

# 2017 Northern Marianas College Combined Research and Extension Plan of Work

**Status: Accepted**  
**Date Accepted: 09/20/2016**

**I. Plan Overview**

**1. Brief Summary about Plan Of Work**

The Northern Marianas College (NMC) and the Cooperative Research, Extension, and Education Services (CREES) department are going through major transitions. NMC is currently in the process of searching for a new president and rebuilding sections of campus. In August 2015, Super-typhoon Soudelor devastated the Northern Mariana Islands and destroyed all CREES facilities on the main Saipan campus. At this time, CREES facilities and Ag Experiment Stations are being rebuilt. Despite these challenges, CREES has continued to work diligently to rebuild the Ag Experiment Stations on Saipan, Tinian, and Rota and has proceeded with a review of CREES Agriculture and Family and Consumer Sciences programs by a panel of external experts and a CNMI-wide community needs assessment . This 5 Year Plan of Work responds to the results of the comprehensive external department review, the community needs assessment, and speaks to the knowledge of expert personnel and subject area specialist on addressing emerging issues in the CNMI.

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

Year	Extension		Research	
	1862	1890	1862	1890
2017	8.0	0.0	4.0	0.0
2018	8.0	0.0	4.0	0.0
2019	8.0	0.0	4.0	0.0
2020	8.0	0.0	4.0	0.0
2021	8.0	0.0	4.0	0.0

**II. Merit Review Process**

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

- Expert Peer Review
- Other (Program Leaders and Stakeholders representative )

## 2. Brief Explanation

Since the number of CREES staff is relatively small, all non-instructional faculty are encouraged to participate in the Merit Peer Review. Also, external collaborators from other universities and research institutions send their comments prior to the Peer Review. A draft of the proposal to be reviewed is e-mailed to all of the CREES personnel for suggestions and comments, well before the review meeting. The draft of the proposal is revised and made available to all of the staff for the merit or peer review. All available professional research and extension personnel participate in the review. During the review, we assess 1) the priority of importance of the proposed project in consideration of community needs; 2) the relevance of the proposals; 3) the quality and scientific value of the proposed research or extension activities and 4) the opportunities for cooperation with others, and (5) available resources. The proposals are revised to incorporate the suggestions given during the merit review and approved by the Dean prior to submission.

## 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?

The planned programs were based on: 1) Results of expert panels meeting with community stakeholders and recommendations and findings from expert panel conducted in February 2016, 2) Feedback from stakeholder groups as part of the community needs assessment conducted in Spring 2016 wherein community members identified the most critical issues that they face, and 3) considering evidence and literature on emerging issues in Agriculture and Family and Consumer Sciences in the CNMI.

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

The planned programs for both research and extension aim to increase promotion at the grass-root levels via program visibility and outreach through provisions of professional experts such as language interpreters, agriculture scientists and extension specialists, and through solicited input from key informants from the CNMI and off-island. The program will utilize survey results, needs assessments, comparisons, and scientific methodologies while considering intrinsic and extrinsic factors to optimize prioritization. Extension agents have established networkss with a diverse group of stakeholders, including those who are under-served and under-represented.

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

The planned programs developed specific outcomes that would occur over a period of 5 years through pre- and post evaluation (either short, medium and long term), changes in learning behavior, change in action and change in condition such as lifestyle, environmental improvement and positive economic impact.

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

NMC-CREES research and extension activities have always involved multi-disciplinary/multi-regional projects that have brought positive impacts locally and regionally. Due to our isolated physical location far from the US mainland, partnerships and collaboration play a major role in project success. Results are well advertised in media prints and television together with program updates that provides avenues for feedback mechanisms via e-mail, social media, and improved and updated websites.

## **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 the general public

#### **Brief explanation.**

The above listed activities have been the most effective tools to generate stakeholder input and participation. It also covers a broad range of targeted audiences. As the only post secondary institution in the CNMI with a research component, our visibility in the community can be attested to, by randomly asking community members if they have heard of NMC-CREES and what its role is in the community.

### **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.**

Individuals with experience relevant to NMC-CREES' mission, goals and objectives are selected to serve on Advisory Councils. Additionally, Extension Agents, who represent NMC-CREES on various councils and groups, solicit input from stakeholders in these venues. A expert review panel and community needs assessment have also been used to identify issues and concerns as well as potential ways to address issues to meet local needs. Program leaders regularly collect input from stakeholders and recipients of program services.

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

**Brief explanation.**

CREES has consulted with key informants and has used the experience of advisory councils and professional personnel to determine individuals and stakeholders to collect input from. CREES maintains several contact lists for farmers, aquaculture producers, health advocates, public school system professionals and administrators, non-profit community groups, and government agencies.

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

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

**Brief explanation.**

Groups and program leaders base program needs on extension and research priorities and emerging problems and opportunities in the CNMI. We believe that stakeholder input plays an integral role in program planning, including how resources are allocated. CREES has had various meetings at the program and department levels to discuss the results and findings and to ensure that critical community needs are addressed in the Plan of Work.

