

**CNMI COOPERATIVE RESEARCH, EXTENSION,
AND EDUCATION SERVICE**

NORTHERN MARIANAS COLLEGE

5 - YEAR PLAN OF WORK

(OCTOBER 1, 1999 THROUGH SEPTEMBER 30, 2004)

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TABLE OF CONTENTS

ACRONYMS	6
1 Introduction.....	7
2 Mission Statement.....	7
3 Projected Resources	8
4 Ongoing and Planned Programs and Projects.....	11
5 Program Descriptions.....	14
AGRICULTURAL RESEARCH AND EXTENSION	14
5.1 Plant Protection Program	14
5.1.1 Issues.....	14
5.1.2 Performance Goals.....	14
5.1.3 Output Indicators.....	14
5.1.4 Outcome Indicators.....	14
5.1.5 Key Program Components.....	15
5.1.6 Internal and External Linkages	15
5.1.7 Target Audiences	15
5.1.8 Program Duration.....	15
5.1.9 Allocated Resources (\$1000).....	16
5.1.10 Ongoing Extension and Outreach	16
5.2 Crop Production Improvement Program.....	16
5.2.1 Issues.....	16
5.2.2 Performance Goals.....	16
5.2.3 Output Indicators.....	17
5.2.4 Outcome Indicators.....	17
5.2.5 Key Program Component(s)	17
5.2.6 Internal and External Linkages	17
5.2.7 Target Audiences	18
5.2.8 Program Duration.....	18
5.2.9 Allocated Resources (\$1000).....	18
5.2.10 Ongoing Extension and Outreach	18
5.3 Aquaculture and Fisheries Development Program	18
5.3.1 Issues.....	18
5.3.2 Performance Goals.....	19
5.3.3 Output Indicators.....	19
5.3.4 Outcome Indicators.....	19
5.3.5 Key Program Components.....	19
5.3.6 Internal and External Linkages	20
5.3.7 Target Audiences	20
5.3.8 Program Duration.....	20
5.3.9 Allocated Resources (\$1000).....	20
5.3.10 Ongoing Extension and Outreach	20
5.4 Livestock Improvement Program.....	21
5.4.1 Issues.....	21
5.4.2 Performance Goals.....	21

5.4.3	Output Indicators.....	21
5.4.4	Outcome Indicators.....	21
5.4.5	Key Program Components.....	22
5.4.6	Internal and External Linkages.....	22
5.4.7	Target Audiences.....	22
5.4.8	Program Duration.....	22
5.4.9	Allocated Resources (\$1000).....	22
5.4.10	Ongoing Extension and Outreach.....	23
5.5	CNMI Soil and Water Management Program.....	23
5.5.1	Issues.....	23
5.5.2	Performance Goals.....	23
5.5.3	Output Indicators.....	24
5.5.4	Outcome Indicators.....	24
5.5.5	Key Program Component(s).....	24
5.5.6	Internal and External Linkages.....	24
5.5.7	Target Audiences.....	25
5.5.8	Program Duration.....	25
5.5.9	Allocated Resources (\$1000).....	25
5.5.10	Ongoing Extension and Outreach.....	25
5.6	Agriculture Marketing and Farmer Services Program.....	25
5.6.1	Issues.....	25
5.6.2	Performance Goals.....	26
5.6.3	Output Indicators:.....	26
5.6.4	Outcome Indicators.....	26
5.6.5	Key Program Components.....	27
5.6.6	Internal and External Linkages.....	27
5.6.7	Target Audiences.....	27
5.6.8	Program Duration:.....	27
5.6.9	Allocated Resources (\$1000).....	27
5.6.10	Ongoing Extension and Outreach.....	28
5.7	CNMI Cooperative Research, Extension, and Education Service Communication Program.....	28
5.7.1	Issues.....	28
5.7.2	Performance Goals.....	28
5.7.3	Output Indicators.....	28
5.7.4	Outcome Indicators.....	29
5.7.5	Key Program Components.....	29
5.7.6	Internal and External Linkages.....	29
5.7.7	Target Audiences.....	29
5.7.8	Program Duration:.....	29
5.7.9	Allocated Resources (\$1000).....	30
5.7.10	Ongoing Extension and Outreach.....	30
FAMILY AND CONSUMER SCIENCES.....		30
5.8	Food Safety and Quality Program.....	30
5.8.1	Issues:.....	30
5.8.2	Performance Goals:.....	31
5.8.3	Output Indicators:.....	31
5.8.4	Outcome Indicators:.....	31

5.8.5	Key Program Components:	32
5.8.6	Internal and External Linkages:	32
5.8.7	Target Audiences:	32
5.8.8	Program Duration:	32
5.8.9	Allocated Resources: (\$1000)	33
5.8.10	Ongoing Extension and Outreach:	33
5.9	Expanded Food and Nutrition Education Program	33
5.9.1	Issues	33
5.9.2	Performance Goals	34
5.9.3	Output Indicators	34
5.9.4	Outcome Indicators	34
5.9.5	Key Program Components	34
5.9.6	Internal and External Linkages	35
5.9.7	Target Audiences	35
5.9.8	Program Duration	35
5.9.9	Allocated Resources (\$100)	35
5.9.10	Ongoing Extension and Outreach	35
5.10	Nutrition, Diet and Health Program	36
5.10.1	Issues	36
5.10.2	Performance Goals	36
5.10.3	Output Indicators	36
5.10.4	Outcome Indicators	37
5.10.5	Key Program Components	37
5.10.6	Internal and External Linkages	37
5.10.7	Target Audiences	37
5.10.8	Program Duration	38
5.10.9	Allocated Resources (\$1000)	38
5.10.10	Ongoing Extension and Outreach	38
5.11	Family Development and Resource Management Program	38
5.11.1	Issues:	38
5.11.2	Performance Goals:	39
5.11.3	Output Indicators:	39
5.11.4	Outcome Indicators:	40
5.11.5	Key Program Components:	40
5.11.6	Internal and External Linkages:	40
5.11.7	Target Audiences:	40
5.11.8	Program Duration:	40
5.11.9	Allocated Resources: (\$1000)	41
5.11.10	Ongoing Extension and Research	41
5.12	4-h Development Program	41
5.12.1	Issues:	41
5.12.2	Performance Goals:	42
5.12.3	Output Indicators:	42
5.12.4	Outcome Indicators:	42
5.12.5	Key Program Components:	43
5.12.6	Internal & External Linkages:	43
5.12.7	Target Audience:	43

5.12.8	Program Duration:	43
5.12.9	Allocated Resources (\$1000)	44
5.12.10	Ongoing Extension and Outreach	44
5.13	Leadership and Volunteer Development Program	44
5.13.1	Issues:	44
5.13.2	Performance Goals:	44
5.13.3	Output Indicators:	45
5.13.4	Outcome Indicators:	45
5.13.5	Key Program Components:	45
5.13.6	Internal and External Linkages	45
5.13.7	Target Audiences:	46
5.13.8	Program Duration:	46
5.13.9	Allocated Resources (\$1000)	46
5.13.10	Ongoing Extension and Outreach:	46
5.14	Civil Rights Program	46
5.14.1	Section I - Equal Opportunity Employment	46
5.14.2	Section 2- Program Delivery	48
5.14.3	Section 3 - Public Notification	50
5.14.4	Section 4 - Civil Rights Training	51
5.14.5	Section 5 - On Site Civil Rights Compliance Reviews	52
6.	Stakeholder Input Process	53
7.	Program Review Process	54
8.	Multi State Research and Extension Activities	55
9.	Integrated Research and Extension Activities	56

ACRONYMS

ADA - American Disability Act

ADAP - Agricultural Development in the American Pacific

ALS - Agriculture and Life Sciences

CDC - Center for Disease Control

CNMI - Commonwealth of the Northern Mariana Islands

CRM - Coastal Resources Management

CSREES - Cooperative Research, Extension, and Education Service

CUC - Commonwealth Utilities Corporation

DEQ - Division of Environmental Quality

DLNR - Department of Lands and Natural Resources

DPS - Department of Public Safety

EEO - Equal Employment Opportunity

EFNEP - Expanded Food & Nutrition Education Program

FFA - Future Farmers of America

EPA- Environmental Protection Agency

FTE-Full Time Employee

HACCP - Hazard Analytic Critical Control Port

IPM - Integrated Pest Management

KAP - Knowledge Attitude and Practices

NAPIAP - National Pest Impact Assessment Program

NMC - Northern Marianas College

POW - Plan of Work

PSS - Public School Systems

PTA - Parent-Teacher Association

SCS - Soil Conservation Service

SPC - The Secretariat for the Pacific Community

STD - Sexual Transmitted Disease

UH-University of Hawaii

UOG-University of Guam

USP -University of the South Pacific

WEDs - Western Extension Directors

WESDs - Western Experiment Station Directors

1 INTRODUCTION

The Northern Marianas College became a land grant institution in November 1986 for the benefit of agriculture and mechanical arts in accordance with the provision of the Morrill Act of July 2, 1862. On April 1, 1987 the Northern Marianas College (NMC) officially established the land grant program after it was transferred from the Commonwealth of the Northern Mariana Islands (CNMI) Department of Land and Natural Resources (DLNR).

As an 1862 land grant college coupled with our geographical location, we are affiliated with the USDA Western Extension Directors (WEDs) and the Western Experiment Station Directors (WESDs). We also participate in the Agricultural Development in the American Pacific (ADAP) Project.

Up to April 1999, Land Grant of NMC, called the Agriculture and Life Sciences (ALS) unit consisted of three, had 3 main components: 1) agricultural research; 2) cooperative extension and 3) classroom teaching. During April, the title of the land grant was changed from “ALS” to the “CNMI Cooperative Research, Extension, and Education Service” (CREES). The unit was reorganized to better serve the community. The newly reorganized components are: 1) agricultural research and extension; 2) family and community sciences and 3) classroom teaching.

Combining agricultural research and extension will allow us to: 1) develop more effective multidisciplinary teams to overcome important problems faced by CNMI farmers; 2) improve the level of technical competence of the extension staff and 3) better focus the efforts of the scientists on high priority research problems. Almost all of the CREES agricultural staff will have 50/50 appointments in research and extension.

This 5 year Plan of Work includes two components of CREES. These are: 1) agricultural research and extension and 2) family and consumer sciences.

CREES was understaffed for much of the 1999 financial year. The Dean/Director and the Associate Director for Extension retired, and the Associate Director for Research resigned during the year. Three of the 6 agricultural scientists also resigned. Vacancies existed for 50% of the agricultural extension positions. New staff are being hired for the new organizational structure of CREES. These staff will be fully involved in the revision (if needed) and implementation of this 5 year plan of work.

2 MISSION STATEMENT

The mission of the CNMI Cooperative Research, Extension, and Education Service is:

- 1) To develop, test, adapt, and provide appropriate technical information and assistance to the people of the Commonwealth of the Marianas Islands in the fields of agricultural animal and plant sciences, home economics, and community development that is locally sustainable, environmentally safe, and economically feasible, in order to enhance the well-being and improve the quality of life for the community.
- 2) To convey the Northern Marianas College’s role of providing information, technology and means for other sectors of society to make and implement decisions in the areas of agriculture, natural, and community resources.

