

# 2012 University of Guam Extension Plan of Work

Status: Accepted

Date Accepted: 07/21/2011

## I. Plan Overview

### 1. Brief Summary about Plan Of Work

The University of Guam Cooperative Extension Service (CES) engages the University Community through a multi-disciplinary approach to address the complex issues facing the People of Guam. CES has significantly increased its collaborations with Government agencies, private entities and non-governmental organizations. This approach is important in Guam's interdependent culture and has proven to be one of our greatest strengths. Our partnerships have fostered our mission of extending research-based knowledge through outreach education programs for positive engagement of individuals and communities. The planned programs are structure through the core units of Agriculture and Natural Resources (ANR), and Communities, Youth, Families, Food and Nutrition (CYFFN).

The ANR unit is the center of agricultural information and technical expertise in the western Pacific Region. The unit employs state of the art technology, interdisciplinary teamwork, collaboration with public and private sectors and interactive education to achieve significant improvements in the agricultural industry, the economy and social environments of Guam and the Pacific Islands. The primary mission of the ANR Unit is to work with its clientele and partners to advance research based knowledge through extension and higher education in the food and agricultural sciences and related environmental and human sciences to benefit people and communities in Guam and the Pacific Islands. The program thrusts of ANR are carried out through Plans of Work designed by ANR faculty to address issues faced by the community as well as other individual/community educational and informational needs.

CYFFN goals are to help ensure a safe and abundant food supply, to help families, youth and individuals to become mentally, physically and emotionally healthy and to assist communities in becoming sustainable and resilient to the uncertainties of economics, health and security. The unit achieves these goals through planned programs in food safety, nutrition education, community development, chronic disease prevention, and youth, communities and families.

Several new programs have been added for 2011, while one program has been restructured. The Global Food Security and Hunger plan of work addresses Guam's food security by increasing the number and success of both subsistence and market farmers through multi-agency collaborations. A goal of these collaborations is to identify under-served farmers, conduct need assessments and leverage these agencies educational and service efforts' for their impact. The former plan of work "Home and Urban Landscapes" will be removed and the home and community garden and conservation focus of this program will be written into the new Food Security and Hunger plan of work. This program will be strengthened over the next two years to be fully supported in 2012. The restructured Community Development program dovetails with the Global Food Security and Hunger plan by addressing Guam's food insufficiency through community food security projects education programs and collaborations to improve accessibility to fresh local crops in Guam's schools and communities.

Childhood obesity continues to be a health concern on Guam. Data collected from students attending schools within Guam Department of Education indicated that 27.6% of children and 43.7% of adolescents on Guam are either "overweight" or "at risk for overweight". These prevalence rates are higher than the U.

S. Mainland. In addition, current data from the Guam Department of Public Health and Social Services Vital Statistics office continues to show high numbers of chronic and preventable diseases such as diabetes, cardiovascular disease and cancer as primary causes of deaths. The Childhood Obesity plan of work focuses on nutrition and health educational activities designed to help families and children make informed, science-based decisions about their health and well-being. A variety of nutrition and health education lessons are offered to children, individuals, and families designed to meet their individual needs. The program focuses on skill areas for practical everyday choices with an emphasis on incorporating this knowledge into their everyday lives.

A major factor that influences our program activities is a shift in our island demographics. Guam can expect a 16.7% population increase to 180,692 by 2010. This is similar to the 1990-2000 16.3% percent increase to 133,152. Today, Guam's population is 154,805 (Guam's 2000 Census) with residents in 19 villages. Over 40% of the population is under 20 years old, 22% of the population lives in poverty, and is ethnically composed of 37% Chamorro, 27% Filipino, 7% Caucasian and 29% others. Adding to this challenge is a recent decision by the U.S. Pentagon to move an estimated 40,000 military personnel and their dependents to Guam.

The issues facing the community are complex and will require multi and interdisciplinary approaches with a broad range of partners. One of our greatest strengths is our ability to collaborate and partner with government and private entities to address the issues and needs of our residents. These partnerships allow CES to leverage limited resources to optimize available professional expertise. Our multistate activities in the Pacific Region allows professionals and partners to share information and knowledge that is relevant and to provide solutions affecting individuals, families, communities and environment. UOG-CES will continue to engage and prioritize its plans of work and program activities to create and assess the outcomes and results as we meet these future challenges.

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

Year	Extension		Research	
	1862	1890	1862	1890
2012	22.0	0.0	0.0	0.0
2013	22.0	0.0	0.0	0.0
2014	22.0	0.0	0.0	0.0
2015	23.0	0.0	0.0	0.0
2016	23.0	0.0	0.0	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 Non-University Panel

## 2. Brief Explanation

The stakeholders input provide the essential and critical guidance to the priorities of the University of Guam Cooperative Extension during the five year plans of work. The internal panel review includes a two phase process. The first phase involves extension professionals working with stakeholders to identify critical needs and the level of problem solving. Faculty across campus will be invited as a resource professional. The second phase will include the program leaders and extension professionals working closely with other partners who can collaborate to find solutions. The partners will assess what resources and expertise can be provided.

The external partners who will be invited are government and non-government entities who can provide support and critical resources to the plans of work. The external and internal panel will serve as the coalition engaging in the critical and emerging identified issues. Assessment and relevance will be key to prioritizing extension resources to the plans of

## 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?

Our multi-institution activities in the Pacific Region allows professionals and partners to share information and knowledge that is relevant and to provide solutions affecting individuals, families, communities and environment. The planned programs are inter-disciplinary, multi-institution and multi-partnership that engages on the identified and critical issues. The extension professionals and paraprofessionals are from the core program areas in Agriculture and Natural Resource Unit (ANR), and Communities, Youth, Food, and Nutrition (CYFFN). ANR is the center of agricultural information and technical expertise in the western Pacific Region. The unit employs state of the art technology, interdisciplinary teamwork, collaboration with public and private sectors and interactive education to achieve significant improvements in the agricultural industry, the economy and social environments of Guam and the Pacific Islands. The primary mission of the ANR Unit is to work with its clientele and partners to advance research based knowledge through extension and higher education in the food and agricultural sciences and related environmental and human sciences to benefit people and communities in Guam and the Pacific Islands. The program thrusts of ANR are carried out through Plans of Work designed by ANR faculty to address issues faced by the community as well as other individual/community educational and informational needs. CYFFN unit goals are to help ensure a safe and abundant food supply, to help families, youth and individuals to become mentally, physically and emotionally healthy and to assist communities in becoming sustainable and resilient to the uncertainties of economics, health and security. The unit achieves these goals through planned programs in food safety, nutrition education, community development, chronic disease prevention, and youth, communities and families.

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

The Plans of Work does not discriminate in its activities as it works with the population of Guam. Based on the demographics of the Guam's population, Over 22% of the residents' lives in poverty and ethnicity consisting of 37% Chamorro, 27% Filipino, 7% Mainland Statesiders or Caucasian, and 29% others. The Island is a melting pot of ethnicity with no lines drawn

between people. The activities of the plans of work are brought into the community and an awareness through publication and notices of workshops, and meetings in newspapers, newsletters, electronic distribution and other electronic media. Collaborations and partnerships with local and federal government agencies and non-government organizations and entities create a coalition and engagement of partners to address the needs of the population on Guam. Every resident has full accessibility to the program activities of the University of Guam Cooperative Extension.

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

Each plan of work and planned program activities will be evaluating and assessing the changes in knowledge, skills, level of awareness, and aspirations of the targeted audiences and stakeholders. The plans of work coordinators will be responsible for reporting and making the evaluation of outcomes and results of the planned activities. Continuing program support and plans of work will be based on outcomes and results reported.

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

A follow-up survey and assessment of targeted audiences, partners, traditional and non-traditional stakeholders will be done by each of the core program leaders as to whether the goals and objectives have been met and whether the impacts have been realized. The advisory body will be ask to informally assess Cooperative Extension organizational effectiveness through its collaborations and partners, its reported results and impact, and informal and formal feedback from the individuals, families, and community. The organizational effectiveness and efficiency will be a continual process and its effectiveness will be reported to its key internal and external stakeholders of the University of Guam.

## **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
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public
- Survey specifically with non-traditional groups

#### **Brief explanation.**

The following actions were taken to gather stakeholder input:

**General Public and Traditional Stakeholder Survey (March and April 2006)** The UOG Cooperative Extension conducted an island-wide stratified, random telephone survey of the general public (N=140) and targeted clientele (N=98), which asked people's opinions on issues related to families, children, nutrition, quality of life and agriculture. The responses support trends identified in

targeted clientele survey collected by the project team - it provided a comparison between the general public and clientele. The sampling method for the general population sample was designed to make it highly representative of family households on Guam, and thus trustworthy for giving estimates of people's awareness and interests in Extension programs. Quota selection was used to weight the number of phone calls made in each village region to match the regional distribution of the general population across island village districts. The target population (N=98) were traditional clientele of CES programs or services - the list was generated by each program unit.

**Focus and Listening Group Sessions (May 2006)** A total of 90 people participated in the sessions. Invitations to traditional stakeholder groups and individuals were delivered and personal contacts were made to each group and individual to encourage participation. Announcements were published over a four day period in the local media. The results of the sessions centered on economic, social, environmental and cultural issues. From this three major themes were identified: 1) managing the environment; 2) educating individuals and families; and 3) strengthening communities

**Advisory Group Session (May 2006)**

Issues gleaned from the surveys and focus group sessions were presented to the advisory group. Advisory group members have been identified as key leaders and heads of boards, councils and commissions and have worked closely with CES in major projects. Using "filters" (i.e. critical needs matrix) the group was asked whether the issues were on track, whether anything important was missing and how the issues should be prioritized.

A few groups and organizations represented in the stakeholder input included:

**Traditional Stakeholders**

4-H Clubs - Volunteers, Leaders and Youth  
Northern and Southern Farmers and Producers  
Soil Conservation District  
Volunteers  
Sanctuary Inc. ( A home for troubled, abused and runaway youth.)  
Guam Public School System - Nutrition Department  
EFNEP Clientele  
Guam Mayor's Council  
NRCS, USDA

**Non Traditional Stakeholders**

Administrators, Boards, Commissions and staff of government and non-government organizations from Department of Labor, Department of Public Health, Department of Youth, Guam Community College, Guam Economic Development Commerce Authority, Guam Environmental Protection Agency, Small Business Development Center and Guam Public School System Teachers, Military and Businesses.

To ensure that UOG-CES is responsive to both the needs of the community and the mission of delivering of science-based knowledge to communities, each program unit overseeing the planned programs conduct regular stakeholder input activities. These input activities are reported in the Annual Report of Accomplishments and Results. UOG-CES will conduct another program wide stakeholder activity in 2011. Further, results from stakeholder input was used to develop UOG-CES strategic plan which describes areas of focus, new initiatives, and guiding principles for UOG-CES to ensure that each critical program area and initiative have appropriate stakeholder engagement.

**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.**

{NO DATA ENTERED}

**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 the general public (open meeting advertised to all)
- Survey of the general public
- Survey specifically with non-traditional groups
- Survey specifically with non-traditional individuals

**Brief explanation.**

{NO DATA ENTERED}

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

- To Identify Emerging Issues
- Redirect Extension Programs
- In the Staff Hiring Process
- To Set Priorities

**Brief explanation.**

Input from stakeholders helps UOG-CES discover needs, understand emerging issues, and evaluate the effectiveness of programming. This insight helps improve the effectiveness of programming and administrative procedures by informing processes that lead to enhancement of program design, allocation of budgets for optimal results,

hiring and locating personnel for maximum impact, and effectively communicating with the general public.

**V. Planned Program Table of Content**

S. No.	PROGRAM NAME
1	Global Food Security and Hunger - Community Development
2	Food Safety - Tropical safe and wholesome food products
3	Guam Families, 4-H Youth Development and Communities
4	Childhood Obesity - Nutrition Education on Guam
5	Global Food Security and Hunger - The New Farmer: Agriculture for the Next Generation
6	Plant Health and Pest Management
7	Global Food Security and Hunger - Sustainability of Small Scale Swine and Poultry Farms on
8	Global Food Security and Hunger - Home and Urban Landscapes
9	Climate Change
10	Sustainable Energy

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

### **Program # 1**

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

Global Food Security and Hunger - Community Development

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

This Community Development Program is based on the goals of improving decision making in local communities; empowering communities to guide their own decisions; and improving the social and economic well being of Guam residents.

