

# 2015 American Samoa Community College Combined Research and Extension Plan of Work

Status: Accepted

Date Accepted: 06/16/2014

## I. Plan Overview

### 1. Brief Summary about Plan Of Work

#### 2015 Plan of Work Overview American Samoa Community College Community & Natural Resources (CNR)

##### Planned Programs for 2015 are:

1. Families, Youth and Communities
2. Food Security
3. Health & Wellness
4. Ecosystem

**Major Challenges** during 2014 were the impact of sequestration, the US government shut-down and its impact on island, certain grant funding decreases, and the lack of local subsidies.

##### Participation & Capacity Development

Staff continued to participate in the review and writing of the 2015 Plan of Work. All the staff at CNR know that our priorities are "Food Security and Wellness". This resulted in the high number Knowledge Areas, Output Measures, and Outcomes for the planned programs in "Food Security" and "Health & Wellness"

I believe this shows their commitment and dedication to these priorities.

##### Stronger Links between Planning, Implementation, and Reporting

The College now requires Bi-Weekly reports in addition to Quarterly Reports. Extension Managers, Researchers, and Faculty are getting more proficient at linking their daily and weekly activities to the Plan of Work. The outputs and outcomes help to justify purchases and even travel.

##### Special Projects:

CNR is looking at building a "Butterfly House" for the Samoan swallowtail butterfly (*Papilio godeffroyi*). The island of Tutuila in American Samoa is the only place on earth where this butterfly survives.

CNR has put in a request for \$2 million to build a new building for extension. The wooden buildings were first built when the land grant program started in American Samoa in 1981.

CNR is continuing to develop its laboratory facilities and seeks to apply for FDA accreditation. This includes strengthening the existing equipment for the molecular characterization of traditional crops. One of the major purchases is for a Biolog.

The Director continues to work on mapping the American Samoa Food System.

**Staffing:**

We need to hire more professional staff in 4H, Forestry, Agriculture, and Food Safety.

**Estimated Number of Professional FTEs/SYs total in the State.**

Year	Extension		Research	
	1862	1890	1862	1890
2015	21.5	0.0	14.2	0.0
2016	21.5	0.0	14.2	0.0
2017	22.5	0.0	17.2	0.0
2018	22.5	0.0	17.2	0.0
2019	22.5	0.0	17.2	0.0

**II. Merit Review Process**

**1. The Merit Review Process that will be Employed during the 5-Year POW Cycle**

- Combined External and Internal University External Non-University Panel

**2. Brief Explanation**

Research and Extension initiatives are client-driven, that is, based upon the latest stakeholder input survey. Owing to our limited number of staff, which serves a population of 65,000, each researcher and Extension agent tries to match his/her knowledge skills and expertise to a high priority client concern that also would meet federal grant requirements.

The proposal is then given to the Research or the Extension Coordinator, who distributes it to knowledgeable professionals both within and outside of the institution. If an off-island expert can also be found who is willing to review the proposal, gratis, this source of review is also sought.

The Director will be included in the final review of the proposals.

An investigator proposing a new research project is required to submit a Project Outline detailing the justification, objectives, procedures, and other pertinent information that would allow someone with research experience to adequately evaluate the proposal. The Research Coordinator then distributes this Project Outline in appropriate faculty and staff within the college and to professional researchers in other agencies. A cover letter explains the necessity for a merit review, lists three criteria by which to judge the proposal, and gives an assurance of

anonymity. The three criteria are: 1. How important is the proposed activity to advancing knowledge and understanding of agricultural or health-related issues in American Samoa and other Pacific islands? 2. Is the project based on sound scientific principles? Are the proposal's arguments supported by verifiable facts? 3. Are sufficient resources available to bring the project to a successful conclusion? How well qualified is the individual or team to conduct the project? Are sufficient funds, facilities, equipment, and assistance available? The Research Coordinator collects the reviews and returns them to the investigator. The investigator may then choose to modify the proposal, based on the reviews, before resubmitting it to the Research Coordinator. The Research Coordinator accepts or rejects the proposal. If the latter, the investigator may appeal to the Director, who makes the ultimate decision.

### III. Evaluation of Multis & Joint Activities

#### 1. How will the planned programs address the critical issues of strategic importance, including those identified by the stakeholders?

**List of Partners & Responses to Evaluation of Multi & Joint Activities**  
**June 22, 2013**  
**Aufa'i R.A. Areta**

#### 1. Partners

##### 1. Local:

##### 1. Government Agencies

1. GO (American Samoa Governor's Office)
2. DOE (American Samoa Department of Education)
3. DOH (American Samoa Department of Health)
4. ASEPA (American Samoa Environmental Protection Agency)
5. ASPA (American Samoa Power Authority)
6. DMWR (American Samoa Department of Marine and Wildlife Resources)
7. DOA (American Samoa Department of Agriculture)
8. DOC (American Samoa Department of Commerce)
9. DPS (American Samoa Department of Public Safety)
10. OSA (American Samoa Office of Samoan Affairs)
11. DHSS (American Samoa Department of Human and Social Services)
12. OPADD (American Samoa Office of Protection and Advocacy for the Disabled)
13. DYWA (American Samoa Department of Youth and Women's Affairs)
14. ASMCA (American Samoa Medical Center Authority)-LBJ Hospital
15. TAOA (American Samoa Territorial Administration on Aging)
16. DHLS (American Samoa Department of Homeland Security)
17. TEO (American Samoa Territorial Energy Office)
18. DPR (American Samoa Department of Parks & Recreation)
19. DPW (American Samoa Department of Public Works)
20. DPA (American Samoa Department of Port Administration)
21. American Samoa Legislature -Fono (Senate & House of Representatives)

##### 1. Inter-government Organizations

1. ASIST (American Samoa Invasive Species Team)
2. RC&D (American Samoa Resource Conservation and Development Council)
3. LeTausagi Environmental Group

4. NCD (Non Communicable Diseases) Coalition
5. ASCCC (American Samoa Community Cancer Coalition)
6. American Samoa Food Policy Council
7. CRAG (American Samoa Coral Reef Advisory Group)
8. ECE (Early Childhood Education) Policy Council
9. ASSWCD (American Samoa Soil & Water Conservation District)
10. Forestry Advisory Council

**1. NGOs/Businesses**

1. Church Denominations
2. Catholic Social Services
3. Village Councils
4. Women's Groups
5. Youth Groups
6. 4-H Village Clubs
7. TAMM (Toe Afua Mai Matua) -Senior Citizens' Group
8. First Lady Women's Network
9. Women's Group Against Domestic Violence
10. Star Kist Samoa

**1. Federal**

1. SWCD (Soil and Water Conservation District)
2. NOAA (National Oceanic Atmospheric Administration)
3. NPAS (National Park of American Samoa)
4. NRCS (Natural Resources Conservation Service)
5. Congressman Faleomavaega District Office

**1. Regional:**

1. CHL (Children Healthy Living Program) for Remote Underserved Minority Populations in the Pacific Region
2. UAF (University of Alaska, Fairbanks)
3. NMC (Northern Marianas College)
4. FAS (Freely Associated States of Micronesia)
5. UOG (University of Guam)
6. UH-Manoa (University of Hawaii at Manoa)
7. CARIPAC (Developing Resident Instruction in Food and Agricultural Related Sciences in the Pacific and Caribbean Islands)
8. PLGA (Pacific Land Grant Alliance)
9. IPIF (Institute of Pacific Islands Forestry)
10. PIC (Pacific Islands Forestry Council)
11. PII (Pacific Invasives Initiative)
12. SPC (Secretariat of the Pacific Community)
13. SPREP (South Pacific Regional Environmental Programme)
14. SMAF (Samoa Ministry of Agriculture and Fisheries)

**1. National:**

1. National 4-H Council

2. APLU (Association of Public and Land Grant Universities)
3. NASF (National Association of State Foresters)
4. WFLC (Western Forester Leadership Council)

**1. Federal:**

1. NIFA (National Institute of Food and Agriculture)
2. S&PF (U.S. Forest Service State and Private Forestry)
3. USDA (United States Department of Agriculture)
4. USFS (United States Forest Service)
5. DOD (United States Department of Defense)
6. USAR (United States Army Reserve)

ASCC-CNR will continue with existing programs and implement appropriate and relevant new ones to address the critical issues identified by stakeholders. Moreover, existing and new collaborations and partnerships with local, regional, national, and federal partners will be sustained to ensure that the critical issues identified by stakeholders are addressed.

Planned programs will be available to all residents and villages in Tutuila, Aunu'u, Swains, and the Manu'a islands. Appropriate formal and non-formal program delivery methods will be used. Program activities will be conducted in both English and Samoan languages. Moreover, program materials will be translated into Samoan and other languages as requested and needed. Program evaluation will be conducted to determine if issues are addressed and to improve program.

Funding is needed to hire more qualified staff, provide staff development capacity building opportunities, build infrastructures, and purchase vehicles, equipments, materials, and supplies to effectively deliver programs to address issues identified by stakeholders and clients. Recruitment of Scientists, Specialists, and other professionals is a major challenge because of the salary gaps.

**2. How will the planned programs address the needs of under-served and under-represented populations of the State(s)?**

The target audience for the planned programs is all residents of American Samoa from children to senior citizens. Therefore, under-served and under-represented populations in American Samoa are included. Moreover, other ethnic minority groups (Polynesians, Asians, Caucasians, others) beside Samoans (majority) will be served. Program activities will be conducted in both English and Samoan languages. Moreover, program materials will be translated into Samoan and other languages as requested and needed. Also, the abovementioned minority groups and other underserved and under-represented populations will be encouraged to participate in stakeholders' inputs sessions for future program planning, implementation, and evaluation.

