Buenas yan Hafa Adai,

It is a pleasure to be able to provide a short message of my appreciation to all the hard work that went into the production of the 2018 Impact Report: Cooperative Extension and Outreach (CE&O). This work is under the leadership of my Associate Director, Dr. Sereana H. Dresbach and her amazing group of faculty and staff that make up Guam CE&O.

The 2018 Impact Report demonstrates how vital a role CE&O is in our community. Through our 4H Youth Development programs (STEM after school programs, genie’ius or science Saturday’s and our island wide 4H clubs); Community Development programs (issues that involve the Compact of Free Association nations); Consumer and Family Sciences programs (community health & nutrition, food safety and security, wellness and healthy aging); and our Agriculture and Natural Resources programs (production agriculture, iron wood preservation, combating invasive species).

We don’t want to be the best kept secret on Guam we want everyone citizen that lives on this island to know that CE&O is here to serve almost any specific needs they may have with the programs listed above and we are open to other programs they might see us engaging ourselves in.

The University of Guam is one of the nationwide networks of the US Land Grant system and our role is improving the lives of the people we serve. We are always looking for volunteers so if you think you want to become a volunteer please let us know and become part of our wonderful family.
Most Extension professionals across the country have a copy of the Extension Professionals Creed on their wall or computer desktop. The Creed is a foundation piece that outlines beliefs of Extension professionals throughout the system. The Creed identifies several important concepts that form the basis of Extension activities, programs, materials, and connections. One line summarizes Extension education..... it says that as an Extension professional “...I believe that Extension is the link between the people and the ever-changing discoveries....” Through informal and non-formal education processes, Cooperative Extension & Outreach delivers the ever-changing discoveries to the people for use in their daily living.

Connecting people with research-based information is engagement. Cooperative Extension & Outreach recognizes the responsibility of being engaged with all citizens of Guam. Through activities, programs, and materials, Cooperative Extension & Outreach is the “front door” to University of Guam. Creating meaningful, research-based activities will assist people to engage with thoughtful professionals across the university.

The Creed further states the belief that Extension education stimulates lifelong learning. Cooperative Extension & Outreach embraces lifelong learning in the design and delivery of education opportunities. Through face to face opportunities, digital connections, workshop, group events, or printed materials, Extension brings information into homes for individuals and families to make healthy decisions. Community businesses, agencies, and organizations are provided unbiased information for strategic actions. Youth learn, explore, and discover scientific processes to address challenges in today and tomorrow’s society.

These beliefs are the foundation for UOG Cooperative Extension & Outreach work – engagement for all, lifelong learning, belief in people and their hopes.
University of Guam Cooperative Extension & Outreach is an integral part of the land grant mission. Cooperative Extension & Outreach at UOG is the confluence of federal legislation:

- 1862 Morrill Act provided funding to create land grant universities.
- Hatch Act of 1887 provided funding for needed research in agriculture and natural resources.
- 1914 Smith Lever Act provided funding for Extension education in all disciplines.

Through partnered funding from USDA, GovGuam, and other sources, Cooperative Extension & Outreach delivers research-based information to the people of Guam and the region. Concurrently, ideas, needs, concerns, and emerging trends identified by citizens are communicated to the university to address. The continuous interaction between research and citizens is engagement. Cooperative Extension & Outreach is the front door to the University of Guam.

The needs and concerns of citizens drive the mission of Cooperative Extension & Outreach. Through multiple avenues of non-formal education settings, educators engage citizens with information to improve daily living. Workshops, conferences, and one-on-one consultations have been the foundation of Extension education, but embracing new technologies for digital connection to citizens is an example of the evolution of Extension education and outreach.
Guam Department of Education (GDOE):
$341,390
Compact of Free Association (COFA)
$188,500
Department of Public Health and Social Services (Walk to Wellness)
$123,915
USDA SNAP-Ed
$213,382
USDA APHIS (Invasive species)
$200,000
USDA AHIS FarmBill (CRB control)
$200,000
US Department of Interior:
Office of Insular Affairs
$176,553
USDA AHIS
$21,272
USDA SARE
$47,899
Colorado State University Food Safety
$5,000
Utah State University Western SARE
$49,918
Utah State University Western SARE
$40,000
EFNEP
$104,523
USDA SARE
$47,899
USDA SNAP-Ed
$213,382
Department of Public Health and Social Services (Walk to Wellness)
$123,915
Guam Department of Education (GDOE): 4H STEM
$341,390
Smith-Lever Funds (Federal funding)
$1,524,574
Specific programs/research funding: Federal
$1,097,547
Specific programs/research funding: Local
$653,805
GovGuam match/other (Local funding)
$1,196,088
Renewable Resources Extension Act
$13,500
Kansas State University Military Families 4H
$22,500
Smith-Lever Funds (Federal funding)
$1,524,574