Two major initiatives guide this program: The first initiative is to ensure an abundant safe and food supply by increasing limited-resource families' and communities' access to local, safe, nutritious and affordable foods. The second initiative is assisting communities in becoming sustainable and resilient to the uncertainties of economics, weather, health and security through two objectives: 1) increasing civic and social responsibility among youth and adults in urban and rural communities by developing, and enhancing leadership, citizenship, and public participation skills through partnerships which lead to sustainable communities; and, 2) Improving community economic capacity through retaining and growing wealth opportunities by developing and providing tools in marketing, entrepreneurship, risk analysis, and decision-making for both adults and youth.

Programs under this plan include Community Food Security, Public Issues Education, Leadership Development, Civic and Social Engagement, Youth Entrepreneurship, Disaster Preparedness.

**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>
608	Community Resource Planning and Development	30%			
704	Nutrition and Hunger in the Population	10%			
801	Individual and Family Resource Management	10%			
802	Human Development and Family Well-Being	10%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	15%			
805	Community Institutions, Health, and Social Services	25%			
	<b>Total</b>	100%			

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

## 1. Situation and priorities

Guam will experience tremendous social and economic changes in the next few years. The island's cost of living continues to increase and outpace income per household. The unemployment rate remains steady at 7.9%. Information from 38,770 households in 2000 shows a median household income of \$39,317.00 from a population of 154,805. Guam's residents face complex economic and social challenges: increased child abuse cases and growing high school dropout rates; increasing costs of commodities and low wages; and disproportionate chronic disease rates. As a result of the U.S. military build-up, the population will increase by nearly 20% or the equivalent of 15 to 20 years of natural growth compressed within a five year period. Some estimates project population increase by 40,000 to 60,000 residents (these include military service members and their dependents and foreign guest workers). The military build-up will strain the island's health, resource and physical infrastructures. The military build up will alter the political, economic and social landscapes. Guam's economy will undergo a boom and bust cycle. How we respond to these changes and factors will largely depend on three priorities: 1) facilitating and providing economic and social data to support decision-making; 2) providing educational programs responsive to the needs of diverse populations; and 3) focusing on economic development strategies that will take Guam beyond the cash infusion associated with the transfer.

As the community faces these major transitions, the island will make critical and complex decisions. Community development empowers stakeholders to play a significant role in shaping its future. Public decision-making on Guam occurs in a concentrated fashion with the Governor of Guam responsible for almost all decision-making policies and actions for Guam. These decisions are heavily influenced by expertise and departmental authority across 28 government agencies and numerous commissions and boards. Each entity must make the important decisions that impact its future and the future of its residents, property owners, local businesses, and others. As a result, agencies operate in a myopic fashion which results in a breakdown of communication and planning. Planned program areas will address leadership deficits by focusing on strengthening leadership and civic engagement, building strong communities and community based organizations through a variety of individual and organizational leadership programs.

Extension's role in community development will involve activities that build social capacity for vital and healthy communities; developing informed citizen participation, developing workforce, fostering healthy families, promoting life-long learning, improving community services, protecting natural environment while increasing economic vitality and promoting sustainable communities.

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

- Multistate Extension

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

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

Communities will form partnerships to resolve health care and social problems.

Information on socio-economic status, systems and data is required for informed decision-making.

Communities can influence and shape public and market policy.

Working in partnerships with communities, can serve as catalysts for change.

Coalition and collaboration building will lead to successful strategies to fund and sustain programs.

Community assets are an untapped resource.

Disaster preparedness is an integral part of living on Guam

Individuals and organizations have a desire to acquire leadership skills and knowledge to improve their decision making skills and inspire action.

People require a deep understanding of issues to be engaged.

Individual need for education on health, nutrition, and socio-economic topics will continue to exist.

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

This Community Development Program is based on the goals of improving decision making in local communities; empowering communities to guide their own decisions; and improving the social and economic well being of Guam residents.

Two major initiatives guide this program: The first initiative is to ensure an abundant safe and food supply by increasing limited-resource families' and communities' access to local, safe, nutritious and affordable foods. The second initiative is assisting communities in becoming sustainable and resilient to the uncertainties of economics, weather, health and security through two objectives: 1) increasing civic and social responsibility among youth and adults in urban and rural communities by developing, and enhancing leadership, citizenship, and public participation skills through partnerships which lead to sustainable communities; and, 2) Improving community economic capacity through retaining and growing wealth opportunities by developing and providing tools in marketing, entrepreneurship, risk analysis, and decision-making for both adults and youth.

**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
2012	5.0	0.0	0.0	0.0
2013	5.0	0.0	0.0	0.0
2014	5.0	0.0	0.0	0.0
2015	5.0	0.0	0.0	0.0
2016	5.0	0.0	0.0	0.0

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

**1. Activity for the Program**

•conduct community development workshops and trainings that foster more inclusive decisionmaking process and action (to teach policy leaders to interpret and apply economic data to local development decisions) •conduct community asset mapping •provide technical assistance in strategic planning, conducting needs assessments, survey design to help people understand the economic impact of policy changes, and implementation capabilities •access and interpret objective data and conduct assessments (survey design and field data collection); •establish and maintain collaborations with local and federal government •establish partnership and/or collaborativeMOAs and MOUs •establish coalitions for placed based economic development (community-based entrepreneurship) •survey legislative and government agencies and prepare summaries •conduct focus groups sessions

**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>• Other 1 (Listserves)</li> </ul>	<ul style="list-style-type: none"> <li>• Public Service Announcement</li> <li>• Newsletters</li> <li>• Web sites other than eXtension</li> </ul>

**3. Description of targeted audience**

The target audiences in the program include: local government, numerous commissions and boards; non-governmental organizations, youth ages 14-17. Other target audiences also include economic development professionals, small businesses and industries, community groups and the general public.

## **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 extension articles
  - number of workshops
  - number of brochures
  - number of disseminated research results, new technology and information
  - number of surveys
  - number of focus groups conducted
  - number of popular articles in newsletters, magazines and newspapers
  - number of one to one assistance
- 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 youth increasing knowledge and skills in youth entrepreneurship
2	number of individuals increasing awareness and understanding of disaster preparedness.
3	Number of community institutions increasing awareness and understanding of community food security issues, trends, and processes.
4	number of individuals increasing awareness and understanding of community food security issues, trends, and processes.
5	number of individuals adopting community food security practices.
6	number of individuals increasing understanding of decision making process
7	number of individuals increasing knowledge of personal and interpersonal leadership skills
8	Number of organizations adopting group and organizational leadership skills.
9	number of individuals increasing knowledge, understanding and skills in program development.
10	Number of organizations adopting program development skills.
11	Number of organizations determining and developing appropriate and effective strategies for public decision making
12	Number of organizations crafting, evaluating, and implementing alternative solutions to address public issues
13	Number of organizations building skills and identifying opportunities to enhance effective participation in public decision making processes

**Outcome # 1**

**1. Outcome Target**

number of youth increasing knowledge and skills in youth entrepreneurship

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

**2012:50                      2013:50                      2014:50                      2015:50                      2016:50**

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

- 608 - Community Resource Planning and Development
- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

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

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

number of individuals increasing awareness and understanding of disaster preparedness.

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

**2012:50                      2013:50                      2014:50                      2015:50                      2016:50**

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

- 608 - Community Resource Planning and Development
- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being

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

- 1862 Extension

**Outcome # 3**

**1. Outcome Target**

Number of community institutions increasing awareness and understanding of community food security issues, trends, and processes.

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

**2012:3                      2013:5                      2014:7                      2015:10                      2016:10**

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

- 608 - Community Resource Planning and Development
- 704 - Nutrition and Hunger in the Population
- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

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

- 1862 Extension

**Outcome # 4**

**1. Outcome Target**

number of individuals increasing awareness and understanding of community food security issues, trends, and processes.

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

**2012:10                      2013:10                      2014:10                      2015:10                      2016:10**

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

- 608 - Community Resource Planning and Development
- 704 - Nutrition and Hunger in the Population
- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

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

- 1862 Extension

**Outcome # 5**

**1. Outcome Target**

number of individuals adopting community food security practices.

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

**2012:5                      2013:5                      2014:5                      2015:5                      2016:5**

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

- 608 - Community Resource Planning and Development
- 704 - Nutrition and Hunger in the Population
- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

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

- 1862 Extension

**Outcome # 6**

**1. Outcome Target**

number of individuals increasing understanding of decision making process

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

**2012:10                      2013:10                      2014:10                      2015:10                      2016:10**

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

- 608 - Community Resource Planning and Development
- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

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

- 1862 Extension

**Outcome # 7**

**1. Outcome Target**

number of individuals increasing knowledge of personal and interpersonal leadership skills



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

**2012:15                      2013:15                      2014:15                      2015:15                      2016:15**

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

- 608 - Community Resource Planning and Development
- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities

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

- 1862 Extension

**Outcome # 8**

**1. Outcome Target**

Number of organizations adopting group and organizational leadership skills.

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

**2012:2                      2013:4                      2014:4                      2015:4                      2016:4**

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

- 608 - Community Resource Planning and Development
- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

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

- 1862 Extension

**Outcome # 9**

**1. Outcome Target**

number of individuals increasing knowledge, understanding and skills in program development.

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

**2012:5                      2013:5                      2014:5                      2015:5                      2016:5**

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

- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

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

- 1862 Extension

**Outcome # 10**

**1. Outcome Target**

Number of organizations adopting program development skills.

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

**2012:1                      2013:2                      2014:2                      2015:3                      2016:3**

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

- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

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

- 1862 Extension

**Outcome # 11**

**1. Outcome Target**

Number of organizations determining and developing appropriate and effective strategies for public decision making

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

**2012:1                      2013:3                      2014:3                      2015:3                      2016:3**

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

- 608 - Community Resource Planning and Development
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

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

- 1862 Extension

**Outcome # 12**

**1. Outcome Target**

Number of organizations crafting, evaluating, and implementing alternative solutions to address public issues

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

**2012:1                      2013:1                      2014:2                      2015:2                      2016:2**

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

- 608 - Community Resource Planning and Development
- 704 - Nutrition and Hunger in the Population
- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

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

- 1862 Extension

**Outcome # 13**

**1. Outcome Target**

Number of organizations building skills and identifying opportunities to enhance effective participation in public decision making processes

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

**2012:1                      2013:1                      2014:2                      2015:2                      2016:2**

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

- 608 - Community Resource Planning and Development
- 704 - Nutrition and Hunger in the Population
- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 805 - Community Institutions, Health, and Social Services

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

- 1862 Extension

**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**

Competing public priorities will affect direction of the program. Decision-making across the 28 government agencies and competing priorities of each will be an external factor to this planned program. Ability for agencies and other seeking external funding sources (i.e external grants) will be hindered by a lack of social and economic data. The nature of the gubernatorial and senatorial tenure (4 and 2 years respectively), will affect public policy direction, affecting priorities and intended outcomes. To the extent that we can control these external factors, our challenge will be increasing awareness of the continuous need for data regardless of a change in political dynamics.

Population changes due to new cultural groups migrating to the island will pose language and cultural barriers. Integration and assimilation of these groups will be factors that influence the program.

Workshops, seminars and training in coping skills in a new environment will help increase awareness of expected social and cultural norms allowing an easier transition into Guam.

The local and regional economy will affect families and residents quality of life and social-psychological well-being. The high cost of living will be a challenge for residents and businesses. In addition, natural disasters are a constant reality on Guam and the region which will interrupt and shift

priorities and goals. Increasing awareness and training in disaster preparedness as well as disaster aftermath will reduce injuries, deaths and illnesses.

Other external factors affecting this program will be the difficulty of recruiting qualified professionals, lack of background and lack of expertise. UOG CES is currently developing a mentoring program to provide development of current extension professionals.

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

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

To measure the success of program outcomes, evaluation studies will include collecting information from government personnel, government agencies and legislators currently using data to support policies and legislation. Subsequent surveys will compare policies and laws that were developed and enacted using data sets against those that did not. A survey of legislative bill-writers who use internal data, external data and non data will measure the prevalence of using data sets in to crafting legislation. Additional surveys and time series tools will be conducted over a two year cycle to allow us to measure the increase or decrease use of data sets in policy development and legislation. Case studies will be used to compare and illustrate adoption of data supported policies and legislation. Other studies include time series designs of participants in community-based entrepreneurial coalitions that will measure the successes of establishing enterprises or businesses

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

### **Program # 2**

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

Food Safety - Tropical safe and wholesome food products

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

The planned program "Food Safety" is to achieve the long term goal to improve the safety of food products processed with regional tropical crops and reduce the incidences of foodborne illness in community on Guam. The program is planned based on the results and suggestions from a community interest survey, stakeholder focus groups, and an advisory group meeting. The foods processed or prepared in the community on Guam must be safe and wholesome for consumers.