Planned programs will be extended to all villages in Tutuila, Aunu'u, and the Manu'a islands. ASCC-CNR will collaborate with the Governor's Office, Manu'a and Swains islands Representatives and Senators, Office of Samoan Affairs, ASPA, DOE, DMWR, DPW, DPA, and others to assist with the surface and air transportation challenges to Manu'a and Swains islands.

ASCC-CNR will collaborate with DOE's Special Education Division and DHSS's

Vocational Rehabilitation program to address program accessibility for the special needs population. Furthermore, ASCC-CNR will collaborate with TAOA to address the needs of Senior citizens, and DYWA and other agencies to address youth and women's needs. Funding is needed to hire more qualified staff, provide staff development capacity opportunities, and purchase vehicles, equipments, materials, and supplies to effectively deliver programs to

clients.

### **3. How will the planned programs describe the expected outcomes and impacts?**

Planned programs accomplishment reports will include not only outputs but also changes in knowledge, actions/behaviors, and conditions as a result of the planned programs. Success stories with quantitative measures and qualitative descriptions of results will be used to describe the outcomes and impacts.

### **4. How will the planned programs result in improved program effectiveness and/or**

Sharing of the vision, mission, goals, values, and especially resources (human, financial, and physical) among the collaborative partners will reduce costs and avoid duplication of efforts, thus resulting in improved program effectiveness and efficiency. For example, ASCC-CNR's Plant Pathologist, Entomologist, Horticulturalist, Soil Scientist, Tissue Culture Specialist, Extension Specialists, and other staff will collaborate with local partners (GO, OSA, DOA, DMWR, DOC, ASPA, ASEPA, DHL, NRCS, NPAS, NOAA, DOH, DHSS, others), regional partners (SPC, SPREP, SMAF, others), and federal partners (NIFA, USDA, USFS, others) to address Food Security, Ecosystem (Climate Change, Energy, Invasive Species), and Human Health and Well Being planned programs.

Additionally, ASCC-CNR will collaborate with local partners (DOE, DOH, OSA, GO, Church Denominations, Catholic Social Services, Village Councils, Women's Groups, Youth Groups, 4-H Village Clubs, others), regional partners (UAF, NMC, FAS, UOG, UH-Manoa, others), and federal partners (NIFA, USDA, others) to address Childhood Obesity under the CHL (Children Healthy Living Program for Remote Underserved Minority Populations in the Pacific Region) project and Youth, Families, & Communities planned program.

## **IV. Stakeholder Input**

### **1. Actions taken to seek stakeholder input that encourages their participation**

- Use of media to announce public meetings and listening sessions
- Targeted invitation to traditional stakeholder groups
- Targeted invitation to non-traditional stakeholder groups
- Targeted invitation to traditional stakeholder individuals
- Targeted invitation to non-traditional stakeholder individuals
- Targeted invitation to selected individuals from general public
- Survey of traditional stakeholder groups
- Survey of traditional stakeholder individuals
- Survey of the general public
- Survey of selected individuals from the general public
- Other (Focus groups)

#### **Brief explanation.**

Wherever and when our stake holders gather for programs, they will be asked to evaluate and give inputs regarding followup workshops and direction. Stakeholders' participation will be encouraged through: media announcements (television stations, newspapers, radio stations); targeted invitations (letters, phone calls, personal visits) to traditional and nontraditional stakeholder

groups and individuals; and surveys of the general public and selected groups and individuals..

**2(A). A brief statement of the process that will be used by the recipient institution to identify individuals and groups stakeholders and to collect input from them**

**1. Method to identify individuals and groups**

- Use Advisory Committees
- Use Internal Focus Groups
- Use External Focus Groups
- Needs Assessments
- Use Surveys
- Other (formative and summative evaluations of workshops)

**Brief explanation.**

CNR will continue to use inputs and recommendations from advisory committees, external and internal focus groups, surveys, workshops evaluations, and needs assessments to identify stakeholders' groups and individuals. Moreover, recommendations from programs' staff and administrators will also be utilized.

All workshops conducted by CNR extension will be evaluated for information regarding What next? and Where do we go from here? Focus groups are being planned for our underserved clients in the Manu'a Islands. All farm visits conducted by CNR Agriculture Service will be documented and will contain sections where farmers will identify their problem areas. This information will be used to direct resources in research. The CNR advisory group's responsibility is to prioritize and bring focus to the stakeholder concerns.

**2(B). A brief statement of the process that will be used by the recipient institution to identify individuals and groups who are stakeholders and to collect input from them**

**1. Methods for collecting Stakeholder Input**

- Meeting with traditional Stakeholder groups
- Survey of traditional Stakeholder groups
- Meeting with traditional Stakeholder individuals
- Survey of traditional Stakeholder individuals
- Meeting with the general public (open meeting advertised to all)
- Survey of the general public
- Meeting specifically with non-traditional groups
- Survey specifically with non-traditional groups
- Meeting specifically with non-traditional individuals
- Survey specifically with non-traditional individuals
- Meeting with invited selected individuals from the general public
- Survey of selected individuals from the general public
- Other (Focus group sessions)

**Brief explanation.**

ASCC-CNR staff will continue to collect stakeholder inputs from clients through focus group sessions and survey questionnaires during workshops (schools, villages, community groups, government agencies, churches, CNR, other sites), demonstrations, presentations, pesticides courses, public and council meetings, exercise and physical activity sessions, field trips, summer camps and institutes, tours, school visits, science fairs, field days, career days, farm and family visitations, clients' visitations to the office, and individual consultations.

**3. A statement of how the input will be considered**

- In the Budget Process
- To Identify Emerging Issues
- Redirect Extension Programs
- Redirect Research Programs
- In the Staff Hiring Process
- In the Action Plans
- To Set Priorities

**Brief explanation.**

Inputs from stake holders will be used to direct and improve programs in both extension and research, with the CNR advisory group being the means to prioritize CNR resources. Once the priorities have been determined, the information will be forwarded to CNR administration and program managers to make changes in the budgets and programming. More specifically, inputs will be considered in recruiting and hiring of new staff; acquisition of new equipments and materials and supplies; improvement of existing programs and facilities; development and implementation of new programs; and construction of new facilities to address stakeholders inputs and recommendations.



**V. Planned Program Table of Content**

<b>S. No.</b>	<b>PROGRAM NAME</b>
1	Families, Youth and Communities
2	Food Security
3	Health and Wellness
4	Ecosystem

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

### **Program # 1**

#### **1. Name of the Planned Program**

Families, Youth and Communities

#### **2. Brief summary about Planned Program**

The 4-H Youth Development and Family Consumer Science (FCS) Programs will continue to serve the American Samoa community by providing educational workshops, programs, and camp for the families and youth. The 4-H Workshops and Programs will assist the youth in developing skills for life, positive adult relationships, and leadership experiences. In addition, the programs will continue to address the youth-at-risk issues. In order to reach the youths in the community, the 4-H and FCS staff will travel to the villages to deliver the programs. Most parents do not have time or means of transportation to take their children to the programs. Therefore, 80% of the programs will be delivered at the 4-H village clubs, church youth groups, and clubs in the schools. About 20% of the programs will be at the college campus. The existing programs include entrepreneurship, sewing, arts and crafts, photography, vegetable gardening, Samoan culture, and language/reading projects. The long-term goal is for the youth to become self-reliant, productive and contributing members of society. The 4-H will conduct a new farm animal activities which leads to importing a horse or pony, a milk cow, and a sheep.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** No

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

1. Program Knowledge Areas and Percentage

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
801	Individual and Family Resource Management	40%		0%	
802	Human Development and Family Well-Being	10%		0%	
803	Sociological and Technological Change Affecting Individuals, Families, and Communities	10%		0%	
806	Youth Development	40%		0%	
	<b>Total</b>	100%		0%	

**V(C). Planned Program (Situation and Scope)**

1. Situation and priorities

According to the 2010 Census, the population in American Samoa is 55,519. About 34.4% of the people are between the ages of 5 and 19. In 2000, the estimated number of family households was around 8,706 and about 72% had a child or children age 18 or under. In 2000, the median household income was \$18,219. About 50% of families were below the national poverty level. By 2005, the estimated per capita income was \$5,266. The local economy is 90% dependent on US and foreign imports, and average prices of selected commodities throughout the years have increased due to oil prices. There is a need for families to manage resources wisely and take advantage of opportunities to maintain and increase their quality of life. There is also a need for children to be updated with educational information and resources that are available in the US.

Parent and youth relationship is a critical issue in American Samoa. One of the major concerns is the lack of supervision of youth due to parent(s) busy schedules. In 2011, about 11% of birth mothers were between the ages of 15 and 19. Youth Risk Behavior Survey (CDC, 2011) states that 32% of high school students had sexual intercourse. Parents and youth need to find a balance between the traditional cultural lifestyle and the American lifestyle. The youth are facing difficulties in accommodating the American lifestyle and meeting the expectations of the parents in relation to the Samoan culture. Therefore, learning opportunities should be provided for the youth to preserve the Samoan culture, language, and family values. At the same time, parents should be provided with resources to better manage their families and understand the youth.

The school enrollment from school year 2008 to 2010 was about 22,000, but it decreased to 17,000 in 2011(DOC, 2011 Statistical Yearbook). Youth Risk Behavior survey (CDC, 2011) indicates that 7% of students used a needle to inject an illegal drug, and 47% tried smoking cigarette. Over the years, juvenile crimes have increased in American Samoa. About 52% of family, drug and alcohol cases filed were juvenile delinquents. The offenses committed by juveniles increased by 1.9% in 2011. About 13% for assault, 14% for burglary, 5% for robbery, 27% for disorderly conduct, 4% for property damage, 7% for runaways, 1% for weapons, and 26% for others. There is a great need to address youth-at-risk issues so the youth has a better chance of becoming a productive, self-reliant and contributing member of society.

