

University of Guam Combined Research and Extension Plan of Work 2020-2024

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I. Plan Overview

1. Executive Summary

The University of Guam (UOG) is the only 4-year public institution of higher education on Guam. Per the mission of UOG, the university serves not only Guam but also the region of Western Pacific (2.2 million square miles), island nations that are under the protection of the United States and have two year colleges that also have land grant status.

Agriculture Experiment Station being a part of UOG since 1975 has had major impact on the agriculture research on Guam as well as many islands in the American Western Pacific. The Western Pacific Tropical Research Center (WPTRC) associated with the research division in the Land Grant college accurately reflects our mission and research priorities. WPTRC faculty and administrators formulated clear and attainable goals and adopted the following mission: "Excellence in research in support of the land grant mission of discovery, learning and engagement. We excel in the areas of tropical agriculture, environmental and life sciences." Our mission is strategically aligned with UOG's mission of responsiveness to the specific needs of Guam and other Western Pacific island communities, thereby, contributing to their economic growth and stability.

The University of Guam Extension & Outreach (UOG-C E&O) engages the University Community through a multi-disciplinary approach to address the complex issues facing the people of Guam. UOG-C E&O works to increase its collaborations with government agencies, private entities, businesses, non-profit agencies, and non-governmental organizations. This approach is important in Guam's interdependent culture and has proven to be one of the strengths to ensure effective education programs are delivered in a timely manner. These partnerships have supported the mission of extending research-based information through multiple education venues to engage individuals, families, youth, and communities.

UOG Extension and research connect to the citizens through various engagement processes, not only in the education arena, but also to gather perspectives of needs, concerns, issues, and emerging trends. This approach represents an education effort to apply research based, unbiased information for daily application in the use and protection of urban natural resources in the urban and rural environments, identifying food security strategies on the micro, mezzo, and macro-levels, youth and family development for leadership, and economic sector enhancement. With the geographic position of Guam, the responsibility for social, economic, environmental, and policy research and application have potential for regional, national, and international implications that directly affect day-to-day living on Guam.

2. FTE Estimates

Year	1862 Extension	1862 Research
2020	22.0	24.0
2021	23.0	24.0
2022	23.0	24.0
2023	23.0	24.0
2024	23.0	24.0

II. Merit / Peer Review Process

Cooperative Extension & Outreach regularly conducts stakeholder information gathering, specifically with economic

groups, project audiences, and through evaluations of all education sessions. In addition, stakeholders were identified to respond to questions about their needs and perception of assets on Guam. This interview process was summarized, and trends were identified. As a short-term project, four initiatives focusing on transdisciplinary, multi-tiered initiatives are implemented for 2019-2021. These initiatives are supplemental to all Extension education programming currently conducted. The four areas are: Harnessing Big Data, Our Youth, Our Future, Reinforce Family Resiliency, and Ensuring Food Security. These initiatives are designed from the research and experience of Extension faculty and program professionals.

? Because of the small size of WPTRC, review of individual Plans of Work and projects has been conducted mostly by WPTRC administrators (Director and Associate Director). They usually utilize external reviewers as well as their knowledge and experiences to ensure that the planned programs and activities address the critical issues of strategic importance, including those identified by the stakeholders during the development of Strategic Plans. All new research proposals (such as Hatch, McIntire-Stennis, Regional Research etc.) are being submitted to WPTRC Associate Director who checks the proposal for completeness and format. There are very few peers at the university with expertise to review research proposals in agriculture fields. Therefore, a draft proposal that is ready for review is being submitted to external ad hoc Peer Review Committee. Committee is comprised of three faculty members from other universities who are familiar with the issues addressed by the project. Based on the review, that includes assessment of (1) significance, (2) need, (3) approach, (4) new knowledge to be generated, (5) potential for impact, and (6) potential for success, WPTRC administrators are making decisions regarding allocation of resources.

III. Stakeholder Input

1. Actions to Seek

Continuous dialogue with stakeholders through consumers, families, individuals, businesses, agencies, member organizations, government partners, federal agencies, military, and outer islands representatives. In certain areas, UOG is partner in research and Extension with international entities (invasive species research and control) due to the geographic presence.

To ensure that UOG-CE&O is responsive to both the needs of the community and the mission of delivering of science-based knowledge to communities, each program unit implements standardized evaluation after each program that includes asking participants to identify other needs and concerns. This continuous input during education activities are reported in the Annual Report of Accomplishments and Results. Further, results from stakeholder input was used to develop UOG-CE&O strategic plan which describes areas of focus, new initiatives, and guiding principles for UOG-CE&O to ensure that each critical program area and initiative have appropriate stakeholder engagement.

The following actions were taken to gather stakeholder input:

Website development: Online access to all materials is tracked for use as well as describes connection to the research and Extension personnel for further questions. A continuous calendar of events is available online with information about where to engage. The website is migrating to the overall university website during 2019-2020.

Extension evaluation for workshop/programs/events: standardized metrics regarding teaching and information are provided to all participants at the end of sessions. These evaluations are then entered into a statistical program for data and analysis. Aggregate means are shared quarterly with faculty, as well as information is tracked for emerging trends.

