

# 2017 College of Micronesia Combined Research and Extension Plan of Work

**Status: Accepted**

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## I. Plan Overview

### 1. Brief Summary about Plan Of Work

The 5-Year Plan of Work for the College of Micronesia Land Grant Programs (COM-LGP) is an integrated approach to addressing the critical issues of strategic importance to the entire Micronesia. Issues identified are very broad, which requires that the different counties in Micronesia develop research and extension programs that address short-term, intermediate, and long-term critical needs and problems that are unique to each of the counties. All programs are developed based on stakeholders' input and are consistent with priority economic, social and ecological problems identified by the various counties through their Economic Development Plans or similar sector development plans. Implementation of programs will be in six counties and will serve communities in remote and isolated counties and areas to reach people from all walks of life, including the underprivileged and underrepresented.

The geographic region served by the COM-LGP covers over 2 million square miles, an area larger than the continental United States. Four of extension counties in the Federated States of Micronesia (FSM) are Yap, Chuuk, Pohnpei and Kosrae. These counties include 607 islands and atolls, 65 of which are inhabited, spread across an ocean area of more than one million square miles. Although the land area of this nation is only 271 square miles, there are also 2,700 square miles of lagoons.

The Republic of the Marshall Islands (RMI), a county consists of two north-to-south chains of islands. Together they include five single islands and 29 atolls. The coral atolls rise not more than 25 feet above sea level and average less than 1,000 feet in width. The island group lies on the eastern edge of Micronesia, 2,100 miles southwest of Honolulu.

The Republic of Palau (ROP), a county and is a cluster of 343 islands in the southwest corner of the region, less than 500 miles east of the Philippines. These islands range from the hundreds of small limestone Rock Islands to the volcanic island of Babeldaob.

These six counties are inhabited by a heterogeneous mixture of people from diverse cultural groups with different customs, traditions and languages. At present, the population is approximately 200,000.

The agriculture and aquaculture programs in the six counties are mostly subsistence in nature. The continuing challenge is to build a viable economy and ensure a constantly improving quality of life in Micronesia, while maintaining strong cultural identity and a healthy environment. The Micronesia land-grant program will continue to play an active role in the economic and social development of the six counties. The Micronesia land-grant program conducts applied research and develops appropriate and effective extension, teaching materials and methods targeting clients in small island communities.

The identification of issues and trends from which programs are developed involves the input of stakeholders and observations and findings of staff and from partners and collaborating agencies. Government studies, reports and publications are also used in the tracking of trends and the identification of critical issues. The extension of the economic provisions of the Compact of Free Association funding in

the FSM and the RMI in 2004 provided these two countries with alternative scenarios for achieving economic growth and self-reliance in the next 20 years. The Republic of Palau's Compact of Free Association with the U.S. Government continues. The Compact II with the FSM and RMI is one of the issues that will have a major impact on standards of living in Micronesia in the coming years. Other important trends include: internal migration and resulting pressures on land and the environment; family financial resources and social services; increasing cost of living; increasing out-migration of both young and adult Micronesians to adjacent U.S. population centers in search of economic opportunities; rising sea level as a result of the greenhouse effect causing global warming, and other natural phenomena such as El Niño and La Niña that may have disastrous effects on small island counties; and increasing social pressures brought on by rapid unsustainable development and declining cultural values, leading to children, youth and family problems.

Micronesia land-grant program supports sustainable systems that improve and advance agricultural, human capacity, community, and natural resource development. The sustainable systems must be economically viable, environmentally sensitive, socially acceptable, culturally appropriate, and technologically feasible. In addressing the wide range of issues identified by stakeholders, land-grant program emphasizes the preservation and protection of Micronesia's natural environment. This response is vital requiring concerted efforts toward raising awareness that the long-term quality of life is dependent on a healthy natural environment. Micronesians should continue to use traditional methods of farming augmented by scientific knowledge to be empowered to engage in improved agriculture and aquaculture production systems that will have long lasting positive impacts on their communities.

Obesity, malnutrition, diabetes, food and water-borne diseases are problems in Micronesia. Outreach programs shall emphasize the need for a sustainable food production system, balanced diets, value-added products, food processing, proper food handling and maintaining water sources clean to lessen the incidents of food and water-borne related diseases. Other issues associated with these problems, such as teen pregnancy, family planning, school dropout rate, joblessness, alcoholism and tobacco use will also be addressed.

In coming years, land-grant program will focus on the following six planned programs: aquaculture, childhood obesity, climate change, food safety, global food security and hunger, and families, youths and communities.

For programs to achieve their intended goals, land-grant supports extensive collaboration and partnerships with public and private local, regional, and international organizations. Through these collaborations and partnerships, land-grant program will be able to maximize outputs in implementing community-based programs to address priority needs and critical issues. It is in the best interest of all parties involved in these efforts as financial resources are dwindling. Collaboration is a common thread that runs through all programs to enable the various agencies to capitalize on existing resources by sharing information to avoid redundancy of efforts, The requirements for multi-institutional and multi-disciplinary approaches to program planning and implementation have been the thrust of collaborative efforts with other Pacific Insular Areas Land Grant institutions, regional and international organizations and non-governmental organizations (NGOs).

To support the delivery of up-to-date information through the access of Internet to search and share information has become an essential part of each program. Up-to-date information is available to all therefore agents need such access to serve the needs of all clients and to keep themselves current in their technologies. Through the internet it is possible to efficiently connect with each of the COM offices and to other sources of information throughout the region and the world.

We consider most of our indigenous staff at the level of professional because they have extensive work experience in their areas of expertise with an excellent command of the local customs, cultures and

languages of their clientele. New staff members are recruited through internship programs or direct hire of college and university graduates. We will continue to strengthen, improve and increase the skills of institutional staff members and those from collaborating agencies by providing in-service training programs. Only through these human resource and capacity building efforts that a pool of local expertise can be developed in Micronesia.

**Estimated Number of Professional FTEs/SYs total in the State.**

Year	Extension		Research	
	1862	1890	1862	1890
2017	43.0	0.0	20.0	0.0
2018	43.0	0.0	20.0	0.0
2019	43.0	0.0	20.0	0.0
2020	43.0	0.0	20.0	0.0
2021	43.0	0.0	20.0	0.0

**II. Merit Review Process**

**1. The Merit Review Process that will be Employed during the 5-Year POW Cycle**

- Internal University Panel
- External University Panel
- External Non-University Panel
- Expert Peer Review

**2. Brief Explanation**

The current standard procedure for program proposals is to subject each proposal to an internal review by an internal review team comprised of researchers, specialists, extension agents and collaborating agencies. The review team edits and makes comments and suggestions on the program/project proposal before it is finalized. Once finalized, the program/proposal goes through a review process with College administrators, the local College Board of Regents, through the College of Micronesia administrator, and finally through the COM Board of Regents before it is sent to the USDA or non-USDA funding agency.

Advisory or review committees established at the three colleges continues to review plans of work and proposals as they relate to agriculture, family and consumer sciences, and community economic development needs of the three nations under the College of Micronesia system. Advisory/review committees situated at the three colleges provide the review of programs based

on the priorities of the governments and non-governmental organizations. The COM Board of Regents and the local Board of Regents at the three colleges are involved in these reviews, as they are also members of these advisory committees. The administrations of COM and the three local colleges and faculty serve on these committees as resource persons. All attempts will be made to include a broad-based advisory group, which represents multi-institutional and multi-disciplinary efforts.

Extension programs are established based on the needs of the clients as identified by the agents through direct contact and community meetings and included in the Plan of Work updates. Other main sources of guidance are inputs from the stakeholders, the state and national development plans and policies. Collaboration with NGOs and other government agencies and the sharing of ideas and experiences also focuses the efforts.

A Scientific Peer Review process has been in use for research and integrated proposals. The peer review team includes administrators, researchers and extension staff. They review proposals for their technical merit and potential impact and relevancy to the needs of the communities and their fragile ecosystems.