**V. Planned Program Table of Content**

<b>S. No.</b>	<b>PROGRAM NAME</b>
1	Global Food Security and Hunger: Livestock Improvement Program
2	Childhood Obesity
3	Global Food Security and Hunger: Aquaculture and Fisheries Development Program
4	Agriculture Production
5	Family, Community and Youth Development

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

### **Program # 1**

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

Global Food Security and Hunger: Livestock Improvement Program

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

Through partnerships and collaboration with other land grant colleges, local government agencies such as the Department of Land and Natural Resources (DLNR), federal organizations like Western Sustainable Agriculture Research and Education (WSARE), Farm Service Agency (FSA), Natural Resource Conservation Service (NRCS), Animal and Plant Health Inspection Service (APHIS), and regional organization such as the Secretariat of the Pacific Community (SPC) and the Agricultural Development in the American Pacific (ADAP), the Livestock Improvement Program (LIP) will improve the competitiveness of CNMI cattle, goat, swine and poultry produced, by reducing costs of production, increasing productivity and profits. The program will improve the safety of animal products by assisting in the development of suitable slaughter facilities and meat inspections. The program aims to adopt best management practices and promote sustainable agriculture. The program will focus on eradicating livestock diseases of economic and public health importance. It also aims to focus on offering new opportunities for alternative livestock enterprise such as duck, pigeon and rabbit production. Continued promotion and training of local paravets to assist the CNMI Veterinarian for effective and high quality veterinary services will also be a focus of the program. Research and extension emphasis on the emerging CNMI Livestock industry will be strengthened through securing external funding from local and federal agencies. This will include improving animal products (before harvest), reproductive performance through genetic upgrading via Artificial Insemination in ruminants and swine, alternative animal feed nutrition, and alternative medicine for livestock health care. Supplemental local feed stuff and sustainable pastured beef and poultry will be continuously promoted and will be adopted by farmers. The program will also empower other producers as well as agricultural professionals to get involved in research, extension and education service through professional development programs and small research and educational outreach programs.

**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
303	Genetic Improvement of Animals	40%		40%	
307	Animal Management Systems	40%		40%	
311	Animal Diseases	5%		5%	
312	External Parasites and Pests of Animals	5%		5%	
313	Internal Parasites in Animals	5%		5%	
902	Administration of Projects and Programs	5%		5%	
	<b>Total</b>	100%		100%	

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

1. Situation and priorities

Livestock production is an important social and cultural component of our local food systems. Livestock raised and consumed here in the islands represents a respectable percentage of the overall amount of fresh meats and proteins consumed here, since most meats brought into the region are frozen, some for a considerable amount of time. Although many livestock producers have been in operation for decades, many have limited technical knowledge regarding topics such as animal healthy, breeding, pasture management, and many other topics. It is therefore the goal of the Livestock Improvement program to develop educational and capacity building programs that support and encourage livestock producers, contributing to the sustainability and financial viability of their operations. Our program uses a variety of methods and venues that serve to gather and disseminate information to livestock producers, to include, technical assistance, demonstrations, and locally appropriate research studies related to breed improvement, pasture management, feed processing, animal health, disease management, meat processing and value adding, herd surveys, waste management, and marketing. Although this program works with individuals and associations involved in livestock production, the goals of the program help to contribute to local and regional improvements in food security, access to fresh meats and proteins, increased agricultural commerce, and the adaptability of local agriculture to the affects of climate change.

2. Scope of the Program

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

- Integrated Research and Extension
- Multistate Integrated Research and Extension

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

**1. Assumptions made for the Program**

Additional FTE's for other islands (inclusion of Extension agents)  
 Provision of new Veterinarian and Public Health veterinarian  
 Provision of slaughter house and meat inspector  
 Increase funding for animal health research and extension program  
 More Train the Trainers Programs  
 Provision of small scale feed mill industry  
 Feed Cost Regulation for legislation  
 Development of Alternative Livestock Enterprise  
 Increased research and extension collaboration with other universities, federal and local agencies  
 Funding will remain constant or increase.

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

Improve the competitiveness of the CNMI cattle, goat, swine, and poultry produced, by reducing cost of production and increasing productivity and profits.  
 To ensure viability of small scale farmers engaged in alternative livestock enterprise  
 To train more permanent animal health technicians regarding animal health and production  
 To remain free of Avian flu  
 Reduced reliance on foreign meat imports  
 Improve the health of the people of the CNMI  
 To be able to produce locally made livestock feeds from available resources  
 Further promote the CNMI's livestock sector

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

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

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



2021	0.0	0.0	0.0	0.0
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**V(F). Planned Program (Activity)**

**1. Activity for the Program**

- Conduct farm training for small farmers- livestock enterprise and genetic upgrading, animal welfare, animal nutrition and husbandry management, etc
  - Conduct animal health and management workshops
  - Conduct mini-workshop on alternative livestock enterprise
  - Grant writing workshop for research funding
- § Continue with breed improvement through artificial insemination Cattle, Swine, and Goats
- § Continued research into areas such as Integrated grass/legume pastures and the effects on carbon sequestration and livestock production.

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

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>• Education Class</li> <li>• Workshop</li> <li>• Group Discussion</li> <li>• One-on-One Intervention</li> <li>• Demonstrations</li> <li>• Other 1 (Mini Workshops)</li> <li>• Other 2 (Presentations)</li> </ul>	<ul style="list-style-type: none"> <li>• Public Service Announcement</li> <li>• Newsletters</li> <li>• TV Media Programs</li> <li>• Web sites other than eXtension</li> <li>• Other 1 (Video/Radio)</li> <li>• Other 2 (Brochures/flyers/Calendar)</li> </ul>

**3. Description of targeted audience**

- Youth and adult
- Ranchers/farmers
- Livestock producers
- Government agencies
- Leaders

- Retirees looking at new investment
- Entrepreneurs
  
- Farmer Associations

### **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 Research projects on Animal Diseases and management, Animal genetic upgrading, Animal nutrition, and Animal science
  - Number of Workshops and professional development trainings for livestock program (Production, Animal Health, etc.)and sustainable agriculture program
- 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	Numbers of clients adopted livestock best management practices as well as sustainable agriculture that resulted to creation of alternative livestock enterprise
2	Numbers of new client gained knowledge and skills about animal science, production, health and management, animal husbandry and sustainable agriculture

### **Outcome # 1**

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

Numbers of clients adopted livestock best management practices as well as sustainable agriculture that resulted to creation of alternative livestock enterprise