The program and administrative structure of the CNMI Cooperative Research, Extension, and Education Service is geared for effectiveness in serving mandated client groups. The usefulness of research and extension in agriculture and human resources is measured by the ultimate adoption of practices and technology by producers, households, processors, and others in the community. The level of adoption is dependent upon the

relevance of the research and effectiveness of the extension faculty. The CREES program's results have no practical value in the terms stipulated by the Smith-Lever Act, if the results are not presented to clients by the extension faculty and if the information given to clients is not relevant, important, and current. The CNMI Cooperative Research, Extension, and Education Service, which combines agricultural research and agricultural extension into one unit has been formed to facilitate and strengthen this research-extension-client interaction.

3 PROJECTED RESOURCES

The CNMI Cooperative Research, Extension, and Education Service (CREES) was reorganized in 1999. Previously CREES was known as Agricultural and Life Sciences (ALS). ALS had two units; Agricultural Research and Extension. The extension unit encompassed Family and Consumer Sciences (FCS) and Agricultural Extension. Under the new reorganization, Agricultural Extension was combined with Agricultural Research to form one of three units in CREES. The other 2 units are: 1) Family and Consumer Sciences; and 2) Education. This 5-year Plan of Work reports on the first two units of the CNMI CREES, namely on the Agricultural Research and Extension Unit and on the Family and Consumer Sciences Unit.

Table 1 shows the projected CREES budget and FTEs from 1862 and local matching funds for the years 1999 through 2004. 1862 funds are assumed to increase about 5% per year. No matching funds were required in 1999. However local matching funds are estimated at 30% of 1862 funds in year 2000, 45% in year 2001 and 50% in years 2002-2004.

The CNMI Cooperative Research, Extension, and Education Service of NMC is a relatively small land grant unit. In 1999, \$1,575,000 was available from 1862 funds and this supported 21 professional level full time-employees (some of the FTEs were vacant during the year) and 17.75 para professional full-time employees.

Our budget and staffing is increased by projects that are being funded from other sources. These are shown in the next section.

CNMI-CREES 1862 EXTENSION AND RESEARCH	5 - YEAR PLAN OF WORK (1999- 2004)					
ITEM	GOALS					
	GOAL 1	GOAL 2	GOAL 3	GOAL 4	GOAL 5	
	Highly competitive Ag. system	Safe and secure food system	Healthy, well nourished population	Protects natural resources and the environment	enhanced economic opportunity and quality of life	TOTAL
1862 Extension Funds	thousands of \$	thousands of \$	thousands of \$	thousands of \$	thousands of \$	thousands of \$
1999	136.95	182.6	365.2	91.3	136.95	913
2000	191.8	191.8	335.65	95.9	143.85	959
2001	201.4	201.4	302.1	151.05	151.05	1007
2002	212	212	265	212	159	1060
2003	222	222	277.5	222	166.5	1110
2004	233	233	291.25	233	174.75	1165
1862 Research Funds	thousands of \$	thousands of \$	thousands of \$	thousands of \$	thousands of \$	thousands of \$
1999	264.4	66.1	66.1	66.1	198.3	661
2000	208.2	104.1	104.1	104.1	173.5	694
2001	182.25	145.8	109.35	145.8	145.8	729
2002	191.25	153	114.75	153	153	765
2003	200.75	160.6	120.45	160.6	160.6	803
2004	210.75	168.6	126.45	168.6	168.6	843
Matching Funds for Ext.	thousands of \$	thousands of \$	thousands of \$	thousands of \$	thousands of \$	thousands of \$
1999	0	0	0	0	0	0
2000	57.6	57.6	100.8	28.8	43.2	288
2001	90	90	135	67.5	67.5	450
2002	106	106	132.5	106	79.5	530
2003	111	111	138.75	111	83.25	555
2004	116.6	116.6	145.75	116.6	87.45	583
Matching Funds for Res.	thousands of \$	thousands of \$	thousands of \$	thousands of \$	thousands of \$	thousands of \$
1999	0	0	0	0	0	0
2000	62.4	31.2	31.2	31.2	52	208
2001	82	65.6	49.2	65.6	65.6	328
2002	95.75	76.6	57.45	76.6	76.6	383
2003	100.5	80.4	60.3	80.4	80.4	402

2004	105.5	84.4	63.3	84.4	84.4	422
Research SY	person years	person years	person years	person years	person years	person years
1999	6	1.5	1.5	1.5	4.5	15
2000	5.1	2.55	2.55	2.55	4.25	17
2001	4.5	3.6	2.7	3.6	3.6	18
2002	4.75	3.8	2.85	3.8	3.8	19
2003	4.75	3.8	2.85	3.8	3.8	19
2004	4.75	3.8	2.85	3.8	3.8	19
Extension FTEs	person years	person years	person years	person years	person years	person years
1999	3.6	4.8	9.6	2.4	3.6	24
2000	5.8	5.8	10.15	2.9	4.35	29
2001	6.6	6.6	9.9	4.95	4.95	33
2002	7.4	7.4	9.25	7.4	5.55	37
2003	7.4	7.4	9.25	7.4	5.55	37
2004	7.4	7.4	9.25	7.4	5.55	37

4 ONGOING AND PLANNED PROGRAMS AND PROJECTS

Table 2 details the on-going and planned research and extension projects and programs from FY 2000 through FY 2004.

Seven programs are listed for Agricultural Research and Extension and these programs encompass thirty-two ongoing, proposed (a project proposal was submitted and waits approval) or planned projects. Eight programs are listed under Family and Consumer Sciences. The table shows the funding source(s) of each program and project and indicates the time horizon for each; short term, intermediate term or long term. Indicated in the table are the Performance Goals each program and project addresses. As indicated by the table, each program and project is focused on addressing at least two of the five goals listed. Also, the 5-year Plan of Work has a number of programs and projects addressing each one of the 5 Performance Goals (this is explained in more detail in the Program Descriptions section below). Table 2 also indicates which programs and projects are multidisciplinary and which involve integrated research and extension. With the new organization of the CNMI Cooperative Research, Extension, and Education Service, all of the Agricultural Research and Extension programs (and most of the projects) are multidisciplinary and involve integrated research and extension.

Table 3 shows the estimated budget and FTEs, for the 5 year POW for each CREES program. Included in the estimates are the funds from; 1862, local matching, and from other projects. The CNMI Cooperative Research, Extension, and Education Service was successful in receiving approval for two EPA grants, totaling \$157,000 FOR THE Plant Protection Program. We also have a \$25,000 grant from the National Marine Fisheries Service and receive funding and support from Agricultural Development in the American Pacific (ADAP). A \$400,000 grant proposal was written and submitted to support the Agricultural Marketing and Farmer Services Program.

With the reorganization of the CNMI Cooperative Research, Extension, and Education Service, and with the hiring of new professional staff, more attention will be devoted to seeking external sources of funding for our programs.

Table 2 - In Hard Copy.

Table 3 - In Hard Copy.

5 PROGRAM DESCRIPTIONS

AGRICULTURAL RESEARCH AND EXTENSION

5.1 PLANT PROTECTION PROGRAM

5.1.1 Issues

Farmers and agricultural extension workers report serious problems in the control of insects, diseases, and weeds in vegetable fields and fruit orchards in the CNMI. These problems increase the costs of production, reduce economic yields, and reduce the area devoted to crop production in the off (wet) season when the problems of pests are most severe. There are environmental concerns related to the unregulated use of agricultural chemicals on fields, over vulnerable aquifers, which supply drinking water. Unsafe usage of pesticides, by farm workers, is observed and reported in the local papers. There is also concern, by the consumers that unsafe pesticide residues may remain on the produce after harvest. These are long term issues in the CNMI.

5.1.2 Performance Goals

This program is mainly focused on goals 1, 2, and 4. The program will increase the profitability of fruit and vegetable production by reducing the costs of pest control, by increasing economic yields and by increasing cropped acreage in the off (wet) season when weeds and other pest problems are normally more severe. The program, with the development and introduction of Integrated Pest Management (IPM) will reduce the amount of chemicals used on crops, and train farmers and workers in proper pesticide use. This will minimize the chance that pesticide residues will be on the food. The reduction in the use of agricultural chemicals, on fields over vulnerable aquifers, will also reduce the likelihood that the quality of water will be diminished.

5.1.3 Output Indicators

- 1 Suitable and effective IPM methods for insect, disease and weed control in important crops grown in the CNMI.
- 2 Extension bulletins, sites and links on the CREES WEB page, and other readily available information useful for pest control in the CNMI..
- 3 Numerous IPM workshops and farm visits by CREES and DLNR staff.

5.1.4 Outcome Indicators

1. Increased number of farmers adopting IPM practices.
2. Reduced incidence of pests and damage to crops.
3. Increased net farm income due to reduced costs of production and/or increased economic yields.
4. Reduced amounts of pesticide residue found on marketed produce.
5. Reduced levels of chemical pesticides used on fields, decreasing the risk of contaminating the drinking water.

5.1.5 Key Program Components

This program is based on a very close working relationship between research and extension. Researchers and extension workers (from CREES and DLNR) will carry out a farmer Knowledge, Attitude and Practices (KAP) survey, on pest control, to better plan the IPM program.

Researchers will identify, adapt, develop and test IPM practices suitable to the CNMI farmers.

The researchers will work with the extension staff to prepare extension-training materials, hold workshops and training programs and to provide technical support. The extension staff, which includes staff from CREES and the DLNR deputed to assist in the program, will be mainly responsible for assistance and training in pest scouting, in farmers' fields, and introducing IPM practices to the farmers and farm workers.

5.1.6 Internal and External Linkages

Internally, this project will be linked with the Crop Production Improvement Program and with the Soil and Water Management Program. Partnership will be continued with DLNR, DEQ, CRM, the Soil and Water Conservation Districts, the Food and Nutrition Council, farmers, farm input suppliers and others as appropriate to the performance goals.

5.1.7 Target Audiences

We will be focusing on farmers and farm workers, consumers of locally produced agricultural products, with attention given to all citizens who need to depend on the water sources. Special attention will be devoted to traditionally underserved sectors, such as the Chamorro and Carolinian population.

5.1.8 Program Duration

This program of approximately 10 projects will continue for the five-year life of this plan.

5.1.9 Allocated Resources (\$1000)

Year	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002	2003	2003	2003	2004	2004	2004
ITEM	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs
1862 & match	192	3.00	3.00	262	3.25	3.25	307	3.50	3.50	333	3.75	3.75	350	3.75	3.75	367	3.75	3.75
Other	12	0.00	0.50	78	0	1.5	66	0.00	1.00									

5.1.10 Ongoing Extension and Outreach

CREES, with DEQ, has been giving private pesticide applicators' training courses, annually. The extension staff, research entomologists and plant pathologist are providing technical support and advice to farmers on insect and disease control. Growing sun hemp in the wet season, to help control weeds and nematodes, is being demonstrated to farmers.

5.2 CROP PRODUCTION IMPROVEMENT PROGRAM

5.2.1 Issues

There has been a marked decline in the CNMI economy due to the economic recessions in Japan, Korea and other Asian countries, resulting in a dramatic downfall in tourism, the primary source of income of the Commonwealth. Agriculture is seen as having potential for improving and diversifying the local economy. Potential exists for increased fresh vegetable, fruit, herb and spice production, to substitute for the large amounts of imported foodstuffs, and thereby provide additional income to the local farmers and others in the agricultural sector. These are long term issues in the CNMI.

