2016 Northern Marianas College Combined Research and Extension Annual Report of Accomplishments and Results

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I. Report Overview

1. Executive Summary

In August of 2015, Super Typhoon Soudelor destroyed all of the Northern Marianas College Cooperative Research, Extension, and Education Services' (NMC CREES) department buildings on the island of Saipan. The Agriculture Experiment Stations on the islands of Saipan and Tinian were also severely damaged. As a result of this natural disaster, NMC CREES spent a significant part of FY 2016 in post-natural disaster recovery.
Yet, despite these challenges, NMC CREES completed its Community Needs Assessment, and continued to provide programming to meet the needs of stakeholders in the areas of Agriculture and Family and Consumer Sciences.

Total Actual Amount of professional FTEs/SYs for this State

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	25.0	0.0	9.0	0.0
Actual	11.5	0.0	2.5	0.0

II. Merit Review Process

1. The Merit Review Process that was Employed for this year

- Internal University Panel

2. Brief Explanation

All faculty are reviewed by the dean annually. Progress is evaluated based on work plans submitted by program leads. The program plans reflect stakeholder input and needs identified by a broad group of stakeholders.

III. Stakeholder Input

1. Actions taken to seek stakeholder input that encouraged 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
- Other (Local Advisory Councils for each programmatic area)

Brief explanation.

Stakeholder input was encouraged through the convening of local advisory groups. Topic-focused community non-profit groups are also consulted for input on a variety of extension areas.

2(A). A brief statement of the process that was 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.

Local advisory group members are selected through a key-informant interview process. Key-informants recommend individuals from their respective communities to advise on community relevant issues. Potential advisory council group members are then asked by research and extension personnel if they would be willing to be a member and provide input in group and individual settings. Extension and research personnel also use their knowledge and experience of local industry, farmers, health personnel, and those who actively participate in CREES priority areas to recommend individuals

2(B). A brief statement of the process that was 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.

Conducted electronic surveys and face-to-face meetings with stakeholders and government officials.

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.

Stakeholder input (clientele, government) was used to create yearly plans of work for each of the four program areas: Family, Community, and Youth Development, Nutrition and Health, Aquaculture and Natural Resources, and Agriculture. From these yearly plans of work, CREES Administration used these plans a s a guide for financial prioritization per plan of work.

Brief Explanation of what you learned from your Stakeholders

- Need active Agriculture Experiment Stations on Saipan, Tinian, and Rota.
- Hydroponic vegetable production educational programming is needed.
- Youth leadership development is needed.
- Nutrition security is an issue in the CNMI. Too much food (90%) is imported. A significant amount of produce (e.g. spinach, zuchini, melons, peppers) is imported.
- Youth Agricultural Education programming is needed; especially considering our aging farming population.

IV. Expenditure Summary

1. Total Actual Formula dollars Allocated (prepopulated from C-REEMS)			
Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
1252755	0	1172828	0

2. Totaled Actual dollars from Planned Programs Inputs				
	Extension		Research	
	Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
Actual Formula	225756	0	294768	0
Actual Matching	0	0	0	0
Actual All Other	12416	0	258233	0
Total Actual Expended	238172	0	553001	0

3. Amount of Above Actual Formula Dollars Expended which comes from Carryover funds from previous				
Carryover	12915	0	0	0

V. Planned Program Table of Content

V(A). Planned Program (Summary)

Program # 1

1. Name of the Planned Program

Plant Protection Program

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
211	Insects, Mites, and Other Arthropods Affecting Plants	20%		20%	
213	Weeds Affecting Plants	20%		20%	
214	Vertebrates, Mollusks, and Other Pests Affecting Plants	20%		20%	
215	Biological Control of Pests Affecting Plants	20%		20%	
216	Integrated Pest Management Systems	20%		20%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	5.3	0.0	5.3	0.0
Actual Paid	0.2	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
0	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
12416	0	22000	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Agriculture Production conducted Research in regard to plant genetic resources. The research focus on melons such as: Squash Green Tiger, Squash reward and Cheetah F1 that resistance to Water Melon Mosaic Virus (WMV) and Zucchini Mosaic Virus (ZMYV), Squash Delta, Squash Esteen F1 resistance to Powdery Mildew, Cucumber Mosaic Virus. Research on corn varieties: Sweet Corn Honey Pearl that resistance to common rust and Stewart's with Sweet Corn Honey also Sweet Corn XTH2472 resistance to new strain of rust. The Agriculture Production staffs also conducted research on different varieties of Tomatoes. The tomatoes varieties are: Tomato Plum crimson, Tomato 4th of July, Tomato Baby Cake, Carolina Gold, Tomato Pony Express, Tomato red defender, Tomato Chef, Tomato Indigo Kumquat, Tomato Red Morning, Tomato super sweet and Push Early Girl. The peppers: HP Tobacco, Big Thi pepper and Hybrid Hungarian Way. The Agriculture Production team will continued research on the plants varieties that grow well in our region, marketable and resistance to plants pests and diseases.

The CREES Agriculture Production will continue conduct research surveillance in regard to invasive pest such as, Insects, Mites, and other Arthropods Pest Affecting Plants and IPM. The Integrated Pest Management, such as the Bio controls collected on Rota have been released on Saipan and Tinian to control the invasive weed, Chromolaena odorata. The surveillance of invasive ants, Solenopsis invicta on Saipan, Tinian and Rota. The surveillance in an on-going project that will end in June 30, 2017 and the surveillance of Philippine Fruit Fly (Bactrocera philippinensis) and Mango Fruit Fly (Bactrocera frauefeldi) on Saipan. Surveillance of early detection and capture of these pests can lead to eradication before they become established.