The critical issues identified in community are: (1) high frequency of foodborne illness in the community and (2) lack of locally processed food products. We assume that education and training based on scientific knowledge and findings will help target audiences to perform the best practice to improve the safety and quality of their food products.

In this program, the Smith Level funds and other federal grants will be invested to conduct extension, research, and educational activities. The input activities include: (1) investigating factors associated with foodborne illness and food quality in food processing and preparation; (2) conducting food safety and food processing workshops in the community; (3) providing training and consultant services about food safety and technology in community; (4) exploring and determining the values of tropical and subtropical plants, fruits and vegetables to benefit people in food safety and human health; and (5) disseminating residents scientific-based information and technologies to process and market safe and wholesome food products in the community. The target audiences include entrepreneurs, food workers, and food-safety educators, farmers, general consumers, youth, and school children.

The program activities are expected to change people's knowledge, attitude and behaviors toward food safety and quality in food processing and preparation. Such changes will reduce the risk and frequency of foodborne illness and improve the quality of foods in community on Guam. Although tropical environments and natural disasters such as super Typhoon may affect crop productions and consumer's food safety practices, a good planned program will help to overcome obstacles to improve the quality of people's life and promote the economic growth on Guam.

**3. Program existence :** Mature (More than 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 :** No

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

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
501	New and Improved Food Processing Technologies	20%			
502	New and Improved Food Products	15%			
503	Quality Maintenance in Storing and Marketing Food Products	5%			
604	Marketing and Distribution Practices	5%			
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	50%			
806	Youth Development	5%			
	<b>Total</b>	100%			

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

1. Situation and priorities

Guam is a tropical island with an average temperature of 28°C through the year. Based on the data from the Department of Public Health and Social Services, the estimated number of foodborne illness incidents on Guam is 13,000-152,000 per year. The estimated economic cost is from \$5.0 to 40.0 million yearly. Most of foodborne illness occurs in private homes and fast restaurants. The frequency of foodborne illness on Guam is higher than the frequency in the United States. The identified foodborne illnesses occurred on Guam were Salmonellosis, Staphylococcal gastroenteritis, Shigellosis, fish poisoning, Campylobacteriosis, and Vibrio parahaemolyticus. The vehicles highly associated foodborne illness were fish, seafood, chicken, and ethnic food 'kelaguen'. The high frequency of foodborne illness is attributed to the lack of food safety knowledge and poor food handling practice, especially in temperature/time abuse, inadequately cooking, and unsafe food resources. Although consumers have good knowledge in personal hygiene and cross contamination, consumers do not commit themselves to practice properly. Many local Chomorro families have outdoor kitchens, where hot water is not supplied and sanitation is poor. Foods at parties and fiestas are often served without temperature and time control for safety for more than 4 hours.

On Guam about ninety percent of foods are imported from U.S. and other Asian countries, and few small scale food manufactures use locally agricultural crops to process food products. Seasonal agricultural crops are often saturated in the local markets. The saturation of agricultural produces in the local market results in reduction of agricultural production. To avoid wasting of agricultural produces and balance local fresh produce market, processing food products is needed. In addition, Guam also possesses various tropical resources, which have bioactive components with functions beyond traditional nutrients. Investigation of phytochemicals and health benefits of the tropical crops and plants and processing value-added food products on Guam is of significant.

The above two issues were identified as priorities in the areas of food safety and food processing by

the CES 2006 Awareness and Interest Survey, stakeholder focus group discussions, and advisory group meetings. The Awareness and Interest Survey showed that 48% of households (n = 140) having a member interested in food safety and processing, and 62% of CES target clients (n = 98) exhibited interests in food safety and processing. Stakeholders in thirteen focus group discussions expressed that educating food safety and processing value-added food products are the needs of community. The participants in advisory group meetings supported to address the selected issues. Setting the priorities on the selected issues will fulfill the mission of the Guam Cooperative Extension Service. To engage in positive change, we extend research-based knowledge to the people of Guam through innovative community outreach education

**2. Scope of the Program**

- Integrated Research and Extension

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

**1. Assumptions made for the Program**

Access the knowledge and training is the first step to make changes of a situation. Effective education will help consumers to learn knowledge in food safety and processing, leading to changes in attitudes and behaviors. Changes in behaviors will result in improve situation of reducing foodborne illness and marketing locally-processed food products in the community.

Food safety and processing education to children will have significant long-term impact on food safety in the communities. Education to residents is traditionally appreciated in village centers and senior citizen centers on Guam. Various community food fairs in community will provide opportunities to deliver the science-based information in food safety and food processing to consumers. The local government agencies, the Department of Public School System, the Farm Co-op Organization, and the media will support to achieve the goals to change the situations in reducing foodborne illness in the community and increasing safe and wholesome food products using locally-grown crops.

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

Reduce the risk of foodborne illness in the community on Guam.

Increase safe and wholesome value-added products processed with the locally-grown fruits, vegetables, and plants on the tropical island of Guam.

**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
2012	1.0	0.0	0.0	0.0



Year	Extension		Research	
	1862	1890	1862	1890
2013	1.0	0.0	0.0	0.0
2014	1.0	0.0	0.0	0.0
2015	1.0	0.0	0.0	0.0
2016	1.0	0.0	0.0	0.0

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

**1. Activity for the Program**

The input activities include: (1) investigating factors associated with foodborne illness and food quality in food processing and preparation; (2) conducting food safety and food processing workshops in the community; (3) providing training and consultant services about food safety and technology in community; (4) exploring and determining the values of tropical and subtropical of plants, fruits and vegetables to provide benefits in human health and food safety and quality; and (5) disseminating residents scientific-based information and technologies to process and market safe and wholesome food products in the community.

**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>● One-on-One Intervention</li> <li>● Demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Web sites other than eXtension</li> <li>● Other 1 (Dissemination of information)</li> </ul>

**3. Description of targeted audience**

The target audiences include entrepreneurs, food manufacturers, food workers, and food-safety educators, farmers, general consumers, youth, and school children.

## **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**

- # of peer reviewed publications
  - # of non-peer reviewed publications
  - # of workshops
  - # of dissemination of science-based information
  - # of work with media
- 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	Changes (%)of particapants in knowledge of food safety and food processing
2	Changes (%) of participants in action of food safety and food processing
3	Numbers of new value-added products, which are safe and wholesome, in the community

**Outcome # 1**

**1. Outcome Target**

Changes (%) of participants in knowledge of food safety and food processing

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

**2012:60                      2013:60                      2014:60                      2015:60                      2016:60**

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

- 501 - New and Improved Food Processing Technologies
- 502 - New and Improved Food Products
- 503 - Quality Maintenance in Storing and Marketing Food Products
- 604 - Marketing and Distribution Practices
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

Changes (%) of participants in action of food safety and food processing

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

**2012:15                      2013:15                      2014:15                      2015:15                      2016:15**

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

- 501 - New and Improved Food Processing Technologies
- 502 - New and Improved Food Products
- 503 - Quality Maintenance in Storing and Marketing Food Products
- 604 - Marketing and Distribution Practices
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 3**

**1. Outcome Target**

Numbers of new value-added products, which are safe and wholesome, in the community

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

**2012:1                      2013:2                      2014:2                      2015:2                      2016:2**

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

- 501 - New and Improved Food Processing Technologies
- 502 - New and Improved Food Products
- 503 - Quality Maintenance in Storing and Marketing Food Products
- 604 - Marketing and Distribution Practices
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins
- 806 - Youth Development

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

- 1862 Extension

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

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

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

**Description**

External factors which may affect the outcomes of reduction of the risk or decrease the frequency of foodborne illness include: (1) tropical climate influences sanitation especially in large group outdoor fiestas and parties; (2) the recovery after typhoon disaster challenge consumers and food establishments to handle food properly due to outage of power and shortage of water; (3) collaboration among the government agencies, organizations, and media to deliver food safety knowledge and information in community; and (4) competitive extension and research projects and limited resources.

External factors which may affect the outcomes of food processing in community include: (1) tropical climate, diseases and typhoon disaster, which affect agricultural production; (2) collaboration between farmers and food entrepreneurs; (3) tourist industry, a major industry on Guam, may affect the market of locally processed food products; (4) changes of Chomorro cultures may influence activities in planting crops and food preservation and processing; and (5) external federal competitive grants, which are needed to support the food processing program activities.

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

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

To evaluate the success in achieving the program outcomes, the evaluation studies include retrospective (post program), during program, and case study. With the retrospective study, surveys will be used to compare the knowledge and skill of participants in the area of food safety and food processing before and after program implementation. With during program study, pre- and post-tests, surveys, data collection from the other agencies, or direct observations will be used to evaluate the improvement of participants in knowledge and practice of food processing and food safety. With the case study, structured and unstructured interviews will be used to evaluate the success of individuals who accomplish the long-term outcomes.

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

### **Program # 3**

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

Guam Families, 4-H Youth Development and Communities

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

The program is designed to educate and empower families, youth and communities to understand how individuals and families can both obtain and use resources of time, money, and human capital to develop their potential as participative members of society. UOG CES will conduct and facilitate workshops that will help families understand the significance human development and family well being. To achieve our goal, staff and volunteers will conduct workshops focused in the following emphasis areas: economic preparedness (resource management, time, money and human capital, youth entrepreneurship), interrelationships between society and households to improve family well being, human development (child, adolescent, adult), and workforce preparation. Staff and volunteers will assist and facilitate targeted youth (5-19) to increase awareness and knowledge through camps, school enrichment youth activities, after school programs, projects and curricula. The programs will focus on increasing knowledge in essential elements in the sense of belonging and sense of safety, self confidence and self esteem, literacy, communication, problem solving, volunteerism and community service for youth, interaction and relationships with adults and peer groups, leadership development and opportunities, youth initiatives in non-formal science, engineering, and technology and civic engagement.

**3. Program existence :** Mature (More than 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
801	Individual and Family Resource Management	10%			
802	Human Development and Family Well-Being	30%			
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	10%			
806	Youth Development	50%			
	<b>Total</b>	100%			

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

1. Situation and priorities

According to data from the local Guam Police Department there has been an increase in family violence that continues to have devastating effects on the island of Guam and its residence. Families no longer feel safe within their homes, neighborhoods and communities. The high school drop out continues to increase at an alarming rate. With the increased drop out rate, teen pregnancy is notable and reported to be reaching middle school. Teenage suicide in Guam is amongst the highest in the nation and teenage alcohol and drug abuse is increasing. Sexual activities are reported to have been increasing among teenager exposing the youth, families and communities to sexually transmitted diseases. In addition, Guam is experiencing a spur in population growth as residents of the Freely Associated States of Micronesia migrate with their families to Guam to seek better quality of life. As a result, social and welfare systems are burdened and the education system must shift its programs to meet the needs of language other than English students. School infrastructure is also impacted as double sessions are implemented to accommodate the increase in student populations.

An anticipated increase in military operations in Guam estimates 8,000 US Marines with 10,000 dependents and support personnel will be arriving over a two year period will be a significant community issue. As we partner with the military, added programs will be needed to support our troops and their families. Issues to be addresses include, labor force preparedness, community safety, cultural understanding of both the military culture and the diversified island communities.

Program priorities are to create an environment where opportunities for youth to gain and increase their sense of belonging, independence, master and generosity to enable them and master the skills needed to make positive life choices, become civically engaged, act responsibly and be a positive influence in their communities.

2. Scope of the Program

- In-State Extension

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



**1. Assumptions made for the Program**

- 1) Guam multi ethnic communities pose a challenge to program planning and development.
- 2) Extension has had extensive researched based programming experiences in the areas of youth, family and community.
- 3) Extension research based curricula and the resources of the Land Grant Institutions will allow us to develop partnership with local and federal agencies to address these issues.
- 4) Research have shown that youth who participate in activities which promote hands on experience are more likely to increase their self esteem, feel secure and take responsibility for their action and having good decision making skills.
- 5) Youth assets is an untapped resource

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

The Program goal is to provide education, programs and experiences that provide prospects and opportunities to master learning of essential life skills that allows young people to be trustworthy, respectful, responsible, fair and caring citizens. The program aims to help youth, adults and families integrate these principles into their everyday lives.

**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
2012	3.0	0.0	0.0	0.0
2013	3.0	0.0	0.0	0.0
2014	3.0	0.0	0.0	0.0
2015	3.0	0.0	0.0	0.0
2016	3.0	0.0	0.0	0.0

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

**1. Activity for the Program**

To achieve the 4-H program ultimate goals the following activities will be conducted based research proven and curriculum adopted Experiential Learning Model promoting life skills.