Reference

American Samoa Department of Commerce. 2011 Statistical Yearbook.  
Center for Disease Control and Prevention (2011). HIV, other STD, and Teen Pregnancy Prevention and American Samoa Students. Adolescent and School Health. Retrieved 03/04/2013 from [http://www.cdc.gov/healthyyouth/states/territories/american\\_samoa.htm](http://www.cdc.gov/healthyyouth/states/territories/american_samoa.htm)  
Center for Disease Control and Prevention (2011). Tobacco Use and American Samoa Student. Adolescent and School Health. Retrieved 03/04/2013 from [http://www.cdc.gov/healthyyouth/states/territories/american\\_samoa.htm](http://www.cdc.gov/healthyyouth/states/territories/american_samoa.htm)

**2. Scope of the Program**

- In-State Extension

**V(D). Planned Program (Assumptions and Goals)**

**1. Assumptions made for the Program**

Funding and staffing will continue.

Community coalitions and agency collaborations and partnerships will continue.

Clients will learn and change behaviors, attitudes, practices, and lifestyles.

Clients will take advantage of economic and educational opportunities.

Youth at risk issues can be prevented and treated.

Priorities will not change.

Volunteers will assist with program implementation

Program delivery will be both in English and Samoan languages

Materials will need to be translated into Samoan

**2. Ultimate goal(s) of this Program**

To improve learning for youth through innovative program and workshops.

To improve health education for youth in relation to healthy eating, obesity, physical fitness, early pregnancy and substance abuse.

Assist Youth to develop life skills that can lead to long-term employment and economic self-sufficiency, and

provide opportunities to connect with an adult and peer mentors.

Strengthen families through participation in educational and recreational activities.

To develop a sense understanding and appreciation of the Samoan culture and language.

To reduce at-risk behaviors and to enhance their potentials in becoming productive members of society.

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

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2015	6.0	0.0	5.0	0.0
2016	6.0	0.0	5.0	0.0
2017	6.0	0.0	5.0	0.0
2018	6.0	0.0	5.0	0.0
2019	6.0	0.0	5.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

- Arts & Crafts
- Outdoor Recreation/Camps
- Home Economic Workshops
- Samoan Cultural Hands-On
- Summer Curriculum
- Partnership Collaboration Workshop
- Physical and Health
- Animal Farm/Livestock

**2. Type(s) of methods to be used to reach direct and indirect contacts**

Extension	
Direct Methods	Indirect Methods

<ul style="list-style-type: none"><li>● Education Class</li><li>● Workshop</li><li>● Group Discussion</li><li>● One-on-One Intervention</li><li>● Demonstrations</li><li>● Other 1 (Competitions)</li><li>● Other 2 (Summer programs)</li></ul>	<ul style="list-style-type: none"><li>● Public Service Announcement</li><li>● Billboards</li><li>● Newsletters</li><li>● TV Media Programs</li><li>● Other 1 (Brochures/Handouts)</li><li>● Other 2 (videos)</li></ul>
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### 3. Description of targeted audience

The targeted audiences are families and youth in the American Samoa community.

### V(G). Planned Program (Outputs)

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

## **V(H). State Defined Outputs**

### **1. Output Measure**

- Number of camps.
  - Number of youth who attended the camps.
  - Number of group educational workshops and program activities conducted.
  - Number of youth that participated in educational workshops and program activities.
  - Number of adults that participated in educational workshops and program activities.
  - Number of volunteers that participate in professional development workshop.
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(I). State Defined Outcome**

<b>O. No</b>	<b>Outcome Name</b>
1	% of youth who increase knowledge of life skills concepts and practices.
2	% of youth who were able to acquire knowledge for positive self-development.
3	% of participants who developed new life skills due to all the Program activities.
4	% of program participants who have improved parent and children relationship through educational and recreational activities.



**Outcome # 1**

**1. Outcome Target**

% of youth who increase knowledge of life skills concepts and practices.

**2. Outcome Type : Change in Knowledge Outcome Measure**

**3. Associated Knowledge Area(s)**

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension

**Outcome # 2**

**1. Outcome Target**

% of youth who were able to acquire knowledge for positive self-development.

**2. Outcome Type : Change in Knowledge Outcome Measure**

**3. Associated Knowledge Area(s)**

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension

**Outcome # 3**

**1. Outcome Target**

% of participants who developed new life skills due to all the Program activities.

**2. Outcome Type : Change in Condition Outcome Measure**

**3. Associated Knowledge Area(s)**

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension

**Outcome # 4**

**1. Outcome Target**

% of program participants who have improved parent and children relationship through educational and recreational activities.

**2. Outcome Type : Change in Condition Outcome Measure**

**3. Associated Knowledge Area(s)**

- 801 - Individual and Family Resource Management
- 802 - Human Development and Family Well-Being
- 803 - Sociological and Technological Change Affecting Individuals, Families, and Communities
- 806 - Youth Development

**4. Associated Institute Type(s)**

- 1862 Extension

**V(J). Planned Program (External Factors)**

**1. External Factors which may affect Outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (Staff Recruitment, Culture)

## **Description**

Natural disasters: hurricanes, cyclones, earthquakes, tsunamis, flooding and others  
Changes in funding (loss of formula funds)  
Changes in staffing (loss of staff)  
Changes in institutional priorities and access to facilities  
Changes in collaborators' abilities or willingness to continue as partners  
Clients' family and church obligations  
Health  
Politics  
Cultural Acceptance  
Loss of staff reduced program capacity  
Sensitive topics (premarital sex, teen pregnancy, sexually transmitted diseases)  
Delay in procurement processes for materials and supplies

## **V(K). Planned Program - Planned Evaluation Studies**

### **Description of Planned Evaluation Studies**

Pre/Post tests

Summative and formative evaluations  
Accomplishment reports  
Enrollment forms  
Visitation reports  
Focus group sessions  
Annual surveys by ASCC CNR CES  
Qualitative information gathered from home and village visits and interviews  
Business records and licenses  
Employment records

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

### **Program # 2**

#### **1. Name of the Planned Program**

Food Security

#### **2. Brief summary about Planned Program**

The projects included in the Food Security planned program are aimed at helping subsistence and commercial farmers increase yields and maintain sustain

New varieties of high-yielding, disease-resistant, and nutritious vegetables and traditional crops will continue to be imported, multiplied, evaluated, and distributed to farmers so as to reduce costs of inputs and maximize returns.

If additional staff can be hired, then work on the efficacy of reduced risk pesticides will resume so that farmers will have better options available to control pests, without harming human health or the fragile environment of the Island. Our plant clinic identifies new and existing pests and diseases and recommends integrated management tactics. Furthermore, our entomology program works closely with the local Department of Agriculture to conduct surveys for early detection of exotic pest threats. We plan to reinforce our diagnostics capabilities with the acquisition of a Biolog Microbial Identification System.

Livestock is very important to Food Security and to the local economy. The program is in the process of expanding the livestock development to include tropical sheeps, turkeys and beef cattles. More land will be needed for grazing and to accomodate the program needs.

Small Scale Chicken Farming - The introduction of small chicken farms in the interest of food security is in the planning stage. Depending on farmers' abilities, three options are made available with various improvements on the current back yard style of raising chickens:

i) Free range: same as current system, but with provision for some form of shelter, boxes for egg laying, egg collection and raising chicks, and improvement in feed and feeding conditions.

ii) Semi-Intensive: birds will roam the field within a fenced area but will be housed in a building overnight; laying boxes, roosting rods, feed and water containers will be within the building. This is the agreed upon model project for ASCC-CNR and building drafts are in the process, in a collaboration with TTD.

iii) Intensive - commercial based system where broilers (or layers) are raised in doors on commercial feed until marketing.

Piggeries - Inbreeding of swine is a serious cause of concerns, since it results in low productivity when no new blood/gene is introduced. Improvements in breeding genetics and propagation can be quickly achieved through the importation of improved breeds and artificial insemination (AI). The importation of new stocks (gilts and boars) for CNR and any interested farmer should result in improved breeding, coupled with good selection. This will then serve as the breeding stock to supply farmers. Currently, there are no certified swine technicians for artificial insemination, but possible training of at least two personnels in the near future may be in the pipeline. In addition, improvements in physical facilities and management may reduce losses and wastes as well as reduce weaning time, thus early estrous cycles.

The use of Pig Starter feed has greatly improved weight gain in piglets, reduced suckling time as well as reduction in piglet diarrhea. This will enable the sows to recycle earlier. The need to reduce piglet

deaths from being crushed has resulted in discussions and plans to provide two (2) kinds of portable creep area fences for trial before submitting a recommendation. The provision of feed troughs for all pens will greatly reduce feed wastes and prevent wetting the deep litter.

Minor Birds and Rat Problems will be looked into for a proper solution.

Slaughter block/Examining room/Office - Improving slaughter of culled animals on campus requires a building with sinks, hot water and crane for raising the carcasses. The expected arrival of chemicals, drugs, tools and equipment necessitates the ordering of a refrigerator and aircon-in process for proper storage; an adjacent office with computers will facilitate the implementation of the livestock extension part. A cemented foundation with roofing for the wood chipper at the piggery is needed.

In American Samoa, several food crop production systems rely upon soilless growing media. Vegetable seedling transplants, food plants produced in hydroponic and aquaponic systems and agro forestry tree seedlings are currently grown in imported, non-renewable peat based media or mined topsoil. Locally sourced alternatives such as composts and coconut coir need to be evaluated as media replacements to peat and mined topsoil.