2. Brief description of the target audience

Farmers, crop producers and farm helpers, business operators that promote or sell farm products, grade schools, high schools and college students interested in furthering their knowledge in agriculture, adult volunteer leaders (4-H Clubs) and the general public make up the target audience.

3. How was eXtension used?

Information from eXtension was used for extension education through posters display, insect display, flyers, brochures, and one-on-one discussion.

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	10	20	5	10

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	2	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research Projects completed on invertebrate pest, such as nematodes, invasive species such as scarlet gourd, melon fly, papaya mealy bug, and Cuban slug).
  Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Number research projects completed on Plant Genetic Resources

Year	Actual
2016	3

Output #3

Output Measure

- Number of research projects completed on integrated pests (red imported fire ants, Philippine fruit fly, Mango fruit fly, rhino beetle)

Year	Actual
2016	2

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of farmers using Integrated Pest Management to control invasive species
2	Decrease the population of the various invasive species (Cuban Slug, Melon Fly, Sweet potato Weevil, Whiteflies, and nematodes) by certain percentage:
3	Decrease the number of invasive species (chromolaena odorata)
4	Early detection of rhino beetle

Outcome #1

1. Outcome Measures

Number of farmers using Integrated Pest Management to control invasive species

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	5

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Small island ecosystems in the CNMI are prone to invasive species such as rhino betel, red imported fire ants, little fire ants, and oriental fruit fly. These invasive species threaten the islands fauna, flora, agriculture production and the environment. Due to the aftermath of Supertyphoon Soudelor, commercial farmers were concerned about invasive species affecting their farms.

What has been done
Extension visits with commercial farmers were done in 2016 in Saipan, Tinian, and Rota. Education was provided on the purpose of biocontrols and the need to release these biocontrols to suppress the population of invasive weeds (Chromolaena odrata).

Results
Farmers learned the results of the invasive species. Farmer interviews and one-on-one extension visits indicated that 5 farmers increased their knowledge of invasive species controls.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants
215	Biological Control of Pests Affecting Plants
216	Integrated Pest Management Systems

Outcome #2

1. Outcome Measures

Decrease the population of the various invasive species (Cuban Slug, Melon Fly, Sweet potato Weevil, Whiteflies, and nematodes) by certain percentage:

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Decrease the number of invasive species (chromolaena odorata)

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Chromolaena odorata invades the agricultural farm land, reducing soil nutrients and, when left uncontrolled, can take over arable land and the surrounding environment.

What has been done
The release of the bio-control, gall fly, to suppress the population was done at two time-points in both Saipan and Tinian. The island of Rota has already established this particular control.

Results
The release of the bio-control on Saipan and Tinian has resulted in the establishment of the gall fly. The second phase of the evaluation, which is to determine a reduction in the presence of Chromolaena odorata, will commence in 2017.

4. Associated Knowledge Areas

KA Code	Knowledge Area
213	Weeds Affecting Plants

Outcome #4

1. Outcome Measures

Early detection of rhino beetle

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	3

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
The destruction from the rhino beetle on Guam's agriculture and environment has caused tremendous decline of coconut trees and other native species. Guam is in close geographical proximity to the CNMI, with several daily flights and sea vessels (cargo) going between the CNMI and Guam. As such, on-going surveillance for early detection and to prevent the establishment of the rhino beetle in the CNMI is critically important to maintaining the fragile eco-system and Agriculture in the CNMI.

What has been done
Traps to determine the presence of rhino beetle have been set up on Saipan, Tinian, and Rota at airports, sea ports, and commercial cargo areas. Traps are monitored monthly by Agriculture agents from UOG and NMC-CREES.

Results
As a result of the on-going monitoring of rhino beetle traps, no rhino beetles have been caught. Farmers and stakeholders are periodically updated on the rhino beetle surveillance efforts. There has been increased awareness and collaboration among NMC CREES, University of Guam, and CNMI Government agencies, such as Quarantine, Customs, and the Dept. of Land and Natural Resources to ensure that the rhino beetle does not invade the CNMI.

4. Associated Knowledge Areas

KA Code	Knowledge Area
214	Vertebrates, Mollusks, and Other Pests Affecting Plants

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

Commercial farmers raised concerns about the increasing presence of the invasive weed chromolaena odorata. As such, the IPM extension agent had to reprioritize research and extension in order to the bio-control to suppress the population of chromolaena odorata.
The destruction that the rhino beetle on Guam's agriculture and environment has caused tremendous decline of coconut trees and other native species. Guam is in close geographical proximity to CNMI, with several daily flights and sea vessels (cargo) going between the CNMI and Guam. As such, rhino beetle surveillance has been prioritized.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

As the research and surveillance of the rhino beetle progresses, it was found that the the traps that use netting with 1/2 inch eye and ultra-violet light to attract rhino beetle, is more effective than the previously used 5-gallon bucket trap and the 50-gallon drum trap. The netting trap is also more economical per trap compared to the other two types of trap. This finding is significant because:

- A larger area can be surveyed with the netting trap versus the 5-gallon bucket trap & the 50-gallon drum trap
- Program personnel have also reported that the netting traps are easier to set-up and transport.
- Since the long-term surveillance of rhino beetle is expected in the CNMI, reducing the cost of traps can help sustain surveillance efforts.