- 05 new 4-H Clubs will be organized and supported annually,
- 15 4-H school enrichment programs will be established and later chartered as 4-H Clubs,
- 10 special interest/short-term programs/Day Camps and 5 overnight camps will be conducted,
- 10 School-Aged Child Care Education Programs will be offered yearly,
- 05 technology related workshops will be conducted and

02 planned workshops for 4-H individual study/mentoring/family learning activities will be implemented.

**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>● Workshop</li> <li>● Group Discussion</li> <li>● Demonstrations</li> <li>● Other 1 (4-H Clubs will be formed)</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> </ul>

**3. Description of targeted audience**

Primary target audience includes: children, youth, and families in the community, and schools including military establishments and their families including teachers, educators, and organizations that may request our services in a collaborative manner. Efforts will be made to reach targeted population who are underserved.

**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**

- (1) # of club members
  - (2) # of volunteer leaders
  - (3) # of workshops
  - (4) # of brochures
  - (5) # of surveys
  - (6) # of media articles and promotions
  - (7) # of focus group
  - (8) # of volunteers trained
  - (9) # of extension staff trained
  - (10)# of collaboration established
- 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	(1) Number of youth through communication and expressive arts programming demonstrate increased self efficacy in public speaking, presentations, visual arts and performing arts
2	(2) Number of youth participants in 4H natural resources and environmental education programs demonstrate environmentally responsible behavior
3	(3) Number of youth participants who study plant, soil and entomology learn the interconnectedness of organisms and their environment
4	(4) Number of youth reporting positive attitude change and/or aspirations about learning and careers in a 4-H project area
5	(5) Number of youth increasing participation in science and technology educational programming/clubs
6	(6) Number of volunteers completing a training program and successfully leading a program, activity, event or club
7	(7) Number of youth indicating increased knowledge/skills related to economic education and/or entrepreneurship
8	(8) Number of youth indicating knowledge and/or skills related to leadership
9	(9) Number of youth reporting positive attitude change and/or aspiration related to volunteering and community service

**Outcome # 1**

**1. Outcome Target**

(1) Number of youth through communication and expressive arts programming demonstrate increased self efficacy in public speaking, presentations, visual arts and performing arts

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

**2012:350                      2013:375                      2014:400                      2015:0                      2016:0**

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

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

(2) Number of youth participants in 4H natural resources and environmental education programs demonstrate environmentally responsible behavior

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

**2012:350                      2013:375                      2014:400                      2015:0                      2016:0**

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

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 3**

**1. Outcome Target**

(3) Number of youth participants who study plant, soil and entomology learn the interconnectedness of organisms and their environment

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

**2012:35                      2013:40                      2014:40                      2015:0                      2016:0**

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

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 4**

**1. Outcome Target**

(4) Number of youth reporting positive attitude change and/or aspirations about learning and careers in a 4-H project area

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

**2012:3050                      2013:3075                      2014:3100                      2015:0                      2016:0**

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

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 5**

**1. Outcome Target**

(5) Number of youth increasing participation in science and technology educational programming/clubs

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

**2012:350                      2013:375                      2014:400                      2015:0                      2016:0**

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

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 6**

**1. Outcome Target**

(6) Number of volunteers completing a training program and successfully leading a program, activity, event or club

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

**2012:150                      2013:175                      2014:200                      2015:0                      2016:0**

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

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 7**

**1. Outcome Target**

(7) Number of youth indicating increased knowledge/skills related to economic education and/or entrepreneurship

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

**2012:350                      2013:375                      2014:400                      2015:0                      2016:0**

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

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 8**

**1. Outcome Target**

(8) Number of youth indicating knowledge and/or skills related to leadership

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

**2012:350                      2013:375                      2014:400                      2015:0                      2016:0**

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

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 9**

**1. Outcome Target**

(9) Number of youth reporting positive attitude change and/or aspiration related to volunteering and community service



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

**2012:350                      2013:375                      2014:400                      2015:0                      2016:0**

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

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

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

- 1862 Extension

**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
- Competing Programmatic Challenges

**Description**

Given the frequency of typhoons on Guam, natural disasters will definitely cause a shift in priority programming to that of immediate recovery.

There are external factors such as the economic environment and political dynamics could shift priorities play a major role in the communities as Guam depends on tourism and federal dollars.

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

**Description of Planned Evaluation Studies**

The Targeting Life Skill curriculum has a built in pre and post evaluation instrument that will be modified and used to measure participant knowledge and understanding of the planned activity. 4-H club members involved in curriculum based activities will be given a survey before and after participating in selected program activities. A direct observation will be compiled along with a program survey for all the families, 4-H and community participants. Two time series surveys will be conducted to measure how knowledge gain has been used to enhance quality of lives.

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

**Program # 4**

**1. Name of the Planned Program**

Childhood Obesity - Nutrition Education on Guam

**2. Brief summary about Planned Program**

This program focuses on nutrition and health educational activities designed to help families and children make informed, science-based decisions about their health and well-being. A variety of nutrition and health education lessons are offered to children, individuals, and families designed to meet their individual needs. The program focuses on skill areas for practical everyday choices with an emphasis on incorporating this knowledge into their everyday lives. Activities are also designed to increase knowledge and understanding in preventing chronic diseases. The program includes: MyPyramid Food Safety, Importance of Regular Activity & Exercise, Fruits and Vegetables, Shopping Tips, Budgeting, Meal Planning, Reading Food Labels, Chronic disease awareness & prevention, and obesity prevention.

**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>
701	Nutrient Composition of Food	15%			
702	Requirements and Function of Nutrients and Other Food Components	10%			
703	Nutrition Education and Behavior	20%			
704	Nutrition and Hunger in the Population	10%			
724	Healthy Lifestyle	25%			
802	Human Development and Family Well-Being	15%			
805	Community Institutions, Health, and Social Services	5%			
	<b>Total</b>	100%			

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

**1. Situation and priorities**

Childhood obesity continues to be a health concern on Guam. Data collected from students attending schools within Guam Department of Education indicated that 27.6% of children and 43.7% of adolescents on Guam are either "overweight" or "at risk for overweight". These prevalence rates are higher than the U.S. Mainland. In addition, current data from the Guam Department of Public Health and Social Services Vital Statistics office continues to show high numbers of chronic and preventable diseases such as diabetes, cardiovascular disease and cancer as primary causes of deaths. There is a great need for nutrition and health educational programs and services due to the high prevalence of obesity and chronic diseases. The program will offer a wide array of nutritional programs to our community audiences designed to promote healthy lifestyles in relation to exercise, food and nutrition as the main objective. Cooperative Extension on Guam will endeavor to provide the community with a variety of nutrition and health education programs directly to leading healthier lifestyles, better food choices, and increasing physical activity.

**2. Scope of the Program**

- In-State Extension

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

**1. Assumptions made for the Program**

An assumption is that obesity rates and associated medical complications and chronic on Guam is preventable. Through nutrition education the people of Guam would be informed of the many health benefits of proper dietary intake of foods and the importance of regular exercise. Obesity rates on Guam are best addressed through education programs targeting both adults and youths. Furthermore, Guam has the highest rates of smoking per capita. If obesity and smoking rates continue to increase, there will be an increase in the number of people on Guam who develop type 2 diabetes, cancer, and heart disease. There will be an increase in the number of diabetics on Island due to the lack of proper nutrition and exercise.

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

Associated goals include: To prevent childhood obesity, we will help the families, children and individuals learn to choose and prepare foods that protect their overall health. Provide education that leads to better dietary choices and a healthier lifestyle for all members of the community. Increased knowledge of nutrition and health. Improved ability to buy and prepare nutritious food. Improved ability to manage resources that relate to food. Improved food storage, safety and sanitation practices. Adoption of knowledge and skills integrated for healthy life. The program strives to create, in the minds of our participants, an awareness linking what we eat to our health in order to ultimately change their dietary behaviors.

**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
2012	2.7	0.0	0.0	0.0
2013	3.0	0.0	0.0	0.0

Year	Extension		Research	
	1862	1890	1862	1890
2014	3.0	0.0	0.0	0.0
2015	3.0	0.0	0.0	0.0
2016	3.0	0.0	0.0	0.0

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

**1. Activity for the Program**

(1) provide basic nutrition education classes on topics that relate to nutrition and food which include: 'MyPyramid'; Food Safety (Kitchen & Safe Food Handling); Importance of Exercise; Fruits & Vegetables (Vitamins); Shopping Tips; Budgeting; meal Planning; Reading Food labels; promoting use of herbs and spices to help reduce the intake of salts, fats and sugars; and chronic disease prevention. (2) Conduct nutrition workshops to target population. (3) Develop culturally relevant curriculum for promoting physical activity; education to prevent obesity; localized general nutrition education materials (brochures/pamphlets) and also develop a curriculum on food portion control and over-eating. (4) Develop recipe books that feature favorite local recipes. (5) Create a local recipe book that incorporates healthful modifications of local dishes. (6) Conduct food demonstrations on local dishes that incorporate healthful modifications. (7) Develop booklet and/or calendar that identifies locally grown fruits and vegetables with high nutritive value and suggest ways to healthful ways to prepare the local produce. (8) Create a model fiesta menu incorporating local dishes and providing samples of healthful recipes. (9) Conduct workshops promoting locally grown fruits and vegetables with healthful recipes for both farmers and experienced cooks (marketing healthful recipes with locally grown produce). (10) Maintain partnership with local food sources businesses to promote a greater variety of healthful foods and education awareness within food source facilities. (11) Develop and disseminate fact sheets of common causes of preventable chronic diseases that are prevalent on Guam and show how related to poor lifestyle choices. (12) Develop and disseminate health and nutrition education curriculum for chronic disease prevention along with educational materials.

**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>● Other 1 (Food Demonstrations)</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Newsletters</li> <li>● Web sites other than eXtension</li> <li>● Other 1 (Static Displays)</li> <li>● Other 2 (Disseminating education handouts)</li> </ul>

**3. Description of targeted audience**

The target audiences of the program include: (1) school-aged children (elementary through high school level); (2) families in public assistance programs; (3) families with young children; (4) general consumers; (5) military families; (6) health educators; (7) school teachers; (8) local farmers; (9) working professionals; (10) other groups requesting services.

## **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**

- # of workshops
  - # of brochures
  - # of dissemination of research results and new technology and information
  - # of one to one intervention
  - # of focus group
  - # of work with media
  - # of articles in newsletter, magazines, and newspapers
- 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	# of participants exposed to nutrition, exercise, and obesity prevention information
2	# of participants gaining an increase in nutrition knowledge and skills, especially for: MyPyramid, food labels, menu planning, smart shopping, healthy food preparation and food safety
3	# of participants gaining an increase in physical activity knowledge and skills, especially as it pertains to maintaining mental and physical well-being, prevention of chronic disease, and improving overall health
4	# of participants who have been exposed to health and nutrition education for chronic disease prevention

**Outcome # 1**

**1. Outcome Target**

# of participants exposed to nutrition, exercise, and obesity prevention information

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

**2012:1600                      2013:1800                      2014:2000                      2015:2000                      2016:2000**

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

- 701 - Nutrient Composition of Food
- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle
- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services

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

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

# of participants gaining an increase in nutrition knowledge and skills, especially for: MyPyramid, food labels, menu planning, smart shopping, healthy food preparation and food safety

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

**2012:75                      2013:100                      2014:100                      2015:100                      2016:100**

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

- 701 - Nutrient Composition of Food
- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle
- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services

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

- 1862 Extension

**Outcome # 3**

**1. Outcome Target**

# of participants gaining an increase in physical activity knowledge and skills, especially as it pertains to maintaining mental and physical well-being, prevention of chronic disease, and improving overall health

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

**2012:75                      2013:100                      2014:100                      2015:100                      2016:100**

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

- 701 - Nutrient Composition of Food
- 702 - Requirements and Function of Nutrients and Other Food Components
- 703 - Nutrition Education and Behavior
- 704 - Nutrition and Hunger in the Population
- 724 - Healthy Lifestyle
- 802 - Human Development and Family Well-Being
- 805 - Community Institutions, Health, and Social Services

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

- 1862 Extension

**Outcome # 4**

**1. Outcome Target**

# of participants who have been exposed to health and nutrition education for chronic disease prevention

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

**2012:30                      2013:40                      2014:50                      2015:60                      2016:70**

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

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle
- 805 - Community Institutions, Health, and Social Services



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

- 1862 Extension

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

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

- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other (Nutritionist hired at .30 FTE)

#### **Description**

To achieve the indicated types of output activities, most especially in regards to producing publication materials curriculum development relating to childhood obesity prevention, there is a great need to hire another extension professional specializing in nutrition and health. Currently, there is only one Nutrition faculty/specialist in Guam CES who contributes 0.35FTE. This was an improvement, however, we still need additional faculty support to better accomplish program outcomes. In the past years, the Direct Instruction (reading) Program (DI) in the Guam Public School System (GPSS) negatively impacted our ability to reach school-aged children. DI consumed most of the instruction day, and minimized the time set aside for instruction outside of the daily curricula; therefore severely limiting our ability to develop our programs to local school children. However, many schools within GPSS are decreasing or eliminating DI from the curriculum. As instruction hours for DI decrease, our ability to reach school-aged children within schools will continue to increase. Time constraints of working families also impact our ability to reach this target audience. Because of the high cost of living on Guam, as well as the recent economic downturn, most families are forced to work 2-3 jobs to make ends meet. Therefore, less time is available for nutrition education. In addition, strong ties of extended family and cultural obligations demand much of the spare time of local residents. The main challenge is making the community more aware of the importance of a healthy diet, physical activity and other lifestyle choices that can prevent obesity and other chronic diseases. Another factor that may affect our outcomes would be population changes (immigration, new cultural groupings, etc.). Guam is a U.S. Territory that has experienced an increase in immigration from other Micronesian islands and will soon experience a huge Military build-up. Language barriers of different cultures may also be a factor in the distribution and delivery of nutrition education.