COOPERATIVE EXTENSION & OUTREACH FUNDING SOURCES
FY 2018
4-H YOUTH DEVELOPMENT
Guam 4H Youth Development embraces the commitment of the National 4H Council by “...providing leadership and resources so that 4-H programs are available to youth across the US.”

Guam 4H Youth Development programs focus on responsibility and empowerment of all youth through leadership development. To truly empower youth to become responsible citizens, Guam 4H Youth Development focuses on the inclusion of all youth, not separating by differences.

How are youth engaged? Guam 4H goes to the youth. In schools, Guam 4H Youth Development facilitated STEM programs in the classrooms, complimenting established curriculums, to enhance the formal learning environment.

Through traditional program outlets, Guam 4H Youth Development focuses on inclusion of youth into clubs and activities that teach research-based subject matter through experiential activities, with parents as trained volunteers. While the activities are focused on a particular learning outcome, there are implicit lessons about leadership, citizenship, responsibility, and ethics woven into all activities.
ENGAGING ALL YOUTH

National 4H Council utilizes resources from 4H programs across the US. Guam 4H Youth Development photos were utilized in the national 4H social marketing effort.
In 2018, Guam 4H Youth Development had 9,603 youth participants and indirectly connected to 11,524 additional youth.

Over 360 adult volunteers participated as mentors through clubs, schools, special events, and training activities.

Four new community clubs were chartered and twelve 4H enrichment programs were established.

Guam 4H Youth Development conducted ten special interest programs and day camps throughout the course of the year.

In addition, six technology workshops were conducted as well as three workshops focused on family learning and mentoring.
JUST ADD WATER

9,603
TOTAL YOUTH PARTICIPANTS

11,524
ADDITIONAL INDIRECT CONTACTS WITH YOUTH

16
NEW CLUBS & PROGRAMS ESTABLISHED
Guam GENE-ius is another opportunity for youth to experiment, explore, and engage in science play as a building block for scientific inquiry. Since the inception, a total of 151 students have graduated the hands-on STEM program. Within the Guam GENE-ius’ iterations, 62% of participants identified positive change in learned information. Across disciplines, age-centered activities focused on discovery about anatomy, biotechnology, climate change, electricity, food webs, genetics, physics, and water, to name a few subjects.

Science Saturdays expanded to two additional grade tiers: a four part series for grades 1 through 3 and a three part, extended daily schedule for grades 7 through 9. Over one-third of the participants (39%) in grades 1-3 indicated new knowledge from the series. For grades 7-9, 24% of the participants indicated new knowledge gained from the series. Utilizing established curriculum from land grant partners in 4H youth development and other colleges, Guam GENE-ius has established a cycle of STEM subject matter that is different for each year of participation.
SCIENCE SATURDAY

151 TOTAL PARTICIPANTS

62% REPORTED INCREASE IN KNOWLEDGE
COMMUNITY DEVELOPMENT

One provision designated that the US Census Bureau conduct a COFA Impact survey every five years. The 2018 Compact of Free Association (COFA) Survey represents an ongoing survey collaboration between government agencies to create an accurate picture of in-migration, community infrastructure, and emerging needs. For government agencies and community organizations, special surveys are important to capture timely information that impacts communities.

