

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

**Program # 1**

**1. Name of the Planned Program**

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

Reporting on this Program

**V(B). Program Knowledge Area(s)**

**1. Program Knowledge Areas and Percentage**

| KA Code | Knowledge Area                             | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|---------|--------------------------------------------|-----------------|-----------------|----------------|----------------|
| 102     | Soil, Plant, Water, Nutrient Relationships |                 |                 | 100%           |                |
|         | <b>Total</b>                               |                 |                 | 100%           |                |

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

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

| Year: 2014              | Extension |      | Research |      |
|-------------------------|-----------|------|----------|------|
|                         | 1862      | 1890 | 1862     | 1890 |
| <b>Plan</b>             | 0.0       | 0.0  | 1.0      | 0.0  |
| <b>Actual Paid</b>      | 0.0       | 0.0  | 6.0      | 0.0  |
| <b>Actual Volunteer</b> | 0.0       | 0.0  | 0.0      | 0.0  |

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

| Extension           |                | Research       |                |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch          | Evans-Allen    |
| 0                   | 0              | 184596         | 0              |
| 1862 Matching       | 1890 Matching  | 1862 Matching  | 1890 Matching  |
| 0                   | 0              | 152154         | 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**

Techniques such as reduce tillage and conventional till in rotation with sun hemp were developed for soils

of southern Guam's and are presently being evaluated for the treatment effect. This project studies no-tillage farming practices for maintaining plant residues on soil surface for controlling erosion. The effect of plant residue from the no-till plots on infiltration is currently being tested using rainfall simulators. Up-to-date data have been presented at professional conferences, and are continuously collected. Experiments using Vetiver grass for controlling siltation have been conducted and up-to-date results from the experiments are encouraging. It became evident that Vetiver technology will become a practical mitigation technique for controlling sedimentation in Guam and other neighboring islands of Micronesia. Low level of watering via drip irrigation applied after each application of compost or commercial fertilizers as a management technique was conducted northern Guam in Yigo. Previous studies has shown that an initial low level water application will move the chemical to the stagnant region hence reducing the preferential flow from a major rainfall event that might be followed.

The effect of no-till management and other conservation tillage practices on chemical and physical properties of soils are currently being evaluated at the UOG experiment station in Ija in southern Guam. Numbers of soil parameters are being tested for this purpose.

The effect of land application of composted organic waste for soil quality improvement and agricultural sustainability is currently being evaluated on the calcareous soils of northern Guam. Up-to-date data are being presented before the farmers and local residents during the field demonstrations for educational purposes.

Application of composted organic waste on crop for improvements of soil quality and better yield was studied in Guam and the other islands of Micronesia. Results were published in the journal and conferences.

Watershed Soil Loss Assessment project was initiated and conducted in 2014. Results indicated that Vetiver grass technology is very viable method for reducing soil erosion.

**2. Brief description of the target audience**

Farmers, landscapers, students, general public, other government agencies

**3. How was eXtension used?**

eXtension was not used in this program

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

**1. Standard output measures**

| 2014          | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|---------------|------------------------|--------------------------|-----------------------|-------------------------|
| <b>Actual</b> | 43                     | 386                      | 167                   | 0                       |

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

Year: 2014  
 Actual: 0

**Patents listed**

**3. Publications (Standard General Output Measure)**

**Number of Peer Reviewed Publications**

| 2014   | Extension | Research | Total |
|--------|-----------|----------|-------|
| Actual | 0         | 2        | 0     |

**V(F). State Defined Outputs**

**Output Target**

**Output #1**

**Output Measure**

- Conference Presentations

| Year | Actual |
|------|--------|
| 2014 | 4      |

**Output #2**

**Output Measure**

- Journal Publications

| Year | Actual |
|------|--------|
| 2014 | 2      |

**Output #3**

**Output Measure**

- Newspaper, magazine and other non peer reviewed publications.

| Year | Actual |
|------|--------|
| 2014 | 1      |

**V(G). State Defined Outcomes**

**V. State Defined Outcomes Table of Content**

| O. No. | OUTCOME NAME                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1      | Action outcomes : Adopt sustainable natural resource management practices. Condition Outcomes: Enhance the economic and environmental sustainability of Guam's agriculture Improve the lives of Guam's citizens through positive human development Learning Outcomes: Aspire to contribute to ecological health and biodiversity Learn about nutrient sources, recycling and delivery methods that are compatible with crop, soil and production systems Learn about water and land interaction, and related water-quality issues |

## **Outcome #1**

### **1. Outcome Measures**

Action outcomes : Adopt sustainable natural resource management practices. Condition Outcomes: Enhance the economic and environmental sustainability of Guam's agriculture Improve the lives of Guam's citizens through positive human development Learning Outcomes: Aspire to contribute to ecological health and biodiversity Learn about nutrient sources, recycling and delivery methods that are compatible with crop, soil and production systems Learn about water and land interaction, and related water-quality issues

Not Reporting on this Outcome Measure

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

#### **External factors which affected outcomes**

- Economy
- Appropriations changes

#### **Brief Explanation**

Although local economy is slowly increasing, local government appropriations were still low.

### **V(I). Planned Program (Evaluation Studies)**

#### **Evaluation Results**

Performance of this program was rated high by Guam's stakeholders including farmers, NRCS, students and general public. WPTRC administrators received many positive signals expressing appreciation for excellent conductance of this particular program. WPTRC program was rated as one of the best programs at the University of Guam with additional appropriations promised in coming years.

#### **Key Items of Evaluation**

Positive evaluation of this program was based on regional focus and high productivity.