The environmental conditions in American Samoa are ideal for culturing both marine and freshwater tropical fish and invertebrates. Additionally, the availability of fishmeal from a local tuna cannery makes the formulation of low-cost feeds for aquatic organisms feasible in order to reduce a major portion of operational expenses. Feed production facilities, a tilapia breeding program, and aquaculture demonstrations are housed in the Center for Sustainable Integrated Agriculture and Aquaculture at the American Samoa Community College. Support for the Aquaculture Program will result in the development of economically-viable, sustainable aquaculture ventures throughout American Samoa, which includes the economically-depressed outer islands of Aunu'u and the Manu'a island group.

Food safety issues are major concerns in American Samoa. CNR will increase public awareness about food safety at home, in the workplace, churches, and village functions.

CNR staff will develop procedures and conduct food safety workshops with demonstrations such as correct hand washing to help prevent food-borne illnesses. Furthermore, policies related to food-borne illnesses will be created.

CNR staff will distribute food safety procedures, publications, brochures, and education materials to public, private, and government sectors in American Samoa. Additionally, ASCC CNR will collaborate with the DOA, DOH, DOE, LBJ, ASPA, EPA, and other government agencies and non-government organizations (village councils and churches) to help plan, develop, and implement programs to address food safety issues in American Samoa.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

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

## 1. Program Knowledge Areas and Percentage

<b>KA Code</b>	<b>Knowledge Area</b>	<b>%1862 Extension</b>	<b>%1890 Extension</b>	<b>%1862 Research</b>	<b>%1890 Research</b>
102	Soil, Plant, Water, Nutrient Relationships	5%		10%	
111	Conservation and Efficient Use of Water	5%		0%	
202	Plant Genetic Resources	5%		5%	
205	Plant Management Systems	10%		10%	
211	Insects, Mites, and Other Arthropods Affecting Plants	5%		0%	
212	Pathogens and Nematodes Affecting Plants	5%		10%	
215	Biological Control of Pests Affecting Plants	5%		10%	
306	Environmental Stress in Animals	5%		0%	
307	Animal Management Systems	10%		15%	
308	Improved Animal Products (Before Harvest)	5%		0%	
315	Animal Welfare/Well-Being and Protection	5%		15%	
401	Structures, Facilities, and General Purpose Farm Supplies	5%		5%	
403	Waste Disposal, Recycling, and Reuse	5%		15%	
601	Economics of Agricultural Production and Farm Management	5%		5%	
604	Marketing and Distribution Practices	5%		0%	
703	Nutrition Education and Behavior	3%		0%	
711	Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources	3%		0%	
712	Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins	4%		0%	
903	Communication, Education, and Information Delivery	5%		0%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Situation and Scope)**

## 1. Situation and priorities

Leaf blight-resistant taro cultivars will continue to be imported from SPC/CePaCT as tissue culture plantlets, which will then be micropropagated, multiplied, evaluated, and released to farmers. As part of our new Taro Breeding Program, crosses will be made between elite taro cultivars in order to develop cultivars

that are high-yielding, disease-resistant, nutritious, and good-tasting. Both the importation and breeding of new cultivars aim at broadening the genetic base of the taro production in American Samoa.

In order to avoid the resurgence of the taro leaf blight (TLB) epidemics that destroyed the entire taro production of American Samoa in the early 1990s, surveys of the different isolates of the pathogen, *Phytophthora colocasiae*, will be conducted frequently so as to detect any changes in the virulence of the isolates as soon as they appear.

Pesticide efficacy tests of reduced risk chemicals will be conducted to complement the IPM strategies for the different economic crops. Plant clinic services for extension agents and the general public provide pest diagnostics and control recommendations, and detection surveys with the local department of agriculture help ensure early detection of exotic invasive pests.

We will continue with the vegetable seed sales to our clients. Vegetable variety demonstrations to identify cultivars that will perform well in our hot, humid, and wet tropical environment will continue.

For the fruit industry, the priority will be to introduce new fruit tree varieties. For the varieties that perform well, workshops will be conducted to teach farmers and interested homemakers the different methods of asexual propagation so that each home will have a diverse variety of fruit for the children to enjoy. Then parents will not have to purchase apples and oranges, peaches, and pears to feed their children thereby affecting an import replacement scheme for the Territory. Extension staff will continue to contact and visit counterparts in Independent Samoa to collect fruit trees seeds and seedlings for multiplication and propagation in the "Fruits for Life" greenhouse. We will continue to recruit for a Fruit Tree Specialist.

Extension staff will continue to demonstrate to farmers the three waste management options that were approved by ASEPA.(1) The portable pigpen that will accommodate up to two large pigs,(2) the dry litter technology (DLT) system (using a 6% sloped floor and wood chips to compost the manure)(3) and the wash-down system with solid waste separator and a drain-field (for feeding the liquid effluent to fruit tree and vegetable crops). These demonstrations will assist local pig farmers bring their operations into ASEPA compliance. Agriculture Extension will continue to assist pig farmers if they adopt any of these systems that will bring their swine operation into compliance with the local laws. The program will expand the livestock development to include sheeps, cattles, and turkeys.

a) Small Scale Chicken Farm: the CNR demonstration project is in progress with building drafts being worked on, off-island orders submitted for basic equipment/tools required. The project should be up and running before the end of the year. Need to identify the fence perimeter before erecting it.

b) Pigs: Most pigs are fed on the floor by the "dumping method", whether using local or commercial feed.

- Provide improvements in physical facilities such as creep areas, feed troughs to prevent food wastes and liquid used in food from wetting deep litter.
- Provide water troughs for piglets which cannot reach the water nipples
- Assist farmers in the proper use of Starter Feeds if they want
- Training on proper pig management at different levels and mange control workshops both in the classroom and field

In American Samoa, several agricultural systems involved in food production utilize imported, non-renewable sphagnum peat moss based growing media or mined topsoil. Evaluation of locally available inexpensive organic materials such as compost (by-product of the waste management system of American Samoa Environmental Protection Agency (ASEPA) approved dry litter piggeries) and coconut husk as alternatives to peat and mined topsoil is needed.

Food Safety is a timely issue. While many people in American Samoa take food safety for granted, the incidence of food-borne illnesses have increased over the last few years. According to the ASG Department of Health, there were 37 reported cases of food poisoning in American Samoa from 2009 - 2011. However, no information is available from the previous six years due to data not being reconciled completely by the source. Though quantitative data is limited to support these claims, anecdotal reports seem to support these claims. Many food handlers have limited food safety knowledge and often practice poor sanitation measures, which is probably linked to many food borne illnesses. Consequently, our goals include increasing the food safety knowledge of food handlers, adopting safe food handling practices, and decreasing the probability of food-borne illnesses in high-risk population groups.

A demand of about 170,000 pounds of tilapia exists in American Samoa (Cheshire, 2004). Major challenges on island include identifying an economical solution to procuring aqua-feeds, identifying new aquafarmers, assisting new farmers in procuring start-up funding for their farms, and reducing agricultural pollution.

Off-island suppliers can provide feeds for those with sufficient funds. However, most of the farmers on island are not able to afford these feeds. As a result, their fish survive on feeds of poor nutritional content and farm production is sub optimal. ASCC-CNR has worked with UH Sea Grant to establish a feeds production lab on ASCC campus. Using the lab reduces the price of 50 pounds of feed from \$25 to between \$12 and \$17. Farmers will be able to use locally available feedstuffs like taro, breadfruit, bananas, and fishmeal to produce feeds. Improved nutrition will increase farm production.

Interested residents quickly lose interest when they learn start-up funding is not readily available to them through Land Grant-CNR or UH Sea Grant. Of 425 workshop attendees in the past 5 years, only 8 have reported beginning their own aquaculture farms.

The American Samoa Environmental Protection Agency has identified escaped fish from tilapia farms as a potential source of negative impact on the natural biotic balance in local rivers and streams. CNR will provide technical support to help tilapia farmers avoid fish escapes.

## **2. Scope of the Program**

- In-State Extension
- In-State Research
- Integrated Research and Extension

## **V(D). Planned Program (Assumptions and Goals)**

### **1. Assumptions made for the Program**

Program participants/Clients will acquire knowledge, develop skills, and change behaviors.  
Program participants/Clients will adopt food safety best practices.  
Food-borne illnesses can be prevented.  
Community coalitions and agency collaborations and partnerships will be established.  
Program delivery will be both in English and Samoan languages  
Materials will need to be translated into Samoan  
Funding and staffing will be in place  
Programs that we will implement are what the clients/farmers need to improve their operations.



CNR will recruit qualified personnel necessary to maintain its activities.  
 There will be a need for Samoan translations  
 Funding for CNR activities will remain adequate.

ASCC business office will allow CNR to use Hatch and Smith-Lever funds for Hatch and Smith-Lever programs

- Farmers want to improve their operations and will participate in the programs made available to them.
- Farmers will invest time and money to improve their operation.
- Funding for CNR activities will remain adequate.
- Priorities will not change

**2. Ultimate goal(s) of this Program**

To increase production and marketing of crops, livestock (poultry & swine), and farmed fish.

To import sheeps, turkeys, and cattles for the livestock development.

To reduce farming costs and increase returns, while improving sustainability and protecting the environment and human health.

To improve crop quality and food security through pest and disease monitoring and genetic diversity.

To improve public understanding of agriculture, aquaculture & marine science, including their impacts on the land and sea.

To develop policies that address food safety issues.

To increase the number of aquafarmers and volume of aqua-farmed products.

To encourage use of growing media produced from locally sourced organic materials.

To reduce the incidence of food-borne illnesses

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

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2015	8.0	0.0	5.0	0.0
2016	8.0	0.0	5.0	0.0
2017	8.0	0.0	5.0	0.0
2018	8.0	0.0	5.0	0.0
2019	8.0	0.0	5.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

Import, micropropagate (tissue culture), multiply, evaluate, and distribute improved taro and vegetable cultivars to farmers.