A project proposal goes to the internal review team and outside experts who also specialize in the field of the proposed project. Once the comments and suggestions of the reviewers are included in the final project proposal, it goes through the college administrators to the AES/CRE Director at COM Central Office for final endorsement and submission to the USDA for approval.

### **III. Evaluation of Multis & Joint Activities**

#### **1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?**

All of our programs were developed based on economic development plans of the various island states and they will be implemented in partnership and in close coordination with similar programs at the community and state levels. The planned programs are targeting issues of strategic importance to the region and individual island states that were identified by stakeholders through strategic planning meetings. Program evaluations and surveys are used periodically to ensure that the planned programs are on track and relevant to local and regional needs.

#### **2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?**

The planned programs will continue on-going efforts to enhance access and opportunities for programs to reach all socioeconomic and racial/ethnic groups including underrepresented, underserved and underprivileged groups. Representatives of these populations participated in the stakeholder input process and provided inputs into goals and programs during strategic planning meetings.

#### **3. How will the planned programs describe the expected outcomes and impacts?**

Each of the programs of our Plan of Work provides several short-term, medium-term and long-

term outcome measures. These outcome statements are directed toward the situation of our programs and the priorities we established for the period ahead. The outcome measures clearly describe the impacts we expect to occur as a result of the resources we will use to carry out activities outlined in each planned program. Additional funding we received from other sources is a reflection of the success of our programs. This will also be accomplished through annual reporting of accomplishments and results that planned programs have on people and the communities served. There will be periodical reviews of how suitable planned programs are for the needs of the communities and necessary changes on planned programs will take place on a continuous basis to reflect changing needs. All of the different sectors of the community should cooperate and collaborate in the implementation of programs so that different needs can be addressed properly and in a timely manner.

**4. How will the planned programs result in improved program effectiveness and/or**

There will be periodical reviews of how suitable planned programs are for the needs of the communities and necessary changes on planned programs will be done in consultation with the target audience inputs occur on a continuous basis to reflect changing needs. All of the different sectors of the community should cooperate and collaborate in the implementation of programs so that different needs can be addressed properly and in a timely manner.

**IV. Stakeholder Input**

**1. Actions taken to seek stakeholder input that encourages their participation**

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of selected individuals from the general public

**Brief explanation.**

Strategic plans were developed for the county level that catered to participants from the various organizations, both public and private, that collaborate and cooperate in our programs. Needs assessments were conducted throughout Micronesia in conjunction with assessments of other related programs funded by the governments, and regional and international organizations. Interviews with government officials, traditional and church leaders, farmers' groups, NGOs and community-based organizations were conducted and solicitation for inputs occurred. Direct written invitations were given to elected officials at the local, state, and national levels and through announcements that were placed in the local newspapers and aired over the local radio stations in both English and the various local languages.

**2(A). A brief statement of the process that will be used by the recipient institution to identify individuals and groups stakeholders and to collect input from them**

**1. Method to identify individuals and groups**

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Open Listening Sessions
- Needs Assessments
- Use Surveys

**Brief explanation.**

A major portion of the Micronesian population are our stakeholders, having been classified or identified as representatives from rural communities that consist mostly of subsistence farmers and fishermen who live well below the poverty level and are considered under-represented and under-served. Stakeholders are the same clientele of local and state governments. Our programs are extended to supplement existing programs and are conducted separately or with governments and regional organizations. Sponsored programs also engage individuals and organizations in which collaboration and networking have been established.

With assistance from political and traditional leaders in the communities, individuals were identified as stakeholders and their valued input was solicited.

**2(B). A brief statement of the process that will be used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them**

**1. Methods for collecting Stakeholder Input**

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with invited selected individuals from the general public
- Survey of selected individuals from the general public

**Brief explanation.**

This will be accomplished through meetings and discussions with government, traditional and church leaders and meetings with farmers, homemakers, community leaders and students.

### **3. A statement of how the input will be considered**

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities

#### **Brief explanation.**

Inputs from clientele who have successfully adopted recommended practices will be considered and modified to redirect research and extension program outputs. Likewise, negative experiences from clientele will also be considered in the redirection of approaches. Entrepreneurs who have adopted the food technologies on developed products that they learned can give important suggestions in redirecting the extension and research programs on product development of local foods such as root crops, breadfruit, fish, coconuts and bananas. Advice, ideas, concerns and needs of political, traditional and community leaders will always be considered.

**V. Planned Program Table of Content**

<b>S. No.</b>	<b>PROGRAM NAME</b>
1	Aquaculture
2	Families, Youths & Communities
3	Childhood Obesity
4	Climate Change
5	Food Safety
6	Global Food Security and Hunger



## **V(A). Planned Program (Summary)**

### **Program # 1**

#### **1. Name of the Planned Program**

Aquaculture

#### **2. Brief summary about Planned Program**

The establishment of techniques for the spawning, larval and nursery rearing of pearl oyster, rabbitfish, mangrove crab, milkfish, grouper, sea cucumber, giant clams, edible oyster, sea weed, shrimp, lobsters and other targeted aquaculture species will provide the necessary juveniles for grow-out operations in Micronesia. Moreover, demonstration of the grow-out culture of pearl oyster, rabbitfish, sea cucumber and other targeted aquaculture species adapting site specific structures and in some cases developing locally available formulated feeds will institute its economic viability to interested farmers.

The establishment of projects for pearl oyster, mangrove crab, milkfish, grouper, rabbit fish, sea cucumber and other targeted aquaculture species in Micronesia will provide training and create opportunities for local people to generate alternate/supplementary income via sustainable aquaculture practices. It will also create employment opportunities and will generate foreign trade through exports and thereby improve the socio-economic condition of people in these small island communities. These efforts will also strengthen inter-states and inter-regional aquaculture research and a development project that aims to develop expertise in hatchery-based aquaculture technologies for commercial / community based aquaculture production. These projects will also help in the establishment of stock enhancement programs of these targeted species in Micronesia.

**3. Program existence :** Intermediate (One to five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)**

## 1. Program Knowledge Areas and Percentage

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
135	Aquatic and Terrestrial Wildlife	10%		10%	
136	Conservation of Biological Diversity	10%		10%	
301	Reproductive Performance of Animals	15%		15%	
302	Nutrient Utilization in Animals	10%		10%	
307	Animal Management Systems	15%		15%	
308	Improved Animal Products (Before Harvest)	10%		10%	
315	Animal Welfare/Well-Being and Protection	10%		10%	
511	New and Improved Non-Food Products and Processes	10%		10%	
608	Community Resource Planning and Development	10%		10%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Situation and Scope)****1. Situation and priorities**

The abundant and biodiverse coral reefs in Micronesia provide habitat for robust fish populations and other marine life which support the subsistence and commercial fisheries. Most importantly, the pristine marine environment and availability of potential broodstock from the wild provide opportunities for the development of multi-species aquaculture in the islands. Recently, there has been a growing emphasis on the sustainable development of marine resources, mainly marine aquaculture or mariculture, to meet future economic needs, provide self-sufficiency and to develop food and economic security for small island communities thereby ensuring self-sustainability.

There have been a rapid influx of tourists in some islands in Micronesia and high demand for high valued seafood commodities like grouper, rabbitfish, mangrove crabs, sea cucumber, spiny lobsters and shrimps resulted to a virtual depletion of stock from the wild due to over fishing. The governments have issued restrictions on catching some of these aquatic species of fish during their peak spawning months for fear of depleting stock due to over fishing. Furthermore, since the current source is from the wild, the supply as food fish is unreliable. The establishment of techniques for spawning, larval and nursery rearing rabbit fish, mangrove crab, milkfish, grouper, sea cucumber, and other targeted aquaculture species will provide the necessary juveniles of these species for grow-out operations..

Projects for pearl oyster, rabbit fish, mangrove crab, milkfish, grouper, sea cucumber and other targeted aquaculture species in Micronesia will provide training and create opportunities for local people to generate alternate/supplementary income via sustainable aquaculture practices.