Key Items of Evaluation

- Small-island ecosystems are fragile to the effects of invasive species. Due to very small arable land areas, it is critical that resources are allocated to prevent destruction to the environment and Agriculture.
- Due to the harms caused by rhino beetle, on-going surveillance is necessary to reduce the possibility of the rhino beetle invading the CNMI.

V(A). Planned Program (Summary)

Program # 2

1. Name of the Planned Program

Global Food Security and Hunger: Livestock Improvement Program

☐ Reporting on this Program

Reason for not reporting

Currently, there are no faculty and staff with the necessary skill sets to conduct Livestock research and extension programming. The lack of a livestock facility also poses a major challenge for effective programming.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	2.0	0.0	1.0	0.0
Actual Paid	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	1890 Matching	1862 Matching	1890 Matching
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	1890 All Other	1862 All Other	1890 All Other
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

- 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 patures and the effects on carbon sequestration and livestock production.

2. Brief description of the target audience

- Youth and adult
- Ranchers/farmers
- Livestock producers
- Government agencies
- Leaders
- Retirees looking at new investment
- Entrepreneurs

- Farmer Associations

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

2. Number of Patent Applications Submitted (Standard Research Output)
Patent Applications Submitted

Year:	2016
Actual:	{No Data Entered}

Patents listed
{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	1	1	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Research projects on Animal Diseases and management, Animal genetic upgrading, Animal nutrition, and Animal science

Year	Actual
2016	0

Output #2

Output Measure

- Number of Workshops and professional development trainings for livestock program (Production, Animal Health, etc.)and sustainable agriculture program

Year	Actual
2016	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 Measures

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected 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)

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Community Resource Development

☑ Reporting on this Program

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	50%		0%	
802	Human Development and Family Well-Being	50%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	0.0	0.0
Actual Paid	1.0	0.0	0.0	0.0
Actual Volunteer	5.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
72762	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

This NMC-CREES, Community Resource Development (CRD) Program, Annual Accomplishment Report reflects the periods from Oct 2015 to September 2016.
On August 2, 2015, two (2) months prior to this, October 2015 to September 2016, reporting period, Super Typhoon Soudelor made a landfall on Saipan, causing extreme damages. It has been reported that it was the worst typhoon to strike the Island of Saipan in the Northern Marianas in nearly 30 years. Hundreds of homes were damaged or destroyed and essential government agencies had their power reinstalled sometimes in October 2015.
Before the CRD Program's building had their water and power installed, CRD Program Manager, program staff and adult volunteers, reached out and served as volunteers at the Salvation Army, Saipan Mayor's Office, Lion Club of Saipan mainly in distributing meals, can goods and household supplies to anyone in need.
Even without water and power, a good number of students continue to report to CRD program and spent an average of 2 to 3 hours working on their remaining traditional handicraft projects. The CRD Program Manager, continue to conduct money management workshops to both youth and adults, but without PowerPoint presentations. The sewing classes for beginners was on hold until water and power were installed.
NMC-CREES, CRD program continue to conduct classes for certification in sewing. Numerous community workshops continue to be conducted by CRD trained staff and CRD professional adult volunteer leaders in the areas of hair and facial care, money management for youth and adults, custom jewelry making, legal aspects facing older adults in the CNMI, fruit and vegetable carving and home arts and designs, using mainly reused materials, in an effort to promote recycling and clean environment.

2. Brief description of the target audience

- Kids (6-7)
- Youth (8-17)
- Youth Leaders (18-21)
- Adult Volunteers for Leaders
- Economically Disadvantaged
- Senior Citizens (Man Am'ko)
- Caregivers for the elderly
- General Public
- First Time Business Owner

3. How was eXtension used?

eXtension was used as a resource to enhance information that was disseminated and used to conduct hands-on-demonstrations to external agencies, residential, high, middle and elementary schools as well as to subsistence and commercial farmers.

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	1520	1590	1800	2500

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Youth and Adults completing Money Management and Family Financial Management workshops.

Year	Actual
2016	268

Output #2

Output Measure

- Number of established Entrepreneurs projects
  Not reporting on this Output for this Annual Report

Output #3

Output Measure

- Number of participants that complete workshop and training on home canning and food preservation
  Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Number of sewing classes for youth and adults conducted

Year	Actual
2016	5

Output #5

Output Measure

- Number of youth and adult money management workshops conducted

Year	Actual
2016	7

Output #6

Output Measure

- Number of hair and facial care classes conducted

Year	Actual
2016	2

Output #7

Output Measure

- Number of arts and crafts and commercial jewelry classes

Year	Actual
2016	5

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of participants that complete workshop and training on home canning and food preservation.
2	Number of youths and adults successfully completing the Sewing for Beginners on the islands of Saipan, Tinian and Rota.
3	Number of youths and adults completing workshops on Youth and Adult Money Management.

Outcome #1

1. Outcome Measures

Number of participants that complete workshop and training on home canning and food preservation.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Number of youths and adults successfully completing the Sewing for Beginners on the islands of Saipan, Tinian and Rota.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	131

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Unemployment rate in the CNMI continue to increase, as a result of the Super Typhoon Soudelor, majority of our new students took sewing classes for beginner while waiting to be call to return to work.

What has been done
Immediately, after CRD power and water were restored, CRD program staff contacted those active students to report to class to complete their required projects so that they will be able to receive their certificate of successfully completions. CRD Program Manager, met with those on waiting list and worked out a schedule for them to report to class. Scheduled classes were from Monday to Friday, from 9:00 am to 4:30 pm. On Saturdays, classes were from 9:00 am to 2:30 pm.