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

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

- 303 - Genetic Improvement of Animals
- 313 - Internal Parasites in Animals
- 307 - Animal Management Systems
- 902 - Administration of Projects and Programs
- 311 - Animal Diseases
- 312 - External Parasites and Pests of Animals

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

- 1862 Extension
- 1862 Research

### **Outcome # 2**

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

Numbers of new client gained knowledge and skills about animal science, production, health and management, animal husbandry and sustainable agriculture

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

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

- 312 - External Parasites and Pests of Animals
- 307 - Animal Management Systems
- 311 - Animal Diseases
- 303 - Genetic Improvement of Animals
- 313 - Internal Parasites in Animals

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

- 1862 Extension
- 1862 Research

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

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

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

#### **Description**

There are numerous external factors that can create barriers to agricultural production. Despite this, there has never been a greater need to build up our agricultural base in the CNMI, in order to improve access to healthy and fresh foods, provide food security for our people, and improve our economic outlooks. It is therefore imperative that we work through any natural or manmade barriers to improve the likelihood of our producers to be successful in their agricultural endeavors.

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

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

Our program will continue to assess and evaluate this programs performance through client, animal and pasture surveys, as well as, interviews with clients, numbers of clients (direct and indirect contacts), observation, and using any other assessment tools that become available to us.

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

### **Program # 2**

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

Childhood Obesity

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

Approximately 25% of Commonwealth of the Northern Mariana Islands children that are 2 years old are overweight or obese. Research has shown that around 30% of 2-8 year olds in the CNMI are overweight or obese. One study suggests that overweight and obesity increases from around 25% at age 5 to 45% at age 8. Youth Risk Behavior Survey data collected from high school students in the CNMI indicates that 15.3% of males and 16.3% of females are overweight, while 20.1% of males and 13.6% of females are obese. Obese children are more likely to be obese adults compared to their non-obese peers and are at higher risk for heart disease, stroke, several types of cancer, and type 2 diabetes. Even in childhood, obesity can have immediate negative health repercussions including high blood pressure and/or high blood cholesterol, increased risk for prediabetes, increased likelihood for bone and joint problems, sleep disorders, and poor self-esteem

Although studies have shown overweight and obesity among children in the CNMI, there is currently no system to monitor prevalence and trends of childhood overweight and obesity (COWOB) at the population level. In addition to the scientific literature expounding on the need for robust systems to monitor COWOB at the population level, stakeholders have identified the need to develop a robust monitoring system that builds on the CNMI Public School System's efforts to collect height and weight data on students. Currently, the CNMI is not included in NHANES or PRAMS.

While building COWOB monitoring efforts, the Childhood Obesity program will use best practice recommendations/models and evidenced-based approaches that are culturally appropriate to bring about changes that are conducive to improved health among 2-8 year olds. An integral part of this effort involves working with and training role models and community champions from identified villages to take the lead in promoting child health and wellness in child care centers and public schools. Interventions that focus on developing the community to take a leadership role in promoting policies and practices that improve child health and wellness, social marketing, and training of teachers and child care providers to improve nutrition, decrease sugar sweetened beverage intake, increase water intake, and increase movement and physical activity will be the focus of this program.

**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
703	Nutrition Education and Behavior	50%		25%	
724	Healthy Lifestyle	25%		25%	
901	Program and Project Design, and Statistics	25%		50%	
	<b>Total</b>	100%		100%	

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

1. Situation and priorities

While the scientific literature on the ill-effects of childhood obesity is relatively well documented, the educational, economic, social, and health issues that stem from childhood overweight and obesity and the actions that should be taken at the community and policy levels have not been tested or studied in the CNMI. There is a need for village residence to take the lead in advocating for and bringing about changes that are conducive to protecting the health of children and their families. It is necessary to work with communities to focus on enhancing environments that children live, attend school at, and play in, in order to influence desirable behavioral outcomes. This program will build on people from identified villages with the desire and willingness to improve the village and school environments through role modeling desirable behaviors, advocating for strategies to improve the health of children and their families, and taking the lead in carry-out village based projects that are conducive to improved health.

While "personal responsibility" continues to be pointed out as the solution to many health problems, including childhood overweight and obesity, the scientific literature continues to point out that the food and built environments play a tremendous role in shaping how and what we eat and how physically active we are. Policies that decrease undesirable nutrition and health behaviors and increase behaviors associated with improved health

2. Scope of the Program

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

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

1. Assumptions made for the Program

The Childhood Obesity Program will work with various agencies and diverse stakeholders as well as with regional partners from Pacific institutions of higher learning and others who can contribute to bringing about healthier living. The program intends to use its policy and environmental intervention strategies to compliment the efforts of existing educational programs, such as EFNEP, Public School System, Head Start Program, Department of Public Health-Non-Communicable Disease Program, and Let's Move

Marianas. We assume that the aforementioned entities as well as village stakeholders will be willing to work with us.

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

This program's ultimate goals of the program are to prevent and control obesity, to improve young child health and well-being, and to enhance the capacity of village communities to lead changes that are conducive to improving health.