5.2.2 Performance Goals

This program will contribute towards meeting Goals 3 and 4 but is mainly directed towards Goal 1. The program will support research and extension activities that will make the local farmers more competitive with imports. The costs of production will be assessed and suitable techniques for reducing the costs of production will be identified. Research will be carried out on how to better meet the consumers' demands: 1) on the range of crops supplied; 2) on the continuity of supply throughout the year and 3) on quality. The program will lead to a better supply of high quality fresh fruits and vegetables, throughout the year, and will lead to a more healthy and well-nourished population. Increased agricultural development can also lead to more job opportunities for the local farmers, agricultural input suppliers and young people.

5.2.3 Output Indicators

- 1) Identification of crop varieties and cultural practices suitable for the off (wet) season.
- 2) Identification of new crops, and crop varieties suitable for the CNMI.
- 3) Farm production and management practices identified which can lead to reduced costs of production and/or increased net returns to farmers.
- 4) Economic analysis, which identifies crops profitable for the CNMI farmers to produce, in various situations.
- 5) Extension handouts, videos, information on the CREES Web Page, workshops and other informational efforts based on research results.

5.2.4 Outcome Indicators

- 1) Increased level and value of agricultural production in the CNMI.
- 2) Increased net farm incomes for a significant percent of the local farmers.
- 3) Decreased levels of imported fresh vegetables and fruits.
- 4) Improved quality and range of locally grown produce found in the markets throughout the year.

5.2.5 Key Program Component(s)

- 1) On-farm crop variety and management trials with farmer, researcher and extension worker involvement.
- 2) Economic analysis of the costs and returns and comparative advantage of crop production in the CNMI.

5.2.6 Internal and External Linkages

Internally, this project will be linked with the Plant Protection Program and with the Soil and Water Management Program. This program will also involve a close working relationship between farmers or producers, CREES researchers, extension personnel, and staff from the Division of Agriculture, DLNR. Close contact will be maintained with researchers from the University of Guam, University of Hawaii and throughout the Pacific rim.

5.2.7 Target Audiences

Special attention will be devoted to traditionally under-served sectors, such as the Chamorro and Carolinian farmers. All of the residents of the CNMI will benefit from the increased supply of locally produced, high quality, fresh fruits and vegetables.

5.2.8 Program Duration

This program of approximately 5 projects will continue for the five-year life of this plan.

5.2.9 Allocated Resources (\$1000)

Year	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002	2003	2003	2003	2004	2004	2004
ITEM	Total	Prof.	Para	Total	Prof.	Para	Total	Prof.	Para	Total	Prof.	Para	Total	Prof.	Para	Total	Prof.	Para

	bud.	FTEs	Prof. FTEs	bud.	FTEs	Prof. FTEs	bud.	FTEs	Prof. FTEs	bud.	FTEs	Prof. FTEs	bud.	FTEs	Prof. FTEs	bud.	FTEs	Prof. FTEs
1862 & match	249	4.00	4.00	339	4.25	4.25	397	4.75	4.50	432	5.00	4.75	453	5.00	4.75	476	5.00	4.75

5.2.10 Ongoing Extension and Outreach

Farmers participating in the Pineapple Research and Pilot Production program are receiving training in all aspects of pineapple production. The extension staff provide technical advice to farmers on fruit and vegetable production.

5.3 AQUACULTURE AND FISHERIES DEVELOPMENT PROGRAM

5.3.1 Issues

The indigenous Chamorro and Carolinian people of the CNMI, and the Asian guest workers and tourists, are traditionally large consumers of fish. Although productive fisheries exist in the oceans surrounding the CNMI, and aquaculture is technically feasible on the islands, a very large proportion of the fish consumed is imported. Producing or harvesting more fish locally, may lead to the improvement of the CNMI economy; provide increased employment to local fishermen and farmers; and improve the quality, freshness and safety of the fish consumed. These are long term issues in the CNMI.

5.3.2 Performance Goals

This program addresses all five Goals but is primarily focused on Goals 1 and 5. The program will assess the high costs of aquaculture and develop suitable low-cost technology to make aquaculture more competitive and profitable. The program also assesses the economics of fisheries development. If successful, the program will lead to more employment opportunities for fishermen and farmers engaged in aquaculture. Fresh fish may replace some of the relatively fatty imported foods in the diets of the CNMI people leading to a healthier population. Also good fresh fish, properly handled should be safer to eat.

5.3.3 Output Indicators

- 1) Low cost technology suitable for aquaculture in the CNMI, including a) filtration systems; b) fish feed; c) fish tank construction; e) aeration systems; and f) fingerlings or fish fry.
- 2) Suitable technology for the production of a range of types of fish, shrimp, and other aquaculture produce.
- 3) A report on the “Economic Assessment of the Domestic Development Potential of Fisheries in the CNMI”.

5.3.4 Outcome Indicators

1. An increase in the number of aquaculture producers in the CNMI;
2. An increase in the range and quantity of produce grown by aquaculture farmers;

3. Increased profitability of aquaculture;
4. Increased number of fishermen and increased levels of fish harvested;
5. Improved availability of high quality fresh fish in the local markets and
6. Reduction or prevention of adverse environmental impacts due to Aquaculture.

5.3.5 Key Program Components

- 1) Research on research stations and with aquaculture farmers developing appropriate technologies for reducing the costs of production;
- 2) Economic assessments of improved technology and the economic viability of aquaculture or fisheries plans or projects;
- 3) A very strong extension component to introduce more farmers to aquaculture and to provide technical support and advice to producers.

5.3.6 Internal and External Linkages

The Program will be working with backyard and commercial farmers, Department of Land and Natural Resources, offices of the mayors of Saipan, Rota and Tinian; University of Guam, College of Micronesia, Division of Environmental Quality, University of Hawaii, Sea Grant, Food and Nutrition Council, and the Public School System.

5.3.7 Target Audiences

Special attention will be devoted to traditionally under served sectors, such as the Chamorro and Carolinian farmers and fishermen. All of the residents of the CNMI will benefit from the increased availability of locally produced or harvested, high quality, fresh fish.

5.3.8 Program Duration

This program will continue for the five-year life of this plan.

5.3.9 Allocated Resources (\$1000)

Year	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002	2003	2003	2003	2004	2004	2004
Item	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs
1862 & match	117	1.00	1.00	160	1.25	1.25	187	1.50	1.50	203	1.75	1.75	284	1.75	1.75	224	1.75	1.75
Other	0	0.00	0.00	24	0.5													

5.3.10 Ongoing Extension and Outreach

Technical advice and assistance is being provided to individuals planning to set up an aquaculture system and to producers already engaged in aquaculture. Demonstrations of aquaculture, using tanks and a recirculating water system are ongoing at the CREES agricultural stations on Tinian, Rota and Saipan and at Marianas and Rota High Schools.

5.4 LIVESTOCK IMPROVEMENT PROGRAM

5.4.1 Issues

Raising cattle, goats and pigs is a traditional and still common activity of CNMI farmers. Herd sizes range from a few head to more than a thousand. About four farmers are raising poultry for eggs and meat, on a commercial basis. However the costs of imported feed stuffs, required by hogs and poultry are very high. Levels of productivity of cattle and goats, raised on poorly managed pastures, is low. There are animal health problems, which affect productivity. Inbreeding is a problem, due to a continual shortage of imported breeding males or new breeding stock. Only a small part of the locally produced beef, goat, or pork meat is inspected and receives USDA approval. Guam is threatening to restrict the importation of CNMI beef, due to inadequate packaging and inspection. Up to now, CREES has not had an animal scientist to support CNMI livestock growers. (DLNR has provided technicians to support the Artificial Insemination Project and to work on the Paraveterinary Training Project.) These are long term issues in the CNMI.

5.4.2 Performance Goals

This program will improve the competitiveness of CNMI cattle, goat, swine and poultry produced, by reducing costs of production, increasing productivity and profits. The program will also help improve the safety of animal products by assisting in the development of suitable slaughter facilities and meat inspection.

5.4.3 Output Indicators

- 1) Alternative, lower cost poultry and hog feeds;
- 2) Improved, suitable methods for raising the productivity of pastures, goats and cattle;
- 3) Adequate slaughtering facilities and meat inspections;
- 4) Provision of animal health care and artificial insemination services.

5.4.4 Outcome Indicators

1. Increased beef, goat, poultry, and swine production in the CNMI;
2. Improvement in animal health;
3. Improved genetic composition of the swine and cattle;
4. Increased net incomes to the CNMI ranchers and farmers engaged in poultry, swine and/or cattle production.

5.4.5 Key Program Components

1. Joint activities between CREES and DLNR staff to provide artificial insemination and health prevention and care training and assistance for swine and cattle.
2. Research on how to make better use of locally available or produced feeds or pastures for cattle, swine and/or poultry.
3. An economic assessment of the costs and returns of beef, hog and poultry production in the CNMI.

4. Training of Para-Vet animal health workers to provide basic farrowing and production health expertise to producers.

5.4.6 Internal and External Linkages

CREES staff will work along with staff from the Division of Agriculture, DLNR, to implement the program. ADAP funding will be used to supplement any Hatch and Smith Lever funds used. Veterinarians and animal scientists from Guam, Hawaii, the Secretariat for the Pacific Community, and other locations in the region will be drawn upon to assist.

5.4.7 Target Audiences

Special attention will be devoted to traditionally under-served sectors, such as the Chamorro and Carolinian farmers and ranchers. All of the residents of the CNMI will benefit from the increased availability of locally produced, inspected and safe, beef, pork and poultry products.

5.4.8 Program Duration

This program will continue for the five-year life of this plan.

5.4.9 Allocated Resources (\$1000)

Year	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002	2003	2003	2003	2004	2004	2004
Item	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs
1862 & match				148	1.00		174	1.00		189	1.00		198	1.00		208	1.00	
other	33		2.00	33		2	33		2	33		2	33		2	33		2

5.4.10 Ongoing Extension and Outreach

DLNR staff, assigned to CREES, have been active in providing Artificial Insemination services to swine producers and providing advice and technical assistance on cattle, swine, goat and poultry health and production.

5.5 CNMI SOIL AND WATER MANAGEMENT PROGRAM

5.5.1 Issues

CNMI fruit and vegetable farmers have become increasingly dependent on the use of synthetic fertilizers to maintain soil fertility and to harvest satisfactory yields. The Soil Laboratory of the University of Guam is able carry out soil tests

for the CNMI. However no fertilizer trials have been held in the CNMI, to enable researchers or extension agents to make sound recommendations to farmers on fertilizer use, based on data received from soil tests. Farmers are concerned that they may be under or over using fertilizers and as a consequence, lowering their profits. Conservationists are concerned with the possibility of fertilizer run off or leaching and the contamination of ground and ocean water. Salinity problems in some fields may be reducing crop production. Fruit and vegetable growers are also increasingly dependent on irrigation for high (and good quality) yields, throughout the year. In most cases, there are irrigation water shortages in the CNMI and the cost of irrigation water can be very high. There is a dire need for research and extension on more efficient and effective use of irrigation water, within irrigation systems, and within individual farms. The maintenance or improvement of the quality of ground water in the CNMI is a very high priority in the CNMI. Research and extension, focused on the implementation of best management practices for plant nutrition, pest control, soil conservation, to allow the maintenance of the quality of water, has high priority. These are long term issues in the CNMI.