One form of aquaculture that offers excellent potential for sustainable economic development could be pearl farming of the black-lip pearl oyster. The Micronesian nations are far behind the South Pacific

nations, particularly French Polynesia, which have been annually exporting over US \$120 million of cultured black pearls. This due to the fact that there is not enough black lip pearl oysters that could be collected and maintained in a hatchery-based pearl industry. In FSM, COM-LGP has trained local technicians in the hatchery, ocean grow-out and pearl cultivation. They now become core technicians to train local people as well as supporting research and extension projects for local pearl farming and pearl related products business development.

There is also a strong desire to develop revenue producing local industries based on available natural resources and to restock reefs where natural marine populations have declined. Hence focus is on site-specific sustainable hatchery based farming development of sea cucumber (sandfish), mangrove crab, rabbitfish and other commercially important food and ornamental finfish and shellfish, mainly for commercial aquaculture development and stock enhancement needs to be conducted.

## **2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension

## **V(D). Planned Program (Assumptions and Goals)**

### **1. Assumptions made for the Program**

1. Local farmers and fishermen will adopt techniques from the projects
  
1. Site-specific Hatchery and grow-out technologies for production of targeted species will be developed and protocols will be standardized
  
1. Highly skilled hatchery and grow-out technicians will be available through technical training
  
1. Increased supply and demand for the targeted aquaculture species
  
1. Adaptation of new locally available species and improved technologies of aquaculture to local conditions in a sustainable manner will be used for income generation
  
1. Stock enhancement programs will replenish the depleted resources
  
1. Existing aquaculture technologies will be improved through basic and applied research

**2. Ultimate goal(s) of this Program**

Improve and establish sustainable site-specific multi-species aquaculture to provide and generate alternate/supplementary income generation in the overall aim of improving the socioeconomic conditions of the islands.

**V(E). Planned Program (Inputs)**

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2017	5.0	0.0	4.0	0.0
2018	5.0	0.0	4.0	0.0
2019	5.0	0.0	4.0	0.0
2020	5.0	0.0	4.0	0.0
2021	5.0	0.0	4.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

Program activities will include establishing site-specific techniques in the protocols of hatchery, nursery and grow-out culture of targeted aquaculture species; to formulate a nutritionally balanced and economical feed for the nursery and grow-out culture; to demonstrate the economic viability of different techniques of grow-out culture of the targeted aquaculture species; to develop human resources for supporting and maintaining these industries; to develop business models and to promote local interest and participation in these industries; to demonstrate production and improve quality; to develop training and educational methods for local Micronesians; stake holder input research designing; experimental trial initiation, experimental monitoring and data collection, and data interpretation and analysis; dissemination of findings to existing and prospective farmers and individuals; promotion of new and site-specific technologies to outer-island communities; initiation of these small scale projects in outer island communities; frequent monitoring, data collection and evaluation of these projects; to develop hatchery , nursery and grow-out technologies for resource enhancement; replenishment of depleted stocks; and to test the efficiency of alternate or replacement feeds for specific aquaculture species.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Billboards</li> <li>● Newsletters</li> <li>● TV Media Programs</li> <li>● Web sites other than eXtension</li> <li>● Other 1 (Brochures, leaflets, etc.)</li> </ul>

**3. Description of targeted audience**

Community fishermen, government officials, elementary, high school and college students, researchers and extension agents, international and regional organizations, commercial businesses, foreign investors, NGOs and local residents.

**V(G). Planned Program (Outputs)**

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

## **V(H). State Defined Outputs**

### **1. Output Measure**

- Number of farms established.
  - Number of publications for lay use.
  - Number of conference paper and publication/presentation.
  - Expected Professional Journal publications.
  - Expected Gray Literatures.
  - Expected publications for lay use.
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(I). State Defined Outcome**

O. No	Outcome Name
1	Number of persons with increased awareness in the communities and prospective and existing industry about sustainable, site-specific, and hatchery based aquaculture technologies.
2	Number of persons adopting hatchery based sustainable aquaculture technologies.
3	Number of aquaculture operations generating income.

### **Outcome # 1**

#### **1. Outcome Target**

Number of persons with increased awareness in the communities and prospective and existing industry about sustainable, site-specific, and hatchery based aquaculture technologies.

**2. Outcome Type :** Change in Knowledge Outcome Measure

#### **3. Associated Knowledge Area(s)**

- 302 - Nutrient Utilization in Animals
- 315 - Animal Welfare/Well-Being and Protection
- 307 - Animal Management Systems
- 308 - Improved Animal Products (Before Harvest)
- 135 - Aquatic and Terrestrial Wildlife
- 511 - New and Improved Non-Food Products and Processes
- 301 - Reproductive Performance of Animals
- 136 - Conservation of Biological Diversity
- 608 - Community Resource Planning and Development

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **Outcome # 2**

#### **1. Outcome Target**

Number of persons adopting hatchery based sustainable aquaculture technologies.

**2. Outcome Type :** Change in Action Outcome Measure

#### **3. Associated Knowledge Area(s)**

- 608 - Community Resource Planning and Development
- 511 - New and Improved Non-Food Products and Processes
- 136 - Conservation of Biological Diversity
- 315 - Animal Welfare/Well-Being and Protection
- 301 - Reproductive Performance of Animals
- 307 - Animal Management Systems
- 302 - Nutrient Utilization in Animals
- 135 - Aquatic and Terrestrial Wildlife
- 308 - Improved Animal Products (Before Harvest)



#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **Outcome # 3**

#### **1. Outcome Target**

Number of aquaculture operations generating income.

#### **2. Outcome Type : Change in Condition Outcome Measure**

#### **3. Associated Knowledge Area(s)**

- 511 - New and Improved Non-Food Products and Processes
- 301 - Reproductive Performance of Animals
- 135 - Aquatic and Terrestrial Wildlife
- 302 - Nutrient Utilization in Animals
- 315 - Animal Welfare/Well-Being and Protection
- 608 - Community Resource Planning and Development
- 307 - Animal Management Systems
- 136 - Conservation of Biological Diversity
- 308 - Improved Animal Products (Before Harvest)

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **V(J). Planned Program (External Factors)**

#### **1. External Factors which may affect Outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

## **Description**

Natural disasters, the economy and government regulations can hinder production, technology, data or sampling collection of targeted species for the study. External factors could affect the number of participants or interested farmers that may or may not adopt the projects.

Population changes in the outer islands, particularly population flow of the youth from the outer islands to the main islands, and rural areas to the capital city can negatively impact aquaculture development, extension programs and research work.

## **V(K). Planned Program - Planned Evaluation Studies**

### **Description of Planned Evaluation Studies**

Evaluation and review of the extension and research components of the programs will be conducted throughout the year during client visits, workshops, demonstrations and other outreach activities. Results of this evaluation will determine necessary changes, if any, to meet the needs of clients and stakeholders.

Program impact assessment based on performance indicators developed for the program will be used to collect data against the change in action and condition outcome measure.

A pre and post-test will be required for all outreach activities.

Random selection of reports will be used to determine follow-up visits to observe the effects of advisory services. Surveys will be developed specific to this program area to assess client changes as well as client satisfaction with the services provided. Results of these surveys will be used to make necessary changes to the outreach programs. Changes in individual and community circumstances will form the basis of the annual reports. At the individual partner college levels reports are amalgamated quarterly for reports to Boards of Regents and sponsor governments.

## **V(A). Planned Program (Summary)**

### **Program # 2**

#### **1. Name of the Planned Program**

Families, Youths & Communities

#### **2. Brief summary about Planned Program**

This program will address the rapid social and economic changes affecting communities, families and youths. With an increased demand of services by local population, challenged economy, youth's attitude or behavior, island governments face the daunting task of providing essential services, including community development and employment opportunities. Drug and alcohol abuse, school dropout rate, teenage pregnancy, domestic violence, and unemployment are social problems that have been escalating at an alarming rate in our communities over the past decade. Leadership and volunteerism, civic, economic, and cultural skill programs are important for the success of family, youth, and community development endeavors.