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

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

Year	Extension		Research	
	1862	1890	1862	1890
2017	5.0	0.0	1.0	0.0
2018	5.0	0.0	1.0	0.0
2019	5.0	0.0	1.0	0.0
2020	5.0	0.0	1.0	0.0
2021	5.0	0.0	1.0	0.0

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

**1. Activity for the Program**

- Identify potential role models from identified villages and conduct training on role-modeling and motivational interviewing for role models
  - Provide follow-up and encouragement to current role model groups (TASA and Kagman)
  - Initiate collaborative partnership with two additional role model groups to test interventions used in previous work with TASA and Kagman role models; TASA and Kagman role models to assist with setting up the new role model groups
    - Conduct physical activity training for teachers and child-care providers of young children
    - Conduct social marketing focused on the following behavioral outcomes: decreasing sugar-sweetened beverage intake, increasing water intake, increasing fruit & vegetable intake, increasing physical activity, decreasing leisure screen time, and increasing sleep.
      - Include two new stores in healthy village stores program
      - Conduct planting, harvesting, and eating local produce at one Head Start Center
      - Assist Public School System, Head Start, Early Head Start with enhancing and refining child growth assessments and BMI with the goal of establishing childhood overweight and obesity monitoring and surveillance in the CNMI and regionally



**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>● Demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>● Billboards</li> <li>● Newsletters</li> <li>● Other 1 (Culturally approp. brochures)</li> </ul>

**3. Description of targeted audience**

- Potential role models and community champions from identified villages
- Current role models from TASA and Kagman
- Teachers and child care providers of young children
- Head Start, elementary, and child care program administrators
- Parents of young children
- Community groups concerned about child health

**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 role models trained
  - Number of trainings on increasing physical activity
  - Number of trainings and meetings with/for role models
  - Number of role model initiated projects
  - Number of social marketing campaigns in identified villages
  - Number of new stores participating in Healthy Village Stores program
  - Number of child care centers that adopt nutrition and wellness policies
  - Number of elementary schools adopting nutrition and wellness policies
- 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	Role models lead village projects as a result of programming received from Childhood Obesity Program
2	Teachers and child care providers integrate more physical activity into school/child care schedule
3	Environmental enhancements are made at two facilities that provide direct services to young children
4	Two elementary schools adopt child wellness policy
5	One child care center adopts at least two policies that enhance young child health and wellness
6	Establish infrastructure and programming for childhood overweight and obesity monitoring and surveillance building on current systems
7	Increase physical activity among 2-10 year olds
8	Increase water consumption among 2-10 year old children
9	Increase fruit and vegetable consumption among 2-10 year old children
10	Increase physical activity among 2-10 year old children

**Outcome # 1**

**1. Outcome Target**

Role models lead village projects as a result of programming received from Childhood Obesity Program

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

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

- 724 - Healthy Lifestyle

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

- 1862 Extension
- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Teachers and child care providers integrate more physical activity into school/child care schedule

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

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

- 724 - Healthy Lifestyle

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

- 1862 Extension
- 1862 Research

**Outcome # 3**

**1. Outcome Target**

Environmental enhancements are made at two facilities that provide direct services to young children

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

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

- 724 - Healthy Lifestyle

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

- 1862 Extension
- 1862 Research

**Outcome # 4**

**1. Outcome Target**

Two elementary schools adopt child wellness policy

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

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

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

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

- 1862 Extension
- 1862 Research

**Outcome # 5**

**1. Outcome Target**

One child care center adopts at least two policies that enhance young child health and wellness

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

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

- 724 - Healthy Lifestyle

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

- 1862 Extension
- 1862 Research

**Outcome # 6**

**1. Outcome Target**

Establish infrastructure and programming for childhood overweight and obesity monitoring and surveillance building on current systems

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

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

- 901 - Program and Project Design, and Statistics

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

- 1862 Extension
- 1862 Research

**Outcome # 7**

**1. Outcome Target**

Increase physical activity among 2-10 year olds

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

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

- 724 - Healthy Lifestyle
- 703 - Nutrition Education and Behavior

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

- 1862 Extension
- 1862 Research

**Outcome # 8**

**1. Outcome Target**

Increase water consumption among 2-10 year old children

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

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

- 703 - Nutrition Education and Behavior

- 724 - Healthy Lifestyle

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

- 1862 Extension
- 1862 Research

**Outcome # 9**

**1. Outcome Target**

Increase fruit and vegetable consumption among 2-10 year old children

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

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

- 724 - Healthy Lifestyle
- 703 - Nutrition Education and Behavior

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

- 1862 Extension
- 1862 Research

**Outcome # 10**

**1. Outcome Target**

Increase physical activity among 2-10 year old children

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

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

- 724 - Healthy Lifestyle
- 703 - Nutrition Education and Behavior

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

- 1862 Extension
- 1862 Research

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

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

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (lack of collaboration)

#### **Description**

- Collaboration is a key component of reaching our outcomes; this external factor involves interagency collaboration.
- Typhoon and other disaster damage that would shift priorities from improving child health to more immediate needs such as post-disaster safety and adequate housing.

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

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

The ultimate evaluation of our planned interventions will not take place until 2015. In early 2015, 24-month anthropometric measurements on 2-8 year old children will take place. This will allow us to determine if the interventions on identified villages had an effect on young child Body Mass Index.

Focus groups, questionnaires, and sessions to solicit feedback from stakeholders will take place at pre-determined intervals to determine how successful planned activities were and what can be done to improve them.

The establishment of policies and procedures to guide childhood overweight and obesity anthropometric measurements data entry, collection, and analysis in partnership with relevant programs will be established.



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

### **Program # 3**

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

Global Food Security and Hunger: Aquaculture and Fisheries Development Program

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

The Aquaculture & Fisheries Development Program (A&FDP) is the program at Northern Marianas College's Cooperative Research, Extension, & Education Service (NMC CREES) responsible for the development of aquaculture in the Commonwealth of the Northern Mariana Islands (CNMI). The A&FDP is unique within NMC CREES, in that by virtue of CNMI Public Law 15-43, it is also the designated government lead agency for aquaculture development in the territory. As such, A&FDP is responsible for conducting research and providing technical assistance to individuals or group interested in starting an aquaculture enterprise. The program has successfully helped introduced and established Tilapia, shrimp, and aquaponics farms in the past and is currently working on marine finfish research to develop this sector focused on captive breeding and production of Rabbitfish juveniles for distribution to aquaculture producers.