5.5.2 Performance Goals

This program is mainly focused on Goals 1 and 4. A major effort will be undertaken to assure that the quality of the environment is maintained, or enhanced, at the same time efforts are being undertaken to increase the levels of agricultural production in the CNMI. Soil erosion measures will be tested and introduced that will conserve farm land and prevent pollution from soil or farm chemical run off, during heavy rains. Care will be used in the use of farm chemicals and attempts will be under taken to reduce farmers' dependence on chemicals. Organic fertilizers and the use of fertigation will be tested and introduced to farmers.

Efforts will be also devoted to make CNMI agriculture, more profitable, competitive and sustainable. Ways for more efficient use of fertilizers and irrigation will be studied and introduced to farmers. The use of organic fertilizers - compost, green manure – and mulches, will be assessed, to replace some the commercial or synthetic fertilizer, but also to build up the organic matter content of the soils, improve water retention and improve soil productivity. The concept of sustainable agriculture will be stressed.

5.5.3 Output Indicators

1. Ability to make sound fertilizer recommendations to farmers;
2. A set of suitable best management practices for crop nutrient management, irrigation and water management and soil conservation practices;
3. Suitable technology for the efficient usage of scarce and costly irrigation water within irrigation systems and within farms.
4. Suitable fertigation technology for CNMI fruit and vegetable growers.

5.5.4 Outcome Indicators

- 1) Farmers using drip irrigation and fertigation systems on their farms;
- 2) Farmers receiving and using fertilizer use recommendations;
- 3) Farmers using green manure, compost and other best crop nutrient management practices in vegetable fields and fruit orchards;
- 4) Adoption of soil erosion control practices;

- 5) Efforts to schedule crop production and irrigation supply so as to more efficiently utilize scarce and expensive irrigation water.

5.5.5 Key Program Component(s)

1. On-farm fertilizer trials and demonstrations, in conjunction with soil testing (carried out by the University of Guam);
2. Assessment and demonstration of fertigation systems;
3. Evaluation and introduction of methods to improve the efficiency of irrigation water in crop production.

5.5.6 Internal and External Linkages

Internally, this project will be linked with the Crop Production Improvement Program and with the Plant Protection Program. CREES staff will work closely with the farmers, the Soil Conservation Service of the National Resource Conservation Service, the DLNR, the regional Soil and Water Conservation Districts, DEQ, the University of Guam (for soil testing) and the farmers' associations.

5.5.7 Target Audiences

Special attention will be devoted to traditionally under served sectors, such as the Chamorro and Carolinian farmers.

5.5.8 Program Duration

This program will continue for the five-year life of this plan.

5.5.9 Allocated Resources (\$1000)

Year	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002	2003	2003	2003	2004	2004	2004
Item	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs
1862 & match	230	3.50	1.00	313	3.75	1.25	367	4.00	1.50	398	4.25	1.75	417	4.25	1.75	440	4.25	1.75

5.5.10 Ongoing Extension and Outreach

Currently, research and demonstration projects are being conducted at the Kagman Experiment Station on Saipan. Projects include: alley cropping; green terraces; corn/mulch/fertilizer trials; cover crops as fallow and weed suppression; effectiveness of chinaberry and neem as insecticides and fungicides, and fertilizers; irrigation demonstrations; and others.

5.6 AGRICULTURE MARKETING AND FARMER SERVICES PROGRAM

(The funding for this program has not been approved as of 6/1/99. The main funding source is the USDA Small Farmer Outreach and Technical Assistance Grant program. We are waiting for the approval for our proposal. Other sources of funding will need to be identified for this important program if our proposal is not approved.)

5.6.1 Issues

The lack of effective and efficient marketing systems, to link local agricultural producers with consumers, and the absence of forward contracting, between farmers and wholesalers, is the most frequently expressed problem in the CNMI agricultural sector. These internal marketing problems have led to a heavy dependence on imported food and to the under-utilization of the agricultural resources (land, labor, capital) of the commonwealth. Local farmers are also under served in the provision of credit, input supply, crop disaster relief and other services. These are long term issues in the CNMI.

5.6.2 Performance Goals

This program is focused on Goals 1 and 5. The agricultural marketing system, in the CNMI, will be improved and made more efficient so as to allow local fruit and vegetable crop producers to better compete with imported fresh fruits and vegetables. Farmers will be provided a sure market for their produce, at prices previously agreed on by the food wholesalers and farmers' market. Information will be provided to farmers on the quantities and qualities of crops required each month, and the prices to be expected. The farmers will be organized in their production activities so as not to over produce a crop, at any one point in time. The range in the number of crops to be grown and in the length of the growing (and harvesting) period will be increased so as to better meet the demand of consumers. Growth in the agricultural sector of the CNMI will increase the number of employment opportunities in food production and agricultural support services. Increased economic growth in the agricultural sector can enhance economic opportunities and quality of life in the CNMI in general.

5.6.3 Output Indicators:

- 1) Description and assessment of the present fruit and vegetable marketing system in the CNMI (on Tinian, Rota and Saipan);
- 2) Identification of the opportunities for increased fruit and vegetable import substitution and export, (lists of crops, quantities required per month, quality standards required and expected market prices);
- 3) Implementation plans to improve the efficiency of the vegetable marketing system and infrastructure to enhance income opportunities of farmers in the CNMI (on each island).
- 4) A sustained Agricultural Market Information Service in the CNMI, (commercially useful data, provided at least biweekly, in newsletters, newspapers and or by radio);
- 1) Outreach, training and technical assistance to farmers on farm management, including costs and returns analysis, farm budgeting, record keeping, marketing, credit, crop production, government assistance programs, grant writing, etc. (at least 50% of the farmers trained and/or assisted, each year, (after the initial 15 month assessment period); increased farmer participation in agricultural programs);

5.6.4 Outcome Indicators

- 1) Strengthened farmer associations or cooperatives and an improved agricultural marketing system or farmers' market on each island.
- 2) Increased fruit and vegetable production and increased net farm incomes for small farmers, on each island.

5.6.5 Key Program Components

- 1) An assessment of the present marketing system
- 2) Development and implementation of plans to improve the marketing system
- 3) Outreach training and assistance to farmers desiring farm loans and other support services

5.6.6 Internal and External Linkages

Internally, this project will be linked with the Crop Production Improvement Program. This will be a collaborative project between small farmers, the Northern Marianas College, the Department of Land and Natural Resources, the Natural Resource and Conservation Service, farmers' coops, farmers' associations, the Department of Commerce, the respective Mayors' offices, the USDA - FSA and the Rural Development Office, and the private sector (food wholesalers, hotels, food stores, etc.).

5.6.7 Target Audiences

Special attention will be devoted to traditionally under served sectors, such as the Chamorro and Carolinian farmers. All of the residents of the CNMI will benefit from the increased availability of locally produced, high quality, fresh fruits and vegetables.

5.6.8 Program Duration:

This program will continue for the five-year life of this plan.

5.6.9 Allocated Resources (\$1000)

Year	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002	2003	2003	2003	2004	2004	2004
Item	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs
1862 & match	0	0.00	0.00	98	0.50	0.50	114	0.50	0.50	124	0.50	0.50	130	0.50	0.50	137	0.50	0.50
Other	0	0.00	0.00	93	1.50		69	1.50		74	1.50		76	1.50		80	1.50	

5.6.10 Ongoing Extension and Outreach

CREES staff are providing crop production estimation data to farmers and the USDA, Farmers Services Agency (FSA) for crop disaster payments. CREES also provides 3-month forecasts of vegetable production, each month.

5.7 CNMI COOPERATIVE RESEARCH, EXTENSION, AND EDUCATION SERVICE COMMUNICATION PROGRAM

5.7.1 Issues

Agriculture research and extension workers, in the CNMI, have great difficulty finding relevant information that has already been discovered, developed or observed and new research may be soon be lost or forgotten. This leads to frustration and duplication and effort. Over the last decade and in some cases longer, several agencies, within the Pacific Region, have been doing research, collecting specimens, filing reports and employing highly qualified and often adequately equipped, scientific personnel. The results of their researches, biological control releases, surveys, and other endeavors generally end up in obscure agency reports.

At the same time CNMI vegetable, fruit and livestock producers are inadequately informed on the most recent advances and recommendations on cultural practices, disease and other pest control, breeds and crop varieties, production trends, marketing opportunities, government programs and regulations Etc.

These are long term issues in the CNMI.

5.7.2 Performance Goals

This program will support all of the CNMI Cooperative Research, Extension, and Education Service Agricultural Research and Extension Programs and the Family and Consumer Sciences Programs. The program will therefore indirectly help CREES to meet all 5 of the Performance Goals.

5.7.3 Output Indicators

1. Increased use of ADAP library services;
2. Better internet linkage to SPC and other sources of information relevant to agriculture in the Pacific Islands;
3. Increased number of current extension brochures, bulletins, pamphlets, and other printed materials useful to CREES clientele.
4. Development of multi-media presentations with the use of slides, audio, video, radio and TV.

5.7.4 Outcome Indicators

1. Increased public awareness of CRESS and of the numerous services it provides to the CNMI.
2. A higher percentage of clientele provided with printed materials relevant to needs.
3. An increase in the number of "hits" on the CREES web page.
4. Farmers and other clientele with useful up to date information and technology suited to their needs.

5.7.5 Key Program Components

- 1) Development of a CREES web page that contains links to an electronic library of agricultural information relevant to the CNMI;
- 2) Preparation and distribution of bulletins, pamphlets, flyers, news letters, press releases, radio and TV programs containing useful and relevant information on a routine, periodic, and continuing basis.

5.7.6 Internal and External Linkages

Internally, this project will support all of the CREES Programs. Close working relationships will be maintained and improved between the ADAP institutions, and DEQ, CRM, SCS, DLNR, the Soil and Water Conservation Districts, and the Interagency Watershed Committee within the CNMI.

5.7.7 Target Audiences

Special attention will be devoted to traditionally under-served sectors, such as the Chamorro and Carolinian farmers and households. CREES agriculture researchers and extension workers and other public sector employees will have more information available to better support the people of the CNMI.

5.7.8 Program Duration:

This program will continue for the five-year life of this plan

5.7.9 Allocated Resources (\$1000)

Year	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002	2003	2003	2003	2004	2004	2004
Item	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs
1862 & match	114	0.50	0.50	156	0.50	0.50	183	0.50	0.50	198	0.50	0.50	208	0.50	0.50	219	0.50	0.50

5.7.10 Ongoing Extension and Outreach

A CREES web page is being developed with extensive locally relevant materials on agriculture and links to information from the Pacific region. The web page is receiving 200 hits per month. Print on demand materials for both agricultural and ecological information services were developed as well as chapters and graphics for a major, locally written and produced agricultural text oriented at grades 10 through the sophomore year of college. Extensive internet communication with outside agricultural scientists and other workers has been established both through the site and using equipment serviced by the program.

FAMILY AND CONSUMER SCIENCES

5.8 FOOD SAFETY AND QUALITY PROGRAM

5.8.1 Issues:

Concerns within the Commonwealth of the Northern Mariana Islands (CNMI) about the safety of its food supply have risen to new historic levels. The reported incidence of microbial food poisoning out-breaks are on the rise. Changing patterns of consumption, an aging population, more persons with chronic illness, and a wide variation in food handling and preparation practices are some of the factors contributing to the increased vulnerability of the population. In addition, there is a high incidence of food poisoning and gastroenteritis cases in the CNMI. These diseases (especially salmonella and shigella) cause a considerable amount of illness for the residents of CNMI, and result in the costly hospitalization of many young infants and children each year. These illnesses may be life threatening or trigger chronic diseases.