Continuous dialogue: Extension faculty and professionals have regular, structured and continuous conversations with stakeholder audiences that include government agencies (territorial and federal), non-profit agencies, member organizations, and private business with the specific goal to identify emerging issues for the region in social, economic, environment and policy related areas.

WPTRC will employ several of stakeholder input methods including soliciting input from individual farmers, farmers

groups and organizations, representatives of the industry and representatives from federal and local agencies.

2. Methods to Identify

Multiple methods to breadth of stakeholder groups:

Web based interaction via metrics of use of materials, random sample evaluation of materials

Survey methods with non-traditional stakeholders and non-users - identification of non-users to identify needs (individuals, groups, agencies, and other)

Person to person dialogue for in depth exploration of issues for families, consumers, agriculture producers, and non-traditional stakeholders.

Traditional Stakeholders

- 4-H Clubs - Volunteers, Leaders and Youth
- Northern and Southern Farmers and Producers
- Soil Conservation District
- Volunteers

- Sanctuary Inc. (A home for troubled, abused and runaway youth.)

- Guam Public School System - Nutrition Department

- EFNEP Clientele

- Guam Mayor's Council

- NRCS, USDA

Non Traditional Stakeholders

Administrators, Boards, Commissions and staff of government and non-government organizations from Department of Labor, Department of Public Health, Department of Youth,

Guam Community College, Guam Economic Development Commerce Authority, Guam Environmental Protection Agency, Small Business Development Center and Guam Public School System Teachers, Military and Businesses.

WPTRC will employ several of stakeholder input methods including soliciting input from individual farmers, farmers groups and organizations, representatives of the industry and representatives from federal and local agencies. Because of relatively small number of faculty and stakeholders on Guam, it has been a long-lasting practice to invite stakeholders for various functions in the college and give them frequent opportunities to express their needs in informal settings such as personal contact with faculty members. Periodically, stakeholders (farmers, golf course superintendents, owners of nurseries etc.) are invited to the college to make presentations and express their needs and concerns in more formalized manner. Both methods seem to work well and WPTRC administrators plan to continue with this way of providing stakeholders' input.

Of particular importance is to generate good understanding (between stakeholders and AES) why issues related to the natural environment receive so much of attention and need stakeholders' support. We plan that our future stakeholders will include producers, consumers, decision-makers, students, alumni, and members of the business community.

3. Methods to Collect

In person dialogue

In person session evaluation

In person interview

Web based dialogue

Web based metric analysis

Web based surveys

Literature review

Literature search

Research partnership - internal and external

4. How Considered

Where appropriate Extension will align related community needs assessment themes and strategic planning efforts related to priority community issues identified by the UOG-CE&O collaboration.

Guam's AES stakeholders are well identified. There are not more than 50 farmers and not more than 200 individuals who supplement their income with some sort of agricultural production. Their participation and input to define agriculture research ranges from substantial (full time farmers) to insignificant. Farmers do not form strong and focused commodity groups. Their associations are rather loose and based on personal contacts, friendships, etc.

IV. Critical Issues

1 Youth Development - 4H Youth Development

Description:

The program is designed to educate and empower families, youth and communities to understand how individuals and families can both obtain and use resources of time, money, and human capital to develop their potential as participative members of society. UOG CE&O will conduct and facilitate workshops that will help families understand the significance human development and family well being. Specific to youth development on Guam, the in-migrant population under the Compact of Free Association (COFA) has had impact to agencies, organizations, neighborhoods, and families as the outer island residents in-migrate to Guam. Engaging youth before they become "at-risk" into clubs, schools, and community groups with trained adult mentors is essential to reducing negative impact and increasing positive outcomes for all residents.

To achieve this goal, staff and volunteers will conduct workshops focused in the following emphasis areas: economic preparedness (resource management, time, money and human capital, youth entrepreneurship), interrelationships between society and households to improve family well being, human development (child, adolescent, adult), and workforce preparation. Staff and volunteers will assist and facilitate targeted youth (5-19) to increase awareness and knowledge through camps, school enrichment youth activities, after school programs, projects and curricula. The programs will focus on increasing knowledge in essential elements in the sense of belonging and sense of safety, self confidence and self esteem, literacy, communication, problem solving, volunteerism and community service for youth, interaction and relationships with adults and peer groups, leadership development and opportunities, youth initiatives in non-formal science, engineering, and technology and civic engagement.

Term: Short

Science Emphasis Areas

Education and Multicultural Alliances
Youth Development

2 Family and Consumer Sciences - Health

Description:

The intersection of health and agriculture focuses on consumer and family decision making regarding nutrition,

consumer decision making, health literacy, and responsibility. Guam morbidity rank is in the top ten in the world for diabetes and obesity. Extending the impact of nutrition education and outcomes to the breadth of consumer factors that influence this health issue will be the focus of Extension education. Extension will utilize the funded research in healthy children education and intervention to further develop and sustain education programs for all members so sustained health impact can be documented.