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

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

Assessment tools will be used to evaluate the successes in achieving the program outcomes throughout the variety of nutrition activities. Behavioral change will be monitored after the contact and compared with the knowledge at entry. Studies of assessments would be done to provide data on behavioral change. Comparisons between participants and non participants will be monitored as well to indicate lifestyle changes in relation to good nutrition and exercise practices.



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

### **Program # 5**

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

Global Food Security and Hunger - The New Farmer: Agriculture for the Next Generation

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

In these times of limited budgets both federal and local, cooperative partnerships can leverage the efficiency of local agencies supporting the agricultural industry and increase the chance for meeting each agency's mission. Partnership has developed between the Guam Cooperative Extension (GCE) the Guam Department of Agriculture (DoAG), the Chamorro Land Trust Commission (CLTC), the Guam Farmers' Cooperative Association, and the Guam Soil and Water Conservation Districts to address common concerns with the agricultural industry and increase the effectiveness of outreach efforts. This effort seeks to promote the economic development and sustainability of the agriculture industry on Guam in three ways. First, encourage and support the many new commercial and subsistence farmers under the Chamorro Land Trust agriculture land lease program by developing a New Farmer curriculum. Second, encourage a new generation of farmers by adapting this curriculum into a youth agricultural entrepreneur program in collaboration with Sanctuary, Inc. and village mayors' offices. Third to improve outreach and educational efforts of the partner agencies by sharing support of field outreach staff and field demonstrations.

This POW will pioneer an innovative approach to outreach through the training of local agencies' outreach staff, and sharing of land, equipment and supply resources. Under this POW grant funds have already been secured for two field agents for demonstration and outreach efforts to be shared by the collaborating agencies and time from local agencies will be devoted to the POW. Recognizing that long-term demonstrations are difficult for a single organization to support, this POW addresses this issue through a collaborative effort to pilot multi-agency supported small model farms which reflect local production environments. This effort will utilize these farms to develop and demonstrate best management conservation and production practices within the context of existing plans for each farm. Under this POW the partner agencies and POW clients will identify common areas of concern and continue to seek outside grant funding and local support to jointly address these issues. Regular assessment of the agriculture industry to identify new or unresolved issues will also be apart of this POW.

An initial identified need is for outreach programs on traditional and innovative conservation practices. This need is heightened by the dramatic increase in number of new farms on Guam through the Chamorro Land Trust Commission's agricultural lease program. Many of these farmers have limited farm experience. The educational needs could be overwhelming for any single agency's staff, but in a coordinated partnership several agencies may effectively address these needs. Curriculum devoted to concerns of new farmers will be developed. This curriculum will include conservation planning, government programs available to local farmers, best management practices in several priority areas like livestock waste management systems, windbreaks using economic species, contour hedgerows and filter strips, and construction of water catchments as well as other supporting practices. The primary target audience is the 1000+ agriculture land lease recipients of the Chamorro Land Trust Commission and youth participants from Sanctuary Inc., the mayors' offices and local 4-H programs.

In October 2008 a regional conference hosting participants from across the Pacific Islands was held on Guam, to review the efforts of the past decade addressing issues of sustainability of island agriculture and to identify the needs of the coming decade. One finding of this conference was the amazing similarity of the issues among the islands. There was a strong consensus that the islands need more collaborative project to address these needs. An effort of this POW will be to utilize the PEACESAT communication network to hold distance education workshops that address these issues and to facilitate regional needs assessment, strategy development and collaborative projects to address these issues.

**3. Program existence :** Mature (More than 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%			
104	Protect Soil from Harmful Effects of Natural Elements	10%			
125	Agroforestry	10%			
205	Plant Management Systems	10%			
307	Animal Management Systems	10%			
403	Waste Disposal, Recycling, and Reuse	10%			
601	Economics of Agricultural Production and Farm Management	20%			
608	Community Resource Planning and Development	10%			
806	Youth Development	10%			
	<b>Total</b>	100%			

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

**1. Situation and priorities**

Guam Cooperative Extension (GCE) and other agricultural support agencies (Guam Department of Agriculture, Chamorro Land Trust Commission, the Guam Farmers' Cooperative Association, and the Guam Soil and Water Conservation Districts on Guam identified several issues common to the industry. The first is that agriculture support agencies on Guam are small and lack the breadth of expertise that would be found in analogous agencies on the mainland. Island-wide the expertise pool is probably adequate to meet the island's needs but is fragmented among several agencies. Consequently, farmers have difficulty accessing the information they need, or finding the expertise to explain key concepts to them when they seek advice.

The need for outreach programs on traditional and innovative conservation and production practices is highlighted by the number of new farms on Guam through the Chamorro Land Trust agricultural lease program with limited farming experience. These educational needs will be addressed through a coordinated partnership of several agencies.

The partners in this project, have identified three issues/needs where outreach efforts are needed. These topics are:

Need to promote conservation practices for conditions unique to tropical islands.

Farmers' groups need education and technical support in developing plans to address issues impacting the agricultural industry.

The need and activities of the 1000 plus agriculture leaseholders on the Chamorro Land Trust Land are unknown and these are underserved potential clients that need to be made aware of the outreach efforts Cooperative Extension and its partners.

Recent regional needs assessment on the sustainability of agriculture identified other areas needing collaborative programs these include:

Education programs for farmers and agricultural professionals on agricultural marketing especially focusing on building farmer chef linkages given our islands large tourism industry.

More work variety trials and education on alternative crops like herbs and fruits.

Alternative methods of handling animal waste.

Development of locally produced feeds or feed supplements to reduce feed cost and at least partially substitute for high cost imported feeds.

A farmer desire for education and certification programs in Organic agriculture.

Research and Extension Education in value added agriculture products.

Through a collaborative grant funding will be secured to work on these issues and other emerging issues.

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

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

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

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

Outreach efforts of agencies supporting development of the agricultural industry will be strengthened through common goal setting, sharing of resources and collaboration in outreach efforts.

Farmers learn best through observation of successful demonstrations and through peer-to-peer sharing of information.

Many of the CLTC agricultural leases are not being developed due to lack of knowledge, both technical and of how to obtain the necessary resources. The assumption is that education programs and demonstrations can make an impact on this underutilization of land resources.

That this POW will evolve and expand each year as new needs are identified and partnerships form to pursue and mobilize resources to address these needs.

Issues concerning the sustainability of agriculture and its impact on the environment are shared across the Pacific islands. Curriculum developed for one island is often appropriate for other islands. There is a need for sharing of these curriculum materials. There is also a need to plan more collaborative programs that address these issues.

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

Economic development of the island through expansion of the island's agriculture industry and building the capacity of local agricultural organizational entities by:

1. Increasing the number and profitability of new commercial and subsistence farms.
2. Increase the effectiveness of all participant agencies' outreach efforts.
3. To bring POW clients and partner agencies together to identify priorities and obtain resources to address these priorities.
4. To increase the number and profitability of enterprises in natural resource based industries through participatory research and demonstrations.
5. To promote environmentally friendly sustainable practices and government programs and incentives that supports these practices through educational programs
6. Provide educational programs that address the need of new agricultural land lease holders who are not utilizing their land for productive purposes.
7. Include Extension and other professionals from the American affiliated Pacific islands in these programs through distance education workshops.

**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
2012	1.0	0.0	0.0	0.0
2013	1.0	0.0	0.0	0.0
2014	1.0	0.0	0.0	0.0
2015	2.0	0.0	0.0	0.0
2016	2.0	0.0	0.0	0.0

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

**1. Activity for the Program**

- Farmers with agricultural land leases that are not utilizing the land for agricultural or underutilizing the land will be targeted for recruitment into the education and demonstration activities and survey on barriers to their agriculture implementation.
- In order to increase the skills of the islands agricultural professionals train the trainer workshops will be held on the New Farmer curriculum prior to holding workshops at the demonstration farms or New Farmer Trainings for the general public. The joint agency generation of outreach publications on the demonstrated conservation or production practices.
- Each year several planning meeting between the cooperating agencies will be held to identify priorities in order to jointly apply for grant funding to address these priorities. Funded grants are a planned output of this POW, demonstrating capacity building through training, collaborative planning and presentation of needs.
- Best management conservation and sustainable agricultural practices will be demonstrated on

multi-agency demonstration farms, new enterprises and production methods will also be demonstrated.

• A farmer Mini grant program will be implemented to demonstrate innovative agricultural practices, several grants will be awarded each year. At least one workshop each year will be held on government incentive programs and funding opportunities for farmers. •Outputs of this outreach collaboration each year will include; conducting two workshops at each shared demonstration farm and one workshop at participating farmers' fields. Additionally quarterly workshops will be held for the general public comprising the New Farmer curriculum. •In cooperation with the PEACESAT communication and the Land Grant Extension Offices in the Pacific islands, conduct quarterly train-the-trainer workshops on the curriculum developed under this program.

**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>• Workshop</li> <li>• One-on-One Intervention</li> <li>• Demonstrations</li> <li>• Other 1 (field days &amp; farm tours)</li> <li>• Other 2 (Distance Education Workshops)</li> </ul>	<ul style="list-style-type: none"> <li>• Public Service Announcement</li> <li>• TV Media Programs</li> <li>• Web sites other than eXtension</li> <li>• Other 1 (extension fact sheets &amp; articles)</li> <li>• Other 2 (newspaper articles &amp; radio spots)</li> </ul>

**3. Description of targeted audience**

The primary target audience is the one thousand plus agricultural lease holders of the Chamorro Land Trust Commission (CLTC) agricultural lands programs and the more than 100 existing full and part time commercial and subsistence agricultural producers on Guam. In addition, a secondary target population is the island youth interested in entrepreneurial agricultural activities. Additionally clients of mayors' offices interested in small scale and community agricultural activities are also targeted.

The secondary target audience is the agricultural professional community on Guam. This program is a collaborative effort to build the capacity and enhance the performance of the agricultural professionals in Guam Cooperative Extension, and partner agencies so these agricultural professionals can better identify issues and mobilize resources to assist the agriculture community on Guam.

A third potential audience are the agricultural professionals in the partner land grant programs, and their partners, throughout the American Affiliated Pacific.

A third target audience is Extension, education and island Department of agriculture professionals as participant trainers in a train the trainer distance education workshop series on the curriculum materials. These participants will also serve as key contacts in future needs assessments so that the islands needs may be incorporated in our curriculum development efforts.

## **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 popular articles in newsletters, magazines and newspapers
- number of workshops
- number of extension fact sheets/brochures/pamphlets
- number of one to one intervention
- workshop curriculum developed and piloted with agricultural professionals
- number of multi-agency agriculture best management practiced demonstrations conducted
- Number of Distance Education Workshops conducted on curriculum materials.
- # of new Chamorro Land Trust Leasholders participating in workshop and field day activities
- # memorandums and understanding and cooperative agreements with partner agencies and organizations

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	# of Chamorro Land Trust Commission lease holders increasing knowledge of sustainable agriculture production technologies, marketing practices and available government services
2	# of agricultural professionals gaining knowledge of sustainable agriculture production technologies, marketing practices, available government programs, and grant opportunities
3	Number of organizations that leveraged/or increased their outreach efforts by participating in the New Farmer Programs.
4	# of farmers adopting recommended demonstration practices
5	# of participants increasing knowledge of sustainable agriculture production technologies, marketing practices and available government services
6	# cooperating agency and organization personnel adopting and utilizing curriculum materials developed under this POW (both Guam and Distance Education).