Perform crosses of elite taro cultivars and evaluate progenies for yield, disease resistance, and taste.

Collect or Import, multiply, and distribute improved fruit tree varieties.

Conduct vegetable and fruit tree workshops.

Conduct nutrient analysis of fruits (banana variety - soa'a) and other crops.

Provide plant clinic diagnoses and recommendations for diseases/pests management.

Conduct surveys of isolates of *Phytophthora colocasiae*.

Pest surveys

Testing of reduced-risk pesticides

Develop Food Safety Policies & Procedures

Implement Food Safety, Sanitation, and Protection Practices.

Conduct Pesticides Safety, and Farm Safety Trainings.

Conduct Farm visitations and demonstrations

Develop Public Awareness.

Produce and evaluate growing media of locally sourced materials as alternatives to peat and mined top soil.

Conduct workshops to present locally produced growing media to farmers.

Maintain Center for Sustainable Integrated Agriculture and Aquaculture

Provide technical assistance on production, disease, and nutrition issues to aquaculture farmers

Conduct workshops on aquaculture, including integrated practices such as aquaponics and tilapia-cum-pig systems.

Reduce inbreeding of farmers' animal operations - buying/selling or trading of stock, boar services, artificial insemination, training in feeding management, manage control and improvement in facilities.

The Extension agents will conduct community workshops, school programs and farm visits to provide education and activities on the program developments.

## 2. Type(s) of methods to be used to reach direct and indirect contacts

### Extension

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> <li>● Other 1 (Plant Clinic Diagnoses)</li> <li>● Other 2 (Farm visits, public meetings,)</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Billboards</li> <li>● TV Media Programs</li> <li>● Other 1 (Brochures, Newspapers articles)</li> <li>● Other 2 (videos, PSAs)</li> </ul>

## 3. Description of targeted audience

Small and resource-limited farmers, commercial farmers, aquaculture farmers, forestry clients, hobby farmers, potential farmers, general public, school students, 4-H members, church youth and other community group members.

All residents of American Samoa are included in the target audience, which includes: students, teachers, food handlers, food vendors, homemakers, cooks, farmers, village residents, church members,

children and youth program participants.

### **V(G). Planned Program (Outputs)**

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
    - Direct Adult Contacts
    - Indirect Adult Contacts
    - Direct Youth Contacts
    - Indirect Youth Contact
  - Number of patents submitted
  - Number of peer reviewed publications
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

## **V(H). State Defined Outputs**

### **1. Output Measure**

- Number of cultivars of disease resistant taro and improved varieties of sweet potato multiplied and released.
- Number of improved taro sets and/or sweet potato slips disseminated.
- Number of plant clinic diagnoses and recommendations made to assist clients.
- Number of vegetable variety demonstrations completed.
- Number of new fruit tree varieties introduced.
- Number of fruit tree propagation workshops conducted.
- Number of pigs and piglets sold/traded.
- Number of pesticide efficacy tests completed.
- Number of Pesticide Applicators' Training workshops conducted.
- Number of Tilapia released from breeding program.
- Number of participants at aquaculture workshops conducted
- Number of vegetable gardening workshops conducted.
- Number of vegetable gardens established.
- Pounds of Tilapia feed produced at ASCC feeds lab.
- Number of visitors to the Center for Sustainable Integrated Agriculture and Aquaculture
- Number of food safety procedures, publications, brochures and educational materials distributed
- Number of participants attending food safety and sanitation workshops
- Number of farmers that participated in locally produced growing media workshops
- Number of farmers participating in the small scale chicken farms program/project
- Number of pest surveys completed with the Department of Agriculture
- Number of isolates of *Phytophthora colocasiae* collected and tested for virulence.

- Number of crosses of taro cultivars performed and number of hybrid seedlings evaluated.
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(I). State Defined Outcome**

O. No	Outcome Name
1	Number of farmers growing improved varieties of taro and sweet potatoes.
2	Number of clients targeting problems according to recommendations on plant clinic form.
3	Number of farmers/clients growing improved vegetable cultivars.
4	Number of people growing improved budded/grafted or airlayered fruit trees in their back yards.
5	Number of pig farmers upgrading their stock.
6	Number of reduced risk pesticides recommended for use.
7	Number of pesticide applicators trained and certified.
8	Number of farmers growing improved genetic stocks of tilapia.
9	Number of farmers making their own tilapia feeds.
10	Number of participants trained on Farm Safety
11	Number of farmers switching from use of peat or mined topsoil to locally produced soilless growing media.
12	Number of new aquaculture farmers
13	Number of visitors to the Center for Sustainable Integrated Agriculture and Aquaculture
14	Percent of participants who acquired knowledge and followed safe food handling guidelines
15	Number of pest species for which presence or absence in American Samoa was determined
16	Number of virulence groups identified among isolates of <i>Phytophthora colocasiae</i> and number of isolates in the most virulent group.
17	Number of high-yielding, disease-resistant, and good-tasting hybrid taro cultivars/lines released to farmers.

**Outcome # 1**

**1. Outcome Target**

Number of farmers growing improved varieties of taro and sweet potatoes.

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 202 - Plant Genetic Resources
- 205 - Plant Management Systems
- 212 - Pathogens and Nematodes Affecting Plants
- 601 - Economics of Agricultural Production and Farm Management

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Number of clients targeting problems according to recommendations on plant clinic form.

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 3**

**1. Outcome Target**

Number of farmers/clients growing improved vegetable cultivars.

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 202 - Plant Genetic Resources
- 205 - Plant Management Systems
- 215 - Biological Control of Pests Affecting Plants
- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 4**

**1. Outcome Target**

Number of people growing improved budded/grafted or airlayered fruit trees in their back yards.

**2. Outcome Type : Change in Condition Outcome Measure**

**3. Associated Knowledge Area(s)**

- 102 - Soil, Plant, Water, Nutrient Relationships
- 202 - Plant Genetic Resources
- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research



**Outcome # 5**

**1. Outcome Target**

Number of pig farmers upgrading their stock.

**2. Outcome Type : Change in Condition Outcome Measure**

**3. Associated Knowledge Area(s)**

- 306 - Environmental Stress in Animals
- 307 - Animal Management Systems
- 315 - Animal Welfare/Well-Being and Protection
- 403 - Waste Disposal, Recycling, and Reuse
- 601 - Economics of Agricultural Production and Farm Management

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 6**

**1. Outcome Target**

Number of reduced risk pesticides recommended for use.

**2. Outcome Type : Change in Condition Outcome Measure**

**3. Associated Knowledge Area(s)**

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 903 - Communication, Education, and Information Delivery

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 7**

**1. Outcome Target**

Number of pesticide applicators trained and certified.

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 307 - Animal Management Systems
- 601 - Economics of Agricultural Production and Farm Management
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 8**

**1. Outcome Target**

Number of farmers growing improved genetic stocks of tilapia.

**2. Outcome Type : Change in Condition Outcome Measure**

**3. Associated Knowledge Area(s)**

- 307 - Animal Management Systems
- 315 - Animal Welfare/Well-Being and Protection
- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **Outcome # 9**

#### **1. Outcome Target**

Number of farmers making their own tilapia feeds.

#### **2. Outcome Type : Change in Condition Outcome Measure**

#### **3. Associated Knowledge Area(s)**

- 306 - Environmental Stress in Animals
- 307 - Animal Management Systems
- 308 - Improved Animal Products (Before Harvest)
- 315 - Animal Welfare/Well-Being and Protection
- 401 - Structures, Facilities, and General Purpose Farm Supplies
- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **Outcome # 10**

#### **1. Outcome Target**

Number of participants trained on Farm Safety

#### **2. Outcome Type : Change in Condition Outcome Measure**

#### **3. Associated Knowledge Area(s)**

- 111 - Conservation and Efficient Use of Water
- 205 - Plant Management Systems
- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants
- 215 - Biological Control of Pests Affecting Plants
- 307 - Animal Management Systems
- 315 - Animal Welfare/Well-Being and Protection
- 403 - Waste Disposal, Recycling, and Reuse
- 601 - Economics of Agricultural Production and Farm Management
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 903 - Communication, Education, and Information Delivery

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

#### **Outcome # 11**

##### **1. Outcome Target**

Number of farmers switching from use of peat or mined topsoil to locally produced soilless growing media.

##### **2. Outcome Type : Change in Action Outcome Measure**

##### **3. Associated Knowledge Area(s)**

- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 205 - Plant Management Systems
- 403 - Waste Disposal, Recycling, and Reuse

##### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

#### **Outcome # 12**

##### **1. Outcome Target**

Number of new aquaculture farmers

##### **2. Outcome Type : Change in Condition Outcome Measure**

##### **3. Associated Knowledge Area(s)**

- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 205 - Plant Management Systems
- 315 - Animal Welfare/Well-Being and Protection
- 601 - Economics of Agricultural Production and Farm Management

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

#### **Outcome # 13**

##### **1. Outcome Target**

Number of visitors to the Center for Sustainable Integrated Agriculture and Aquaculture

##### **2. Outcome Type : Change in Action Outcome Measure**

##### **3. Associated Knowledge Area(s)**

- 102 - Soil, Plant, Water, Nutrient Relationships
- 111 - Conservation and Efficient Use of Water
- 308 - Improved Animal Products (Before Harvest)
- 315 - Animal Welfare/Well-Being and Protection
- 401 - Structures, Facilities, and General Purpose Farm Supplies
- 403 - Waste Disposal, Recycling, and Reuse
- 601 - Economics of Agricultural Production and Farm Management
- 604 - Marketing and Distribution Practices

##### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

#### **Outcome # 14**

##### **1. Outcome Target**

Percent of participants who acquired knowledge and followed safe food handling guidelines

##### **2. Outcome Type : Change in Condition Outcome Measure**

##### **3. Associated Knowledge Area(s)**

- 703 - Nutrition Education and Behavior
- 711 - Ensure Food Products Free of Harmful Chemicals, Including Residues from Agricultural and Other Sources
- 712 - Protect Food from Contamination by Pathogenic Microorganisms, Parasites, and Naturally Occurring Toxins

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 15**

**1. Outcome Target**

Number of pest species for which presence or absence in American Samoa was determined

**2. Outcome Type** : Change in Knowledge Outcome Measure

**3. Associated Knowledge Area(s)**

- 211 - Insects, Mites, and Other Arthropods Affecting Plants
- 212 - Pathogens and Nematodes Affecting Plants

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 16**

**1. Outcome Target**

Number of virulence groups identified among isolates of *Phytophthora colocasiae* and number of isolates in the most virulent group.

