

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Global Food Security and Hunger: Crop Improvement 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%	
204	Plant Product Quality and Utility (Preharvest)	30%		30%	
205	Plant Management Systems	10%		0%	
902	Administration of Projects and Programs	30%		40%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

1. Actual amount of FTE/SYs expended this Program

Year: 2013	Extension		Research	
	1862	1890	1862	1890
Plan	3.0	0.0	1.0	0.0
Actual Paid Professional	0.5	0.0	0.2	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
45047	0	9697	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

- * Micropropagation of staple crops such as banana, sweet potato and taro to produce quality and disease free plants.
- * Field trials and evaluations of new varieties in fruits, root crops and vegetables conducted in local soil and climatic conditions of CNMI.
- * Research and extension programs on underutilized crops (specialty crops) and medicinal plants
- * Disease diagnosis and disorder in the crops
- * Organize field days and taste testing (sensory evaluation) of new varieties of taro, sweet potato and banana.
- * Conduct hands on training and workshops for farmers, extension agents, and students on fruit trees grafting, soil and water conservation techniques, sustainable production of fruits and vegetables and composting.
- * Video production
- * Publications (brochures and fact sheets) and presentations through informational seminars and lectures. Involve grade school, high school and college students in activities and presentations
- * Implement best management practices on farms.
- * Present results of research finds in national and interantional scientific meetings and conferences.

2. Brief description of the target audience

- * Government /Agency Collaborators
- * Research assistants and Agriculture Extension agents
- * All farm crop producers and farm helpers in the CNMI
- * Business operators that promote or sell farm products
- * Grade school, High School and College student
- * Adult Volunteer Leaders (4-H Clubs)

3. How was eXtension used?

eXtension was not used in this program

V(E). Planned Program (Outputs)

1. Standard output measures

2013	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	100	200	50	200

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

Year: 2013
Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2013	Extension	Research	Total
Actual	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of research projects completed on Crop Improvement Issues
Not reporting on this Output for this Annual Report

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Number of households that begin to grow food in their own garden
2	Number of farmers that learn to use Organic agriculture production systems on farm
3	Number of farmers using Sustainable Agriculture techniques (best management practices) such as cover cropping, mulching, rotational grazing, no-till farming, composting, etc.
4	Diversifying crops and cropping systems

Outcome #1

1. Outcome Measures

Number of households that begin to grow food in their own garden

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Number of farmers that learn to use Organic agriculture production systems on farm

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Number of farmers using Sustainable Agriculture techniques (best management practices) such as cover cropping, mulching, rotational grazing, no-till farming, composting, etc.

2. Associated Institution Types

- 1862 Extension
- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	25

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Livestock Production is an important component of our local food systems. Livestock producers provide our communities with access to fresh meats that would otherwise not be available to the general public, due to the sheer distance from our islands to the Mainland USA. Many livestock producers have structured their production systems, based on outdated and unsustainable management practices, resulting in losses to production and created the threat of environmental damage. Specifically, over-grazing of grass and legume pastures can lead to the proliferation of invasive or non-edible species that may out compete desirable pasture species, leading to a

reduction in productive capacity of the pasture, diminished animal health, and increased soil erosion. BEST management practices, such as rotational grazing, can improve pastures over time, improving edible grass species growth, contributing to better animal health, and improved soil health and fertility.

What has been done

The NMC-CREES Livestock Improvement Program has been working in partnership with the University of Hawaii, University of Guam, and University of the Virgin Islands, and many other partners to conduct a series of training and capacity building opportunities for farmers in the CNMI and Guam, which has come to be known as the "Marianas Grazing Academy". We set up farmer advisory councils and met with producers throughout the region to guide our program planning efforts. We have developed the first publicly supported artificial insemination program for cattle, established grass and leuceana demonstration and research plots, and conducted workshops and field days on a variety of livestock production topics, to include pasture management topics.

The NMC-CREES livestock Improvement program employs a variety of evaluation tools to assess our programs, to include pre and post-surveys, herd and livestock surveys, areas under pasture, pasture and legume data collection, numbers of clients applying and receiving EQIP and FSA funding, amount of USDA dollars applied for and spent on conservation practices, numbers of waste management systems constructed, number of clients adopting BEST management practices (such as composting), pre and post-tests, interviews, advisory councils, direct and indirect client contact numbers.

Results

Through the collection and analysis of data collected through a variety of methods, our program has observed increases in livestock production, pastured areas, meat processing activity and businesses, legislative support (imports to Guam), and increases in the interest levels of farmers in adopting BEST management practices, such as, weed suppression, pasture management, animal health, biomass and forage improvement, breed improvement, animal waste management, and overall community support for sustainable livestock production in the CNMI. Farmers also reported saving time and labor as a direct result of using rotational grazing practices as promoted by program extension agents.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

Outcome #4

1. Outcome Measures

Diversifying crops and cropping systems

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2013	8

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Due to the limited land area, resources, and food security issues in the CNMI, there is a need for farmers to diversify crops and improve cropping systems with sustainable agriculture techniques.

What has been done

Extension agents worked with farmers to diversify crops and improve cropping systems through inter-cropping and other best-practice methods. Extension agents worked with 8 farmers to introduce specialty crops (i.e. dragon fruit) and to improve current cropping systems.

Results

As a result of the extension work, an additional \$30,000 in income was generated among the 8 farmers who received crop improvement programming.

4. Associated Knowledge Areas

KA Code	Knowledge Area
102	Soil, Plant, Water, Nutrient Relationships
204	Plant Product Quality and Utility (Preharvest)
205	Plant Management Systems

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Competing Public priorities
- Other (Employee turnover)

Brief Explanation

Due to employee turnover, not all outputs and outcomes were accomplished.

V(I). Planned Program (Evaluation Studies)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}