As a result of the most recent needs assessment conducted and based on the CNMI, 5-Year, Aquaculture Development Plan, the A&FDP will need to continue in the foreseeable future to conduct research and introduce other species such as freshwater prawn, milkfish, and giant clams to complete the species identified by stakeholders as essential to the expansion of the industry. Additionally, the program will need to address production cost issues and constraints that have impeded the development of aquaculture due to high feed, energy, and labor cost. As such, the program will focus its programmatic efforts to addressing the feed issue by identifying locally available ingredients, medium scale production of locally made aquaculture feed, and onsite, farm trials of these feed. The program will also address the high energy cost of aquaculture production on land by conducting spatial and environmental studies for suitable farm sites within the CNMI-managed coastal waters that will lead to ocean cage production of suitable species. Next the program will put together and publish an electronic and printed resource manual that will help current and prospective producers in sourcing aquaculture farm inputs that will reduce the labor needs of farms through mechanization. And last but not least, the A&FDP will look for ways, through research and extension, to increase farm profitability by way of helping producers add value to their aquaculture products.

**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
301	Reproductive Performance of Animals	5%		30%	
302	Nutrient Utilization in Animals	20%		20%	
307	Animal Management Systems	15%		15%	
308	Improved Animal Products (Before Harvest)	20%		15%	
401	Structures, Facilities, and General Purpose Farm Supplies	15%		5%	
403	Waste Disposal, Recycling, and Reuse	10%		5%	
501	New and Improved Food Processing Technologies	10%		5%	
502	New and Improved Food Products	5%		5%	
	<b>Total</b>	100%		100%	

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

**1. Situation and priorities**

With a huge fish eating population in the Marianas archipelago, aquaculture has the potential to supply the market demand for fresh fish in the CNMI and Guam. As such, NMC CREES has been successful in helping producers establish fish and shrimp farms in the territory. With this growth comes growing pains mainly in farm start-up cost and cost associated with production. With the most recent needs assessment, feed has been identified as one of the major impediments to aquaculture expansion due to the cost or unavailability of imported feed. As a result, the program will focus its efforts in the coming years to address this issue through activities that will lead to the production of cost effective feed on island using locally available ingredients. The program will also address other impediments, through research and extension, that will improve farm profit margins as a result of adding value to fish products that do not meet market standards, explore and address constraints to ocean cage farming, and improve access to financing and equipment, materials, and supplies through the publication of electronic or printed resources.

**2. Scope of the Program**

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

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

**1. Assumptions made for the Program**

As a United States territory with a small land mass but surrounded by the vast Pacific Ocean, the Commonwealth of the Northern Mariana Islands (CNMI) has the potential to address its food security

issues, provide economic opportunities for its people, and at the same time reduce dependency on imports with the development of its aquaculture and fisheries sectors.

- The A&FDP recognizes that aquaculture can be successful and contribute to the socio-economic development of the CNMI if more species can be brought to commercialization through research and extension, especially species that are popular with the Asian tourism market that visit the islands annually (freshwater prawn, milkfish, giant clam)
- Profit minded individuals will also invest their funds in a new aquaculture enterprise if the existing cost of productions are addressed through research and extension that will lead to lower production cost that results in increased profits for the farmer. (lower feed, energy, and labor cost and ocean cage culture)
- Potential aquaculture producers will seek and utilized online learning resources to learn aquaculture husbandry techniques (AquacultureHub, Youtube, NMC CREES website) and sourcing online and printed farm inputs and resource people directory/catalogs
- Farm profits can be improved by adding value to aquaculture commodities that would otherwise be disposed of

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

1. Locally made aquaculture feed
  1. Conduct an assessment of locally available ingredients for feed
  2. Conduct research on medium scale, aquaculture feed production
  3. Conduct on-site farm trials using locally made feed
2. Mariculture zones within the CNMI-controlled waters
  1. Conduct spatial and environmental studies in CNMI controlled waters
  2. Conduct submerged land permitting studies in CNMI controlled waters
3. Develop value added aquaculture products
  1. Identify processing methods which will add value to CNMI produced aquaculture commodities
4. Accessible aquaculture resources
  1. Develop and make accessible information resources to producers on aquaculture farm inputs through electronic or printed platforms

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

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

Year	Extension		Research	
	1862	1890	1862	1890
2017	2.0	0.0	2.0	0.0
2018	4.0	0.0	2.0	0.0
2019	4.0	0.0	2.0	0.0
2020	4.0	0.0	2.0	0.0
2021	4.0	0.0	2.0	0.0

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

**1. Activity for the Program**

- conduct research on freshwater prawn, milkfish, and giant clam seed production and grow out
- Conduct research on locally made, aquaculture feed using locally available ingredients, and conduct feed trials on these feeds at cooperating local farms
- conduct studies on potential sites for ocean cage culture of suitable species
- identify processing methods to add value to locally produced aquaculture commodities
- develop resource materials for aquaculture farm inputs
- share findings with identified target audience to transfer knowledge and technologies to the farms through workshops, trainings, demonstrations, videos, manuals and other means as needed

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

**Extension**

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

**3. Description of targeted audience**

- Entrepreneurs
- Unemployed
- Underemployed
- Youth ages 10 -17
- Teachers
- Public & Private School Students
- Current Aquaculture Producers
- Recent Retirees
- Homemakers
- Underserved Populations
- Underrepresented Populations
- Non-profit Organizations
- Decision makers

## 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 producers learning how to culture Rabbitfish, freshwater prawns, milkfish, and giant clams
- Number of producers learning how to add value to excess or non-marketable aquaculture commodities
- Number of producers making and using local feed
- Number of producers culturing fish in ocean cages
- Number of producers sourcing inputs on their own
- Number of producers learning aquaculture through audio visuals means
- Number of extension publications and presentations