Food importation from neighboring developing countries is also a growing problem. Without product labels translated into English, the general public cannot read expiration dates or check the nutrient content of these products. Harvested fruits and vegetables are frequently washed in dirty containers rather than under clean, running water prior to sale. Imported fish from neighboring islands are not packed properly in ice or are shipped in improper containers that permit the entry of organisms. Traditional roadside vendors display food products during the day without proper refrigeration and proper temperature, dust, or insect protection. Many island markets retain out-dated food products. Frequently, these items are sold at a reduced price and are purchased by unsuspecting customers trying to stretch their food budget. Products of different types are often placed next to each other in retail stores (i.e. rat poisoning is on the shelf next to the ice cream) causing contamination risks.

These are long term issues in the CNMI.

5.8.2 Performance Goals:

1. To bring about a healthier CNMI community by increased community awareness on the risk factor of microorganisms.
2. To annually increase consumer awareness, understanding, and information regarding food safety and food borne risks and illnesses.
3. To implement laws aimed at increasing safe food practices in the CNMI.

5.8.3 Output Indicators:

1. Arrange for extension staff on all three islands to receive food safety training/certification.
2. Provide certification/training on “How to Design a Food Safety Program” for restaurant managers, food stores owners/managers, etc. in order to expand the knowledge base throughout the community.
3. Provide food handler training via Food Safety Workshops including HACCP training programs for fruit and vegetables to farmers.
4. Provide in-service training on pathogen and disease epidemiology/technology for extension agents.
5. Develop new educational and training resources for consumers, food handlers, managers, and food producers, retail store managers and vendors, especially in the designation of critical control points and the development of the HACCP system.
6. Provide educational resources to persons at high-risk for food-borne disease regarding safe food handling behavior.
7. Educate persons in food service, food processing, and food production industries about the methods and systems of protecting the food supply.
8. Educate consumers and processors on strategies to reduce risks associated with imported foods.
9. Improve food safety by controlling or eliminating food-borne risks.
10. Lobby for the CNMI Sanitation Department to inspect retail stores and to enforce regulations on the configuration of products in stores.

5.8.4 Outcome Indicators:

1. Increased knowledge base among CNMI residents on how to prevent food borne diseases and how to recognize safe food handling practices.
2. Farmers will demonstrate safe cleaning practices with regard to fruits and vegetables.
3. Roadside food vendors will practice proper food storage.
4. The Department of Sanitation will begin inspecting retail stores and vendors for safe food handling practices.
5. Food service, food processing, and food production industries will practice safe food handling methods.
6. Consumers will be more educated on safe food practices related to the purchase of imported foods.

5.8.5 Key Program Components:

1. Lobbying efforts for stronger enforcement of current sanitation regulations and new regulations on inspecting retail stores for food safety practices.
2. Intensive training for CREES Extension staff to provide current certification in food safety (HACCP).
3. Increased community outreach via workshops for food handlers, market managers, school food service managers, and any quantity food service operation.
4. Media campaigns on food safety.

5. Developing educational materials on food safety related issues.

5.8.6 Internal and External Linkages:

Within CREES this program will collaborate with the IPM project, NIAPIP, 4-H and the EFNEP program. In the community, we will collaborate with government agencies and the private business sectors.

5.8.7 Target Audiences:

Individual families, school children, the elderly, farmers, food handlers, food establishment managers, and the general public.

5.8.8 Program Duration:

This program will continue for the 5-year life of this plan.

5.8.9 Allocated Resources: (\$1000)

Year	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002	2003	2003	2003	2004	2004	2004
Item	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs
1862 & match	88	1.00	0.25	120	1.25	0.50	140	1.50	0.75	153	1.75	1.00	160	1.75	1.00	168	1.75	1.00

5.8.10 Ongoing Extension and Outreach:

Workshops on Food Safety are currently being provided to food vendors, restaurant personnel, and school food service staff. Food safety training is being provided as part of the EFNEP program.

5.9 EXPANDED FOOD AND NUTRITION EDUCATION PROGRAM

5.9.1 Issues

The leading causes of death among the indigenous population (Chamorro and Carolinian) are atherosclerotic diseases, cancer (all types), and diabetes (predominantly Type II). Most of these causes have some relationship with diet. One of the major contributing factors of a variety of non-communicable diseases, such as diabetes, hypertension, heart disease, stroke, and breast cancer is obesity. One out of three school-aged children are diagnosed as either overweight or obese. Almost 35% of the population are obese. A major risk factor for obesity is too many calories and a sedentary lifestyle. The formerly physically active indigenous population is now dependent upon imported labor for many physical chores of day to day life.

Another risk factor for diet related illnesses are a high-fat and low-fiber diet. In a recent Public Health survey of over 1500 children (9-11 years old), the five most frequently consumed foods were high sugar drinks, soda, luncheon meats, spare ribs, and chips. The least frequently eaten foods were locally grown indigenous food.

Furthermore, since the recent economic downfall in the CNMI, more people are becoming financially insecure and turning to public assistance for help. According to the Nutrition Assistance Program, there has been a drastic increase of participants just in the last year and the numbers keep rising. With more families on the brink of financial relapse, shopping on a budget may make it more difficult to choose highly nutritious foods.

The infant mortality rate in the CNMI is an alarming 7.6/1000. The need for increased knowledge of pre- and postnatal health care is essential. In 1997, 87% of infants were breast-fed. However, only 29% breast-fed for more than two months. In a recent survey of 704 mothers, 35% reported 'work' as the reason for terminating breast-feeding.

The rate of dental caries among children in the CNMI is very high. Ninety-four percent (94%) of CNMI Head Start children were diagnosed with mild, moderate or severe tooth decay.

These are long term issues in the CNMI.

5.9.2 Performance Goals

The EFNEP program encompasses several goals, however its focus is mainly goals 2 and 3. The program will enhance participants' knowledge of nutritionally sound food practices, motivate behavioral changes, promote culturally

sensitive nutrition guidelines and materials, and increase the use of indigenous foods, mostly vegetables and fruits, by promoting home gardening.

5.9.3 Output Indicators

1. Increased physical activity among family members, especially young children;
2. Increased quality of diets, including the increased consumption of locally grown food;
3. Developing and marketing the use of culturally sensitive educational resources;
4. Increased knowledge of pre- and postnatal health practices;
5. Easier access to health care for low-income families.

5.9.4 Outcome Indicators

1. Decreased rates of nutritionally related health problems, especially obesity, diabetes, hypertension, and coronary heart disease;
2. Increased public awareness of major diet related illnesses through non-formal education, media, and community groups;
3. Greater participation in our program, as well as other programs offered by our internal and external linkages;
4. Decreased infant mortality rates;
5. Increased food security among low-income households.

5.9.5 Key Program Components

EFNEP uses the curriculum ERIB3 developed by Michigan State University. It is currently being revised to be more culturally sensitive. Some components include the Food Guide Pyramid, food labels, stretching food dollars, Breakfast/Choosing Healthy Snacks, Eating Right for Two, and Feeding Your Infant. Other components include backyard gardening, food safety, and parenting skills.

5.9.6 Internal and External Linkages

Internal linkages include partnerships with other CREES programs. External linkages are made up of various government and private agencies, such as the CNMI Food and Nutrition Council, the Nutrition Assistance Program, the Division of Public Health, the Public School System, the Division of Youth Services, other colleges and universities in the region, and various retail and farmer's markets on the islands.

5.9.7 Target Audiences

EFNEP targets limited resource clientele, predominately foods stamp recipients and referrals from the Division of Youth Services, as well as 4H youth.

5.9.8 Program Duration

The EFNEP program is on going and will last through the five years of this plan.

5.9.9 Allocated Resources (\$100)

Year	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002	2003	2003	2003	2004	2004	2004
Item	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs
1862 & match	123	1.00	0.25	168	1.25	0.50	196	1.50	0.75	213	1.75	1.00	298	1.75	1.00	235	1.75	1.00

5.9.10 Ongoing Extension and Outreach

Currently, the EFNEP program is reaching out to food stamp recipients, as well as referrals from the Division of Youth Services and the Department of Public Health. We have collaborated with the Public School System in order to educate students. Our key program component is ERIB3, which has been adapted to be more culturally appropriate.

5.10 NUTRITION, DIET AND HEALTH PROGRAM

5.10.1 Issues

The leading causes of death in the CNMI are Atherosclerotic diseases, Cancer (all types), and Diabetes (predominantly Type II). Most of these diseases have some relationship with diet, sedentary lifestyle, and eating behavior.

In the CNMI, the risk factors of diet-related diseases are not widely known. Adults, as well as children, in all income brackets have limited knowledge of the consequences of sedentary lifestyles and poor eating habits. Obesity, which is one of the major risk factors of chronic disease, is prevalent in the CNMI, especially among young children. One in three school-aged children have been diagnosed as overweight or obese. Furthermore, food-borne illnesses due to improper food handling and storage can lead to complications in people with a chronic disease.

Although there are a few support services offered for people with chronic disease, most people are not aware of them. There is also a lack of learning resources for those who would like more information about food, nutrition, diet, and health.

Other concerns are the high rates of infant mortality and low-birth weight babies in the CNMI. There is a need to educate women about the importance of pre- and postnatal health care. These are long term issues in the CNMI.

5.10.2 Performance Goals

The Nutrition, Diet and Health program encompasses Goals 2 and 3, however its focus is mainly Goal 3. The program will optimize the health of the consumers by improving the quality of diets, food choices, and the quality of food by controlling or eliminating food borne risks. It will also improve individual and family health status through health education and promotion via non-formal education, culturally accepted learning resources, and mass media. In addition, the program will increase the research and knowledge base available from CNMI Cooperative Research, Extension, and Education Service (CREES) partners and cooperators on human nutrition, family and consumer sciences, health sciences and health promotion.

5.10.3 Output Indicators

1. Increased primary prevention or health promotion so as to change the environment and the community, as well as family and individual lifestyles and behaviors, to maximize and maintain a state of wellness;
2. Reduced morbidity and mortality rates, as well as infant mortality rates and low birth weight babies by educating the community about the importance of healthy eating habits, active lifestyles, and proper health practices;
3. Developing and marketing the use of culturally sensitive educational resources;
4. Easier access to health information from CREES partners and collaborators;
5. Administer year-end surveys to measure the effectiveness of the program;

5.10.4 Outcome Indicators

1. Decreased rates of nutritionally related health problems, especially obesity, diabetes, hypertension, and coronary heart disease, as well as decreased infant mortality rates and low birth rate babies;

2. Increased public awareness of major diet related illnesses through non-formal education, media, and community groups;
3. Greater participation in our program, as well as other programs offered by our internal and external linkages;
4. Decreased infant mortality rates;
5. Increased food security among households.

5.10.5 Key Program Components

Program components include training of staff; promotion of different nutrition programs and health campaigns; conducting workshops on breast feeding, reading food labels, home gardening of local vegetables and fruits, as well as food demonstrations; continued collaboration with external linkages (especially the CNMI Food and Nutrition Council); and program evaluations by staff and participants.