Data from the survey will be used to allocate $30 million Compact Impact funds for a range of socio-economic programs to offset the impact of migration to Guam and other Pacific Islands. COFA Survey reports will be used to identify trends associated with COFA migrants and Guam communities.
IMPACT OF COMPACT OF FREE ASSOCIATION

4,945 TOTAL HOUSEHOLDS SURVEYED

$30M REGARDING COFA IMPACTS TO ALLOCATE

18,874 IN-MIGRANTS TO GUAM
Individual, families, organizations, agencies, and groups want data for decisions. Whether it’s the choice of a fresh vegetable in the supermarket or investment in new technology for a business, timely data is important. Through data collection, accurate portrayal of economic sectors, social issues, and environmental systems are critical to decision making processes on Guam.

Motivated by the increasing volumes of data, faster computation, and algorithmic advances, there is an opportunity to apply transformative, data-driven research methods for all sectors of the island – government, business, non-profits, community, as well as families. All sectors of the economy use data to allocate resources, take strategic actions, land use, and make investments.

In 2018, survey implementation began regarding in-migrant residents, agriculture production, and household expenditures. Analysis and interpretation of information gathered will be the focus for Cooperative Extension & Outreach education programs. In addition, preparation for 2020 US Census includes awareness about citizen participation and outcome potential.
DATA COLLECTION

3M
SURVEYS CONDUCTED ANNUALLY IN THE US

900+
WORKERS TO BE HIRED FOR 2020 CENSUS ON GUAM

$78M
ASSETS MANAGED BY NON-PROFITS & 501C TAX EXEMPT ORGANIZATIONS ON GUAM
CONSUMER & FAMILY SCIENCES
Nutrition facts labels are an important decision-making tool for consumers. Food labels are the bridge between food manufacturers and consumers by communicating product ingredients. For consumers, food labels have different uses, such as the contents of the product, as well as provides guidance about serving size, proportion, calorie count, and nutritional value, such as sugars, salts, trans fat, fiber, protein, and vitamins.

But how are these labels created for local products? Utilizing software based on nutrition research from universities worldwide, UOG Cooperative Extension & Outreach will create a label from analysis of the product contents and serving size. In 2018, based on the information provided by the manufacturer, sixty-five food labels were analyzed and created for food entrepreneurs and community programs.
NUTRITION FACTS LABELS

65
FOOD LABELS CREATED FOR LOCAL SMALL BUSINESSES

9
PARTNERED WITH LOCAL FOOD BUSINESSES FOR LABEL CREATION

15+
POINTS OF INFORMATION ON A NUTRITION LABEL
Food safety is everyone’s responsibility.

Specific to consumers on Guam, the native breadfruit has been utilized as a staple food in a variety of ways. To extend its availability and versatility, individuals and families attended education programs to learn about safe food preparation and storage of breadfruit. Cooperative Extension & Outreach faculty and professionals shared strategies on safe food handling at harvest and preparation for long term storage. In addition, forty-six participants participated “in the kitchen” with Extension professionals to prepare various recipes to demonstrate breadfruit possibilities.

Engaging the audience through education programs by demonstrating preparation and use, as well as safe storage and handling, are steps toward consumer responsibility to address overall food security.
FOOD SAFETY & SECURITY

TOTAL PARTICIPANTS IN BREADFRUIT WORKSHOP

46

POTENTIAL BREADFRUIT PRODUCTS

100+
The Children's Healthy Living project germinated the *Walk to Wellness* program to encourage village level socio-environmental change addressing obesity. With village leaders and local government agencies, one hundred thirty-three individuals and families from five villages participated in the twelve-week program to increase moderate physical activity (walking) and increase the consumption of fruits and vegetables in the daily diet.

As a result, 82% of participants stated they increased physical activity as a result of the program. Participants walked 60,000,192 total steps or over 30,000 miles during the program. On average, individuals increased their walking activity 375 minutes per week.

Participants indicated an increase (73%) in consumption of fruits and vegetables in their individual and family daily diet. This positive change was supported by, 419 seedlings were given to participants to plant at home, including banana, calamansi, papaya, soursop, mango, eggplant, green onion, peppers, spinach, and sweet potato.
WALK TO WELLNESS