Results
100% of the students completing the sewing class for beginners were able to sew without supervision and at the same time claimed to be making side income from the knowledge and

skills that they have learned.

{Note: As of April 2016, the sewing class for beginners was no longer a part of CRD approved programs. CRD Program, as earlier mentioned is no longer a stand-alone program}.

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

Outcome #3

1. Outcome Measures

Number of youths and adults completing workshops on Youth and Adult Money Management.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
801	Individual and Family Resource Management

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 4

1. Name of the Planned Program

Childhood Obesity Prevention

☑ Reporting on this Program

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%		35%	
724	Healthy Lifestyle	40%		35%	
901	Program and Project Design, and Statistics	10%		30%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	4.0	0.0	1.0	0.0
Actual Paid	2.0	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
52165	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	236233	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

This reporting year was marred with post-typhoon recovery challenges as our program and department facilities and equipment were destroyed by Super-Typhoon Soudelor. However, despite these obstacles, the Childhood Obesity Program was able to provide needed programming in the CNMI. A few of the key

• Conducted physical activity and academic integration training for elementary school teachers, early childhood teachers, and child-care providers using best practices.
• Collaborated with the CNMI Head Start Program to enhance the anthropometric measurements of all Early Head and Head Start students (over 500 students). This included training of teachers on the value of anthropometric measures, correctly measuring, and recording heights and weights. A comprehensive anthropometric measurement guide was created for the Head Start Program to standardize height and weight measurements. This is the first phase of a three-phase regional project to improve child health monitoring and surveillance in the CNMI and region. This project is critical as it will help to establish a uniform system for monitoring child growth and health in a sustainable manner. This data is needed to formulate and evaluate interventions focused on improving child health.
• The Paupau Beach Park playground was completely redeveloped by the **Children's Healthy Living Program** working in partnerhsip with the Tanapag, Achugao, San Roque, and As Matuis Role Models (TASA), Seafix, Marianas Resort, Historic Preservation Office, and the Saipan Mayor's Office. This is the second of two parks built almost entirely by volunteers from the Northern part of Saipan. This project is part of a multi-faceted effort to improve the environments where children live, learn, and play. The CNMI CHL Program was invited to present its award-winning project, which includes play ground building by volunteers, at the World Health Organization's Healthy Islands Best Practices Workshop in Fiji. A WHO report highlighting CNMI CHL's partnership with the TASA Role Models as a "best practice project" will be published in 2017.
• Fiscal Year 2016 also marked a year of contributions to the scientific literature available on the CNMI. CHL co-authored 10 scholarly publications as a result of the data collection from the research component of CHL. Publication topics ranged from prevalence of young child obesity, ensuring quality data collection, and characteristics of the CNMI food environment.

2. Brief description of the target audience

- 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

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	470	500	1400	400

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	3	10	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of role models trained

Year	Actual
2016	0

Output #2

Output Measure

- Number of trainings on increasing physical activity

Year	Actual
2016	2

Output #3

Output Measure

- Number of trainings and meetings with/for role models

Year	Actual
2016	4

Output #4

Output Measure

- Number of role model initiated projects

Year	Actual
2016	2

Output #5

Output Measure

- Number of social marketing campaigns in identified villages

Year	Actual
2016	1

Output #6

Output Measure

- Number of new stores participating in Healthy Village Stores program

Year	Actual
2016	0

Output #7

Output Measure

- Number of teachers, child care providers, early childhood managers and administrators trained to incorporate physical activity into the school day

Year	Actual
2016	170

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

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 Measures

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	2

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Increasing access to facilities that encourage physical activity, such as parks, can increase physical activity levels (Gordon-Larsen, 2006). An assessment conducted on the built environment in the Tanapag, Achugao, San Roque, and As Matuis area of Saipan found that parks for children and families were dilapidated, unsightly, and unsafe.

What has been done
Program personnel worked with a diverse group of community members (CHL TASA role models), the private sector, and government agencies to remove an unsafe, dilapidated park at Paopao Beach to replace it with safe play ground equipment. Playground equipment was either made of recycled materials (with fabrication by Seafix) and/or donated by Marianas Resort and Dr. Ignacio Dela Cruz. The Public School System, Dept. of Public Works, Saipan Mayor's Office, and Imperial Pacific were also involved in the efforts. The TASA role models played a key leadership role in the planning and implementation of the playground rehabilitation.

Results
Social cohesion was increased as a result of this project as community volunteers assisted with all aspects of the project. This is the second playground that has been completely rehabilitated by TASA Role Models and NMC CREES working with a variety of public and private businesses and agencies.

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #2

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #3

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #4

1. Outcome Measures

Two elementary schools adopt child wellness policy

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #5

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
724	Healthy Lifestyle

Outcome #6

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Limited data is available on the weight and nutrition status of children in the Commonwealth of the Northern Mariana Islands (CNMI), despite the CNMI having high rates of adult obesity and diabetes. The few available data on children demonstrate high rates of overweight and obesity with recent estimates indicating 21% of 2 year olds and 39% of 8 year olds as overweight or obese (OWOB) (Novotny et al., 2015). These statistics are significantly higher than U.S. national averages for childhood overweight and obesity, which are at 16% for 2-5 years (y) and 26% for 6-11 year olds (Ogden, Carrol, Kit, & Flegal, 2014). In AS and CNMI, significant weight gain seems to take place at around 4-5 years old and persist into ages 8-10, suggesting an unhealthy weight

transition during that particular point in childhood (refer to figure 2 below); although the same weight transition at age 4-5 has not been observed in the only data available on 4-8y olds in Pohnpei (Children?s Healthy Living Program for Remote Underserved Minority Populations in the Pacific Region, 2013).