5.10.6 Internal and External Linkages

Internal linkages include partnerships with CREES programs. External linkages consists of government and private agencies, such as the CNMI Food and Nutrition Council, the Nutrition Assistance Program, the Division of Public Health, the Public School System, the Department of Land and Natural Resources, other private schools, colleges and universities in the region, and various retail and farmer's markets on the islands.

5.10.7 Target Audiences

The target audience includes the general public, especially school children, teen parents, the aging community, as well as the government and private sectors of the community.

5.10.8 Program Duration

The Nutrition, Diet and Health program is on going and will last through the five years of this plan.

5.10.9 Allocated Resources (\$1000)

Year	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002	2003	2003	2003	2004	2004	2004
Item	Total bud.	Prof. FTE	Para Prof FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs
1862 & match	150	1.00	1.25	204	1.25	1.50	239	1.50	1.75	160	1.75	2.00	273	1.75	2.00	286	1.75	2.00

5.10.10 Ongoing Extension and Outreach

Currently, the program is heavily involved with the CNMI Food and Nutrition Council in order to bring about a healthier, more physically fit CNMI community. We've participated in a variety of health fairs sponsored by various agencies in the CNMI. We've also conducted workshops regarding proper nutrition and health education. We are working with our internal and external linkages to produce more culturally accepted educational resources via mass media.

5.11 FAMILY DEVELOPMENT AND RESOURCE MANAGEMENT PROGRAM

5.11.1 Issues:

Due to the economic crisis in the Asian region, the economy of the CNMI is also suffering. More people than ever are struggling to "make ends meet" and are looking for better ways to more effectively manage their money and limited resources.

The CNMI is dealing with a growing incidence of child abuse and neglect, a high rate of teenage pregnancy and a concerning rate of alcohol and drug abuse among its population. Self-esteem related issues are known to play a great role in many of these social problems. Lack of knowledge in effective parenting practices is also seen as a strong contributing factor.

These are long term issues in the CNMI.

5.11.2 Performance Goals:

This program is mainly focused on Goal number 5 (enhanced economic opportunities and quality of life). We will aim to decrease our community's reliance on outside sources for household goods via the home canning/ food preservation

and sewing programs. The home canning and food preservation program will be combined with the “container gardening” program so that the home canning and food preservation programs will not be limited to those with farms and land. An increased knowledge of financial management information will also be found throughout the community via a community wide campaign on “watching your money”.

In looking at the quality of life for the CNMI resident, we plan to address the social problems listed above via a community wide campaign – “Celebrating Family”. People from all backgrounds and nationalities will benefit as we plan to provide resources and information on parenting, the “parenthood decision”(geared for teens), self-esteem, and drug/alcohol awareness in numerous languages. A community wide campaign is planned to increase awareness of the growing incidence of child abuse and neglect with a particular focus on the “root” of the problem and practical ways for people to help themselves and others. Starting at a very young age, children will learn how to say “no” due to an increase in drug and alcohol awareness, self-respect, and respect for others. The ultimate goal is to help break the cycle of social problems often caused by a lack of knowledge and self-worth.

5.11.3 Output Indicators:

1. Staff training/certification to be provided by USDA representative on the methods of SAFE home canning and food preservation to all Family and Consumer Sciences Staff on the islands of Saipan, Tinian, and Rota.
2. Numerous community workshops will be provided by trained staff on the islands of Saipan, Tinian, and Rota on the safe and effective methods of home canning and food preservation. Information on “watching your money” will also be shared with all participants in these workshops.
3. Bulletins, articles in the newspaper, flyers and community bulletin board information, will be readily available in the community on financial management issues.
4. Numerous home visits in the areas of parenting, family relationships, self-esteem training, and drug/alcohol awareness by extension staff.
5. Provide training in the school classrooms (starting young with grades K-3) on teaching young children self-esteem, self-respect, respect for others, and drug/alcohol awareness.
6. Initiate the “Celebrating Family” campaign via the media, workshops, and collaborative networking.
7. Conduct training sessions with teachers of pregnant teens, head start teachers, school counselors, and other child/family/human service providers on the use of the “Family Resource Kit” (will be done in collaboration with University of Hawaii – Center on the Family).

5.11.4 Outcome Indicators:

1. Decreased reliance on outside sources for household items – i.e. more CNMI residents will be canning and preserving food for home consumption and sewing their families clothes and household items.
2. Decreased teen pregnancy rate in the CNMI.
3. Decreased level of child abuse and neglect in the community.
4. Increased community awareness of the dangerous effects of excessive alcohol consumption and drug use.
5. Increased community knowledge on issues related to financial management.

5.11.5 Key Program Components:

This program is aimed at reaching out to a maximum number of community members via the teaching and training of other human service providers in the areas related to family development. The program relies heavily upon the sharing of referrals across programs (both within our department and across agencies) to better meet the multidimensional and

multicultural needs of our clients. The primary methods of delivery are “one on one” home visits, community workshops, and training sessions for other human service providers. Programs promote increased self-esteem via increased knowledge on “doing things for your family” and “celebrating the differences” in all people. The ultimate aim of all programs is an enhanced quality of life for all CNMI residents via an increased understanding of each other and our shared community needs.

5.11.6 Internal and External Linkages:

Partnerships will be developed with the Department of Youth Services, the Public School System, and the Community Assistance/Food Stamp Office. Internally, we will collaborate with the EFNEP Program, the sewing program, and with extension agents who reach out to the farmers.

5.11.7 Target Audiences:

We will be focusing on youth in the schools, the economically disadvantaged, and the general public.

5.11.8 Program Duration:

This program will continue for the five-year life of this plan.

5.11.9 Allocated Resources: (\$1000)

Year	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002	2003	2003	2003	2004	2004	2004
Item	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs
1862 & match	133	3.00	3.50	181	3.25	3.75	212	3.50	4.00	231	3.75	4.00	242	3.75	4.00	254	3.75	4.00

5.11.10 Ongoing Extension and Research

Parenting classes are being taught on an individualized basis for “hard to reach clients” or “clients with special needs” via a referral process from the Department of Youth Services and other community agencies. Money management is being taught via community workshops and individual sessions. Sewing lessons are being provided to adults and children with a focus upon saving money by making your own clothes and household items. Collaborative efforts are ongoing with the Department of Youth Services in family related media campaigns.

5.12 4-H DEVELOPMENT PROGRAM

5.12.1 Issues:

The people of the Northern Marianas voted in 1976 to become part of the United States’ political family. This association with the world’s mightiest economy and military brought prosperity to the Commonwealth of the Northern Mariana Islands (CNMI).

This prosperity changed the fabric of the CNMI. The population grew to where it is now at 60,000. The CNMI became a melting pot of different ethnicity and culture mostly from the Asia/Pacific Rim. Prosperity brought television, rap music, movies, and the Internet. The CNMI began experiencing social “growing pains” as it develops.

Two years ago a gang of teenagers stabbed a teenager on Saipan to death as a gang initiation rite. It is probable that the perpetrator(s) of this wicked crime was one way or another influenced by rap music, gangster movies, or television that glorifies violence and teenage gangs.

A survey in 1997, conducted by the Public School System and funded through a grant by the U.S. Center for Disease Control (CDC), identified substance abuse (alcohol & harmful drugs), use of tobacco (smoking & chewing) weight problems (purging & obesity), Betelnut chewing, STD, and risk of serious injury (suicide, DUI, and carrying of weapon) as issues that put youths in the CNMI at risk. What is alarming is that the groups surveyed were children in grades sixth through eighth.

Interviews with junior and high school counselors conducted by NMC’s Extension Program also identified teen pregnancy, school drop outs, and environmental insensitivity as other issues of concern faced by school age children in the CNMI.

While “Mes Manamko” (Senior Citizens Month) is observed annually in May, the plight of children in the CNMI seems to be overlooked and under-served. Unless some kind of effort is mustered to address the above-described issues, the future of our children as well as the future of the CNMI as whole looks bleak. We must do something now to look forward to a better tomorrow. These are long term issues in the CNMI.

5.12.2 Performance Goals:

The main focus of the 4-H program is on Goals 3 and 5; a healthy population with enhanced economic opportunity and quality of life. Our goal is to help decrease youth problems by way of preventive programs such as an after school program. This goal can be accomplished by youth serving programs banding to jointly address these issues. Youth serving professionals will improve their ability to address issues and therefore provide better service by continually upgrading their skills through staff development. This goal can be achieved with additional funding to carry out proposed activities. The 4-H club members will also become aware of the wide range of career opportunities in agriculture and family and home sciences.

5.12.3 Output Indicators:

1. The CNMI 4-H program will address the above stated-described issues and help school age children become productive and contributing citizens by way of After School and At School programs.
2. The CNMI 4-H program intends to work closely with other youth serving agencies to jointly address issues that places children in the CNMI At Risk.
3. The CNMI 4-H program will hold workshops/training for youth agency professionals to upgrade their skills in dealing with the above issues by tapping the extensive resources of land grant institutions and programs.
4. The CNMI 4-H program intends to strengthen its program by seeking additional sources of funding for it's after school, at school, and other programs.

5.12.4 Outcome Indicators:

1. Established and eventually increased number of after school programs in the CNMI.
2. Increased number 4-H chapters in public and private schools in the CNMI.
3. Established informal network of youth serving agencies to avoid duplication of service and to jointly address issues.
4. Children and youths better served by social service agencies by way of improved services from trained staff
5. After and At school programs implemented and expanded programs with funding availability.
6. Enrollment of 4-H club member in college pursuing degrees in agriculture or home economics.
7. Former 4-H members undertaking a career in agriculture or home economics.

5.12.5 Key Program Components:

Extension agents will conduct needs assessment in each of the villages in the CNMI. Priority for establishment of after school programs will go to problem areas. Agents will identify and recruit adult volunteers from target village. Volunteer will then be trained in all aspect of program management. Agents will continue to provide support to adult volunteers in each of the villages. Agents will then replicate the process in other villages.

We can use this venue to educate our children the dangers of drugs, alcohol, the demands of having a child at early age and at the same time engage children in 4-H activities that will aid them in becoming productive citizens.

The after school concept, a form of prevention program, can be useful in curbing the incidence of youth related problems. FBI studies have shown that most delinquency activity take place between the hours of 3:00 – 6:00 p.m.

Extension agents will work with school principals, administrators, and teachers to establish 4-H chapters in public and private schools. A letter of intent will be written to the school informing them of our desire to

establish a chapter in their school. If the school is interested, it will be given an application to complete and submit to the 4-H program. The 4-H program will in turn issue a certificate recognizing the chapter.

The 4-H program will sponsor quarterly or biannual workshop, training for youth-serving professionals on how to better address the above-described issues. The program will also seek private and public sector funding sources to support its programs. This may be accomplished by putting together a not-for-profit, CNMI chartered entity capable of receiving contributions. A volunteer board of directors made up of representatives from each of the three islands will guide this entity.

5.12.6 Internal & External Linkages:

In order to address the above-described issues and plans, the CNMI 4-H program intends to link internally with the following CREES programs; home economics, aquaculture, EFNEP, agriculture research and extension, NMC’s early childhood program, counseling/student services office, and other NMC programs. 4-H will also work closely with departments and agencies outside NMC such as Public School System, private schools, the Division of Youth Services, the Div. Of Sports & Recreation, the legislature, the Office of the Governor, the judicial branches family court section, the municipal government-Mayor’s Office/Municipal Council, DPS, the Office of Women’s Affairs, and other departments too many to list.