**2. Outcome Type** : Change in Knowledge Outcome Measure

**3. Associated Knowledge Area(s)**

- 212 - Pathogens and Nematodes Affecting Plants

**4. Associated Institute Type(s)**

- 1862 Research

**Outcome # 17**

**1. Outcome Target**

Number of high-yielding, disease-resistant, and good-tasting hybrid taro cultivars/lines released to farmers.

**2. Outcome Type : Change in Knowledge Outcome Measure**

**3. Associated Knowledge Area(s)**

- 202 - Plant Genetic Resources
- 212 - Pathogens and Nematodes Affecting Plants

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**V(J). Planned Program (External Factors)**

**1. External Factors which may affect Outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Appropriations changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (Lack of staff; procurement proc )

**Description**

Impacts of earthquakes, tsunamis, hurricanes, drought, and other natural disasters hitting American Samoa  
Loss of staff reduced program capacity  
Staff or funding changes, i.e. loss of USDA-CSREES formula funds  
Introduction of exotic pests and invasive species  
Changes in institutional priorities and access to research and extension facilities, equipment and land.

Changes in ASCC and/or CNR policies detrimental to planned programs  
Unresolved experiment station land boundary issues  
Inability to use funds because of procurement processes and procedures

Natural disasters and weather can affect research and extension.  
Competing public priorities and competing programmatic challenges can affect staff time.  
Inability to use funds because of procurement processes and procedures can make it impossible to conduct research and extension.

Natural disasters may affect research.  
Delay in accessing funds due to procurement procedures may delay or prohibit purchase of equipment and research.

**V(K). Planned Program - Planned Evaluation Studies**

### **Description of Planned Evaluation Studies**

- During (during program)
- After Only (post program)
- Time series (multiple points before and after program)
- Before - After (before and after program)

All workshops, demonstrations, and field days will be evaluated for summative and formative information. Qualitative information from farm visits and interviews. Quantitative sampling data from feed trials and candidate species culture trials.

- Unstructured
- Telephone
- On-Site
- Structured
- Sampling
- Tests

#### **Description**

Formal activities, such as workshops and courses, will be evaluated with exams before and after each event. Informal activities such as tours will be evaluated via verbal group interviews and follow-up emails with teachers. Quantitative feeds and breeding program data will be collected as production ensues.



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

### Program # 3

#### 1. Name of the Planned Program

Health and Wellness

#### 2. Brief summary about Planned Program

The prevalence of obesity among Samoan children and adolescents in American Samoa is higher than in the United States, being about 34% and 17%, respectively. Healthful behaviors are difficult to follow for multiple reasons, some of which include: fast food restaurants use pervasive advertising; small neighborhood grocery stores have a limited availability of healthy food choices; public parks are not conducive to informal physical activities, and the environment is automobile-centrally built. Together with collaborators from the University of Hawai'i and other Pacific Islands, we plan to introduce proven and culturally acceptable dietary and physical activity interventions aimed at 2- to 8-year olds and their caregivers. We will promote affordable, nutritious, and sustainably grown local fruits and vegetables as well as increased consumption of water. Additionally, we will promote locally caught seafood, while discouraging overconsumption of imported red meat and sugar sweetened beverages. We will provide guidance so that individuals and families can make informed, science-based decisions about their health and well-being.

The Physical Activity/Exercise Program will continue to research, plan and develop proven and culturally acceptable physical activity/exercise interventions to promote an active lifestyle among the people of American Samoa. Main responsibilities are directed towards the Children Healthy Living Program and the ASCC Wellness Center. Within CNR we collaborate with the 4-H Youth Development Program & EFNEP - Expanded Food and Nutrition Education Program in addressing health education for youth & parents in relation to healthy eating, obesity and physical fitness. We will continue to support all partners and programs and completely accept stakeholders input. Three specific programs will be developed: 1) **Overweight Children Referral Program**. In collaboration with Physicians at the only territorial hospital, LBJ Tropical Medical Center, a referral program will be developed and the exercise & nutrition programs of the ASCC Wellness Center will be used to educate and promote physical activity and healthy eating for overweight children received at the hospital. 2) **ASCC Employee Wellness/Fitness Program**. Exercise Physiologist and ASCC Human Resource Director are working together to present to the College President and Board members a program to promote a healthy workforce. Under the ASCC Governance Policy 3017, this program is being proposed. The Community and Natural Resources Division and Human Resources proposes the following initiative for the College "Employee Fitness/Wellness Program", as part of an important strategy towards an increased awareness of the value of a fit lifestyle and the easy, everyday choices that can be made to accomplish this goal. This initiative is committed towards increasing employee awareness of, and commitment to, the four pillars of a healthy lifestyle: physical activity, nutrition, healthy choices, and prevention. 3) **Initiate an Exercise is Medicine (EIM) program** on the ASCC Campus which will enable ASCC to become among the first educational institutions in the Pacific to make a commitment supporting EIM. EIM is a nonprofit initiative launched by the American College of Sports Medicine and has a EIM website with tools, brochure, media package etc. It is implemented in collaboration with health care professionals/physicians/public health. EIM is a call to action to promote physical activity and exercise to prevent disease and improve health and to be a standard part of a global disease prevention and treatment medical paradigm. Research proves that exercise has a role in the treatment and prevention of more than 40 chronic diseases including diabetes, heart disease, obesity and hypertension. Health care providers will be called on to assess and review every patient's physical activity program at every visit, with office visits

that include exercise clearance and a referral to a qualified health/fitness professional - Exercise Physiologist at the ASCC Wellness Center. EIM on the ASCC Campus will provide the college with the opportunity to collaborate with supporting EIM on Campuses nationally, in the local community as well as to open a dialog with and between public health officials on lifelong physical activity and EIM.

The health communications and media section of CNR works in close collaboration with other components of the health and wellness program. Research based and data driven health communication strategies, for which a health communications researcher and media manager was hired in 2013, will continue to be developed and employed in conjunction with other forms of interventions to help positively inform, promote and affect healthy choices that will reduce obesity and associated NCDs (or life style related diseases) in American Samoa. Such strategies incorporate social marketing techniques, all forms of media, sensitivity and understanding of target audiences motivations, cultural values and beliefs in relation to health, the body, food, social relationships, the extended Samoan family, and the land, using a socio-ecological model as the overall framework for understanding the health communications environment for which health communications are designed. Posters, banners, and television PSAs, and other forms of media will be designed and produced, while a longer term documentary project about American Samoa's contemporary life style health related issues, causes and solutions, will be developed for production.

In addition to the life style related health issues, CNR actively works on other health related topics, such as vector borne diseases, such as dengue fever and filariasis. A 1999 survey by PacELF found 17% of residents had been infected with the parasite that causes lymphatic filariasis. After implementation of the filariasis eradication program, the percentage dropped to less than 1% and efforts are now focused on monitoring both people and mosquitoes for any resurgence of the disease. Over 3,000 cases of dengue occurred in the territory during a 3-month period of the dengue outbreak in 2001, and over a thousand were infected during the 2008-9 outbreak. A recent (2010) territory-wide serosurvey found evidence that over 95% of those tested had experienced a dengue infection at some point in their lives. An estimated 44% of the territory's people were infected in the 1979-1980 regional outbreak of Ross River virus. Lymphatic filariasis, dengue, and Ross River virus are all carried by mosquitoes. Mosquito-borne disease threats to American Samoa are increasing with the recent reports of Chikungunya virus and Zika virus outbreaks in the region. In addition to carrying diseases, mosquitoes can also be a severe nuisance, sometimes limiting residents' outdoor activities. CNR research seeks to help improve mosquito control and disease monitoring efforts in the territory by collaboratively working to answer key questions concerning the biology, monitoring, and control of mosquitoes in American Samoa. Extension and education efforts provide the community with science-based information supporting activities to reduce the threat of mosquito-borne illnesses.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Medium Term (One to five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

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

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
703	Nutrition Education and Behavior	40%		30%	
721	Insects and Other Pests Affecting Humans	10%		20%	
722	Zoonotic Diseases and Parasites Affecting Humans	10%		10%	
724	Healthy Lifestyle	40%		40%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Situation and Scope)**

**1. Situation and priorities**

Based on CDC Growth Charts from 2000, 12.0% of boys and 11.5% of girls aged 2 to 5 had a body mass index (BMI) &ge the 97th percentile. In the United States, these figures are 5.8% and 8.1%, respectively. Likewise, 23.0% of boys and 18.1% of girls aged 6 to 11 had a BMI &ge the 97th BMI percentile compared to 16.3% of boys and 12.6% of girls in the US. Experts agree that when interventions are applied early in life, there is a greater chance that the child will remain at a healthy BMI as he or she ages. It is imperative to reverse childhood obesity now because it is linked to many non-communicable diseases that require costly and long-term treatment in adulthood.