133
TOTAL PARTICIPANTS

82%
REPORTED INCREASED PHYSICAL ACTIVITY

73%
REPORTED INCREASED FRUIT AND VEGETABLE CONSUMPTION
COMMUNITY NUTRITION EDUCATION PROGRAM
Community Nutrition Education Programs (CNEP) focus on delivering research-based information on nutrition, healthy lifestyle choices, and well-being for all ages. The peer-led education model was introduced in all states and territories in 1969 as an effective means to communicate information to consumers. Peer educators implement evidence-based programs for many audiences – young children, families, school youth, individuals, and senior citizens. The Expended Food and Nutrition Education Program (EFNEP) and the Supplemental Nutrition Assistance Program Education (SNAP-Ed) reached 2,896 adult participants with direct education and 4,795 individuals through outreach activities in 2018.
COMMUNITY NUTRITION

2,896
ADULT PARTICIPANTS COMPLETED WORKSHOPS

4,795
INDIVIDUALS REACHED THROUGH OUTREACH ACTIVITIES

575
PEOPLE PARTICIPATED IN IN-STORE EVENTS
Through continuous professional development sessions, CNEP faculty and professionals ensured all peer educators were able to connect participants to social programs and services that addressed participant needs. During professional development sessions, guests from partner agencies led dialogue with CNEP peer educators. Guest trainers described eligibility requirements and enrollment process, identified documents needed for application, and, in turn, learned more about Community Nutrition Education Programs. Through awareness and linkage to partner programs, participants increased use of services and assistance, which further supports families and food security.

**PARTNER PROGRAMS:**
- Guam Head Start Program
- DPHSS-SNAP (Department of Public Health and Social Services - Supplemental Nutrition Assistance Program)
- DPHSS-TANF (Temporary Assistance for Needy Families)
- Catholic Social Services
- Special Supplemental Nutrition Program for Women, Infants, and Children
- DSC (Division of Senior Citizens)
- TEFAP (The Emergency Food Assistance Program)
- Dr. Clare Camacho, d.b.a , JOY Consultants
COMMUNITY ENGAGEMENT

23% POPULATION ELIGIBLE FOR EFNEP/SNAP-ED PROGRAMS

12,043 CONTACT HOURS WITH GUAM RESIDENTS FOR NUTRITION EDUCATION
The Guam Supplemental Nutrition Assistance Program-Education (SNAP-Ed) partnered with the five villages of Agat, Ordot-Chalan Pago, Santa Rita, Yigo, and Yona to implement the 5-2-1-Almost None social marketing campaign. The campaign focuses on elementary schools and nearby food stores and community leaders to encourage village residents to make healthy behavior changes.

As the island celebrated Mes Chamoru activities in the month of March, students in five elementary schools were given the opportunity to learn about various local fruits and vegetables. 5-2-1-Almost None healthy messages were seen throughout the school year in newsletters, bulletin boards, parent workshops, and other school events. Schools have adopted life-sized physical activity game boards to allow students more opportunities to get active. Stores have integrated Smart Snacks labeling on store shelves to encourage parents and students to purchase healthy, nutrient-dense snacks.
5-2-1 ALMOST NONE

5 FRUITS AND VEGETABLES PER DAY
2 HOURS OR LESS OF SCREEN TIME A DAY
1 HOUR OF PHYSICAL ACTIVITY A DAY
ALMOST NONE SUGAR-SWEETENED BEVERAGES
In 2018, the Preventive Health Project (PHP), in coordination with the Department of Public Health and Social Services Division of Senior Citizens, engaged citizens in twelve Senior Centers/Adult Day Cares in the villages of Inarajan, Yona/Talofofo, Macheche, and Dededo. Activities in PHP are to actively improve physical activity minutes and mindset to overcome common challenges.

Active Living Every Day (ALED) is a twelve-week behavior change course to implement PHP. Regardless of fitness level, all individuals are encouraged to make changes that fit their lifestyle to be more active. Participants focus on manageable goals to increase physical activity through behavior change techniques such as:

- Goal setting
- Rewards and celebrating
- Planning Ahead
- Keeping Track of Physical Activity
HEALTHY AGING

11% OF GUAM POPULATION OVER 55

48 SENIOR CITIZENS GRADUATED (ALED) IN 2018
AGRICULTURE & NATURAL RESOURCES
In 2018, Cooperative Extension & Outreach established the annual agriculture survey of production outcomes, revenues, capital investments, and needs for Guam farmers. Through personal interviews and data capture, Cooperative Extension & Outreach is building the economic picture of agriculture production on the island. Creating a systematic collection of information, production agriculture on Guam will provide an accurate representation of agriculture production and market opportunities.