With the change from subsistence to a cash economy, many people expect compensation for their activities and volunteerism is not preferred by youths. The Micronesian family system used to be a closely knitted institution, in which members shared with one another. Nowadays, this family system is declining. Hence, this program is part of the ongoing efforts to instill in the minds of youths, families, and communities the values of love, respect, sharing and helping each other. It will also provide information and skills to inspire them to become law-abiding citizens and contributing members of society and to cultivate respect for societal norms and values.

**3. Program existence :** Intermediate (One to five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)**

## 1. Program Knowledge Areas and Percentage

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
403	Waste Disposal, Recycling, and Reuse	10%		0%	
608	Community Resource Planning and Development	20%		25%	
801	Individual and Family Resource Management	10%		10%	
802	Human Development and Family Well-Being	20%		20%	
804	Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures	15%		15%	
806	Youth Development	25%		30%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Situation and Scope)****1. Situation and priorities**

Traditionally, local communities, families, and youths were supported by a very intricate but strong and sustainable socioeconomic system that kept them together and permitted them to share and help one another. Unfortunately this traditional support system breaks down and results in family and youth friction and misunderstanding, which creates negative social problems. There is also a shift from subsistence to a cash economy resulting in the erosion of the extended family structure, which usually gives moral and financial support to all family members. Teenage pregnancy is increasing at an alarming rate and has resulted in complications during parturition and low birth weight and undernourished children. Other alarming community, family and youth problems today are the increasing rate of youth suicide, domestic violence, and physical and sexual abuse of children. These social problems are so deeply rooted that there is a need to address them. To this end, this program will implement strategies that will restore and preserve the Micronesian culture and tradition. Moreover, the program will provide training for income generation, entrepreneurial skills, and moral value formation.

**2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

**V(D). Planned Program (Assumptions and Goals)**

**1. Assumptions made for the Program**

Generally, communities, families and youth meet challenges in coping with social issues like teenage pregnancies, suicide, substance and alcohol abuse, truancy and school dropout. Improvement of livelihood can be attained by training youth in cultural arts and crafts, gardening and fishing. Youth can also make productive use of their time through sports, clean-up activities and beautification. This program will provide trainings in livelihood, literacy, and moral values to equip them with coping mechanisms against their challenges.

**2. Ultimate goal(s) of this Program**

This program will provide trainings to develop skills for livelihood, literacy, and moral values to restore and preserve local tradition and cultural values.

**V(E). Planned Program (Inputs)**

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2017	9.0	0.0	1.0	0.0
2018	9.0	0.0	1.0	0.0
2019	9.0	0.0	1.0	0.0
2020	9.0	0.0	1.0	0.0
2021	9.0	0.0	1.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

Cultural arts and crafts training sessions targeting adults and youths will be conducted in the communities. Youths will be encouraged to participate in various community programs such as beautification, gardening, and World Clean Up Day. Life skills, sports and physical fitness are components of youth programs. Children will also be encouraged to participate in civic activities and be involved more actively in the political process. Volunteers will be recruited to serve as liaisons between the colleges and their respective communities and will assist as clientele recruiters. Other volunteers from collaborating agencies in Micronesia will serve as resource persons, mentors and youth leaders in youth development programs, and lecturers where their expertise is needed. Training people with relevant income-generating and entrepreneurial skills such as sewing, gardening, weaving, making handicrafts, and cooking. These activities will utilize their potential through income generation activities will improve their financial status

and improve their family or individual economic stability, and therefore lead to an improved quality of life. Counseling and mentoring about good moral character development and literacy will be provided.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

<b>Extension</b>	
<b>Direct Methods</b>	<b>Indirect Methods</b>
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> <li>● Other 1 (Field Days/fairs/festivals)</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Newsletters</li> <li>● TV Media Programs</li> <li>● Web sites other than eXtension</li> <li>● Other 1 (Hand outs, brochures, leaflets)</li> </ul>

**3. Description of targeted audience**

Families, youths and communities all over Micronesia.

**V(G). Planned Program (Outputs)**

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

## **V(H). State Defined Outputs**

### **1. Output Measure**

- Number of training conducted targeting youths.
- Number of training conducted targeting families and youths in the communities.
- Total number of youth clubs, men's group, or women's groups activities organized.
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(I). State Defined Outcome**

O. No	Outcome Name
1	Number of youths with increased knowledge in social and moral skills.
2	Number of families and/or youths adopting entrepreneurial skills.
3	Number of community groups or associations benefiting from the use of learned skills.



**Outcome # 1**

**1. Outcome Target**

Number of youths with increased knowledge in social and moral skills.

**2. Outcome Type : Change in Knowledge Outcome Measure**

**3. Associated Knowledge Area(s)**

- 802 - Human Development and Family Well-Being
- 403 - Waste Disposal, Recycling, and Reuse
- 806 - Youth Development
- 608 - Community Resource Planning and Development
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
- 801 - Individual and Family Resource Management

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Number of families and/or youths adopting entrepreneurial skills.

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 802 - Human Development and Family Well-Being
- 801 - Individual and Family Resource Management
- 403 - Waste Disposal, Recycling, and Reuse
- 608 - Community Resource Planning and Development
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **Outcome # 3**

#### **1. Outcome Target**

Number of community groups or associations benefiting from the use of learned skills.

#### **2. Outcome Type : Change in Condition Outcome Measure**

#### **3. Associated Knowledge Area(s)**

- 806 - Youth Development
- 804 - Human Environmental Issues Concerning Apparel, Textiles, and Residential and Commercial Structures
- 802 - Human Development and Family Well-Being
- 608 - Community Resource Planning and Development
- 403 - Waste Disposal, Recycling, and Reuse
- 801 - Individual and Family Resource Management

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **V(J). Planned Program (External Factors)**

#### **1. External Factors which may affect Outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

#### **Description**

Travel to outer islands may become risky during natural calamities thus services are disrupted. Increase or decrease of funding will influence planned activities. Other external factors such as the rising cost of fuel will hit hard on outlying communities that depend on field trip vessels for transportation and the green-house effect with rising sea level will have disastrous effect on agricultural activities on our numerous low-lying coral atolls.

### **V(K). Planned Program - Planned Evaluation Studies**

#### **Description of Planned Evaluation Studies**

Evaluation and review of the extension and research components of the programs will be conducted throughout the year during client visits, workshops, demonstrations and other outreach activities. Results of this evaluation will determine necessary changes, if any, to meet the needs of clients and stakeholders.

Program impact assessment based on performance indicators developed for the program will be used to collect data against the change in action and condition outcome measure.

A pre and post-test will be required for all outreach activities.

Random selection of reports will be used to determine follow-up visits to observe the effects of advisory services. Surveys will be developed specific to this program area to assess client changes as well as client satisfaction with the services provided. Results of these surveys will be used to make necessary changes to the outreach programs. Changes in individual and community circumstances will form the basis of the annual reports. At the individual partner college levels reports are amalgamated quarterly for reports to Boards of Regents and sponsor governments.

**V(A). Planned Program (Summary)**

**Program # 3**

**1. Name of the Planned Program**

Childhood Obesity

**2. Brief summary about Planned Program**

Plan and implement activities to promote the well-being of children through providing information about nutrition, health, physical education, and appropriate indigenous knowledge and practices.

Develop intervention activities such as proper meal planning to address childhood obesity. This program will also promote home and school gardening activities to encourage and increase consumption of local fruits and vegetables among students. Easy access to fresh vegetables and fruits will encourage school administrators and cooks to use and serve local food in school lunch programs. These activities will ultimately result in a healthy local population.

**3. Program existence :** New (One year or less)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :**Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	25%		25%	
704	Nutrition and Hunger in the Population	25%		25%	
724	Healthy Lifestyle	25%		25%	
802	Human Development and Family Well-Being	25%		25%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Situation and Scope)**

**1. Situation and priorities**

Most children lack knowledge and information about healthy food choices, eating habits and limited physical activities. Furthermore, their families have limited knowledge in preparation of healthy meals. Availability of limited fresh produce due to limited local agricultural operations is also contributing to childhood obesity.

