

Sustain, Protect, and Manage Guam's Natural Environment and Resources.

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V(A). Planned Program (Summary)

1. Name of the Planned Program

Sustain, Protect, and Manage Guam's Natural Environment and Resources.

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
102	Soil, Plant, Water, Nutrient Relationships			55%	
111	Conservation and Efficient Use of Water			5%	
403	Waste Disposal, Recycling, and Reuse			40%	
	Total			100%	

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

Year: 2007	Extension		Research	
	1862	1890	1862	1890
Plan	0.0	0.0	2.0	0.0
Actual	0.0	0.0	2.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
0	0	379039	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
0	0	323539	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Researchers at Guam Western Pacific Tropical Research Center studied management of eroded soils for enhancement of productivity and environmental quality. Accelerated erosion as a consequence of poor soil quality threatens both the soil resource base and downstream environment in the island of Guam. The challenge therefore is to develop restoration strategies that improve the quality of these soils and address crop production needs within a framework of increasing environmental and financial constraints. Compost application as soil amendment can have a significant impact on increasing soil organic matter and enhancing the soil quality of these degraded soils and preventing erosion in southern Guam. The objectives of this work were to evaluate the use of composted organic waste as soil amendments for the enhancement and maintenance of soil quality, and also to evaluate the use of composted organic waste on crop productivity. Results from this experiment indicated that the organic matter content of the soils receiving composted organic waste were the highest as compared to the control treatments. The project was continued and sweet corn was replaced by the field-corn in to evaluate the effect of different application rates on soil quality and field corn production. Results have indicated that organic matter content was the highest for the plots under 120 tons per acre of compost application. Corn yield however was shown to be the highest under 60 tons per acre of compost application. In humid tropical, the warm, humid climate obviously causes a more rapid decomposition of crop biomass hence depleting the organic content of the soil. Additional biomass provided from composted organic waste is often needed to maintain or increase soil organic matter levels. Conducting studies such as this is urgently needed to improve soil quality and maintain the sustainability of the agricultural lands in Guam as well as the islands of the pacific region. Our results have shown that using compost can help build good soil structure, and qualities that enable soil to retain nutrient, moisture, and air for the support of healthy crop growth. Compost also helps control erosion that otherwise would wash topsoil into waterways. The educational impact of this project has proven to be of a great value to the farmers as well as other members of the communities of the pacific islanders whom are concerned about the degradation of soils and the natural resources of the island.

An integrated approach was designed to evaluate the effect of conservation tillage, crop rotation with leguminous plant for organic matter build up, and residue management for soil re-habilitation and restoration of the badlands in Southern Guam. In our companion study we are using composted organic waste not only as organic amendments for enhancement and maintenance of soil quality and productivity but also for reducing the erodability of these degraded soils. Considering that, this is a long term project and the effect of various conservation tillage treatment specially with No-Till management will become evident only after at least 5 years of continuous no-till management we are anticipating however, that the results of these two companion studies not only provide good database for assessing the extent of soil erosion but the data will provide information on effectiveness of the restoration techniques being applied for soil conservation on these and other similar soil condition in the Western Pacific islands.

The educational impact of these projects already have proven to be of a great value since some farmers started to consider rotating their corn crop with sunnhemp and use sunnhemp as green manure and cover crop during the rainy season. Also some farmers have started using compost as soil amendments and are pleased with the results. The educational impact of this investigation will prove to be of great value not only to farmers but also to ranchers and the other members of the communities of the pacific islanders whom are concerned about the degradation of soils and the natural resources of these islands.

2. Brief description of the target audience

This program does not have formal extension component.

V(E). Planned Program (Outputs)

1. Standard output measures

Target for the number of persons (contacts) reached through direct and indirect contact methods

	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Year	Target	Target	Target	Target
Plan	0	0	0	0
2007	0	0	0	0

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

Patent Applications Submitted

Year Target
Plan: 0

2007: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

	Extension	Research	Total
Plan			
2007	0	0	0

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

Conference Presentations

Year	Target	Actual
2007	4	5

Output #2

Output Measure

Journal Publications

Year	Target	Actual
2007	4	4

Output #3

Output Measure

Newspaper, magazine and other non peer reviewed publications.

Year	Target	Actual
2007	4	7

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V(G). State Defined Outcomes

O No.	Outcome Name
1	

Outcome #1

1. Outcome Measures

Not reporting on this Outcome for this Annual Report

2. Associated Institution Types

3a. Outcome Type:

3b. Quantitative Outcome

Year	Quantitative Target	Actual
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3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

KA Code	Knowledge Area
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V(H). Planned Program (External Factors)

External factors which affected outcomes

Natural Disasters (drought, weather extremes, etc.)

Appropriations changes

Brief Explanation

There were no serious deviations from planned outcomes.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

Before-After (before and after program)

During (during program)

Evaluation Results

{No Data Entered}

Key Items of Evaluation

{No Data Entered}