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 increased efficiencies
2	Number of Producers Indicating adoption of recommended practices
3	Number of producers reporting increased dollar return per acre or reduced cost per/acre
4	Number of new or improved value added products that can be sold by producers (and other members of the food supply chain)
5	Number of producers (and other members of the food supply chain) that have increased revenue
6	Percentage of youth who improved knowledge of food systems
7	Percentage of adults who improved knowledge of food systems

**Outcome # 1**

**1. Outcome Target**

Number of increased efficiencies

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

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

- 302 - Nutrient Utilization in Animals
- 301 - Reproductive Performance of Animals
- 308 - Improved Animal Products (Before Harvest)

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

- 1862 Extension
- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Number of Producers Indicating adoption of recommended practices

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

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

- 502 - New and Improved Food Products
- 501 - New and Improved Food Processing Technologies

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

- 1862 Extension
- 1862 Research

**Outcome # 3**

**1. Outcome Target**

Number of producers reporting increased dollar return per acre or reduced cost per/acre

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

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

- 308 - Improved Animal Products (Before Harvest)
- 301 - Reproductive Performance of Animals
- 307 - Animal Management Systems

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

- 1862 Extension
- 1862 Research

**Outcome # 4**

**1. Outcome Target**

Number of new or improved value added products that can be sold by producers (and other members of the food supply chain)

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

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

- 501 - New and Improved Food Processing Technologies
- 502 - New and Improved Food Products

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

- 1862 Extension
- 1862 Research

**Outcome # 5**

**1. Outcome Target**

Number of producers (and other members of the food supply chain) that have increased revenue

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

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

- 308 - Improved Animal Products (Before Harvest)
- 501 - New and Improved Food Processing Technologies
- 502 - New and Improved Food Products



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

- 1862 Extension
- 1862 Research

**Outcome # 6**

**1. Outcome Target**

Percentage of youth who improved knowledge of food systems

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

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

- 403 - Waste Disposal, Recycling, and Reuse
- 307 - Animal Management Systems

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

- 1862 Extension

**Outcome # 7**

**1. Outcome Target**

Percentage of adults who improved knowledge of food systems

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

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

- 307 - Animal Management Systems
- 403 - Waste Disposal, Recycling, and Reuse

**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.)
- Government Regulations

- Competing Public priorities
- Populations changes (immigration, new cultural groupings, etc.)

### **Description**

Natural disasters such as typhoons (hurricanes) continues to be the biggest threat to aquaculture production in the CNMI. As recent as August of 2016, when Typhoon Soudelor struck Saipan, producers experienced losses as a result of structural damages to the farms or the prolonged outages of power and water. Some farms have closed permanently while the rest are slowly returning to full operation. Competing public priorities such as the CNMI Government's economic focus on the tourism industry, government regulations with regards to permitting new and existing farms, and populations changes due to the federal takeover of immigration and the resulting reduction of non-resident workers are externalities that pose a threat and may slightly affect the planned program's outcome.

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

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

It is standard Operating Procedure (SOP) in the A&FDP to administer pre and posttests in learning activities such as trainings, workshops, study tours, and demonstrations implemented by the planned program. This is our way of assessing the percentage of knowledge gained, through data analysis, by our target audience and effectiveness of our teaching methods.

Additionally, the A&FDP monitors the effectiveness of its programming through the adoption and implementation of knowledge and technology at the farm site through periodic farm visits and interaction with producers.

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

### **Program # 4**

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

Agriculture Production

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

The islands in the Commonwealth of the Northern Mariana Islands (CNMI), relatively isolated from large landmasses, have evolved into an ecological system that is unique to this region, and their fauna and flora have reached the so-called ecological balance. These islands' ecosystems are extremely fragile and vulnerable to the impacts of the insects, mites, and other arthropods affecting plants (invasive species), therefore any intrusion of exotic pests can be very devastating to the ecological balance. Technically, the development of inter-island transportation systems has increased the likelihood of invasive flora and fauna being inadvertently being transported between the islands, serving as a pathway for the spread of invasive species throughout the region. There are a number of invasive species and numerous agricultural pests that are already present in the CNMI that adversely impact local agricultural production systems.

Our combined research and extension efforts are aimed at enhancing traditional agricultural practices, developing complementary methods of best management practices, and adapting already proven methods of addressing insect, mites, and other arthropods affecting plant health and productivity. Our program will attempt to catalog the destructive pests that have already reached these islands, as well as, to continue monitoring and tracking new pest outbreaks. In addition, we will collaborate with regional and local expertise to develop a system to contain or to minimize the harmful impacts of these invasive species on local agricultural systems. We will continue to monitor ports of entries for early detection of insects, mites, and other arthropods which may affect plants. Early detection of such species will help in identifying methods of control and strategies for eradication.

Our agriculture production program will enhance the agricultural productivity of our islands by evaluating vegetable varieties for their productive capacity, which include how well they perform in our region, resistance to plant pests, such as powdery mildew, fusarium wilt, root-knot nematodes etc.. This program will promote sustainability, food security, and vegetable crop suitability for commercial production under local soils and climate conditions. Furthermore, the program will work to enhance and develop the CNMI's livestock production capacity and quality demonstrating and evaluating improved and sustainable livestock management systems.