**Outcome # 1**

**1. Outcome Target**

# of Chamorro Land Trust Commission lease holders increasing knowledge of sustainable agriculture production technologies, marketing practices and available government services

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

**2012:20                      2013:20                      2014:20                      2015:0                      2016:0**

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

- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 125 - Agroforestry
- 205 - Plant Management Systems
- 307 - Animal Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 601 - Economics of Agricultural Production and Farm Management

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

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

# of agricultural professionals gaining knowledge of sustainable agriculture production technologies, marketing practices, available government programs, and grant opportunities

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

**2012:6                      2013:6                      2014:6                      2015:0                      2016:0**

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

- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 125 - Agroforestry
- 205 - Plant Management Systems
- 307 - Animal Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 601 - Economics of Agricultural Production and Farm Management
- 608 - Community Resource Planning and Development
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 3**

**1. Outcome Target**

Number of organizations that leveraged/or increased their outreach efforts by participating in the New Farmer Programs.

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

<b>2012:3</b>	<b>2013:3</b>	<b>2014:3</b>	<b>2015:0</b>	<b>2016:0</b>
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**3. Associated Knowledge Area(s)**

- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 125 - Agroforestry
- 205 - Plant Management Systems
- 307 - Animal Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 601 - Economics of Agricultural Production and Farm Management
- 608 - Community Resource Planning and Development
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 4**

**1. Outcome Target**

# of farmers adopting recommended demonstration practices

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

<b>2012:8</b>	<b>2013:8</b>	<b>2014:8</b>	<b>2015:0</b>	<b>2016:0</b>
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**3. Associated Knowledge Area(s)**

- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 125 - Agroforestry

- 205 - Plant Management Systems
- 307 - Animal Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 601 - Economics of Agricultural Production and Farm Management

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

- 1862 Extension

**Outcome # 5**

**1. Outcome Target**

# of participants increasing knowledge of sustainable agriculture production technologies, marketing practices and available government services

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

<b>2012:60</b>	<b>2013:60</b>	<b>2014:60</b>	<b>2015:0</b>	<b>2016:0</b>
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**3. Associated Knowledge Area(s)**

- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 125 - Agroforestry
- 205 - Plant Management Systems
- 307 - Animal Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 601 - Economics of Agricultural Production and Farm Management
- 608 - Community Resource Planning and Development
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 6**

**1. Outcome Target**

# cooperating agency and organization personnel adopting and utilizing curriculum materials developed under this POW (both Guam and Distance Education).

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

**2012:4                      2013:4                      2014:4                      2015:0                      2016:0**

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

- 102 - Soil, Plant, Water, Nutrient Relationships
- 104 - Protect Soil from Harmful Effects of Natural Elements
- 125 - Agroforestry
- 205 - Plant Management Systems
- 307 - Animal Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 601 - Economics of Agricultural Production and Farm Management
- 608 - Community Resource Planning and Development
- 806 - Youth Development

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

- 1862 Extension

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

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

- Natural Disasters (drought, weather extremes, etc.)
- Appropriations changes
- Public Policy changes
- Other (change in gov't. admin.)

**Description**

In any collaboration with local government agencies there is the potential for a complete change over of the upper level of administrative partners every four years. In selecting priorities and conducting needs assessments we work with both the classified staff as well as the administration to provide continuity and sustainability to the POW's programs. Additionally, attempts are made to enter into long term MOUs that may span administrations.

In many of our field level projects the is frequent (every 5-7 year) occurrence of super typhoons impacting long term demonstrations and projects. The possibility of these typhoons must be accounted for in planning of activities of the demonstrations.

Funding priorities change part of this POW's objective is to monitor these changes and develop collaborative multi agency strategies to adapt and take best advantage of these changes.

Others:

- 1) Potential change in Government administration every 4 years through gubernatorial elections.
- 2) Super typhoons
- 3) Changes in federal funding levels and priorities, and successful grant applications.

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

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

Structured interviews of agricultural professionals in local agencies and follow up interviews to see if there is a perceived increase in number of participants and in the quality of their participation (application submission and follow through) after targeted educational programs on these government initiatives.

Post evaluations of perceptions of each educational activity.

Follow up farm visits and phone calls to participants to determine level of adoption of demonstrated or recommended practice.

Focus groups will be used to determine farmer perceptions of the outreach efforts of the program activities.

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

**Program # 6**

**1. Name of the Planned Program**

Plant Health and Pest Management

**2. Brief summary about Planned Program**

The Plant Health and Pest Management Program is an outreach education program that informs clientele of issues that deal with plants and pests. The information and its delivery are designed to reduce the environmental and economic impact of plant cultivation, plant importation, and pest control activities. This is accomplished through education and research projects conducted by Guam Cooperative Extension and other federal and local agencies such as the Pesticide Applicator Training Program (PAT), Guam Integrated Pest Management (IPM), National Plant Diagnostic Network (NPDN), Guam Invasive Species Advisory Committee (GISAC), and Pacific Islands Distance Diagnostics and Recommendation System (PIDDRS).

**3. Program existence :** Mature (More than 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 :** No

**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	5%			
205	Plant Management Systems	10%			
211	Insects, Mites, and Other Arthropods Affecting Plants	10%			
212	Pathogens and Nematodes Affecting Plants	15%			
213	Weeds Affecting Plants	5%			
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	5%			
215	Biological Control of Pests Affecting Plants	10%			
216	Integrated Pest Management Systems	40%			
	<b>Total</b>	100%			

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

**1. Situation and priorities**

The University of Guam Extension Service is charged with providing the best possible advice for dealing with current and new emerging pests and diseases. In a 2002 farmer survey report, from the Eggplant, Pepper, and Tomato Production Guide for Guam, 48% of the farmers reported pests as their number one farm problem followed by plant diseases at 22%. There are several steps that can be taken to reduce the impact of pests, weeds, and diseases. The first is identification. There have been no comprehensive insect surveys in Micronesia for many years nor a record of plant diseases on Guam. As a result, pest records do not accurately reflect the fauna, nor describe the animal/plant-arthropod relationship existing within Micronesia. The Cooperative Extension Service must remain vigilant in its pest and disease identification efforts to detect new introductions to the island. Since all of Guam's new pests are the result of accidental introductions of invasive species, Guam will continue to get new pests as long as people travel to Guam and plants are imported. With the rise in terrorist activities worldwide, the intentional introductions of pests and diseases must also be considered. The Cooperative Extension Service must cooperate with other agencies with similar goals. The Guam Invasive Species Advisory Committee (GISAC) was formed to provide technical expertise in management of organisms that are already here and prevention of further introductions. The Committee has established a website at <http://gisac.guam.net> as a repository for information on Guam's invasive species. The University of Guam is also part of the Western Plant Diagnostic Network (WPDN) (<http://www.wpdn.org/>) which is a part of a larger network: National Plant Diagnostic Network (NPDN). The NPDN enhances United States' agricultural security through a functional nationwide network of public agricultural institutions with a cohesive, distributed system to quickly detect deliberately introduced, high consequence, biological pests and pathogens into our agricultural and natural ecosystems by providing means for quick identifications and establishing protocols for immediate reporting to appropriate responders and decision makers. Since Guam is limited in its animal and plant diversity, invasive species quickly establish themselves due to the lack of natural predators. One of the best ways to reduce the impact of such pests is through biocontrol, which is a method of pest control that uses natural predators to reduce pests as contrasted by chemicals. Biocontrol agents are routinely introduced to Guam by researchers in the Agriculture Experiment Station, with follow up efforts and distribution of the agents to farmers and homeowners, the Cooperative Extension Service can improve the effectiveness of this pest control method and its acceptance. The key components that make up any IPM program include pest identification, efficacy of control practices (chemical, biological, and cultural) and environmental impact. Of the key components, the first and foremost is plant diagnostics. Only with good diagnostic protocols can the cause of a plant problem be determined and only then can effective and safe control methods be advised. Licensing of pesticide applicator, through the Pesticide Applicator Training program, insures that applicators know how to handle pesticides safely. Proper handling of pesticides is of paramount importance for the safety of agricultural workers, farmers, the island's water supply, and the environment. Whenever people cultivate plants they disturb the environment: soil, plant and animal species. Through proper management practices many pests, weeds, and plant disease problems can be eliminated or reduced. If proper management practices are not followed soil will be washed away, plant pathogens will multiply, and insects will become resistant to insecticides. The Cooperative Extension Service through education awareness programs needs to get the farmers and homeowners to adopt low environmental impact plant cultivation practices.

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

- Integrated Research and Extension

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

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

There are four main causes for an unhealthy plant: plant pathogens, animal pests, weeds, and unfavorable factors. The cornerstone to solving plant problems is proper identification of the causal agent. Once a causal agent is properly identified, there is a greater chance that it can be eliminated before it gets out of



control and causes substantial damage. The use of IPM (Integrated Pest Management) principles offers an economical way to control pathogens, pests, and weeds using minimal amounts of chemicals. Biocontrol offers the ideal means of controlling these organisms but often take years to develop and become established. For the average citizen of Guam, the greatest exposure to toxic chemicals comes from pesticides used in the home and in the garden. Through education and public awareness the risk of pesticide exposure can be reduced.

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

• Identification of all pests, weeds, and plant diseases on Guam  
 • Establishment on Guam of all known suitable biocontrol agents  
 • Full adoption of IPM practices by farmers and homeowners  
 • Full adoption of low environmental impact cultivation plant practices by farmers and homeowners

**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
2012	2.5	0.0	0.0	0.0
2013	2.5	0.0	0.0	0.0
2014	3.0	0.0	0.0	0.0
2015	3.0	0.0	0.0	0.0
2016	3.0	0.0	0.0	0.0

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

**1. Activity for the Program**

The establishment of a comprehensive insect pest survey list for Micronesia, with continuous updating. Provide one-on-one consulting on IPM to individuals who have problems with crops, weed and/or pests. The establishment of a plant diagnostic clinic that will take a lead role in diagnosing plant problems and will provide outreach by providing space, equipment, and expertise for publications, courses and workshops. Through the Pesticide Applicator Training program instruct applicators on the safe handling of pesticides and administer certificates.

**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>• One-on-One Intervention</li> <li>• Demonstrations</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> </ul>

### 3. Description of targeted audience

The target audience for this program includes local farmers, homeowners, nurseries, landscapers and golf course superintendents and their crews, teachers, school children, and government agencies.

### 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

- # of research papers
- # of research citations
- # of extension fact sheets or articles
- # of workshops/trainings/classes
- # of brochures
- # of research or new technology reports
- # of one-on-one interventions
- # of surveys
- # of focus groups
- # of news media activities (TV and radio)

- 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	% of participants gaining skills in identification of insects and related pests
2	% of participants gaining skills in identification of plant diseases
3	% of participants gaining skills in identification of weeds
4	% of participants gaining knowledge about pesticides and their application
5	% of participants reducing indiscriminate use of chemical pesticides
6	% of participants adopting some established IPM practices

**Outcome # 1**

**1. Outcome Target**

% of participants gaining skills in identification of insects and related pests

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

**2012:85                      2013:85                      2014:85                      2015:0                      2016:0**

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

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 214 - Vertebrates, Mollusks, and Other Pests Affecting Plants
- 216 - Integrated Pest Management Systems

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

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

% of participants gaining skills in identification of plant diseases

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

**2012:85                      2013:85                      2014:85                      2015:0                      2016:0**

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

- 205 - Plant Management Systems
- 212 - Pathogens and Nematodes Affecting Plants
- 216 - Integrated Pest Management Systems

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

- 1862 Extension

**Outcome # 3**

**1. Outcome Target**

% of participants gaining skills in identification of weeds

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

**2012:85                      2013:85                      2014:85                      2015:0                      2016:0**

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

- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems
- 213 - Weeds Affecting Plants
- 216 - Integrated Pest Management Systems

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

- 1862 Extension

**Outcome # 4**

**1. Outcome Target**

% of participants gaining knowledge about pesticides and their application

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

**2012:85                      2013:85                      2014:85                      2015:0                      2016:0**

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

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 214 - Vertebrates, Mollusks, and Other Pests Affecting Plants
- 216 - Integrated Pest Management Systems

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

- 1862 Extension

**Outcome # 5**

**1. Outcome Target**

% of participants reducing indiscriminate use of chemical pesticides

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

**2012:60                      2013:65                      2014:65                      2015:0                      2016:0**

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

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 214 - Vertebrates, Mollusks, and Other Pests Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

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

- 1862 Extension

**Outcome # 6**

**1. Outcome Target**

% of participants adopting some established IPM practices

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

**2012:60                      2013:65                      2014:65                      2015:0                      2016:0**

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

- 102 - Soil, Plant, Water, Nutrient Relationships
- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 213 - Weeds Affecting Plants
- 214 - Vertebrates, Mollusks, and Other Pests Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 216 - Integrated Pest Management Systems

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

- 1862 Extension

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

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

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

#### **Description**

Guam's horticulture and agricultural activities are constantly being reshaped by the availability of imports, frequency of damaging typhoons, number of tourists and proliferation of exotic pests and diseases. Guam's agricultural land is being replaced with housing, golf courses, hotels, parks, and landscaping. With each shift in land use new pests, diseases and weed problems arise. Typhoons have a major impact on the outcome of our program because of its impact on plants, pests, insect and insect-like pests, diseases, weeds, biological control agents, and cultural practices. Immediately after a typhoon, client concerns shift from garden and farm production to home and farm clean up and restoration. After a typhoon, several months often pass before home gardens and farms are back into productions. Extension services such as the operation of a diagnostic center depends heavily on personnel and support staff for daily operations. When cutbacks occur, adjustments must be made in program delivery to keep the center's doors open.