Reasons for this issue include not much arable land available for planting vegetables. As a result, much of the local diet is of processed, imported food such as tinned foods, rather than fresh fish, fruits and

vegetables. In addition, cultural factors may contribute, such as associating a large body size with wealth and power, or changing ways of living, with children leading more sedentary lives.

In addition, many children and adults are not actively engaging in physical activities and have poor diets and continue to consume unhealthy foods with few green leafy vegetables. There is also a shift in preference for imported food over local foods by the younger generations and in general, there is a lifestyle change due to excessive use of vehicles, improved transportation systems and the availability of mechanized appliances.

## **2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

## **V(D). Planned Program (Assumptions and Goals)**

### **1. Assumptions made for the Program**

- Physical activity and proper diet will reduce the rate of childhood obesity
- Community involvement in local food production will enhance physical activity and provision of local fruits and vegetables
- Seminars and workshops for proper diet and physical education will increase awareness in addressing the issue of childhood obesity.
- Use of high dietary fiber foods like root crops will contribute to reduction in childhood obesity.

### **2. Ultimate goal(s) of this Program**

This program will contribute to healthy people and healthy communities by decreasing the rate of childhood obesity in Micronesia, and ultimately reduction in health care cost.

## **V(E). Planned Program (Inputs)**

### **1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2017	4.0	0.0	1.5	0.0
2018	4.0	0.0	1.5	0.0
2019	4.0	0.0	1.5	0.0
2020	4.0	0.0	1.5	0.0
2021	4.0	0.0	1.5	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

Program will reduce childhood obesity through technical assistance and trainings, physical activities, educating parents, teachers, and children on healthy food consumption and active living, teaching physical activities and movement, healthy living in Micronesia, and physical fitness.

Work with leadership and policy makers to develop policies to serve healthy food in schools and communities, and to incorporate agriculture and physical fitness in the curriculum.

Work in collaboration with youth services, Departments of Education, agriculture and Health Services, and non-government organizations (NGOS) to develop and implement programs.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Billboards</li> <li>● Newsletters</li> <li>● TV Media Programs</li> <li>● Web sites other than eXtension</li> <li>● Other 1 (brochures, leaflets, etc.)</li> </ul>

**3. Description of targeted audience**

The target audiences include children, teachers, parents, school administrators, policy makers, and others.

## V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

## V(H). State Defined Outputs

### 1. Output Measure

- Number of conference papers and extension publications on childhood obesity and physical activity.
- Number of training conducted on childhood obesity, proper diet and physical activity.
- Number of extension publications on childhood obesity, proper diet and physical activity.
- Number of training conducted on proper diet and physical activity.

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(I). State Defined Outcome**

O. No	Outcome Name
1	Number of clients with increased knowledge in healthy food choices and physical activity.
2	Number of program participants adopting recommended practices on healthy food choices and physical activity.
3	Reduction in the number of obese children.



**Outcome # 1**

**1. Outcome Target**

Number of clients with increased knowledge in healthy food choices and physical activity.

**2. Outcome Type : Change in Knowledge Outcome Measure**

**3. Associated Knowledge Area(s)**

- 704 - Nutrition and Hunger in the Population
- 802 - Human Development and Family Well-Being
- 724 - Healthy Lifestyle
- 703 - Nutrition Education and Behavior

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Number of program participants adopting recommended practices on healthy food choices and physical activity.

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 802 - Human Development and Family Well-Being
- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle
- 703 - Nutrition Education and Behavior

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 3**

**1. Outcome Target**

Reduction in the number of obese children.

**2. Outcome Type : Change in Condition Outcome Measure**

**3. Associated Knowledge Area(s)**

- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle
- 703 - Nutrition Education and Behavior
- 802 - Human Development and Family Well-Being

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**V(J). Planned Program (External Factors)**

**1. External Factors which may affect Outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

**Description**

Motivation in joining the programs for physical activity and change in diet to local foods will greatly affect the outcome of this program.

**V(K). Planned Program - Planned Evaluation Studies**

**Description of Planned Evaluation Studies**

Evaluation and review of the extension and research components of the programs will be conducted throughout the year during client visits, workshops, demonstrations and other outreach activities. Results of this evaluation will determine necessary changes, if any, to meet the needs of clients and stakeholders.

Program impact assessment based on performance indicators developed for the program will be used to collect data against the change in action and condition outcome measure.

A pre and post-test will be required for all outreach activities.

Random selection of reports will be used to determine follow-up visits to observe the effects of advisory services. Surveys will be developed specific to this program area to assess client changes as well as client satisfaction with the services provided. Results of these surveys will be used to make necessary changes to the outreach programs. Changes in individual and community circumstances will form the basis of the annual reports. At the individual partner college levels reports are amalgamated quarterly for reports to Boards of Regents and sponsor governments.

## **V(A). Planned Program (Summary)**

### **Program # 4**

#### **1. Name of the Planned Program**

Climate Change

#### **2. Brief summary about Planned Program**

With rising sea level due to climate change, the local population, which is mostly rural and scattered throughout mostly small islands and low-lying coral atolls, is seriously at risk and vulnerable. These atolls and the low-lying areas of volcanic islands are affected by salt toxicity. The local population must take necessary actions in response to these global impacts and find sustainable methods of farming crops, livestock and aquaculture species. The local communities is at high risk in terms of food security as rising temperatures and changes in rainfall patterns take their toll on the people's food crops, livestock, and properties.

Furthermore, the local communities must improve adaptive capacity to climate change and to reduce its effects to protect main natural resources such as soil and water. Environmental parameters such as temperature and rainfall will be measured by collaborating researchers as we monitor the effects of this phenomenon. Efforts will be made to introduce salt-tolerant crop varieties and appropriate animal raising techniques, climate-friendly methods to local communities to educate, create awareness for conservation and sustainable use of natural resources..

**3. Program existence :** Intermediate (One to five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)**

## 1. Program Knowledge Areas and Percentage

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
111	Conservation and Efficient Use of Water	10%		10%	
112	Watershed Protection and Management	10%		10%	
125	Agroforestry	10%		10%	
131	Alternative Uses of Land	10%		10%	
132	Weather and Climate	10%		10%	
133	Pollution Prevention and Mitigation	5%		5%	
135	Aquatic and Terrestrial Wildlife	10%		10%	
136	Conservation of Biological Diversity	10%		10%	
203	Plant Biological Efficiency and Abiotic Stresses Affecting Plants	5%		5%	
315	Animal Welfare/Well-Being and Protection	10%		10%	
605	Natural Resource and Environmental Economics	10%		10%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Situation and Scope)****1. Situation and priorities**

Climate change has devastating effects on local communities in terms of food security, environment, human, plant and animal health. Improving the traditional small-holder agricultural systems is critical to attain food security objective in relation to climate change. Preserving and enhancing food security requires agricultural production systems to change in the direction of higher productivity, lower output variability in the face of climate change. Appropriate extension intervention in innovative climate-smart agriculture strategy to maintain main natural resources will help local communities to learn and adopt required skills to improve adaptive capacity. Lack of salt-tolerant staple crops is major threat to attain food security.

**2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension

- Integrated Research and Extension
- Multistate Integrated Research and Extension

**V(D). Planned Program (Assumptions and Goals)**

**1. Assumptions made for the Program**

Communities will be more aware of the climate change effects, improved food security in the face of climate change by the use of salt-tolerant crops and appropriate animal husbandry techniques, increased government support, and environment-friendly adaptive strategies to reduce vulnerability.

**2. Ultimate goal(s) of this Program**

The ultimate goals of this program are to increase knowledge on climate change effects and increase adaptive capacity of local communities. Adaptation strategies include introduction and planting of salt tolerant varieties, organic agriculture, agroforestry, watershed conservation, and tree-planting.