5.12.7 Target Audience:

The target audience that this POW is aiming to assist is youth ages 9-19 and youth-serving agency professionals.

5.12.8 Program Duration:

It will take five years to accomplish the above-described Plan of Work.

5.12.9 Allocated Resources (\$1000)

Year	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002	2003	2003	2003	2004	2004	2004
Item	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs
1862 & match	125	2.00	1.75	171	2.25	2.00	200	2.50	2.25	217	2.75	2.50	228	2.75	2.50	239	2.75	2.50

5.12.10 Ongoing Extension and Outreach

The 4-H program is expanding its programs to cover all the high schools in Saipan, Tinian and Rota. The 4-H program is increasing its efforts to bring in more volunteers within the CNMI to accommodate the after school programs for Life Skills and Training. This area is critical in the growth of our youth as this time period is often unsupervised and presents an opportunity for children to get into trouble. It also offers a marvelous window to show cultural values and expand the knowledge base being taught in the schools. Finally Through leadership workshops we are using older students as models for younger children grades K through 6.

5.13 LEADERSHIP AND VOLUNTEER DEVELOPMENT PROGRAM

5.13.1 Issues:

The major concern for the growth of the 4-H program in the Commonwealth of the Northern Marianas (Saipan, Tinian, and Rota) is the recruiting of Adult Volunteers and the development of high school students into leaders. These volunteers and students need subsequent training in leadership. The trained leaders then can establish 4-H groups, island wide to establish and promote the 4-H values of Head, Heart, Health, and Hand.

The 4-H groups in the CNMI should be integrated to maximize the resources and the benefits offered by the groups as a whole. These are long term issues in the CNMI.

5.13.2 Performance Goals:

The leadership and volunteer development program supports the 4-H program that focuses on Goals 3 and 5 – (a healthy population with enhanced economic opportunity and quality of life). More specifically, this program will:

8. Bring about increased awareness of the new methods and culturally appropriate values of the 4-H program through workshops, cultural activities, and involvement with local and environmental issues.
9. Increase the number of students participating in 4-H and increase the number of high schools participating in the 4-H program.
10. Expand the Leadership, Volunteer Recruitment programs in conjunction with the National 4-H Plans.

5.13.3 Output Indicators:

1. Arrange for volunteers and 4-H officers to receive needed training on the variety of 4-H programs, which would be useful in the CNMI.
2. Charter 4-H Clubs and certify the members on skills acquired at workshops seminars and civic involvement.
3. Create after school activities to give students an alternative to drugs and violence. Publish the findings of these 4-H activities for local and national use.
4. Educate the School PTA, teachers and administrators so they can more fully support the 4-H plans.
5. Develop strategies and combine these with existing proven methods to increase the viability of the 4-H Programs.

5.13.4 Outcome Indicators:

11. Through the media the 4-H groups will be a more visible entity.
12. Through examples of hard work, civic duty, environmental cleanups and their presence in the local schools we can increase student membership and the number of Leaders and Volunteers.
13. Participation in Island Agricultural Fairs which could be expanded to be of an environmental nature as well as displaying farm animals and produce.

5.13.5 Key Program Components:

1. An active calendar of events and workshops to stimulate the members, leaders, officers and volunteers for the year.
2. An aggressive program to “Keep in Touch” for all the participants in the 4-H on the CNMI.
3. A newsletter should be developed as an outreach for the CNMI.

5.13.6 Internal and External Linkages

The 4-H will collaborate with NAPIAP, EFNEP, NMC, and the personnel in the CNMI CREES. We will also enlist the support of government agencies such as DLNR, PSS, FFA, DEQ, CUC, CRM, and the Governors Office.

5.13.7 Target Audiences:

The students on Saipan, Tinian, and Rota will be the primary targets, through them we will address issues that effect the entire population here and abroad.

5.13.8 Program Duration:

This program will continue for the life of the 5-year plan.

5.13.9 Allocated Resources (\$1000)

Year	1999	1999	1999	2000	2000	2000	2001	2001	2001	2002	2002	2002	2003	2003	2003	2004	2004	2004
Item	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs	Total bud.	Prof. FTEs	Para Prof. FTEs
1862 & match	55	1.00	1.25	75	1.25	1.50	88	1.50	1.75	95	1.75	2.00	100	1.75	2.00	105	1.75	2.00

5.13.10 Ongoing Extension and Outreach:

Workshops and recruitment of students and volunteers are being done currently. Plans are made to expand to all of the remaining high schools on Saipan. We also continue cleaning up the islands. We are establishing a program on Tinian. the program on Rota is firmly established dealing with children at risk, agricultural fairs, and a high school chapter.

5.14 CIVIL RIGHTS PROGRAM

5.14.1 Section I - Equal Opportunity Employment

5.14.1.1 Goal # 1

To provide equal employment access and advancement opportunities to all individuals regardless of age, sex, national origin, or religion.

Procedures:

1. Coordinator will survey the current employee ratio in the CNMI Cooperative Research, Extension, and Education Service in terms of age, sex, cultural/ethnic origin, and religion. A Civil Rights Committee will then be formed to closely examine this data in terms of hiring practices and equal opportunities for advancement. They will prepare a

report that is to be shared with management regarding any concerns or issues that were identified in any of these areas. Management will respond to the concerns identified and the whole group will work together to implement solutions (implemented in 1999 and every year thereafter).

2. A civil rights module will be developed and implemented that is specifically geared for all management/supervisory training and orientations that focuses on equal opportunity hiring practices and advancement (implemented in 2000 and continued every year thereafter).

5.14.1.2 Goal # 2

Within the next 5 years, we must also meet the challenge of full-inclusion for those with disabilities in our community. We must survey our hiring practices to ensure that this group is afforded equal opportunities for employment, and there are no hidden biases or physical barriers to their doing so within the CNMI Cooperative Research, Extension, and Education Service.

Procedures:

1. Bring in an expert on ADA requirements to survey the physical layout of our building to ensure that we are in full compliance with ADA requirements. Ask for additional suggestions above the basic requirements that will make our department a role model for other institutions (1999).
2. Implement changes suggested by expert (2000, 2001).
3. Ensure that job listings are being advertised where the disabled members of our community may more likely view them. Elicit suggestions from community groups and agencies already working with the disabled (implemented in 1999 and every year thereafter).
4. Ensure that training or other off-site activities are accessible to employees with disabilities. Include suggestions, once again, from community agencies representing the disabled. (implemented in 1999 and every year thereafter)
5. Civil Rights Coordinator will seek out opportunities to develop relationships with organizations and agencies that represent or train people with disabilities, so that as job opportunities arise within the Cooperative Research, Extension, and Education Service, we can more easily make them known via these connections. (Implemented in 1999).
6. Obtain additional and updated information on ADA issues through periodic communication with the President's Commission On Employment of People With Disabilities, the President's Committee on Employment of People With Disabilities, Job Accommodation Network, etc. Pertinent information will be shared by Civil Rights Coordinator with staff and implemented into existing programs as needed. (implemented in 1999 and every year thereafter)

5.14.1.3 Goal #3

An effective system for handling employee or applicant complaints of discrimination will be implemented.

Procedures:

1. An EEO counselor will be selected from within the Land Grant Department and trained via attendance at an EEO counselor-training program. (1998)
2. An in-service will be given by the new EEO counselor to all staff on the formal EEO counseling policy - along with a practical written handout on “what to do”. (last quarter- 1999)
3. Information on employee rights such as: workers compensation, family medical leave, early medical retirement, equal pay for equal jobs, etc. will available to all staff without having to ask for it in an easily accessible file. (1999)

5.14.2 Section 2- Program Delivery

5.14.2.1 Goal #1

As the diversity of the Northern Marianas Islands changes, so too must our programs. The indigenous populations of the Commonwealth are blessed with having a richly diverse group of both permanent and temporary residents from mainland USA, and numerous Asian, Pacific, and European countries. As a small community, we must strive not only to get along with one another, but also to honor and respect each culture. While we have endeavored over the previous five years to reach out to all sectors of the community (in both our research and extension efforts) we must work even harder to ensure that our programming is sensitive to their needs and issues.

Procedures:

1. Develop a program planning/advisory committee on diversity that includes representatives from previously underrepresented groups in our community. Staff representation will include at least one member from each CREES unit. (2000).
2. Monitor surveys and program evaluations distributed by extension staff for the inclusion of questions related to the cultural sensitivity of their programs as determined by the program planning committee on diversity. (2000 and every year thereafter)
3. Monitor survey and evaluation questions on ethnic diversity for an increase in the approval rating by the public on culturally relevant issues on a an annual basis (i.e. compare 2001’s input with those of the year before in 2000) in order to see if our efforts to be more diverse are having an impact in the community. (implemented 2000 and continued through 2002)
4. Civil Rights Coordinator and the diversity planning/advisory committee will review all materials presently shared with clients in the community for cultural sensitivity and compile a list of suggestions for designing the materials. (implemented in 1999, and continued at least annually every year thereafter)
5. Adapt materials not deemed culturally sensitive within all programs. This will include revising text and pictures, and re-writing in different languages as needed. (2001)
6. Reward a staff member (certificate and luncheon) for innovation or outstanding contribution in designing a more culturally relevant program or for promoting diversity. Promote the recipients winning of this award in the college newsletter. (implemented in 2000 and every year thereafter)

7. Civil Rights Coordinator will attend at least one community event a quarter sponsored by a previously underrepresented group to informally gather ideas and input from attendees on issues of concern to them. This information will be shared with the program planning committee on diversity for inclusion in program suggestions (2000, 2001).
8. Revise registration forms for all programs within Land Grant to include data on ethnic background. Data to be reviewed by Civil Rights Coordinator to monitor for increased participation by previously underrepresented groups. (1999 for revision of forms).

5.14.2.2

Goal #2

In our program planning efforts we will strive to reach out to clients with disabilities and special needs in our community.

Procedures:

1. Obtain at least 4 resources from the “Breaking New Ground” Resource Center (or comparable agency) that will benefit disabled farmers. (2000, 2001)
2. Provide funds for an agriculture extension agent to go to a national conference on issues related to disability and farming issues. This agent will then take a lead role in helping the civil rights committee to implement knowledge gained into our programs. (2001)
3. Ensure that at least one agriculture extension agent is a member of the program planning and advisory committee on diversity so that issues related to farming and disability can be addressed. (1999)
4. Promote the feasibility of farming with a disability by actively seeking clients via collaboration with disability advocacy groups in the community (implemented in 2001 and every year thereafter).
5. Promote the feasibility of farming for the disabled and the availability of resources in the Land Grant Department in this area via the media and publications. (2002)

5.14.2.3

Goal #4

All of our research efforts will ultimately benefit all members of our community regardless of race, color, national origin, sex, age, or disability.