What has been done
The Childhood Obesity Prevention Program provided technical assistance and training to Head Start and Early Start teachers on the value of anthropometric measurements, how to measure and record height, weight, head circumference, and the value of having aggregated growth assessment data for program planning and health interventions at the individual and group levels.

Results
Head Start and Early Head Start were able to better understand the nutrition status of students as a result of these efforts. Regional work with the University of Hawaii Manoa, American Samoa Community College, American Samoa Head Start, College of Mircronesia Pohnpei, and Pohnpei Early Childhood Education Program is currently under way to standardize anthropometric measurements and to establish the groundwork for a regional child health monitoring system. This project is critical as it will help to establish a uniform system for monitoring child growth and health in a sustainable manner. This data is needed to formulate and evaluate interventions focused on improving child health.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
901	Program and Project Design, and Statistics

Outcome #7

1. Outcome Measures

Increase physical activity among 2-10 year olds

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

Increase water consumption among 2-10 year old children

Not Reporting on this Outcome Measure

Outcome #9

1. Outcome Measures

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

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results
Data is still being analyzed to determine increases in fruit and vegetable consumption.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #10

1. Outcome Measures

Increase physical activity among 2-10 year old children

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

V(H). Planned Program (External Factors)

External factors which affected 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)

Brief Explanation

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Final analysis of data collected at 24-month measurements is underway. This data will help us to determine changes in come of the behaviors that contribute to childhood overweight and obesity (e.g. water consumption, fruit and vegetable consumption, physical activity).
Results from the training of early childhood and elementary teachers in physical activity with academic integration indicate that as a result of attending the training, participants strongly agreed that they now have the knowledge to apply the concepts and strategies learned.
Other evaluation results are discussed in the "State Defined Outcomes" section of this report.

Key Items of Evaluation

- The playground build was built on the work of the 2-3 years prior with community role models who underwent training in Nutrition and Health and relationship building opportunities.

V(A). Planned Program (Summary)

Program # 5

1. Name of the Planned Program

Food Safety

☐ Reporting on this Program

Reason for not reporting

This program is no longer active.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	2.0	0.0	2.0	0.0
Actual Paid	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

- Establishment of good post-harvest practices
- Establishment of outstanding food safety training programs
- Development of various value-added food products using local produce
- Introduction of new food processing technologies to the CNMI

I Conduction of basic and applied research to intensify the Food Safety and Quality Program

2. Brief description of the target audience

* Farmers, other crop producers, and farm helpers
* Individuals involved in food industry such as processors, managers, food handlers, vendors
* Grade schools, high schools and college students interested in food safety and quality
* Government agencies/collaborators

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	0	1	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of novel food processing technology workshops

Year	Actual
2016	0

Output #2

Output Measure

- Number of workshops related with food safety and quality

Year	Actual
2016	0

Output #3

Output Measure

- Numbers of newly developed value-added products

Year	Actual
2016	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Numbers of farmers/producers that develop value added products
2	Number of farmers/producers implementing good post-harvest practices

Outcome #1

1. Outcome Measures

Numbers of farmers/producers that develop value added products

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Number of farmers/producers implementing good post-harvest practices

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 6

1. Name of the Planned Program

4-H Youth Development

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
802	Human Development and Family Well-Being	25%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	25%		0%	
805	Community Institutions, Health, and Social Services	25%		0%	
806	Youth Development	25%		0%	
	Total	100%		0%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	0.0	0.0
Actual Paid	2.5	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
44600	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

On August 02, 2015 the CNMI experienced a category 4 typhoon. Super Typhoon Soudelor's devastating winds damaged 90% of the island of Saipan knocking down power poles, uprooting trees and damaging homes and buildings. The entire island was without electrical power. Many families lost their homes. The opening of schools had to be postponed. Businesses were closed down. Saipan was in a state of catastrophe. This life-changing experience temporarily altered the way of life. Priorities during this time shifted to recovery.
The 4-H office was completely destroyed during the typhoon. Program staff rummaged through the debris left behind by Super Typhoon Soudelor. With such devastation throughout the island, office buildings were quite limited. Fortunately, NMC CREES 4-H Youth Development program was able to secure a temporary location late September early October. For the next few months, the entire community focused on recovery efforts.
Despite the numerous challenges, the 4-H program was able to provide agriculture-based afterschool and school-based programming. The program introduced embryology to three middle schools. This was to enhance Science, Technology, Engineering, Agriculture and Math (STEAM) education in public schools. In addition to this, Tinian Elementary and Junior Senior High School students received training in vegetable production using hydroponics and raised beds. The program was also able to organize two (2) four-week long summer camps, which were facilitated by 4-H young adult and youth volunteers.

2. Brief description of the target audience

- Government Officials/Agency Collaborators
- Business operators
- Grade school, High School and College students, teachers and staff
- Adult Volunteer Leaders (4-H Clubs) from the general public

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	36	23

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of youth participating in 4-H sponsored events

Year	Actual
2016	378

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

Outcome #1

1. Outcome Measures

Number of 4-h volunteers recruited

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	21

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Recruiting and enlisting volunteers serves to enhance community buy-in and overall support for youth programs.

What has been done
Program personnel have made efforts to recruit volunteers through personal contacts and efforts to develop programs that potential volunteers might enjoy contributing too.