**V(E). Planned Program (Inputs)**

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2017	2.0	0.0	3.0	0.0
2018	2.0	0.0	3.0	0.0
2019	2.0	0.0	3.0	0.0
2020	2.0	0.0	3.0	0.0
2021	2.0	0.0	3.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

1. Provide awareness programs on climate change adaptation

1. Collaborate with government and non-governmental organizations on climate change adaptation efforts

1. Demonstrate cultivation of certain crops suitable to grow under atoll condition
2. Provide training to island communities on climate-smart agriculture, breed and techniques

- 1. Distribution of salt tolerant planting materials for staple crops
  
- 1. Assist with appropriate animal care and management
  
- 1. Disseminate results/findings of successful food production systems to other islands
  
- 1. Frequent monitoring, data collection and evaluation on climate change project sites

**2. Type(s) of methods to be used to reach direct and indirect contacts**

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Billboards</li> <li>● Newsletters</li> <li>● TV Media Programs</li> <li>● Web sites other than eXtension</li> <li>● Other 1 (leaflet, borchure, etc.)</li> </ul>

**3. Description of targeted audience**

Target audiences are all communities throughout Micronesia and local, state and national governments, the private sectors, and other organizations.

## V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
    - Direct Adult Contacts
    - Indirect Adult Contacts
    - Direct Youth Contacts
    - Indirect Youth Contact
  - Number of patents submitted
  - Number of peer reviewed publications
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

## V(H). State Defined Outputs

### 1. Output Measure

- Number of people with increased awareness and knowledge about climate change and adaptation.
  - Number of people who adopted adaptation practices .
  - Number of people with improved preparedness toward climate change impacts including capacity to produce and preserve food.
  - Increased staple food crop production.
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.



**V(I). State Defined Outcome**

O. No	Outcome Name
1	Number of persons with increased awareness and knowledge of climate change adaptation and mitigation.
2	Number of program participants who adopted adaption and mitigation practices.
3	Number of persons with improved preparedness toward climate change impacts including capacity to produce and preserve foods.

### **Outcome # 1**

#### **1. Outcome Target**

Number of persons with increased awareness and knowledge of climate change adaptation and mitigation.

#### **2. Outcome Type : Change in Knowledge Outcome Measure**

#### **3. Associated Knowledge Area(s)**

- 125 - Agroforestry
- 133 - Pollution Prevention and Mitigation
- 112 - Watershed Protection and Management
- 605 - Natural Resource and Environmental Economics
- 136 - Conservation of Biological Diversity
- 131 - Alternative Uses of Land
- 315 - Animal Welfare/Well-Being and Protection
- 135 - Aquatic and Terrestrial Wildlife
- 132 - Weather and Climate
- 111 - Conservation and Efficient Use of Water
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **Outcome # 2**

#### **1. Outcome Target**

Number of program participants who adopted adaption and mitigation practices.

#### **2. Outcome Type : Change in Action Outcome Measure**

#### **3. Associated Knowledge Area(s)**

- 131 - Alternative Uses of Land
- 605 - Natural Resource and Environmental Economics
- 112 - Watershed Protection and Management
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 132 - Weather and Climate
- 133 - Pollution Prevention and Mitigation
- 125 - Agroforestry

- 111 - Conservation and Efficient Use of Water
- 315 - Animal Welfare/Well-Being and Protection
- 136 - Conservation of Biological Diversity
- 135 - Aquatic and Terrestrial Wildlife

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **Outcome # 3**

#### **1. Outcome Target**

Number of persons with improved preparedness toward climate change impacts including capacity to produce and preserve foods.

#### **2. Outcome Type : Change in Condition Outcome Measure**

#### **3. Associated Knowledge Area(s)**

- 605 - Natural Resource and Environmental Economics
- 203 - Plant Biological Efficiency and Abiotic Stresses Affecting Plants
- 131 - Alternative Uses of Land
- 112 - Watershed Protection and Management
- 111 - Conservation and Efficient Use of Water
- 135 - Aquatic and Terrestrial Wildlife
- 315 - Animal Welfare/Well-Being and Protection
- 133 - Pollution Prevention and Mitigation
- 136 - Conservation of Biological Diversity
- 132 - Weather and Climate
- 125 - Agroforestry

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **V(J). Planned Program (External Factors)**

#### **1. External Factors which may affect Outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy

- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

### **Description**

Outcomes of this program could be negatively affected by natural disasters, poor economy, appropriations changes, public policy changes, unfavorable government regulations, competing public priorities, competing programmatic challenges, and population changes.

## **V(K). Planned Program - Planned Evaluation Studies**

### **Description of Planned Evaluation Studies**

Evaluation and review of the extension and research components of the programs will be conducted throughout the year during client visits, workshops, demonstrations and other outreach activities. Results of this evaluation will determine necessary changes, if any, to meet the needs of clients and stakeholders.

Program impact assessment based on performance indicators developed for the program will be used to collect data against the change in action and condition outcome measure.

A pre and post-test will be required for all outreach activities.

Random selection of reports will be used to determine follow-up visits to observe the effects of advisory services. Surveys will be developed specific to this program area to assess client changes as well as client satisfaction with the services provided. Results of these surveys will be used to make necessary changes to the outreach programs. Changes in individual and community circumstances will form the basis of the annual reports. At the individual partner college levels reports are amalgamated quarterly for reports to Boards of Regents and sponsor governments.

**V(A). Planned Program (Summary)**

**Program # 5**

**1. Name of the Planned Program**

Food Safety

**2. Brief summary about Planned Program**

This program will continue to enhance the safety of food produced in the islands and those imported from other countries to prevent water and food-borne illnesses. It will provide appropriate food safety educational programs in communities, including the benefits of proper food storage, handling, and proper processing and cooking practices. It will also strengthen existing collaborations on programs that provide information to stakeholders on healthy lifestyle and consumption of safe and healthy foods. It will be a major challenge on how this program is delivered to make a change in behavior and attitude toward food safety. The program will provide quality training to increase knowledge and skills that ensure a safe food preparation, handling and storage to reduce incidences of food-borne and water-borne illnesses by creating awareness on food safety and relevant policies.

**3. Program existence :** Intermediate (One to five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	20%		20%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	20%		20%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	20%		20%	
724	Healthy Lifestyle	40%		40%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Situation and Scope)**

**1. Situation and priorities**

The tropical environment of Micronesia renders a high incidence of food-borne illnesses and water-borne diseases. Improper food handling, processing and storage is a continuing problem and expired foods is still not properly inspected with a continuing lax in the enforcement of health and sanitation policies, and

there is a continuing improper handling of chemicals and animal manure in food production causing contaminants in food. Food poisoning and other food related illnesses continue to be major health problems in Micronesia today as a result of improper food selection, storage, and preparation. This program is part of the ongoing effort in reversing this trend through the provision of knowledge and skills necessary for families to plan and prepare safe and nutritious healthy meals with the use of proper food storage and handling practices.

Food safety plays a key role in explaining the continuing upward trend in the deteriorating health condition of so many people in our communities. Incidents of food poisoning and food and water related illnesses continue to rise as families and governments are challenged with the ever rising medical cost of hospitalization. Many households and individuals continue to consume unsafe processed foods that are contaminated from improper, storage, and handling.

## **2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

## **V(D). Planned Program (Assumptions and Goals)**

### **1. Assumptions made for the Program**

- Trained participants in safe food production, preparation, handling, storage and use
- There will be low incidence of food-borne and water borne illnesses
- Food hazards will be preventable at home, offices, restaurants and food establishments
- Increased awareness and improved actions on safe food choices

### **2. Ultimate goal(s) of this Program**

The program helps consumers understand how to prepare safe food, reduce the incidence of food and water-borne illnesses, thus prevent hospitalization expenses for the community.

## **V(E). Planned Program (Inputs)**

### **1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2017	3.0	0.0	1.0	0.0
2018	3.0	0.0	1.0	0.0
2019	3.0	0.0	1.0	0.0
2020	3.0	0.0	1.0	0.0
2021	3.0	0.0	1.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

Training programs on safe food production, preparation, handling, storage and use will be conducted to school children, housewives, school cooks, food handlers, chefs and others.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Billboards</li> <li>● Newsletters</li> <li>● TV Media Programs</li> <li>● Web sites other than eXtension</li> </ul>

**3. Description of targeted audience**

Target audience include school children , food handlers and producers, chefs, school cooks, housewives, food and grocery establishments in all communities throughout Micronesia and local, state and national governments, the private sectors, and other organizations.