Term: Intermediate

Science Emphasis Areas

Family & Consumer Sciences

Sustainable Agricultural Production Systems

3 Food Safety

Description:

Access to the knowledge and training is the first step to make changes to a situation. Effective education will help consumers to gain knowledge in food safety and processing and make changes in attitudes and behaviors. Behavior changes will improve the situation, reducing foodborne illness and marketing value-added food products in the community. Specific to the islands of the Pacific, is food safety for long term food preservation to reduce food insecurities. With environmental factors, transportation issues, and growing populations, food security is a different conversation than in areas of the mainland.

Education to children and adults in food safety and food processing has significant long-term impact in the community. The education activities can be conducted and supported through major offices and various village centers on Guam. Various community food fairs can provide opportunities for us to deliver the science-based information to consumers. In addition, the local government agencies, the Department of Public School System, the Farm Co-op Organization, and the media can also support activities to change the community situations: reducing foodborne illness and increasing safe and wholesome food products using locally-grown crops.

Term: Intermediate

Science Emphasis Areas

Food Safety

4 Human Nutrition - Childhood Obesity

Description:

The College of Natural & Applied Sciences at the University of Guam's childhood obesity focus is embedded in many activities. In addition to the established EFNEP and SNAP-ED programs that serve the nutrition-education needs of limited resource families, research and outreach activities targeting sustained behavioral change is the focus for making generational change regarding children and young adults. Research findings and activities that are designed to engage and change perceptions and values, not just information sharing, is essential for sustained change now that childhood obesity has reached critical levels on Guam. All programs will focus on nutrition and health educational activities designed to help families and children make informed, science-based decisions about their health and well-being. A variety of nutrition and health education lessons are offered to children, individuals, and families designed to meet their individual needs. The program focuses on skill areas for practical everyday choices with an emphasis on incorporating this knowledge into their everyday lives. Activities are also designed to increase knowledge and understanding in preventing chronic diseases.

Term: Intermediate

Science Emphasis Areas

Human Nutrition

5 Sustained Agricultural Production Systems - Plant/Pest Efforts

Description:

Plant Health and Pest Management Program is a coordinated research and outreach program to identify, diagnose, and control the pests (insects, fungus, virus, etc) that are significantly impeding agricultural production on GUam and the adjacent islands. These particular challenges pose a threat to other agricultural production areas due to trade and travel. The information and its delivery are designed to reduce the environmental and economic impact of plant cultivation, plant importation, and pest control activities. This is accomplished through education and research projects conducted by UOG and other federal and local agencies.

Term: Intermediate

Science Emphasis Areas

Sustainable Agricultural Production Systems

6 Sustained Agricultural Production Systems - Global Food Security

Description:

On an island like Guam, Food Security and Hunger are critical issues, if supplies to the island are interrupted only local resources can be relied on. This plan of work is about developing local food production capacity for our island communities. From "farm to fork", there are significant threats to the agricultural production capacities on the island that research and Extension must address. Developing and enhancing soil to resistant cultivars, to expansion of production to reducing economic inputs for viability to increasing overall production are identified as immediate issues before the consumer is involved. Food security is a major issue with multiple approaches that all must be explored in research and application for secure food supply.

Term: Intermediate

Science Emphasis Areas

Sustainable Agricultural Production Systems

7 Sustained Agricultural Production Systems - Protect Resources of Guam

Description:

Guam and Micronesia's fragile insular ecosystems are subject to severe abiotic and biotic stresses including: typhoons, drought, fire, invasive plant and animals, and human induced habitat destruction. Estimated, Guam identifies a new invasive species every week (animal, plant, insect, virus, etc). Research and outreach are addressing identification and control as fast as possible but time is not a partner for these efforts. As Guam is the front door for US Agriculture, it is essential and critical that efforts in invasive species control be a main thrust of research. For example, through basic and applied research, host-pathogen interactions can be identified; control measures can be developed and researched. An important component of ecosystems management is mitigation of alien invasive species. Invasive species threaten Guam and Micronesia's native plants and damage economically important ornamental species.

The invasion of new pests and pathogens, including insects, and disease causing organisms, can devastate the expensive niche crops that Guam and Micronesia's farmers produce thereby destroying their limited economic opportunities. All programs must address issues that are relevant to the needs of the region, serve interest of scientific community and are linked to the needs of our stakeholders. Indeed, numerous research projects address environmental issues, integrated plant protection, biocontrol as well as serve ethnic needs of local population.

Term: Intermediate

Science Emphasis Areas

Sustainable Agricultural Production Systems

8 Community Development

Description:

With changing population through in migration, accurate data gathering and analysis for future decisions is critical. Accurate data gathering and creating infrastructure to maintain data for analysis is the focus for the next year. Additionally, the outreach efforts are directed at data users (decision makers) who will understand how to appropriately use the information. Based on the goals of improving decision making in local communities, this effort will empower communities to guide their own decisions and improving the social and economic well being of Guam residents.

Term: Short

Science Emphasis Areas

Education and Multicultural Alliances