, and have applied what they have learned to identify entrepreneurial interest, financial management, marketing, product development and budget projections. Participants gained first hand experience by creating a business from start to finish. Curriculum was delivered in three levels with each level containing a pre- and post-evaluation that students completed before progressing. Participants completing our program who decided to continue in refining their business plans and seek funding for their business ventures beyond the planned 30 program hours were provided one-to-one mentoring through open labs with the Small Business Development Center

A new project for 2011 had students introduce a value added product, which has never been done before of a local dish of spicy eggplant in coconut milk. This popular dish, moderately complex to prepare and cook, deters people from offering this as part of their regular family meal. The idea to develop the product was to provide a popular local dish that was convenient and available with minimal preparation. The Kosrae site accomplished a long-term goal by securing \$25,000 from the Federated States of Micronesia Congress for the site's Youth Entrepreneurship Start-Up (YES) Program to fund youth ventures. The FSM Congress stated they were impressed by the success of our program and inspired by its young aspiring entrepreneurs. This is a significant accomplishment for the program demonstrating community and government support of providing opportunities for youth to generate income and contribute to their local economy.





4H

The 4H Youth Development Program at the University of Guam CES is under the College of Natural and Applied Science. This is an international youth program under USDA that was founded in the United States and its territories under land-grant universities. The 4H program has been in existence on Guam for more than 40 years. Most of the core programs included home economics, gardening, and farming. This new millennium 4H has moved towards science, technology, engineering and math (STEM). The goal is to improve our youth to become proactive, and educate them in the various components under STEM. This will help our youth to perpetuate their interests in different areas under STEM.

The Guam 4H program has 13 charter clubs established within the various elementary, middle and high schools in the three districts of the island. Our program works with the different military installations to improve life skills program and cultural awareness among the youth. Through successful collaboration with the military and the Guam Department of Education in 2012-2013, the 4H Youth Program was able to reach 9,874 youth throughout our island.



Improve the use of tropical crops for health benefits

Communities, Youth, Families, Food & Nutrition

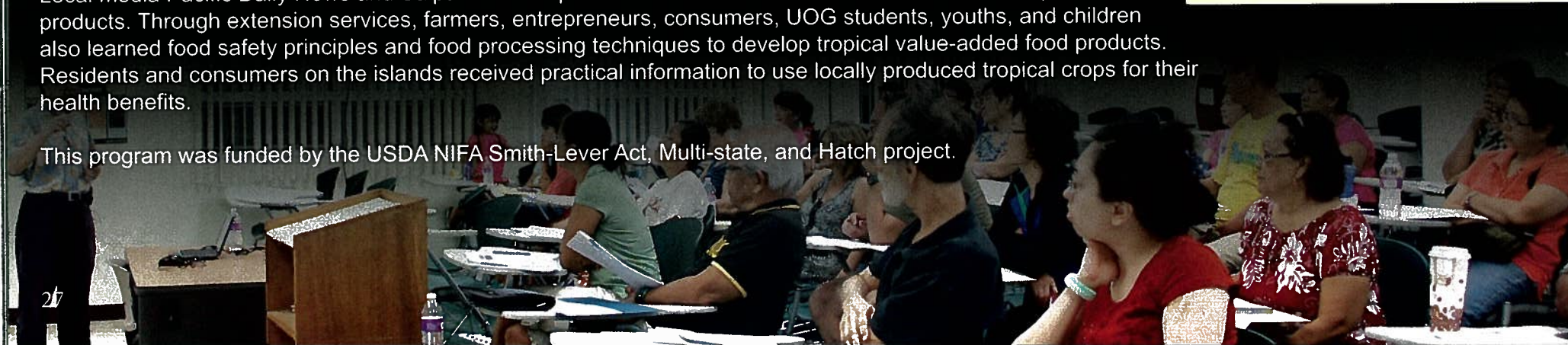
The tropical island of Guam cultivates about thirty types of fruits and forty types of vegetables; most of them are available year-round. Many tropical fruits are popular (such as banana, coconut, mango, and papaya) and some underutilized (such as calamansi, soursop, and star fruit). Since tropical fruits possess the distinctive flavor and aroma and contain unique phytochemicals for health benefits, residents and tourists greatly demand the locally produced tropical fruits. Unfortunately, the shelf life of many tropical fruits is short and the fruit production is inconsistent. The residents' fruit consumption largely relies on imported fruits in markets on Guam.

To promote the use and extend the shelf-life of tropical fruits, we developed various tropical value-added food products, for example, the probiotic soursop yogurt. Probiotics are living organisms which when administered in adequate amounts confer a health benefit on host, such as balancing intestinal microbes, stimulating immune system, prevent colon cancer, and reducing serum cholesterol. Tropical soursop fruit possesses exotic aroma and unique biological compounds. By formulating probiotic yogurt with soursop fruit pulp, we observed the probiotics not only survived but also grew in stirred probiotic soursop yogurt. We delivered the science-based information to residents and consumers through workshops in the community, teaching how to use fresh and pasteurized soursop pulp to prepare stirred probiotic soursop yogurt.

The other developed tropical value-added products include hibiscus herbal tea, cooking banana ketchup, mango-soursop leather, calamansi sport drink, soursop ice creams, canned star fruit, and soursop ginger tea as well as noni juice by freeze-juicing method. We communicated and disseminated the science-based information through food processing and safety workshops and seminars in the communities of Guam and Mariana islands.

Local media Pacific Daily News and Saipan Triton reported our extension activities in value-added tropical food products. Through extension services, farmers, entrepreneurs, consumers, UOG students, youths, and children also learned food safety principles and food processing techniques to develop tropical value-added food products. Residents and consumers on the islands received practical information to use locally produced tropical crops for their health benefits.

This program was funded by the USDA NIFA Smith-Lever Act, Multi-state, and Hatch project.



2012 Micronesian Migrants Survey

Communities, Youth, Families, Food & Nutrition



The U.S. Compact of Free Association (COFA) with the Freely Associated States of Micronesia requires US states and territories to report on sustained negative impact arising from Micronesian migrants. The Federated States of Micronesia (FSM), one of three sovereign nations under the COFA agreement, requested the University of Guam Cooperative Extension Service to conduct a economic well-being survey of FSM citizens residing in Guam. This household survey covers housing, number of COFA migrant residents, number of COFA migrant residents born in Guam, educational status of members, medical treatment, type of employment, household income, contributions to the local community and remittances sent to FSM.

The survey has helped to provide a more complete picture of migrant groups by obtaining information regarding demographics, health, welfare, housing and cultural aspects. The data will provide for an accurate snapshot of the Micronesian migrants, both to assist the governments of Guam, Saipan, Hawaii, and the US Mainland and for the FSM to look towards return migrants for its own planning – educated and skilled workers outside FSM who may return to Micronesia to assist in economic, social and political development.

The survey was conducted under the administration of Dr. Michael Levin, Senior Census advisor at Harvard University. During the project period, over 460 surveys were collected, coded and keyed for tabulation.



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Thank You!

We extend our sincerest appreciation to all of our volunteers, collaborators, stakeholders and advisory members for their dedication and untiring support of our Extension Programs that reach people from all walks of life.

We look forward to the same commitment and support for continued program delivery into our villages and communities.

2011-2012

Biennial Report

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Issued in furtherance of the Cooperative Extension Works Act of May 8 and June 30, 1914, in cooperation with the United States Department of Agriculture (USDA). Dr. Lee S. Yudin, Director, Guam Cooperative Extension Service, University of Guam. The programs of the University of Guam Cooperative Extension Service are open to all regardless of age, race, color, religion, sex or disability.