## **V(G). Planned Program (Outputs)**

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

## **V(H). State Defined Outputs**

### **1. Output Measure**

- Number of persons attending training activities on food safety.
- Number of persons with increased knowledge and practices after completing educational programs.
- Number of research and extension publications on food safety.

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.



**V(I). State Defined Outcome**

O. No	Outcome Name
1	Number of persons with increased awareness of food safety issues.
2	Number of program participants adopting recommended practices after completing educational programs.
3	Reduced incidences of food-borne and water-borne illnesses.

**Outcome # 1**

**1. Outcome Target**

Number of persons with increased awareness of food safety issues.

**2. Outcome Type : Change in Knowledge Outcome Measure**

**3. Associated Knowledge Area(s)**

- 724 - Healthy Lifestyle
- 703 - Nutrition Education and Behavior
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Number of program participants adopting recommended practices after completing educational programs.

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **Outcome # 3**

#### **1. Outcome Target**

Reduced incidences of food-borne and water-borne illnesses.

#### **2. Outcome Type : Change in Condition Outcome Measure**

#### **3. Associated Knowledge Area(s)**

- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 724 - Healthy Lifestyle
- 703 - Nutrition Education and Behavior
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **V(J). Planned Program (External Factors)**

#### **1. External Factors which may affect Outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

#### **Description**

Power outages will affect safe food storage. Government regulations on food sanitation and safety have to be strictly enforced.

### **V(K). Planned Program - Planned Evaluation Studies**

#### **Description of Planned Evaluation Studies**

Evaluation and review of the extension and research components of the programs will be conducted throughout the year during client visits, workshops, demonstrations and other outreach activities. Results of this evaluation will determine necessary changes, if any, to meet the needs of clients and stakeholders.

Program impact assessment based on performance indicators developed for the program will be used to collect data against the change in action and condition outcome measure.

A pre and post-test will be required for all outreach activities.

Random selection of reports will be used to determine follow-up visits to observe the effects of advisory services. Surveys will be developed specific to this program area to assess client changes as well as client satisfaction with the services provided. Results of these surveys will be used to make necessary changes to the outreach programs. Changes in individual and community circumstances will form the basis of the annual reports. At the individual partner college levels reports are amalgamated quarterly for reports to Boards of Regents and sponsor governments.

## **V(A). Planned Program (Summary)**

### **Program # 6**

#### **1. Name of the Planned Program**

Global Food Security and Hunger

#### **2. Brief summary about Planned Program**

Agriculture is an important industry for the economic growth and food security of small island communities in Micronesia. This program will address sustainable plant and animal production and their implications on the environment in both mountainous islands and low atolls to include small and subsistence farms and commercial agriculture. Emphasis will be placed on traditional production systems, conservation and development of natural resources, techniques that incorporate traditional practices into contemporary approaches, processing, and marketing of both crops and animal products. Production and utilization of local food should be increased.

Extension activities cater to the needs of the Micronesia population for healthy and nutritious produce through vegetable gardening in family homes and communities; preparation and distribution of appropriate extension materials and developing collaborative partnership programs with churches, women's groups, and schools.

Traditional smallholder agricultural production systems are the main source of food and income for most of the island population in the Federated States of Micronesia. Improving them is critical to attain poverty reduction targets and food security objectives. Preserving and enhancing food security requires agricultural production systems to change in the direction of higher productivity and also, essentially, lower output variability in the face of climate risk and risks of an agro-ecological and socioeconomic nature. In order to stabilize output and income, production systems must become more resilient, i.e. more capable of performing well in the face of disruptive events. More productive and resilient agriculture requires transformations in the management of natural resources (e.g. land, water, soil nutrients, and genetic resources) and higher efficiency in the use of these resources and inputs for production. Appropriate extension intervention in innovative climate-friendly strategies will help the island communities to learn needed skills to develop and sustain small farm enterprises for food security and income

The Economic Development Plans of Palau, Marshall Islands, and FSM call for market-oriented sustainable agriculture with emphasis on food security, self-sufficiency, import substitution, accessibility, and export markets. The increase in local food production should create surpluses that can be converted into value-added products for local use and for the export market. The introduction of tissue culture technology will result in the production of superior plantlets (disease free, uniform, high yielding) in sufficient quantities. Developing banana farms and other crops of production capability beyond subsistence is necessary to achieve the export goal aimed at economic development. New techniques/methods of rapid crop propagation and production technologies of staple and cash crops should be pursued. Other relevant issues and problems in crop production such as soil fertility, integrated pest management, marketing, cultivation methods, post-harvest handling practices, and processing will also be addressed.

**3. Program existence :** Intermediate (One to five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

**V(B). Program Knowledge Area(s)**

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%		10%	
112	Watershed Protection and Management	10%		10%	
136	Conservation of Biological Diversity	10%		10%	
202	Plant Genetic Resources	10%		10%	
204	Plant Product Quality and Utility (Preharvest)	10%		10%	
205	Plant Management Systems	10%		10%	
212	Diseases and Nematodes Affecting Plants	5%		5%	
216	Integrated Pest Management Systems	10%		10%	
315	Animal Welfare/Well-Being and Protection	5%		5%	
502	New and Improved Food Products	10%		10%	
601	Economics of Agricultural Production and Farm Management	10%		10%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Situation and Scope)**

**1. Situation and priorities**

The Micronesian islands have developed an economically detrimental reliance on imported foodstuff, especially fruits, vegetables and other food products. The increase in the consumption of imported food has led to an overall decline in local food production. Production of food crops and livestock are high economic development priorities of all governments and local animal and crop producers. For crops such as banana, taro, cassava and sweet potato, limitations are in the availability of disease free and elite seedlings. For livestock, a number of constraints include improved bloodline, lack of affordable feedstuff, diseases and lack of appropriate knowledge in animal husbandry.

Traditional smallholder agricultural production systems are the main source of food and income for most of the island population in the Federated States of Micronesia. Improving them is critical to attain poverty reduction targets and food security objectives. Preserving and enhancing food security requires agricultural production systems to change in the direction of higher productivity and also, essentially, lower output variability in the face of climate risk and risks of an agro-ecological and socioeconomic nature. In

order to stabilize output and income, production systems must become more resilient, i.e. more capable of performing well in the face of disruptive events. More productive and resilient agriculture requires transformations in the management of natural resources (e.g. land, water, soil nutrients, and genetic resources) and higher efficiency in the use of these resources and inputs for production. Appropriate extension intervention in innovative climate-friendly strategies will help the island communities to learn needed skills to develop and sustain small farm enterprises for food security and income.

There is an urgent need to increase local food production to ensure an adequate supply for local population and demand, for food security, income generation and to support the tourism industry. From inputs of the stakeholders and environmental scan, the following are issues that directly or indirectly led to the declining contribution of agriculture: lack of available arable land due to low soil fertility; low wages and negative image of farming; lack of agricultural loans and crop insurance; lack of infrastructure such as decent roads, electricity and storage facilities in remote areas; competition between local and imported produces; lack of marketing information and centralized marketing; increased incidents of pests and diseases in agricultural commodities; unstable supply of local produce; rapid population growth; lack of agricultural professionals; limited skills and knowledge of producers in locally adapting technologies of crop farming, poultry and livestock production; and excessive dependence on foreign labor.

## **2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension
- Integrated Research and Extension
- Multistate Integrated Research and Extension

## **V(D). Planned Program (Assumptions and Goals)**

### **1. Assumptions made for the Program**

Program will contribute in increased production of local food and cash crops, and livestock. and decrease dependency on imported food; improve quality of life; increased knowledge and skills in marketing; prolong shelf-life; affordable changes in technology and practices will become available; increased family income through sales of excess production; appropriate production systems; improved family economy and living standards; reduction in pesticide and herbicide use; and increased profitability and job creation.