Accurate production information is one avenue for Cooperative Extension & Outreach personnel to identify strategies to meet the needs of agriculture producers and consumers. The survey of farmers will be replicated annually and generates multiple fact sheets, bulletins, and supporting documentation for research activities. This information is the foundation for development of Extension education efforts for all producers.
PRODUCTION AGRICULTURE ON GUAM

101
FARMERS SURVEYED

70
DIFFERENT PRODUCTS SURVEYED

340
TOTAL ACRES OF LAND USED FOR PRODUCTION
Guam’s ironwood tree (*Casuarina equisetifolia*) is indigenous to the region and traditionally pest and disease-free. An important component of the agroforest ecosystem, the ironwood tree, or gago, is in the midst of decline due to ironwood tree decline (IWTD) that ultimately threatens Guam’s long-term environmental sustainability. Multiple research efforts have focused on the identification of contributing factors, early detection, and intervention, as well as preventative strategies to reduce and reverse the impact ironwood decline on Guam.

Disease-free ironwood seedlings have been generated by the Western Pacific Tropical Research Center and distributed to individuals and groups for planting on private land. In addition, ten off-island cultivars have been identified and propagated to increase the gene pool strength of the ironwood population. Over the next two years, more than seven hundred seedlings will be distributed for new and established agroforestry projects. Concurrently, education programs for individuals, landowners, and farmers will continue to focus on integrated pest management practices for tree care and strategies to reduce ironwood tree decline.
IRONWOOD PRESERVATION

49% OF TREES IN DECLINE SINCE 2008

700 SEEDLINGS TO BE PLANTED

10 CULTIVARS IDENTIFIED FOR GENE POOL
The coconut rhinoceros beetle (CRB) is just one example of an identified invasive species. Specific to the CRB-Gv, current research is underway to identify virus control, develop low-tech production methods, and develop a mass distribution strategy for the virus. Communication of research findings into everyday application for individuals, families, and businesses is the Extension education process. In 2018, over two thousand five hundred people participated in various Extension education efforts about effective methods, techniques, and practices to control CRB. One example is education efforts focused on the use of composting at green waste sites to reduce breeding sites for CRB. Other education efforts have highlighted improved trapping strategies.

Research and Extension personnel from the University of Guam have been utilized across the region for their expertise of invasive species. The Western Governors' Association’s Biosecurity and Invasive Species Initiative, launched in 2018, focused on action strategies and outcomes for agriculture production, tourism, watershed management, and trade. Extension personnel are key members to develop program actions, research, and funding to address economic and environmental impacts on regional, national, and international levels.
COMBATTING INVASIVE SPECIES

2,500+ PARTICIPANTS IN CRB EXTENSION PROGRAMS

500+ INDIVIDUAL INVASIVE SPECIES ON GUAM

15 INVASIVE SPECIES IDENTIFIED IN 2018
Cooperative Extension and Outreach mission is supported by connecting to people through various forms of media. Media has been categorized into traditional and new media. Traditional media consists of television, radio, and print media, such as magazines and newspaper. New media tools technologies facilitate personalized communication in the digital environment such as computers, tablets, and mobile devices.

Connecting people to information through all outlets is essential to the mission of Extension education. Cooperative Extension & Outreach new media technologies include website and social media platforms, such as Facebook & Instagram. Extension education recognizes that people want information in different formats, but common to all is connection to research-based, unbiased information. In 2018, Cooperative Extension and Outreach had 900 followers through social media platforms of Facebook and Instagram. Over 2,416 visitors to the website to search for publications, event information or connection to professionals. In other social media presence, CE&O identified more than 350 visitors connected for education events and announcements.
COMMUNICATING WITH PEOPLE

578 FOLLOWERS ON FACEBOOK

2,416 INDIVIDUAL VISITORS TO EXTENSION WEBSITE IN 2018
4H YOUTH DEVELOPMENT

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Cooperative Extension & Outreach delivers research-based, unbiased information to the citizens to use in their daily lives. At the same time, CE&O brings the needs and concerns of the citizens to UOG for research and discovery.