American Samoa is home to mosquito species capable of transmitting important human diseases such as filariasis and dengue, as well as other viral diseases. In addition, mosquito populations often reach levels that can be a serious nuisance. Increased knowledge about mosquito biology can be used to help reduce mosquito-borne diseases and nuisance mosquito problems which can affect everyone living in or visiting American Samoa. Previous research done at ASCC CNR and elsewhere has documented the efficacy of mass drug administration to reduce filariasis and suggested the value of mosquito source reduction for dengue prevention. Additional efforts are needed to educate the public about filariasis and dengue prevention and to develop better ways to to monitor and control the mosquitoes that carry these diseases. Research and extension priorities will depend in part on changes in the incidence of mosquito-borne diseases in the territory, but will focus primarily on monitoring and control research and education about the species most important as carriers of dengue and filariasis in American Samoa.

American Samoa leads the world in obesity, diabetes, and some forms of cancer. The ASCC Wellness Research Center, was opened in 2013 to meet an important community need in American Samoa. The Wellness programs and research are now being developed in conjunction with medical and fitness certified personnel to promote healthy lifestyles and decrease premature morbidity and

mortality. This is being done in cooperation with the governance of the American Samoa Community College and other government and non-government agencies. Nutrition education and health communications and supportive media is an important dimension of this program.

## **2. Scope of the Program**

- In-State Extension
- In-State Research
- Multistate Research
- Multistate Extension

## **V(D). Planned Program (Assumptions and Goals)**

### **1. Assumptions made for the Program**

In order to have the greatest opportunity for success, consultations with parents, school teachers, healthcare providers, church ministers, and government policymakers should be completed. This will allow us to design culturally acceptable dietary and physical activity interventions for children 2 to 8 years old.

A Wellness Center has been established at the American Samoa Community to support the development of a viable Wellness Program. An Exercise Physiologist has been hired and there is need for other trained personnel to further develop the program. A cooperative network of health, education and medical personnel has been developed.

Personnel can be hired and equipment and supplies procured in a timely manner to enable research and extension activities to be completed. Knowledge about the biology of important vectors can be used to devise suitable management measures for them. Communities will implement management measures.

### **2. Ultimate goal(s) of this Program**

The ultimate goal is to minimize children's vulnerability to contracting a non-communicable disease (NCD) in adulthood. Our hope is that children will make healthful food choices, consume adequate nutrients without overconsumption, and engage in regular physical activities to balance energy intake versus energy output. This will hopefully minimize their susceptibility of entering adulthood overweight or obese, which increases their likelihood of developing an NCD.

In addition, a cooperative program will be developed with physicians at the one local hospital to refer at-risk and overweight children to the ASCC-CNR Wellness Center, where a health action-plan will be developed and implemented by the trained fitness staff and monitored by a Physician/medical professional. The "Exercise is Medicine" program will be developed on the ASCC Campus in collaboration

with global and local public health care professionals to establish a working body of experts to assist in monitoring and sustaining a lifelong physical activity program in American Samoa. A Wellness/ Fitness Program will be developed for Employees at the American Samoa Community College.

Mosquito research and extension aims to generate and disseminate knowledge which can enable community and individual actions to reduce the toll of mosquito-borne disease on the health of American Samoans.

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

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2015	4.0	0.0	3.0	0.0
2016	4.0	0.0	3.0	0.0
2017	4.0	0.0	4.0	0.0
2018	4.0	0.0	4.0	0.0
2019	4.0	0.0	4.0	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

We conducted baseline measurements of children, 2 to 8 years of age, in six census tract communities on Tutuila Island during 2013. In 2014 we initiated several interventions to stem or decrease the prevalence of overweight and obesity in two of these communities based on consultations with our multi-state partners, local advisory committees, and healthcare professionals. The interventions were designed to have at least one positive effect on one of four primary outcomes: BMI, food intake, water intake, or physical activity. During 2015 will repeat our 2013 measurements to determine whether the interventions had the desired effect.

We will research the biology and control of disease-carrying mosquitoes and communicate results via research reports, brochures, seminars, TV, and individual contacts with other agencies.

A "Referral Program for Overweight Children" from the LBJ Tropical Medical Center - Pediatric Physicians to the ASCC Wellness Center; an American Samoa Community College "Employee Wellness/Fitness Program" and an "Exercise is Medicine" program will be established and implemented at the American Samoa Community College, Department of Community and Natural Resources. Collaboration and support of partners will continue. Hopefully, more staff will be trained and certified.

The Extension agents will continue to promote healthy living through outreach workshops and program activities in the schools and communities.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> <li>● Other 1 (Visitations)</li> <li>● Other 2 (meetings )</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● TV Media Programs</li> <li>● Other 1 (Press releases)</li> <li>● Other 2 (Public service announcements)</li> </ul>

**3. Description of targeted audience**

Children aged 2 to 8 years. Mothers and grandmothers.

All residents of American Samoa

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

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

## **V(H). State Defined Outputs**

### **1. Output Measure**

- Number of Healthy Recipes Food Demonstration Workshops
- Number of Exercise and Physical Activity Workshops
- Number of research projects completed
- Estimated number of persons exposed to ASCC CNR generated mosquito-borne disease prevention messages
- Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

**V(I). State Defined Outcome**

O. No	Outcome Name
1	Number of participants eating &#8805; 1 additional serving of fruits and/or vegetables a day
2	Number of participants that prepared healthier foods utilizing locally grown & harvested food
3	Number of participants that increased participation in physical activities and exercises
4	Number of cases of mosquito-borne illnesses at local hospital



**Outcome # 1**

**1. Outcome Target**

Number of participants eating &#8805; 1 additional serving of fruits and/or vegetables a day

**2. Outcome Type :** Change in Condition Outcome Measure

**3. Associated Knowledge Area(s)**

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Number of participants that prepared healthier foods utilizing locally grown & harvested food

**2. Outcome Type :** Change in Condition Outcome Measure

**3. Associated Knowledge Area(s)**

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 3**

**1. Outcome Target**

Number of participants that increased participation in physical activities and exercises

**2. Outcome Type :** Change in Condition Outcome Measure

**3. Associated Knowledge Area(s)**

- 703 - Nutrition Education and Behavior
- 724 - Healthy Lifestyle

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

### **Outcome # 4**

#### **1. Outcome Target**

Number of cases of mosquito-borne illnesses at local hospital

#### **2. Outcome Type : Change in Condition Outcome Measure**

#### **3. Associated Knowledge Area(s)**

- 721 - Insects and Other Pests Affecting Humans
- 722 - Zoonotic Diseases and Parasites Affecting Humans

#### **4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

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

#### **1. External Factors which may affect Outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Economy
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (Lack of staff, procurement proce)

#### **Description**

Food prices and discretionary income will affect family food choices. We are hoping for effective policy changes to help sustain a more healthful lifestyle.

Natural disasters and weather can affect mosquito research and destroy facilities.

Competing public priorities and competing programmatic challenges can affect staff time.  
Inability to use funds because of procurement process and procedures can make it impossible to conduct research and extension.

## **V(K). Planned Program - Planned Evaluation Studies**

### **Description of Planned Evaluation Studies**

Anthropometric data, food intake, sleep duration, physical activity, television/computer screen time and consumption of sugar-sweetened beverages will be collected at baseline, at one year, and after two years for children 2- to 8-years of age. This will be done in two communities, which are "intervention sites." Additionally, we will collect anthropometric data at two "matched-pair communities," which will be similar to control sites. Analysis of the data will be used to determine the efficacy of our intervention strategies.

A research and monitoring plan will be developed to track the progress of each project.

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

### **Program # 4**

#### **1. Name of the Planned Program**

Ecosystem

#### **2. Brief summary about Planned Program**

The islands of American Samoa, with the exception of Rose Atoll, are steep volcanic mountains with tropical rainforest as the dominant ecosystem (Craig 2009). Unlike the temperate forests of North America, which are typically dominated by one to a few species, tropical rainforests are dominated by a combination of many species. In American Samoa, native forests extend from the seashore up to the highest mountain peaks, and this dominant forest ecosystem provides the islands' residents with numerous ecological, cultural, and economic values (SWARS Report 2012). The purpose of this proposed program is to protect American Samoa's forest ecosystem and to mediate the effects of climate change and advance the sustainability of energy resources. Land-based sources of pollution threaten groundwater quality and coastal ecosystems. Rates of bacterial contamination, soil erosion, flooding, and nutrient runoff are expected to increase if climate change predictions of more frequent and intense storms hold true. Currently, sea water infiltration of the groundwater aquifer and shock chlorination of contaminated wells render municipal water unpalatable in several communities. Stressors on coral, such as siltation by topsoil carried by flooded streams, places the reef at risk. The fringing reef serves as a nursery for marine life and protects the shoreline from wave erosion. Nutrient runoff can lead to estuary eutrophication and algae blooms in marine waters. Groundwater contamination requires boil water notices and costly, lengthy attempts to purify wells using large amounts of sodium hypochlorite. Watershed protection is the best method to minimize or avoid all of these harmful impacts.

**3. Program existence :** Mature (More than five years)

**4. Program duration :** Long-Term (More than five years)

**5. Expending formula funds or state-matching funds :** Yes

**6. Expending other than formula funds or state-matching funds :** Yes

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

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
112	Watershed Protection and Management	20%		20%	
123	Management and Sustainability of Forest Resources	25%		25%	
124	Urban Forestry	10%		10%	
125	Agroforestry	20%		20%	
132	Weather and Climate	5%		5%	
136	Conservation of Biological Diversity	20%		20%	
	<b>Total</b>	100%		100%	

**V(C). Planned Program (Situation and Scope)**

1. Situation and priorities

Some of American Samoa's watersheds and coastal areas require restoration because of damage from storm events and from poor management. Well-functioning watersheds are critical for the health of humans, plants, terrestrial wildlife, and marine wildlife (including coral reef systems). Coastal and non-coastal sections of watersheds also help mediate the effects of natural disasters, including storms and flooding events. All residents of American Samoa's islands depend on clean drinking water, but many watersheds are contaminated with coliform bacteria and E. coli. According to the 2000 census (the most recent year with this type of data), approximately a third of American Samoa residents rely on non-public water sources (e.g., individual wells, catchment systems; AS Dept. of Commerce 2011); therefore, it is critical, particularly in regards to human health, that damaged watersheds are protected and restored.