**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
202	Plant Genetic Resources	65%		65%	
205	Plant Management Systems	10%		10%	
211	Insects, Mites, and Other Arthropods Affecting Plants	10%		10%	
216	Integrated Pest Management Systems	5%		5%	
307	Animal Management Systems	10%		10%	
	<b>Total</b>	100%		100%	

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

**1. Situation and priorities**

The Northern Mariana Islands are inherently well suited for agricultural production. Although, due to the limited availability of agricultural resources, such as seeds, equipment, and experienced farm laborers, most agricultural production remains at subsistence levels. The people of the CNMI rely heavily on the importation of agricultural commodities (vegetables & frozen meats). Our program aims to promote and enhance local agricultural productivity and food security by improving the diversity and suitability of crop varieties being produced locally and by enhancing local plant and animal management systems. As local productive capacity improves and grows, locally produced agricultural commodities are expected to replace a certain percentage of imported agricultural products, providing a gateway for producers to market the introduced products locally (new crop varieties) which will enhance the economic opportunity and life for our local peoples, thus addressing the issue of food security and local farm sustainability. Invasive species and agricultural pests pose a serious threat to local agricultural systems and can affect the livelihood of the CNMI community and economy. Insect, mites, and other arthropod affecting plants (invasive species) of both plant and animal pose threat to our small resources and would therefore, hinder sustainable agriculture development in the CNMI. There are already fairly large numbers of invasive species in the CNMI. These can be controlled by Integrated Pest Management and the chemical control. These impacts and damages to crops must be minimized or eliminated. Our program aims to build capability to address the problems of invasive species, to improve best management methods and to extend these methods to our full time and subsistence farmers and other stakeholders. Through research and extension, CREES will work on determining best agricultural management systems (plant, livestock, pest) suitable for our islands and to assist our local farmers in increasing their productivity and profitability of their businesses.

**2. Scope of the Program**

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

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

**1. Assumptions made for the Program**

- Evaluation and adoption of introduced technologies and practices related to the program's knowledge areas
  - Information exists on best agricultural (plant, livestock, pests & diseases) management practices
  - CREES will partner with agencies and organizations to guide and facilitate program activities
  - Farmer-Agent cooperation and collaboration
  - Faculty will collaborate with each other on projects
  - We assume funding will remain constant and/or increase additional FTE's
  - Staff can be recruited and hired with necessary skills and abilities
  - Farmers learn best through hands-on experience, demonstrations, workshops, and one-on-one consultation
    - Farmers, ranchers and stakeholders will have sufficient information on invasive species, improved crop and livestock genetic diversity, & integrated agricultural management systems

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

- Improve production efficiency through the evaluation and demonstration of integrated plant and animal production systems
  - Introduce Pest Control Methods to control invasive species and mitigate against the threat and harmful impacts of undesirable agricultural pests.
    - Strive for development of sustainable agricultural systems in the NMI.
    - Conduct vegetable variety trials to improve agricultural production and crop diversity in the NMI.
    - Local agricultural production will replace 1% of currently imported agricultural commodities
    - Agricultural productivity will increase as a result of improved plant and livestock management systems.

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

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

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

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

**1. Activity for the Program**

- Conduct research and extension projects utilizing disease and pest resistant crops varieties
- Conduct research and extension projects on animal management systems

- Conduct research and extension projects on plant management systems
- Conduct research and extension projects on Insects, mites, and other Arthropods Affecting Plants
- Conduct extension services on Integrated Pest Management
- Develop and Disseminate extension & educational services
- Conduct trainings, workshops, meetings on knowledge areas listed
- Conduct needs assessments and program evaluations
- Provide consultations to our current and prospective clientele and stakeholders

**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> </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**

- Ranchers
- Farmers
- Crop producers and farm laborers
- Students (k-12, college students, 4-H)
- Business operators that buy Agricultural products
- Retail business owners and homeowners
- Backyard gardeners
- Government agencies
- Non-governmental organizations, such as non-profit organizations

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

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

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

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

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

### **1. Output Measure**

- Number of vegetable variety trials completed
- Number of plant management demonstrations completed
- Number of livestock management systems demonstrations completed
- Number of extension publications, brochures, & educational materials produced and distributed
- Number of workshops and other educational events (field days)
- Number of research projects completed on insect, mites, and arthropods affecting plants (invasive species)
- 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 farmers and ranchers adopting improved plant and animal management systems
2	Number of farmers adopting new Integrated Pest Management strategies to control the insects, mites and other arthropods affecting plants (Invasive species)
3	Number of newly introduced crop varieties being sold at local markets



**Outcome # 1**

**1. Outcome Target**

Number of farmers and ranchers adopting improved plant and animal management systems

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

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

- 205 - Plant Management Systems
- 307 - Animal Management Systems

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

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

Number of farmers adopting new Integrated Pest Management strategies to control the insects, mites and other arthropods affecting plants (Invasive species)

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

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

- 216 - Integrated Pest Management Systems

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

- 1862 Extension

**Outcome # 3**

**1. Outcome Target**

Number of newly introduced crop varieties being sold at local markets

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

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

- 205 - Plant Management Systems
- 202 - Plant Genetic Resources

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

- 1862 Extension
- 1862 Research

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

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

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

#### Description

Natural disasters such as typhoons, drought and other extreme weather conditions might affect ability of Ag Program to test crop varieties in a timely manner.

Competing public priorities can affect resources channeled to this program.

Lack of funding can possibly reduce efforts in research-- how?

The requirement to reduce the number of CW-1 (CNMI-Only Transitional 1 Worker) nonimmigrant workers to zero by the end of the transition period, December 31, 2019 may have an effect on the program outcomes (uscis.gov)-- how?

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

#### Description of Planned Evaluation Studies

The program will be evaluated annually. Program progress will be monitored and evaluated by the Dean of CREES each year before releasing programmatic funds for the following year(s).

Time series studies, which involve multiple surveys prior to and after the program activities will identify effectiveness of our stated outcome measures.

The insects, mites, and other arthropods affecting plants will be monitored at farms and implementation of the control methods, Integrated Pest Management (IPM). Insects and arthropods entering the CNMI through both air and sea ports will be monitored in collaboration with DLNR Quarantine staff.