### **2. Ultimate goal(s) of this Program**

Program will help to attain food security, improve agricultural production, increase consumption of locally produced food; improve quality of life; increase employment opportunities and ultimately sustainable economic development.

## **V(E). Planned Program (Inputs)**

### **1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2017	16.0	0.0	6.0	0.0
2018	16.0	0.0	6.0	0.0
2019	16.0	0.0	6.0	0.0
2020	16.0	0.0	6.0	0.0
2021	16.0	0.0	6.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

Research and Extension integrated activities will include field trials to test and evaluate crop varieties, cultivation methods and ways to improve soil fertility. Extension activities on livestock will include utilizing excess local produce as feeds and how to improve management and bloodline. Other research activities will include tissue culture to develop efficient and reproducible micropropagation protocols and establish cultures of collected germplasm. Work in this area will include development of reliable micropropagation protocols and nursery management systems to produce elite seedlings for distribution and to conserve germplasm in vitro for future use.

Research-based extension materials will be developed and distributed among the farming communities to increase awareness and generate interest in agricultural systems. Workshops, group discussions, demonstrations, farm-visits and field days/fairs are other components of this program. Researchers will produce elite and disease-free seedlings through tissue culture and nursery techniques.

Trainings and demonstrations will be organized on food technology and food processing to increase shelf life of farm products and add value to agricultural produce thereby addressing food security issues.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Billboards</li> <li>● Newsletters</li> <li>● TV Media Programs</li> <li>● Web sites other than eXtension</li> <li>● Other 1 (brochures, leaflets, etc.)</li> </ul>

**3. Description of targeted audience**

Both crop, livestock and fish farmers, potential farmers, researchers and extension agents, homemakers



and students.

### **V(G). Planned Program (Outputs)**

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

### **V(H). State Defined Outputs**

#### **1. Output Measure**

- Expected on-farm demonstrations.
- Expected processing demonstrations.
- Number of publications for lay use.
- Number of conference papers and publications/presentations
- Expected professional journal publications.
- Expected gray literatures
- Expected publications for lay use

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(I). State Defined Outcome**

<b>O. No</b>	<b>Outcome Name</b>
1	Number of persons with increased knowledge on appropriate production technologies.
2	Number of persons with increased knowledge on appropriate processing technologies.
3	Number of persons adopting recommended practices.
4	Number of established farms producing/utilizing/selling produces and products.
5	Number of established businesses utilizing developed/processing technologies

### **Outcome # 1**

#### **1. Outcome Target**

Number of persons with increased knowledge on appropriate production technologies.

#### **2. Outcome Type : Change in Knowledge Outcome Measure**

#### **3. Associated Knowledge Area(s)**

- 216 - Integrated Pest Management Systems
- 212 - Diseases and Nematodes Affecting Plants
- 202 - Plant Genetic Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 136 - Conservation of Biological Diversity
- 315 - Animal Welfare/Well-Being and Protection
- 205 - Plant Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 502 - New and Improved Food Products
- 204 - Plant Product Quality and Utility (Preharvest)
- 112 - Watershed Protection and Management

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **Outcome # 2**

#### **1. Outcome Target**

Number of persons with increased knowledge on appropriate processing technologies.

#### **2. Outcome Type : Change in Action Outcome Measure**

#### **3. Associated Knowledge Area(s)**

- 502 - New and Improved Food Products
- 216 - Integrated Pest Management Systems
- 102 - Soil, Plant, Water, Nutrient Relationships
- 212 - Diseases and Nematodes Affecting Plants
- 112 - Watershed Protection and Management
- 205 - Plant Management Systems
- 202 - Plant Genetic Resources

- 315 - Animal Welfare/Well-Being and Protection
- 136 - Conservation of Biological Diversity
- 601 - Economics of Agricultural Production and Farm Management
- 204 - Plant Product Quality and Utility (Preharvest)

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 3**

**1. Outcome Target**

Number of persons adopting recommended practices.

**2. Outcome Type : Change in Condition Outcome Measure**

**3. Associated Knowledge Area(s)**

- 601 - Economics of Agricultural Production and Farm Management
- 502 - New and Improved Food Products
- 202 - Plant Genetic Resources
- 136 - Conservation of Biological Diversity
- 112 - Watershed Protection and Management
- 212 - Diseases and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems
- 205 - Plant Management Systems
- 315 - Animal Welfare/Well-Being and Protection
- 204 - Plant Product Quality and Utility (Preharvest)
- 102 - Soil, Plant, Water, Nutrient Relationships

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 4**

**1. Outcome Target**

Number of established farms producing/utilizing/selling produces and products.

**2. Outcome Type : Change in Knowledge Outcome Measure**

**3. Associated Knowledge Area(s)**

- 601 - Economics of Agricultural Production and Farm Management
- 216 - Integrated Pest Management Systems
- 205 - Plant Management Systems
- 315 - Animal Welfare/Well-Being and Protection
- 202 - Plant Genetic Resources
- 102 - Soil, Plant, Water, Nutrient Relationships
- 204 - Plant Product Quality and Utility (Preharvest)
- 112 - Watershed Protection and Management
- 212 - Diseases and Nematodes Affecting Plants
- 136 - Conservation of Biological Diversity
- 502 - New and Improved Food Products

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 5**

**1. Outcome Target**

Number of established businesses utilizing developed/processing technologies

**2. Outcome Type : Change in Knowledge Outcome Measure**

**3. Associated Knowledge Area(s)**

- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems
- 315 - Animal Welfare/Well-Being and Protection
- 204 - Plant Product Quality and Utility (Preharvest)
- 112 - Watershed Protection and Management
- 216 - Integrated Pest Management Systems
- 212 - Diseases and Nematodes Affecting Plants
- 136 - Conservation of Biological Diversity
- 601 - Economics of Agricultural Production and Farm Management
- 202 - Plant Genetic Resources
- 502 - New and Improved Food Products

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **V(J). Planned Program (External Factors)**

#### **1. External Factors which may affect Outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

#### **Description**

The occurrence of droughts or typhoons in the Micronesian region may greatly affect outcome and can impact the success in food production technologies. Favorable public policy changes and governmental regulations to decrease competition of domestic and imported commodities will encourage sustainable production.

Great concern for our agricultural programs is the greenhouse effect that may contribute to the rising sea level in many of our low-lying coral atolls. This can cause destruction to the staple food crops that people in these communities depend on.

Additionally, the high cost of fuel will make it virtually impossible for people and agricultural materials to move freely between islands. The occurrence of droughts or typhoons in the Micronesian region may greatly affect outcome and can impact the success in food production technologies. Favorable public policy changes and governmental regulations to decrease competition of domestic and imported commodities will encourage sustainable production.

Great concern for our agricultural programs is the greenhouse effect that may contribute to the rising sea level in many of our low-lying coral atolls. This can cause destruction to the staple food crops that people in these communities depend on.

Additionally, the high cost of fuel will make it virtually impossible for people and agricultural materials to move freely between islands.

### **V(K). Planned Program - Planned Evaluation Studies**

#### **Description of Planned Evaluation Studies**

Evaluation and review of the extension and research components of the programs will be conducted throughout the year during client visits, workshops, demonstrations and other outreach activities.

Results of this evaluation will determine necessary changes, if any, to meet the needs of clients and stakeholders.

Program impact assessment based on performance indicators developed for the program will be used to collect data against the change in action and condition outcome measure.

A pre and post-test will be required for all outreach activities.

Random selection of reports will be used to determine follow-up visits to observe the effects of advisory services. Surveys will be developed specific to this program area to assess client changes as well as client satisfaction with the services provided. Results of these surveys will be used to make necessary changes to the outreach programs. Changes in individual and community circumstances will form the basis of the annual reports. At the individual partner college levels reports are amalgamated quarterly for reports to Boards of Regents and sponsor governments.