Native forest trees, urban trees, and agroforestry species are valued ecologically, culturally, nutritionally, and economically by American Samoa's residents. However, rapid human population growth, urbanization, invasive species, natural disturbances, and low employment rates are major threats to the flora of American Samoa (SWARS Report 2010). The removal of nine native beautification trees at the Industrial Park is an indication of poor planning and lack of awareness about the importance of trees in urban areas. Additionally, the demand for energy (e.g., electricity, fuel) has increased over the last ten years (AS Dept. of Commerce 2011), and finding alternative and sustainable energy solutions is essential. For example, trees provide shade which can reduce air conditioning costs. Therefore, in this program of work, ASCC will promote the following: 1) the stewardship of forest resources, 2) proper care of urban trees, 3) sustainable agroforestry systems, and 4) effective management of invasive plants.

**Citations**

AS Department of Commerce (2011) American Samoa Statistical Yearbook 2011. Department of Commerce, Statistics Division.

Craig, P. (ed.) (2009) Natural History Guide to American Samoa. National Park Service of American Samoa, Pago Pago.

SWARS Report (2010) Forest Assessment and Resource Strategy 2011-2015. ASCC Community and Natural Resources, Pago Pago.

**2. Scope of the Program**

- In-State Extension
- In-State Research

**V(D). Planned Program (Assumptions and Goals)**

**1. Assumptions made for the Program**

Re-vegetating watersheds will begin the rehabilitation process of coastal areas and streams. Flooding and sediment loads from runoff will decrease; water quality will increase.  
 Clients will use their increased knowledge to better care for their land.  
 Educating about proper arboriculture will increase the health of urban trees.  
 Funding and staffing will be adequate.  
 Partnerships with local and Federal agencies will offset some of the costs.

**2. Ultimate goal(s) of this Program**

- To protect American Samoa's watersheds and coastal areas.
- To sustainably manage American Samoa's forest resources.
- To properly manage American Samoa's urban trees.
- To support American Samoa's traditional agroforestry systems.
- To control invasive plants on American Samoa's islands.
- To prevent harmful algae blooms and loss of coral in the marine environment.
- To reduce soil loss during periods of heavy, sustained rainfall.
- To protect groundwater from microbial contamination.

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

**1. Estimated Number of professional FTE/SYs to be budgeted for this Program**

Year	Extension		Research	
	1862	1890	1862	1890
2015	3.5	0.0	1.2	0.0
2016	3.5	0.0	1.2	0.0
2017	4.5	0.0	3.2	0.0
2018	4.5	0.0	3.2	0.0
2019	4.5	0.0	3.2	0.0

**V(F). Planned Program (Activity)**

**1. Activity for the Program**

ASCC will collaborate with partners at Department of Marine and Wildlife Resources to establish mangrove plantings on degraded watersheds and coastal areas. This will involve the Forestry Researcher to determine which mangrove species to propagate and the best methods for greenhouse propagation.

Also, this will involve the propagation and care of mangrove plants by Forestry Extension.

ASCC will conduct site visits on private/communal/public land, meet with landowner/land manager, and write-up a multi-year stewardship plan (including proper urban tree care) for each site. The Forest Researcher and Extension personnel will work together to visit the sites, meet with stakeholders, and form a comprehensive management plan specific for each site. ASCC will hold community outreach events (e.g., in schools and villages) to teach youth about the importance of ecosystem health, urban trees, etc.

Forestry Extension personnel will continue to propagate and distribute seedlings of agroforestry plants to the general public. The Forest Researcher will conduct research on the best propagation techniques, soil medium, etc., for specific species, and Extension personnel will propagate and care for the plants and promote their use by land owners and land managers.

ASCC will conduct site visits on private/communal land with invasive species concerns and write-up management plans for specific sites and for specific invasive plant species. The Forest Researcher will research the proper techniques for effectively managing invasive plant species, and the Extension personnel will disseminate this knowledge to the landowner/land manager.

**2. Type(s) of methods to be used to reach direct and indirect contacts**

**Extension**

Direct Methods	Indirect Methods
<ul style="list-style-type: none"> <li>● Education Class</li> <li>● Workshop</li> <li>● Group Discussion</li> <li>● One-on-One Intervention</li> <li>● Demonstrations</li> </ul>	<ul style="list-style-type: none"> <li>● Public Service Announcement</li> <li>● Billboards</li> <li>● TV Media Programs</li> <li>● Other 1 (brochures)</li> <li>● Other 2 (videos)</li> </ul>

**3. Description of targeted audience**

- Scientists involved in environmental resources protection.
- Policymakers in the Executive and Legislative branches of local government.
- Students.
- Farmers.
- Forestry clients.
- General public.

### **V(G). Planned Program (Outputs)**

NIFA no longer requires you to report target numbers for standard output measures in the Plan of Work. However, all institutions will report actual numbers for standard output measures in the Annual Report of Accomplishments and Results. The standard outputs for which you must continue to collect data are:

- Number of contacts
  - Direct Adult Contacts
  - Indirect Adult Contacts
  - Direct Youth Contacts
  - Indirect Youth Contact
- Number of patents submitted
- Number of peer reviewed publications

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.

### **V(H). State Defined Outputs**

#### **1. Output Measure**

- Number of improved watersheds and coastal areas.
- Number of landowners with forest stewardship plans.
- Number of youth educated about the importance of ecosystem health.
- Number of fruit trees propagated and distributed through the Tree of Life nursery.
- Number of sites with invasive plant management plans.
- Number of water samples analyzed for bacterial contamination and Total Dissolved Solids.
- Number of schoolchildren informed about watershed protection.

Clicking this box affirms you will continue to collect data on these items and report the data in the Annual Report of Accomplishments and Results.



**V(I). State Defined Outcome**

O. No	Outcome Name
1	Improved watersheds and coastal areas
2	Forest Stewardship Plans
3	Youth education workshops
4	Propagation and distribution of fruit trees
5	Invasive plant management plans
6	Coliform and E. coli tests and Electrical Conductivity analyzes (for TDS)
7	Visits to public and private elementary and middle schools

**Outcome # 1**

**1. Outcome Target**

Improved watersheds and coastal areas

**2. Outcome Type : Change in Condition Outcome Measure**

**3. Associated Knowledge Area(s)**

- 112 - Watershed Protection and Management
- 123 - Management and Sustainability of Forest Resources
- 136 - Conservation of Biological Diversity

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 2**

**1. Outcome Target**

Forest Stewardship Plans

**2. Outcome Type : Change in Condition Outcome Measure**

**3. Associated Knowledge Area(s)**

- 112 - Watershed Protection and Management
- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry
- 125 - Agroforestry
- 132 - Weather and Climate
- 136 - Conservation of Biological Diversity

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 3**

**1. Outcome Target**

Youth education workshops

**2. Outcome Type : Change in Knowledge Outcome Measure**

**3. Associated Knowledge Area(s)**

- 112 - Watershed Protection and Management
- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry
- 125 - Agroforestry
- 132 - Weather and Climate
- 136 - Conservation of Biological Diversity

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 4**

**1. Outcome Target**

Propagation and distribution of fruit trees

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 112 - Watershed Protection and Management
- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry
- 125 - Agroforestry
- 132 - Weather and Climate
- 136 - Conservation of Biological Diversity

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 5**

**1. Outcome Target**

Invasive plant management plans

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 112 - Watershed Protection and Management
- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry
- 125 - Agroforestry
- 132 - Weather and Climate
- 136 - Conservation of Biological Diversity

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 6**

**1. Outcome Target**

Coliform and E. coli tests and Electrical Conductivity analyzes (for TDS)

**2. Outcome Type : Change in Condition Outcome Measure**

**3. Associated Knowledge Area(s)**

- 112 - Watershed Protection and Management
- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry
- 125 - Agroforestry
- 132 - Weather and Climate
- 136 - Conservation of Biological Diversity

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**Outcome # 7**

**1. Outcome Target**

Visits to public and private elementary and middle schools

**2. Outcome Type : Change in Action Outcome Measure**

**3. Associated Knowledge Area(s)**

- 112 - Watershed Protection and Management
- 123 - Management and Sustainability of Forest Resources
- 124 - Urban Forestry
- 125 - Agroforestry
- 132 - Weather and Climate
- 136 - Conservation of Biological Diversity

**4. Associated Institute Type(s)**

- 1862 Extension
- 1862 Research

**V(J). Planned Program (External Factors)**

**1. External Factors which may affect Outcomes**

- Natural Disasters (drought, weather extremes, etc.)
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Other (Staff and/or funding changes, Ch)

**Description**

We are unable to control the multiple factors listed above which may change the outcomes of our plan of work. For example, we may re-vegetate a watershed which subsequently gets damaged through a storm flooding event.

**V(K). Planned Program - Planned Evaluation Studies**

**Description of Planned Evaluation Studies**

Watershed rehabilitation reports.  
Forest Stewardship Plans.  
Site visitation reports.  
GPS/GIS maps.  
Invasive species management reports.  
Pre/Post tests.  
Summative and formative evaluations.  
Other agencies reports (eg. coral/algae coverage on reef, municipal water report)