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

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

To evaluate the effectiveness of a planned activity a knowledge based comparison will be made between participants (before and after the presentation) and between participants and non-participants. Comparison will be done using survey questions of knowledge that will be covered during the presentation. The survey will be the same for participants and non-participants and for participant before and after the session. Questions types will be true and false and multiple choice. At the end of the presentation, participants will also be given a series of evaluative questions. Participants will be asked to respond on a sliding scale from strongly disagree to strongly agree.



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

### **Program # 7**

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

Global Food Security and Hunger - Sustainability of Small Scale Swine and Poultry Farms on Guam

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

Small-scale farms are the backbone of the animal industry on Guam. Swine farms on Guam typically have one to 20 sows and poultry farms have 25 to one hundred layers. The planned program will utilize an integrated approach to small-scale swine and layer production linked with fruit and crop production. A two - sow unit and 100 layers will be maintained at the Guam Department of Agriculture Breeding Facility for demonstration purposes. Best practices in swine and poultry production will be show cased with emphasis on lowering costs and increasing environmentally sustainable practices. For example, local feeds (grated coconut, tanga-tanga, bananas, breadfruit) will be highly incorporated as the cost of imported livestock feeds continue to increase due to high shipping cost. Dry litter manure disposal will be designed and integrated with crop production in such a way that nutrients will be utilized. Feeders, waterers, nest boxes, and brooders will be made out of local materials.

With the emerging threats of animal diseases around the world, regional and national trade of animals may be suspended. Guam then, should establish and develop its own source of replacement broodstocks. Genetic improvement will be maintained through low-input breeder - hatchery for poultry and bringing frozen semen for swine. This demonstration farm will become an educational tool for farmers to learn and create innovative ideas to apply to their farms. The Guam Department of Agriculture and Guam Cooperative Extension will partner to implement the demonstrations and associated

education programs. Department of Agriculture will provide the service and infrastructure support and GCE will provide the educational and practice development roles. Farmers that are willing to adopt new practices will be encouraged to apply for competitive grants through various SARE grants such as Farmer Rancher Grant, Ag Producer + Ag Producer Grant and many more. Through these grants, if approved for funding, producers will have the opportunity to improve their farm productivity and sustainability.

The facility will also be open for visitation from school children, 4-H clubs, GCC and UOG students. This site will serve as a laboratory classroom for students to learn aspects of swine and poultry production. Life skills program for 4-H related with animals will be conducted at the site. The animals will be displayed at school fairs, environmental campaign drives and village celebration.

Economic and production costs of these small scale operations will be evaluated to pinpoint areas where producers will have to make adjustments in their operational expenses. This "educational facility" approach will be a learning and training center for producers, agriculture extension agents and staff and students in all levels. It will be an opportunity for Extension agents and the agricultural professional community to really showcase what we "preach" by actually collaboratively "running" a "mini" swine and layer unit.

Aspects of food safety, and education of nutrient values of poultry meat and meat by-products will also be emphasized among producers, school children and customers.

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

**4. Program duration :** Medium Term (One to five years)

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

**6. Expending other than formula funds or state-matching funds :** No

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

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
302	Nutrient Utilization in Animals	15%			
307	Animal Management Systems	35%			
601	Economics of Agricultural Production and Farm Management	10%			
703	Nutrition Education and Behavior	15%			
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	10%			
806	Youth Development	15%			
	<b>Total</b>	100%			

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

1. Situation and priorities

The survival of small-scale animal farms on Guam is threatened by several factors. These factors include: (1) the geographical distance of Guam from the US mainland and Hawaii and strict USDA quarantine regulations being imposed on Guam makes the regular replacement of broodstocks very costly and difficult for animal producers. (2) natural disasters such as super typhoons. (3) high costs of feeds. (4) heavy importation of animal products. (5) decreasing numbers of animal producers as current generation retires.

Global threats of outbreaks of animal diseases may cause Guam to close its importation of live animals for replacement broodstocks or meat and meat by-products. If this happens, there will be a severe shortage of protein source if local broodstocks are not available.

In the focus group sessions, it was clearly pointed out that the community wants fresh eggs and fresh poultry meat and pork. The focus group members mentioned that agriculture must be taught at elementary schools so these young people know where all these agriculture produce come from. The advisory board also agreed on the need for this planned program. In fact, the members of the advisory board suggested that

this program be expanded to accommodate subsistence producers who may want to go on commercial scale.

The education and training of livestock producers on key sustainable management practices has not had a long lasting impact over the past years because there were no educational programs and tools linked to demonstration which actually show them the aspects of production in a local and regional situation.

This educational facility will serve as a means of producing local replacements for swine and poultry broodstocks (DoAg's service role) and at the same time a learning center for the community to improve husbandry skills and better decision-making abilities on farm management (Extension's education role). The traditional way of CES in educating and disseminating information is mostly individual contacts / workshops and publications. Mostly stateside reading materials were given out for farmers. The

information is difficult for the farmers to relate to because of the wide difference of operations between stateside and Guam farms, there is a need for local demonstrations of best management practices.

**2. Scope of the Program**

- Integrated Research and Extension

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

**1. Assumptions made for the Program**

Small-scale farms operate in a "hit and miss" system. Due to the size of their farms, they tend to be "less managed" compared to commercial farms. They don't have a long-range plans for their farms; in terms of planning their production forecast, feeding programs and how to handle waste management (a major environmental risk). Yet, they also invest a lot of time, efforts and resources to their farms.

The demonstration facility of this planned program will show the impact on small-scale farms of planning and best management practices. The two-sow unit in the facility will show to producers how sows can reach their maximum productivity by meeting basic needs are met (a well-designed farrowing area, effective waste management minimum nursing period and proper nutrition). The 100 layers unit will show that layers can be productive under low input systems. The housing facility can be an old container van, or a "range management" or portable pens "chicken tractors" for the layers and supplement feeding with non-conventional feeds to reduce feed costs.

The Cooperative Extension Service and the Guam Dept. of Agriculture anticipate success in running a small - scale farm unit through a collaborative partnership pulling local resources demonstration. This partnership and collaboration of both agencies will enable this program to run during the 5 year period. One program directly resulting from this partnership is the animal and plant integration portion of the Conservation Innovation Grant that will be housed at this facility.

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

Economic development of the livestock industry by:

1. Running demonstration and education programs to enhance the economic viability of new and existing farm operation. Small-scale farms will continue to contribute to the local economy of Guam by operating sensibly through sustainable practices. Small-scale farms will be the main source of fresh eggs, fresh chicken and fresh pork. Food security will be established in case of closure of imports due to outbreaks of zoonotic diseases in the region or worldwide. Small -scale farms will always be a part of the culture and tradition of the people.

**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
2012	1.2	0.0	0.0	0.0
2013	1.2	0.0	0.0	0.0
2014	1.5	0.0	0.0	0.0

Year	Extension		Research	
	1862	1890	1862	1890
2015	1.5	0.0	0.0	0.0
2016	1.5	0.0	0.0	0.0

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

**1. Activity for the Program**

1. A partnership with the Department of Agriculture (service support) and the Guam Cooperative Extension Service (education and outreach) to operate a small-scale livestock and poultry demonstration facility.
2. Conduct workshops and training to local and regional producers at the facility
3. Deliver services and products (Department of Agriculture) and educational and technical support (Guam Cooperative Extension Service) to local and regional producers
4. Conduct applied research and field experiments at the facility and on farmers farms to conduct participatory and demonstrations
5. Conduct field tours to educate students, 4-H club members and Military Kids through tours of the facility

**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>● One-on-One Intervention</li> <li>● Demonstrations</li> <li>● Other 1 (Field trips)</li> <li>● Other 2 (Field demonstrations)</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Billboards</li> <li>● Newsletters</li> <li>● Web sites other than eXtension</li> </ul>

**3. Description of targeted audience**

Primary local clients will include former, existing and potential new animal producers (swine and layer) both small-scale and subsistence level. On Guam over the past decade, 1,000+ new agriculture land leases have been signed by the Chamorro Land Trust. Many of the producers possess limited resources and are in desperate need of education and technical support programs.

Second target groups are the island's youth particularly youth at risk and military kids. Life skills program by 4-H that relates to animals care and management will also be conducted at the demonstration site and the animals will be displayed at various schools during schools' celebration of Chamorro Week and fairs. The 4-H military Kids program will also utilize the demonstration farm for hands-on learning on animal care, and integration with gardening..

A third target group is the local and regional agricultural professionals. Regional workshops related to animal production will be conducted at the demonstration farm. Extension agents and local and regional

professionals from the different Land Grant Institutions from Micronesia and Northern Marianas will participate in activities at the site. Guam will continue to be the source of swine breeders and replacement chicks for Marianas and Micronesia.

A fourth audience is University agricultural students. The demonstration farm will be utilized as laboratory classroom for students enrolled in agriculture courses (Introduction to Agriculture and Introduction to Animal Science) at the University of Guam.

### **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**

- # of workshops
- # of extension publications
- # of field trips
- # of applied research conducted in demonstration site
- # of visitors
- # of one to one contacts
- # of request for animal displays
- # of 4-H / Military Kids programs conducted at site

- 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	# of producers increasing in knowledge and husbandry skills on an integrated to approach to animal and plant farm operations (short term)
2	# of producers adopting demonstrated practices
3	# of producers practicing regular replacements of broodstocks (medium term)
4	# of producers decreasing in feeding imported commercial feeds (medium term)
5	% increase in sustainable small-scale farms (long term)

**Outcome # 1**

**1. Outcome Target**

# of producers increasing in knowledge and husbandry skills on an integrated to approach to animal and plant farm operations (short term)

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

**2012:35                      2013:25                      2014:20                      2015:20                      2016:0**

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

- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 703 - Nutrition Education and Behavior
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 806 - Youth Development

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

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

# of producers adopting demonstrated practices

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

**2012:4                      2013:5                      2014:5                      2015:4                      2016:0**

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

- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 703 - Nutrition Education and Behavior

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

- 1862 Extension



**Outcome # 3**

**1. Outcome Target**

# of producers practicing regular replacements of broodstocks (medium term)

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

<b>2012:20</b>	<b>2013:20</b>	<b>2014:20</b>	<b>2015:20</b>	<b>2016:0</b>
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**3. Associated Knowledge Area(s)**

- 307 - Animal Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 703 - Nutrition Education and Behavior

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

- 1862 Extension

**Outcome # 4**

**1. Outcome Target**

# of producers decreasing in feeding imported commercial feeds (medium term)

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

<b>2012:20</b>	<b>2013:20</b>	<b>2014:20</b>	<b>2015:20</b>	<b>2016:0</b>
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**3. Associated Knowledge Area(s)**

- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 601 - Economics of Agricultural Production and Farm Management

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

- 1862 Extension

**Outcome # 5**

**1. Outcome Target**

% increase in sustainable small-scale farms (long term)

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

**2012:8                      2013:8                      2014:8                      2015:8                      2016:0**

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

- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 703 - Nutrition Education and Behavior
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 806 - Youth Development

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

- 1862 Extension

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

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

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Government Regulations
- Other (Change in government leaders)

**Description**

1. In any collaboration with local government agencies there is the potential for a complete change over or the upper level of administrative partners every four years. In selecting priorities and conducting needs assessments we work with both the classified staff as well as the administration to provide continuity and sustainability to the POW's programs. Additionally, attempts are made to enter into long term MOU's that may span administrations

2. Local funds for program activities are subject to fluctuations in the local economy. Funding priorities change part of this POW's objective is to monitor these changes and develop collaborative multi-agency strategies to adapt and take best advantage of these changes.