Results
Volunteers were a big part of our 4-H Camp Maga?Lahi this year by taking leadership roles in the facilitation of the summer camp activities.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

Outcome #2

1. Outcome Measures

Number of youth participants attending 4-H workshop activities

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	36

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
In the CNMI, there are very few activities, youth leadership building programs, and resources available to children, so it is critical that events, activities, and programs be presented to youth for their participation and development.

What has been done
We conducted training, camps, and presentations for children to participate in.

Results
Agents and volunteers were able to contribute to a number of meaningful youth events and activities, such as the Eco-camps, summer fun camps, youth conferences, and others.

4. Associated Knowledge Areas

KA Code	Knowledge Area
806	Youth Development

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Pre and post surveys were administered during the 2016 Camp Maga'Lahi. Below are the results of the surveys:

• At the beginning of camp, 34.4% of campers felt confident speaking in front of groups. At the end of camp, there was a 19.9% increase in confidence level of campers [54.3%].

• There was a 10% increase in skills development from 67.7% to 77.8%.

• There was an 18.3% increase in participant's' ability to make a difference in their community through service [from 48.4% to 66.7%].

Key Items of Evaluation

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Global Food Security and Hunger: Aquaculture and Fisheries Development Program

☑ Reporting on this Program

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	30%		30%	
111	Conservation and Efficient Use of Water	30%		30%	
112	Watershed Protection and Management	10%		10%	
135	Aquatic and Terrestrial Wildlife	30%		30%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	1.0	0.0
Actual Paid	0.2	0.0	0.8	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
32246	0	294768	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

NMC CREES' Aquaculture & Fisheries Development Program (A&FDP) continues to be one of our major focal point in our program delivery. Although the actual personnel dedicated towards this program are fairly small when compared to many well-established Land Grant colleges offering such similar services, the A&FDP has
been instrumental in the revival of the aquaculture industry in our small locale. The following activities highlight the major undertakings and noteworthy accomplishments the program has made during this reporting cycle;

1. **"Forktail Rabbitfish Aquaculture Development in the CNMI" Project:** Infrastructure development on the hatchery and the broodstock holding area for the Rabbitfish Development project commenced in November of 2015 and were completed in April of 2016. Native, mature, Rabbitfish were collected in the Saipan lagoon and stocked in the broodstock tanks by June of 2016. Four (4), NMC CREES staff, involved with the project, travelled to Iloilo, Philippines for a familiarization study tour on Rabbitfish broodstock management and larval rearing. The first spawning from broodstock stocked in June was recorded in August of 2016.

2. **A&FDP Outreach:** To ensure the sustainability of the aquaculture industry in the CNMI and relevance of A&FDP; the program continues to conduct numerous outreach activities in the community throughout the year.

Three of these events, where large crowds can be engaged and educated about the activities of the program, were the annual Agriculture Fairs in Saipan and Rota, the BECQ Environmental Expo, and the new, Marianas Seafood Festival. In these events, the program seized the opportunity, through displays, to highlight, promote, and educate the public on ongoing projects like Rabbitfish hatchery and grow out, alternative, aquatic-based, plant production methods like hydroponics and aquaponics.

The program continues to utilize the aquaculture wet laboratory as a platform to give educational tours to visitors from such organizations like the 4-H Summer Program, Saipan Summer Fisheries Program, and exchange students from Asia to observe and learn the actual research projects being conducted or technology being demonstrated. Presentations on open ocean cage culture and aquaculture career options, may it be on or off campus, were also undertaken.

3. **Community-based, Hydroponics and Aquaponics Trainings:** In response to the 2016 NMC CREES Needs Assessment, the A&FDP conducted workshops on non-circulating, hydroponics for senior citizens and the community in Rota. Non-circulating hydroponics, based on Dr. Bernie Kratky's system, was chosen as the system of choice ideal for this locale because it is inexpensive, user friendly, and does not require energy to run the system. The program also continues to assist schools upon requests with their aquaponics production systems by providing technical assistance.

2. Brief description of the target audience

Youth and Adult
Aquaculture Producers
Government Agencies
Non-Governmental Organizations
Business Community
Retirees at new investment
Health-conscious Individuals
Extension

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	766	1600	660	1500

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of aquaculture workshops

Year	Actual
2016	2

Output #2

Output Measure

- Number of aquaculture research project

Year	Actual

2016	1

Output #3

Output Measure

- number of short course/training

Year	Actual
2016	2

Output #4

Output Measure

- Number of aquaculture demonstration project

Year	Actual
2016	3

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of farmers familiar with Recirculating Aquaculture Systems
2	Number of farmers learning how to use locally available ingredients in the on-island production of feed
3	Number of youths familiar with aquaculture and aquaponics
4	Number of individuals that will venture into aquaculture

Outcome #1

1. Outcome Measures

Number of farmers familiar with Recirculating Aquaculture Systems

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	870

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Due to the CNMI?s stringent waste discharge regulations, limited space, and mostly limestone-based soils, Recirculating Aquaculture System (RAS) is the preferred culture method for the production of aquatic animals and plants.

What has been done
Outreach in major public events, workshops, aquaculture wet laboratory visits, trainings, and publications in the printed, electronic, and social media were some of the efforts undertaken to increase knowledge in RAS among the farmers.