Agricultural pest surveys, which is on-going will continue to monitor existing pests, and will detect newly introduced invasive species through sampling, scouting, observation and survey.

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

### **Program # 5**

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

Family, Community and Youth Development

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

The CNMI Family, Community and Youth Development (FCYD) Program aims to build the capacity of the local youth, families and the community by establishing a network among governmental and non-governmental organizations to provide a positive environment that promotes volunteerism and teamwork while encouraging the youth, families and community to actively engage in shaping the future of the CNMI.

The program will provide opportunities for stakeholders' involvement in developing programs that resonate with the community. FCYD Program activities, such as school enrichment programs, gardening, recreational sports, money management, self-esteem building and much more, will empower the youth and adults with the skills to lead, solve problems and become responsible citizens contributing to the well-being of the community as a whole. As program activities take place and relationships and positive attitudes are reinforced, participants will begin to improve their skills in personal communication and self-expression, building self-confidence and other life skills. Through the mentorship of older and professional volunteers, the participants will recognize their potential and will have the self-assurance to take leadership roles. The CNMI FCYD Program will focus its efforts on establishing key partnerships such as with the Public School System and business community, building a trained volunteer base, and launching a social marketing campaign to generate awareness about FCYD.

**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 :** 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
801	Individual and Family Resource Management	20%		0%	
802	Human Development and Family Well-Being	15%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	10%		0%	
805	Community Institutions and Social Services	10%		0%	
806	Youth Development	30%		0%	
901	Program and Project Design, and Statistics	15%		0%	
	<b>Total</b>	100%		0%	

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

1. Situation and priorities

The Commonwealth of the Northern Mariana Islands (CNMI) is located thousands of miles from the U.S. mainland in the middle of the Western Pacific Ocean, closer to Philippines than it is to the closest State of Hawaii. The sheer distance from the NMI to the rest of the nation and other countries results in an enormously high cost of living since nearly all goods and resources must be imported. Further compounding the issue is that resources such as land, water, and electricity are limited in quality and quantity, driving prices higher and decreasing opportunities for the communities to be self-sustaining. Ultimately, financial resources are stretched to the limit in order to fund essential programs, such as medical care and public safety, with little left over for other programs. This phenomenon poses serious risks for youth as they are forced to grow up in an environment with little personal; space, support, resources and guidance. This program aims to create and sustain programs that engage the participants and support them in essential areas of their lives. The CNMI FCYD program serves to improve upon the social and physical health of our target participants and the communities that they live in.

2. Scope of the Program

- In-State Extension

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

1. Assumptions made for the Program

Recruited volunteers will have limited skillsets in the focus areas of the FCYD program. In addition, funding for programs will remain constant or increase.

2. Ultimate goal(s) of this Program

The FCYD Program's ultimate goal(s) is to improve the quality of life for all CNMI residents by understanding and addressing the immediate community needs by providing community and culturally-

focused experiential learning opportunities that encourage personal development and build capacity amongst participants in order to foster a desire to learn, appreciate life, lead, and meet their potential. Furthermore, to build and strengthen relationships between youth and caring adults in order that they may take a positive leadership role in their future and contribute to the community in a positive way.

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

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

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

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

**1. Activity for the Program**

The CNMI FCYD program in collaboration with the CNMI Public School System, CNMI Youth Affairs Office, non-governmental organizations, and the business community will develop relevant programs for families, community, and youth development. Adult and professional volunteers will be recruited through PTA meetings and general community announcements. Youth volunteers will be recruited through the high schools capitalizing on the Student Service Learning program which requires students to fulfill a certain amount of community hours. Volunteers will be adequately trained to ensure quality implementation of programs. Information on the CNMI FCYD programs will be developed and continuously disseminated through publications and other forms of media. FCYD programs will sponsor experiential learning opportunities for youth and parents such as workshops, field days, and hands-on activities related to the FCYD mission. Participants will be taught about healthier lifestyles to help improve their quality of life.

**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>● Demonstrations</li> <li>● Other 1 (Home visitations)</li> <li>● Other 2 (Village meetings)</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

- Government officials / agency collaborators
- Business operators
- Grade school; middle school; high school; college students; teachers, staff
- Adult volunteer leaders from the general public
- Economically disadvantaged
- Senior citizens (Man'Amko)
- Caregivers for elderly
- First time business owners

### 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 volunteers trained
  - Number of training provided for volunteers
  - Number of new schools participating in school enrichment programs
  - Number of partnerships established
  - Number of newly established entrepreneurs
  - Number of youth and adults completing money management
  - Number of youth and adults completing life-skills training
  - Integrated plan for youth development
- 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	Program participants will have the knowledge to assist with program planning and implementation
2	Trained volunteers and program participants conduct training, workshops, and demonstrations



**Outcome # 1**

**1. Outcome Target**

Program participants will have the knowledge to assist with program planning and implementation

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

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

- 901 - Program and Project Design, and Statistics
- 806 - Youth Development
- 802 - Human Development and Family Well-Being

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

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

Trained volunteers and program participants conduct training, workshops, and demonstrations

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

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

- 802 - Human Development and Family Well-Being
- 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 Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)

### **Description**

- Natural disasters such as typhoons, flooding, drought and other extreme weather conditions
- Extreme economic downturn which might affect manpower availability; excessive turnover of staff involved in the program; and unavailability of needed facilities
- Competing priorities
- Willingness of partnering/collaborating organizations

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

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

- Pre and post surveys
- Focus groups to solicit feedback from stakeholders
- Questionnaires of participants attending our various training and events
- In some of our programs, we will follow-up with periodic surveys and reports that provide updates and long-term progress on effectiveness of the programs
  - pre/post program - beginning with the newly conducted Listening Sessions and NMC CREES Program's Community Needs Assessment
  - Data comparison - to address students/participants application of knowledge and skills learned