Procedures:

1. The Program Planning/Advisory Committee will review all research presently going on at our institution to see if it adequately reflects an ability to assist all farmers in our community (including those from minority groups). (2000).
2. This committee will meet with the research staff to discuss their findings and to offer possible considerations for future research that will benefit previously under represented groups (1999).
3. A survey will be devised and randomly distributed to a cross-section of farmers in our community (representing diverse groups and racial minorities) with a focus upon what research is presently being done, and what benefit they feel it is to them. Suggestions for future research projects that may be of benefit to them will also be taken. This survey will be done on a “one-to-one” basis by agriculture extension agents for greater clarification. The development of the survey will be a collaborating effort between agriculture extension and research. (2001)

5.14.3 Section 3 - Public Notification

5.14.3.1

Goal # 1

As we develop programs that reach out to previously underrepresented groups in our community, we must ensure that those individuals feel welcome to participate and are fully aware of the non-discriminatory nature of our institution.

Procedures:

1. Key community leaders and representatives from previously under represented groups will be identified and notified of all upcoming Cooperative Research, Extension, and Education Service programs, workshops and events. They will further be advised of the special emphasis that our program is now placing on diversity, and the openness with which we welcome their suggestions and comments. (implemented in 2000 and every year thereafter)
2. Include the addition of local languages in the standard “and justice for all” logo on all staff handouts and brochures. (2002)
3. All new interns, student employees, and volunteers will be required to undergo the CNMI CREES “sensitivity to diversity” training program, and will be advised by their supervisors of the non-discriminatory nature of this institution prior to seeing any clients in the community. (2000)
4. A glass-enclosed bulletin board will be obtained and mounted outside the main CREES office doors. The display will focus upon upcoming extension programs or activities with a particular focus upon the non-discriminatory nature of our programs. (2002)

5.14.4

Section 4 - Civil Rights Training

5.14.4.1

Goal #1

Over the next 5 years we will increase the knowledge base of all staff and interns related to civil rights issues.

Procedures:

1. All new employees (including volunteers, students and interns) will receive civil rights training on issues related to non-discrimination in the workplace, the prevention of sexual harassment, and the American's With Disabilities Act. This mandatory training will also be given annually for ALL employees. (Initiated in 1999 and every year thereafter).
2. Develop a manual for employees on issues related to civil rights for them to keep and reference as needed. (1999)
3. Civil rights coordinator will attend at least one yearly conference to update his or her knowledge base or skills in order to pass this data on to extension personnel. (implemented in 1999 and every year thereafter).

5.14.4.2

Goal # 2

All CNMI Cooperative Research, Extension, and Education Service staff will increase their knowledge base and ability to work effectively with people of diverse backgrounds. In doing so, we will create an open, supportive and responsive department in which diversity is acknowledged and valued.

Procedures:

1. Civil Rights Coordinator will develop a cultural sensitivity in-service training on issues related to working with people of diverse backgrounds. Input will be obtained from those in the community representing diverse groups (i.e. racial/ethnic minorities, employees with disabilities). Active participation in the in-service will be encouraged by the use of role plays and thought-provoking questions. This in-service training will be mandatory for all employees and given on an annual basis. A certificate of completion will be given. (implemented in 2001 and every year thereafter)
2. Develop our own video on cultural sensitivity for use in future training sessions and for use by others in the community interested in educating their employees on the importance of respecting differences in others. (2002)
3. To ensure that the training adequately reflects the growing cultural diversity in our community, the leader will attend one workshop a year on issues related to diversity in this region. (implemented in last quarter 1999 and every year thereafter)
4. Sponsor a community workshop on cultural sensitivity in collaboration with other community agencies as a means of expanding our program out into the community. (2002)
5. A resource "shelf" with materials/books reflecting cultural diversity will be started. Employees will be encouraged to check out and borrow materials. This "library" will be updated yearly, and the budget will reflect allocated funds to purchase materials. (2000)

5.14.5

Section 5 - On Site Civil Rights Compliance Reviews

5.14.5.1

Goal#1

Accurate records will be kept to monitor our departmental compliance with civil rights in terms of client interactions.

Procedures:

1. Re-develop the client interaction form that identifies race, national origin, gender, age and disability. Staff from Saipan, Tinian, and Rota to begin collection of data and will turn in weekly reports. (1999)
2. Designate an employee to be the statistician for compiling this data. (1999)
3. Provide a Bi-annual staff in-service (via staff meeting) stressing the importance of collecting this data for all staff and reviewing the policy with which we are complying. (1999)
4. Statistician will report monthly to the Civil Rights Coordinator for data analysis and review. (1999)
5. Data on the present ratio of client's in the Commonwealth in terms of race, national origin, gender, age, and disability will be gathered by the Civil Rights Coordinator from the most current CNMI Census Data, and will be compared with the actual number served by our programs in the community. Discrepancies will be shared with the program/planning and advisory committee for their input and suggestions on the means to better service these clients. (completed in the last quarter of each year beginning in 1999)

5.14.5.2 Goal #2

Accurate records will be kept to monitor this department's compliance with civil rights in terms of hiring practices.

Procedures:

1. The Civil Rights Committee will review the guidelines on performance appraisals, promotions and salary increases to ensure that they are clear and that there are no hidden biases. If any of the guidelines are unclear, then the committee will work with management to revise these. Any clear biases revealed in current employees, will be reviewed by management for the necessary changes. (1999)
2. A staffing profile will be obtained by the Civil Rights Committee of all current staff with a breakdown of job salary comparison by race/ethnicity and gender; a breakdown of job title comparison by race/ethnicity and gender, etc. This information will be shared with the program/ planning and advisory committee for input on issues related to underrepresented groups. A report will be submitted to management with suggestions and recommendations. (2000)
3. The Civil Rights Committee will also look at separation and retention rates for the past two years with a focus upon the reason for leaving as compared with ethnicity and gender. Input again will be sought from underrepresented groups and a report with these findings and recommendations will be submitted to management. (1999)
4. A format for exit interviews will be established by the Civil Rights Committee to include questions related to civil rights issues. (2000)
5. Another staffing profile will be obtained (as in procedure #1 above) in order to compare current trends/patterns with those at the beginning of our 5 year plan of work. Unresolved problems will continue to be addressed. (2002)

6. STAKEHOLDER INPUT PROCESS

CNMI Cooperative Research, Extension, and Education Service utilizes a number of forums, conferences and periodic meetings, with stake holders, to solicit advise and discuss agricultural research and extension needs and priorities. Periodic meetings attended by CREES staff include the monthly: Tinian Soil and Water Conservation District Meeting; Saipan Soil and Water Conservation Meeting; Luta Soil and Water Conservation District Meeting, and the CNMI Watershed Committee Meeting. Other less regularly held meetings attended, which provide inputs from stakeholders on research and extension needs, include the General Farmers' Meetings, the Farmers' Association Meetings, the Food and Nutrition Council meetings, and others.

More formal and objective methods of involving stake holders in the process of; 1) problem identification; 2) estimation of problem importance; 3) problem diagnosis; 4) assessment of research and extension priorities; 5) program and project planning; 6) program implementation and 7) program evaluation, will be developed, implemented and explained in updates to this 5 year plan.

7. PROGRAM REVIEW PROCESS

CNMI Cooperative Research, Extension, and Education Service holds Merit reviews of each federally-funded research and extension project proposal, prior to submission. Since the number of CREES staff is relatively small, all of the professional level staff are encouraged to participate in Merit or Peer reviews.

A draft of the proposal to be reviewed is e-mailed to all of the CREES staff 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 staff participate in the review. During the review, we assess: 1) the priority or importance of the proposed project; 2) the review of literature 3) the completeness of the proposal; 2) the relevance of the proposal; 3) the quality and scientific value of the proposed research or extension activities and 4) the opportunities for cooperation with others.

The proposals are revised, to incorporate the suggestions given during the merit review and approved by the appropriate Associate Director, Director and NMC President prior to submission.

8. MULTI STATE RESEARCH AND EXTENSION ACTIVITIES

Agriculture & Life Sciences maintains close regional ties with other colleges, universities, governmental agencies, NGO's, as well as professional agriculturists and naturalists within the Pacific rim countries and other island states. The Pacific island states work together to share information, facilities, and personnel. Most of our research and extension activities have always involved multi-disciplinary/multi-state or regional projects, due to our isolated physical location far from the U.S. mainland.

Northern Marianas College (NMC) is one of the five ADAP (Agriculture Development in the American Pacific) schools designated by the USDA as Pacific 1860 land grant institutions. Northern Marianas College, American Samoa Community College, and the College of Micronesia are the two-year schools; the four-year schools are the University of Hawaii and the University of Guam. Multi-state (multi-school) research and extension activities have been ongoing since 1988 and will continue during the period of this plan of work. Seven current ADAP projects involving multi-disciplinary/multi-state research and extension include: a) swine breeding through artificial insemination, b) food choices for healthy living, c) management of livestock waste to enhance environment and sustainability, and d) market information system coordination and development of agricultural statistics systems. Core ADAP projects involve management services; human resources capacity building; and communications, information, and publication services. (ongoing-2004)

The University of the South Pacific (USP) and the Secretariat of the Pacific Community (SPC) both based in Suva, Fiji are two other frequent collaborators in multi-disciplinary regional projects. NMC is a cooperator in two current regional projects with SPC, USP, and colleagues in Australia, New Zealand, Papua New Guinea, Samoa, Tonga, and other island states in the South Pacific: a taro genetic project involving the collection, morphological/genetic characterization, and establishment of germplasm banks of indigenous taro in the Pacific; and a para-veterinary project to train governmental agents and livestock producers in basic animal health in island states where trained veterinarians are scarce or non-existent. (ongoing-2004)

Additional planned projects will be added to this plan of work as they become finalized during the period.

9. INTEGRATED RESEARCH AND EXTENSION ACTIVITIES

In the recent past, agricultural research and agricultural extension were separate units in Agriculture and Life Sciences (now CNMI Cooperative Research, Extension, and Education Service) and headed by separate Associate Directors. The agricultural researchers (most have Ph.D. Degrees) focused on implementing their own narrowly focused projects. Although the researchers did provide some technical advice to extension workers and farmers, they did not feel extension was part of their main responsibilities. Our extension workers generally did not have good academic training and some had little technical expertise. The working relationships between the agricultural scientists and extension workers were not good. As a consequence, many felt the CNMI agricultural community was not being adequately served.

The NMC land grant program has recently been reorganized. The name of the unit was changed from Agricultural and Life Sciences to the CNMI Cooperative Research, Extension, and Education Service (CREES). CREES now has three units. They are: 1) Family and Home Sciences; 2) Education and 3) Agricultural Research and Extension.

In the new 5 year Plan of Work, agricultural research and extension is one unit. Researchers and extension staff will work together in planning and implementing agricultural research and extension programs (such as the Plant Protection Program) of importance to the CNMI rural community. The programs will be composed of research and extension projects, essential to the success of the overall program. Most, if not all of the staff working in the various agricultural and research programs, will have 50/50 appointments; 50% of their salary will come from research funds and 50% from research funds. This will allow the Ph.D. holders to come into closer contact with farmers and farmers' problems. Much more of the research will be carried out in farmers' fields with farmer's participation. Researchers, extension personnel and farmers will work together in: 1) identifying agricultural problems; 2) assessing the relative importance of the problems identified; 3) diagnosing the causes of the problem 4) identifying interventions (do we need research, extension advice or something else?) required for overcoming the problems; 5) assessing the priorities for research and extension; 6) planning projects and programs; 7) implementing projects and 8) evaluating the results. At the same time, the staff providing technical advice to farmers, will not only be experienced but will have B.S., M.S. or Ph.D. degrees in the required agricultural field.