3. In many of our field level projects there frequent (every 5-7 years) occurrence of super typhoons impacts long term demonstrations and projects. The possibility of these typhoons must be accounted for in planning of activities of the demonstrations

4. Guam-EPA office stringent requirements on pig waste management have pig producers reduced their hog population or totally closed down.

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

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

1. Post evaluations of perceptions of each educational activity.
2. Follow up on farm visits and phone calls to participants to determine level of adoption of demonstrated or recommended practice.
3. During program, farms will be visited to determine level of adoption of recommended practices and to compare participation farms with non-participating farms

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

### **Program # 8**

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

Global Food Security and Hunger - Home and Urban Landscapes

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

On remote islands food security is always an immediate concern. Guam's food security plan of work focuses on developing food and agriculture systems that strive to rely on local resources rather than imports for Guam and our island neighbors. These agricultural systems integrate, plant production emphasizing market vegetable and agroforestry best management practices with sustainable animal production utilizing local feed sources and waste management systems that build our island soils and promote increased water quality.

This plan of work addresses the island's food security by increasing the number and success of both subsistence and market farmers through a multi-agency collaborations. A goal of these collaborations is to identify under-served farmers, conduct need assessments and leverage these agencies educational and service efforts' for their impact. Guided by need assessments, programs and policy interventions are developed to grow the agricultural sector of our island's economy. Key to this will be an economic focus on import substitution both in terms of agricultural production inputs and through a market educational effort on "buy fresh, buy local" in cooperation with local farmers and chefs.

A component of Guam's food security program is promotion of home and community gardening efforts with a focus on conservation practices and environmental awareness. The curriculum know as the Guam Yard program will serve as a core for these outreach efforts.

**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
111	Conservation and Efficient Use of Water	10%			
125	Agroforestry	10%			
205	Plant Management Systems	20%			
302	Nutrient Utilization in Animals	10%			
307	Animal Management Systems	20%			
403	Waste Disposal, Recycling, and Reuse	10%			
604	Marketing and Distribution Practices	10%			
801	Individual and Family Resource Management	10%			
	<b>Total</b>	100%			

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

**1. Situation and priorities**

On remote islands food security is always an immediate concern. Guam's food security plan of work focuses on developing food and agriculture systems that strive to rely on local resources rather than imports for Guam and our island neighbors. These agricultural systems integrate, plant production emphasizing market vegetable and agro-forestry best management practices with sustainable animal production utilizing local feed sources and waste management systems that build our island soils and promote increased water quality.

This plan of work addresses the island's food security by increasing the number and success of both subsistence and market farmers through a multi-agency collaborations. A goal of these collaborations is to identify under-served farmers, conduct need assessments and leverage these agencies educational and service efforts' for their impact. Guided by need assessments, programs and policy interventions are developed to grow the agricultural sector of our island's economy. Key to this will be an economic focus on import substitution both in terms of agricultural production inputs and through a market educational effort on "buy fresh, buy local" in cooperation with local farmers and chefs.

A component of Guam's food security program is promotion of home and community gardening efforts with a focus on conservation practices and environmental awareness. The curriculum know as the Guam Yard program will serve as a core for these outreach efforts.

This program will identify the information needs of the small (1/2 acre to 20 acre) island producers and develop outreach efforts to address these educational needs through workshops and extension publications, in order to increase the substitution of local production for the current imported produce.

The program will also develop and demonstrate best management practices in sustainable livestock production to promote a livestock industry that increasingly relies on local inputs and reduces imports. Small-scale breeder production/incubation and sustained genetic upgrading will be main focus.

This plan of work will develop home and community grown food as alternatives to store bought food through home and community gardening programs, thus increasing local food diversity and self reliance.

This plan of work will partner with other local agencies and organizations when ever possible in order to leverage the outreach efforts of this agencies. The need for outreach programs on best management production and conservation practices is heightened by the dramatic increase in number of new farms on Guam through the Chamorro Land Trust agricultural lease program. Agriculture support agencies on Guam are small and lack the breadth of expertise that would be found in analogous agencies on the mainland. Island-wide the expertise pool is probably adequate to meet the island's needs but is fragmented among several agencies. Consequently, farmers have difficulty accessing the information they need or finding the expertise to explain key concepts to them when they seek advice. Many of these farmers have limited farm experience. The educational needs could be overwhelming for any single agency's staff, but in a coordinated partnership several agencies may effectively address these needs. This plan of work provides this coordinated effort.

## **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**

Over 80% of the food consumed on Guam comes from off island.

We have the capability of significantly increasing our food security by increasing local production and consumption so that these imports are replaced by local grown food. Three efforts should promote this: 1) Increase the market awareness of the "buy fresh buy local concept". 2) Increase local production through sustainable production methods/practices education programs for both livestock and plants 3) Increase the home substitution of local garden (home and community) produce and small livestock (chicken tractors for meat and eggs) for store bought products.

In ancient time many of the traditional tree crops provided food reserves. The food reserve stocks for our island can be increased by programs that promote tradition (and new) tree crops in conservation and

ornamental plantings.

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

Increase Guam's agricultural production through 1) Small Farm (animal and plant) production demonstration and education programs 2) Market awareness programs stressing "Buy Fresh Buy Local", "What is Fresh Now" monthly Market Baskets, and the importance of a buy local to increase food security effort 3) Promotion of home and community garden education/outreach programs.

Increase the effectiveness of local agencies supporting agriculture in their demonstration and outreach efforts by developing collaborative partnerships.

Identify where local inputs can be substituted for imported inputs in agricultural production of all types.

**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
2012	1.9	0.0	0.0	0.0
2013	1.9	0.0	0.0	0.0
2014	1.9	0.0	0.0	0.0
2015	1.9	0.0	0.0	0.0
2016	1.9	0.0	0.0	0.0

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

**1. Activity for the Program**

This program will identify the information needs of the small (1/2 acre to 20 acre) island producers and develop outreach efforts to address these educational needs through workshops and extension publications, in order to increase the substitution of local production for the current imported produce.

The program will also develop and demonstrate best management practices in sustainable livestock production to promote a livestock industry that increasingly relies on local inputs and reduces imports.

This plan of work will develop home and community grown food as alternatives to store bought food through home and community gardening programs, thus increasing local food diversity and self reliance.

This plan of work will partner with other local agencies and organizations when ever possible in order to leverage the outreach efforts of this agencies.

**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>● One-on-One Intervention</li> <li>● Demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Web sites other than eXtension</li> <li>● Other 1 (Extension Publications)</li> </ul>

**3. Description of targeted audience**

The primary target audience is the one thousand plus agricultural lease holders of the Chamorro Land Trust Commission (CLTC) agricultural lands programs and the more than 100 existing full and part time commercial and subsistence agricultural producers on Guam. In addition, a secondary target population is the island youth interested in entrepreneurial agricultural activities. Additionally clients of mayors' offices interested in small scale and community agricultural activities are also targeted.

The secondary target audience is the agricultural professional community on Guam. This program is a collaborative effort to build the capacity and enhance the performance of the agricultural professionals in Guam Cooperative Extension, and partner agencies so these agricultural professionals can better identify issues and mobilize resources to assist the agriculture community on Guam.

A third target audience is Extension, education and island Department of agriculture professionals as participant trainers in a train the trainer distance education workshop series on the curriculum materials. These participants will also serve as key contacts in future needs assessments so that the islands needs may be incorporated in our curriculum development efforts.

**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 workshops held.
- Number of Extension fact sheets/brochures/pamphlets.
- Number of One to One contacts/interventions.
- Number of multi-agency agriculture And/Or best management practiced demonstrations conducted.
- Number of media stories/articles in newsletters, magazines, newspapers or on TV.
- Number of collaborations: memorandums of understanding, cooperative agreements, joint demonstrations, and planned programs/grants with partner agencies and organizations.
- 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 producers/participants noting increase in knowledge and husbandry skills on recommended best management practices.
2	Number of producers/participants adopting recommended/demonstrated practices.
3	Number of producers/participants that decreased imported inputs by using local substitutes.
4	Number of local and off island agency and organization personnel adopting and/or utilizing curriculum materials developed under this plan of work.
5	Number of agencies/organizations that leveraged/or increased their outreach efforts by participating in this plan of work.

**Outcome # 1**

**1. Outcome Target**

Number of producers/participants noting increase in knowledge and husbandry skills on recommended best management practices.

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

**2012:12                      2013:12                      2014:12                      2015:12                      2016:0**

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

- 111 - Conservation and Efficient Use of Water
- 125 - Agroforestry
- 205 - Plant Management Systems
- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 604 - Marketing and Distribution Practices
- 801 - Individual and Family Resource Management

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

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

Number of producers/participants adopting recommended/demonstrated practices.

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

**2012:4                      2013:4                      2014:4                      2015:4                      2016:0**

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

- 111 - Conservation and Efficient Use of Water
- 125 - Agroforestry
- 205 - Plant Management Systems
- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 604 - Marketing and Distribution Practices
- 801 - Individual and Family Resource Management

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

- 1862 Extension

**Outcome # 3**

**1. Outcome Target**

Number of producers/participants that decreased imported inputs by using local substitutes.

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

<b>2012:2</b>	<b>2013:2</b>	<b>2014:2</b>	<b>2015:2</b>	<b>2016:0</b>
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**3. Associated Knowledge Area(s)**

- 111 - Conservation and Efficient Use of Water
- 125 - Agroforestry
- 205 - Plant Management Systems
- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 604 - Marketing and Distribution Practices
- 801 - Individual and Family Resource Management

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

- 1862 Extension

**Outcome # 4**

**1. Outcome Target**

Number of local and off island agency and organization personnel adopting and/or utilizing curriculum materials developed under this plan of work.

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

<b>2012:4</b>	<b>2013:4</b>	<b>2014:4</b>	<b>2015:4</b>	<b>2016:0</b>
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**3. Associated Knowledge Area(s)**

- 111 - Conservation and Efficient Use of Water
- 125 - Agroforestry
- 205 - Plant Management Systems
- 302 - Nutrient Utilization in Animals

- 307 - Animal Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 604 - Marketing and Distribution Practices
- 801 - Individual and Family Resource Management

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

- 1862 Extension

**Outcome # 5**

**1. Outcome Target**

Number of agencies/organizations that leveraged/or increased their outreach efforts by participating in this plan of work.

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

<b>2012:3</b>	<b>2013:3</b>	<b>2014:3</b>	<b>2015:3</b>	<b>2016:0</b>
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**3. Associated Knowledge Area(s)**

- 111 - Conservation and Efficient Use of Water
- 125 - Agroforestry
- 205 - Plant Management Systems
- 302 - Nutrient Utilization in Animals
- 307 - Animal Management Systems
- 403 - Waste Disposal, Recycling, and Reuse
- 604 - Marketing and Distribution Practices
- 801 - Individual and Family Resource Management

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

- 1862 Extension

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

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

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Other (local government changes)

**Description**

{NO DATA ENTERED}

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

**Description of Planned Evaluation Studies**

{NO DATA ENTERED}

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

**Program # 9**

**1. Name of the Planned Program**

Climate Change

**2. Brief summary about Planned Program**

Not Applicable

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

**4. Program duration :** Short-Term (One year or less)

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

**6. Expending other than formula funds or state-matching funds :** No

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

1. Program Knowledge Areas and Percentage

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

**1. Situation and priorities**

Not applicable

**2. Scope of the Program**

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

**1. Assumptions made for the Program**

Not Applicabel

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

Not Applicable

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

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

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

**1. Activity for the Program**

Not Applicable

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

Extension	
Direct Methods	Indirect Methods

**3. Description of targeted audience**

Not Applicable

**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**

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**

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

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

**Description**

Not Applicable

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

**Description of Planned Evaluation Studies**

Not Applicable

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

**Program # 10**

**1. Name of the Planned Program**

Sustainable Energy

**2. Brief summary about Planned Program**

Not Applicable

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

**4. Program duration :** Short-Term (One year or less)

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

**6. Expending other than formula funds or state-matching funds :** No

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

1. Program Knowledge Areas and Percentage

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

**1. Situation and priorities**

Not Applicable

**2. Scope of the Program**

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

**1. Assumptions made for the Program**

Not Applicable

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

Not Applicable

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

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

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

**1. Activity for the Program**

{NO DATA ENTERED}

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

Extension	
Direct Methods	Indirect Methods

**3. Description of targeted audience**

{NO DATA ENTERED}

**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**

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**

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

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

**Description**

Not Applicable

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

**Description of Planned Evaluation Studies**

Not Applicable