Results
As a result of the measures taken by the program, interest and inquiries about how to start an aquaculture enterprise continue to come in.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
135	Aquatic and Terrestrial Wildlife

Outcome #2

1. Outcome Measures

Number of farmers learning how to use locally available ingredients in the on-island production of feed

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	1

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Aquaculture feed represents 30% of the cost of production in the CNMI. This has been identified as a major impediment to expansion of the industry in the most recent aquaculture development plan and in the 2016 NMC CREES Needs Assessment. A&FDP has taken steps such as building capacity among farmers through training on farm made aquafeed. The next step is step is secure funding for actual production of feed on island using locally available ingredients.

What has been done
Aquaculture producer training in Thailand and on-island workshops on farm made aquafeed. Currently looking for funding and expertise in the aquaculture feed production area to perform actual feed production and conduct on farm feed trials.

Results
Another one of our Tilapia farmers has started growing and using Azolla as an alternative feed, and as one of those, who travelled to Thailand, started making feed, albeit, in a small scale.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
135	Aquatic and Terrestrial Wildlife

Outcome #3

1. Outcome Measures

Number of youths familiar with aquaculture and aquaponics

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	770

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
There is a so called ?Graying? of the current farming community in the CNMI, and, therefore the A&FDP strongly believes that the most appropriate way to educate and spark interest in youth on aquaculture and aquaponics is through early exposure and engagement via NMC CREES?, 4-H Youth Development program, public and private schools, NGO youth programs and major, CNMI events like the Ag. Fairs, Environmental Expo, and the Marianas Seafood Festival.

What has been done
In school aquaculture and aquaponics demonstration programs, exhibits and/or displays in major CNMI public events, short courses, aqua wet lab visits/tours, and media exposures throughout FY 2016.

Results
Through activities that the A&FDP undertakes or partake, over 2000 youths, directly or indirectly were engaged by the program in 2016.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
111	Conservation and Efficient Use of Water
112	Watershed Protection and Management
135	Aquatic and Terrestrial Wildlife

Outcome #4

1. **Outcome Measures**

Number of individuals that will venture into aquaculture

Not Reporting on this Outcome Measure

V(H). Planned Program (External Factors)

External factors which affected 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.)

Brief Explanation

As a result of Typhoon Soudelor in August of 2015, many of the island residents who were contemplating venturing into aquaculture production shifted their focused and their resources instead to rebuilding homes. As such, there were no new farms started in FY 2016 but several inquiries were entertained by the program on shrimp, marine finfish, and giant clam farming.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

As a result of pre and post-test given to clients at each of the planned activities, i.e., workshops, evidence has shown, that on average, there was an 80% knowledge gained by participants.

Key Items of Evaluation

Pre and posttest, adoption of technology - backyard, non-circulating, hydroponics lettuce production, and consumption of locally, hydroponically grown lettuce

V(A). Planned Program (Summary)

Program # 8

1. Name of the Planned Program

Climate Change

☐ Reporting on this Program

Reason for not reporting

This program area will be addressed through the Natural Resources Program. CREES has just undergone a restructuring of its program areas.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	1.0	0.0	0.0	0.0
Actual Paid	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Volunteer	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}

V(D). Planned Program (Activity)

1. Brief description of the Activity

Demonstration and research projects will be applied as learning tools for educating farmers and the community in regards to climate change and the importance of strong agriculture systems in mitigating against the impacts of climate change on our island communities. Sustainable farming systems, such as

the Dry Litter Waste Management system, rotational grazing, improved pasture grasses and legumes, composting and others will be demonstrated, documented, and shared through education and outreach efforts. .Farmer-type gatherings such as association meetings, soil and water conservation district meetings and forums will target students from the grade school, high school and college will also be involved in activities and presentations when ever possible. Soil sampling has been conducted as part of the improved pasture grasses and legumes trials to determine the levels of carbon sequestration occurring in our tropical cattle pasture systems. Variety trials that evaluate crops and fruit trees for resistance to wind, salinity, drought and other factors has been conducted in order to strengthen local agricultural production systems and keep them adaptable to changes in the climate and other environmental factors. As a pollution prevention activity, recycling will be promoted and encouraged through capacity building, outreach and education. Agents will work with local climate change working groups and others that are engaging in activities that are consistent with the mission of the climate change program.

2. Brief description of the target audience

- Government Officials/Agency Collaborators
- Business operators
- Grade school, High School and College students, teachers and staff
- Volunteers Leaders from the general public
- Farmers and environmental groups and associations.

3. How was eXtension used?

{No Data Entered}

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	0	0	0	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year: 2016

Actual: {No Data Entered}

Patents listed

{No Data Entered}

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	{No Data Entered}	{No Data Entered}	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of projects and programs that serve to diversify and strengthen local agricultural systems

Year	Actual
2016	0

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of farmer adopting sustainable farming systems
2	Number of participants attending workshops on climate change, local action strategies, and sustainable farming systems

Outcome #1

1. Outcome Measures

Number of farmer adopting sustainable farming systems

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

Outcome #2

1. Outcome Measures

Number of participants attending workshops on climate change, local action strategies, and sustainable farming systems

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	0

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
{No Data Entered}

What has been done
{No Data Entered}

Results
{No Data Entered}

4. Associated Knowledge Areas

KA Code	Knowledge Area
{No Data}	null

V(H). Planned Program (External Factors)

External factors which affected outcomes

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

Brief Explanation

{No Data Entered}

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}

V(A). Planned Program (Summary)

Program # 9

1. Name of the Planned Program

Food Security and Agricultural Production

☑ Reporting on this Program

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships	10%		10%	
103	Management of Saline and Sodic Soils and Salinity	10%		10%	
111	Conservation and Efficient Use of Water	10%		10%	
112	Watershed Protection and Management	10%		10%	
204	Plant Product Quality and Utility (Preharvest)	30%		30%	
205	Plant Management Systems	20%		20%	
405	Drainage and Irrigation Systems and Facilities	10%		10%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2016	Extension		Research	
	1862	1890	1862	1890
Plan	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}	{NO DATA ENTERED}
Actual Paid	2.4	0.0	0.0	0.0
Actual Volunteer	0.0	0.0	0.0	0.0

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

Extension		Research	
Smith-Lever 3b & 3c	**1890 Extension**	**Hatch**	**Evans-Allen**
23983	0	0	0
1862 Matching	**1890 Matching**	**1862 Matching**	**1890 Matching**
0	0	0	0
1862 All Other	**1890 All Other**	**1862 All Other**	**1890 All Other**
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

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 theimportation of agricultural commodities (vegetables & frozen meats). Our program aims to promote andenhance 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, hindersustainable 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 buildcapability to address the problems of invasive species, to improve best management methods and toextend 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. Brief description of the target audience

We target a wide range of audience: farmers, crop producers and farm helpers, business owners, educators, hobbyists, young adults interested in agriculture, general public.

3. How was eXtension used?

eXtension was used as a tool for resources in different topics of extension and research. eXtension was also used for professional development for extension faculty and staff.

V(E). Planned Program (Outputs)

1. Standard output measures

2016	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	10	10	0	0

2. Number of Patent Applications Submitted (Standard Research Output)

Patent Applications Submitted

Year:	2016
Actual:	0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2016	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of crop trials completed.

Year	Actual
2016	57

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of crop varieties tested
2	Small-scale mechanical agriculture

Outcome #1

1. Outcome Measures

Number of crop varieties tested

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	57

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Sustainable farming practices strengthen local farm and marketing systems. NMC CREES has an ongoing effort to promoting farming practices and methods which are economically viable, economically sound, and to protect public health.

What has been done
Four varieties of sweet corn (Saipan), 14 varieties of squash/zucchini (Saipan), 4 bean varieties, 2 tomato varieties (Saipan), 4 varieties of corn (Rota), 8 varieties of squash (Rota), 2 varieties of bean (Rota), 2 tomato varieties (Rota), 10 squash varieties (Tinian), 2 tomato, 1 tomatillo variety, 4 pumpkin varieties were tested.

Results
This was the first time for NMC CREES in the last 10+ years that variety trials have been conducted at the Agriculture Experiment Stations. Faculty and staff have been building their human capital of vegetable production in the CNMI. The most viable varieties are being tested in Spring 2017.

4. Associated Knowledge Areas

KA Code	Knowledge Area
103	Management of Saline and Sodic Soils and Salinity
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

Outcome #2

1. Outcome Measures

Small-scale mechanical agriculture

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Actual
2016	7

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)
Farmers cannot use all of their acreage due to lack of mechanical agriculture and the high cost of farm labor in the CNMI. CNMI are largely dependent on foreign labor to work on the farm. Now the U.S. Government has taken over immigration and set caps on the hiring of overseas foreign workers, farmers must move to mechanical agriculture to adjust for lack of man-power.

What has been done
NMC CREES has moved to small-scale mechanical agriculture. All agriculture faculty and staff have been trained in proper operation of agriculture mechanical equipment. Currently, CREES has obtained small tractors and the equipment to go with them for vegetable production for each of the three research stations.

Results
NMC-CREES has moved from one acre (or less) of vegetable production to over two acres of vegetable production at the Agriculture Experiment Stations on Saipan, Tinian, and Rota. This accounts for a 100% increase in land under cultivation.

4. Associated Knowledge Areas

KA Code	Knowledge Area
205	Plant Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Other (Lack of personnel with skill sets in basic production Agriculture (vegetable))

Brief Explanation

The monsoons in 2016 wiped out the pumpkin variety trials and brought a host of pests, which effected the corn, zuchini, and beans variety trials.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

Faculty and staff have increased their understanding and their skills in small-scale vegetable production. They are efficient in mechanical agriculture, irrigation methods, water conservation methodologies (drip), post-harvest practices, and are now in a better position to disseminate this knowledge. Vegetable varieties that have previously never been grown in the CNMI have now been previewed.

Key Items of Evaluation

Seven faculty and staff have been trained in proper mechanical agricultural operations.
Vegetable varieties that have previously never been grown in the CNMI have now been previewed.

VI. National Outcomes and Indicators

1. NIFA Selected Outcomes and Indicators

Childhood Obesity (Outcome 1, Indicator 1.c)	
50	Number of children and youth who reported eating more of healthy foods.
Climate Change (Outcome 1, Indicator 4)	
0	Number of new crop varieties, animal breeds, and genotypes whit climate adaptive traits.
Global Food Security and Hunger (Outcome 1, Indicator 4.a)	
1	Number of participants adopting best practices and technologies resulting in increased yield, reduced inputs, increased efficiency, increased economic return, and/or conservation of resources.
Global Food Security and Hunger (Outcome 2, Indicator 1)	
0	Number of new or improved innovations developed for food enterprises.
Food Safety (Outcome 1, Indicator 1)	
0	Number of viable technologies developed or modified for the detection and
Sustainable Energy (Outcome 3, Indicator 2)	
0	Number of farmers who adopted a dedicated bioenergy crop
Sustainable Energy (Outcome 3, Indicator 4)	
0	Tons of feedstocks delivered.