# American Samoa Community College (ASCC)

## Division of

## Community and Natural Resources (CNR)

## FY 02 Annual Report of Accomplishments & Results

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## INTRODUCTION

American Samoa is submitting a joint Research and Extension report. This report covers activities supported by Hatch and Smith Lever funds. In addition, there are programs and projects that are joint efforts with Hatch, Smith Lever, Smith Lever 3-d, Forestry and other federal funding. The other source of funding is given under sections C Sources of Funding. There were 29.1 FTE for FY 2002 supported by Hatch and Smith Lever.

## GOAL 1: AN AGRICULTURAL SYSTEM THAT IS HIGHLY COMPETITIVE IN THE GLOBAL ECONOMY

### I. OVERVIEW

A comprehensive multi-faceted approach was implemented to insure the accomplishment of the goals and objectives of the planned programs. Programs and projects primarily focused on but are not limited to outreach activities such as workshops, demonstrations, farm visitations, and special events, such as fairs, field days, earth day, arbor week, school presentations, and career days. As a result of these collaborative efforts, the local farmers tend to rely heavily on the Cooperative Extension Service (CES) to provide good quality seeds, pigs, disease resistant banana and taro planting materials, and to have solid, scientifically based information to assist their farming efforts. Many farmers have learned and adopted management skills and marketing knowledge as well, through non-formal education.

American Samoa farmers are subjected to enormous challenges, due to limited arable land, limited government protections for local agriculture, cultural pressures that force people away from farming, and the high number of tropical pests and disease. Cooperative Extension has been focusing in 2002 on searching for ways to keep local farms both relevant and viable. Given the increased concerns about national biosecurity, Cooperative Extension has increased the pressure to develop territorial food security and reduce the enormous reliance on imported foodstuffs.

The Cooperative Extension Service and Agricultural Experiment Station (AES)-Research led programs in the following areas:

- Marketing
- Vegetable Production
- Traditional Crop Production
- Swine Management
- Waste Management
- NxLevel® Agricultural Business/Entrepreneurship
- Medicinal Plants
- Pesticide Safety
- Farm Safety
- Conservation Education

Agricultural Experiment Station projects have been conducted in other areas as mentioned later on in this report. CES and Research efforts have contributed tremendously to the success of agricultural production and the marketing of local produce. CES, in conjunction with Research, have been charged with executing programs that promote sustainable farming practices and diversified agriculture in the territory, with a strong emphasis on the marketing of local produce. The CES and Research of the American Samoa Community College (ASCC) Division of Community and Natural Resources (CNR) have successfully accomplished many of the activities outlined in Goal 1 of the 5-Year Plan of Work. Through their collaboration on a variety of approaches, they have achieved the following outputs in 2002:

- 49 appearances and programs on local television news
- 685 farmers visited
- 41 educational programs (Farm Fair, Arbor Week, ASCC Career Day, field trips and tours)
- 194 presentations to schools, government agencies, civic organizations, farmers and village community
- 6 Extension/Research non-scientific publications
- 6 educational visual aids/materials, video, poster
- 3 marketing directories for producers and local stores
- 21 workshops

**a. Outputs & b. Outcomes**

1. Number of farmers completing all forms of non-formal education programs and presentations and adopting new practice or technology.

| A) Non-formal Ed | | | Adopting New Practice | |
|---|---|---|---|---|
| Baseline | Target | Actual | Target | Actual |
| 2000 | 120 | 355 | 30 | 46 |
| 2001 | 150 | 378 | 45 | 141 |
| 2002 | 180 | 554 | 60 | 160 |
| 2003 | 190 | | 72 | |
| 2004 | 250 | | 90 | |

B) The Agriculture Extension Program continued to make improvements as a result of collaborating with other agencies to address similar issues in the community. One of the successful approaches that works well for this small US Territory was to maintain our partnership with government enforcement agencies, for example; the American Samoa Environmental Agency (ASEPA), Public Health, American Samoa Power Authority Water and Waste Disposal Divisions, American Samoa Department of Agriculture, Office of Samoan Affairs, Coastal Zone Management, National Park Service, just to mention a few. This effort brought many people together to participate in non-formal education programs. As a result, many local residents were convinced to adopt recommended practices as they see fit in their farming situation. The adoption of improved practices varied from piggery waste management, integrated pest management, pesticide safety, and hillside cultivation to forest management. The participants were interviewed and surveyed during farm visitations. Group discussions and

workshop surveys really helped out. Follow-up visits also helped prove the existence of these adopted practices.

2. Number of materials, including newspaper articles, fact sheets/brochures and television programs produced on topics related to improving productivity and global competitiveness.

| A) Baseline | Target | Actual |
|---|---|---|
| 2000 | 20 | 28 |
| 2001 | 24 | 36 |
| 2002 | 29 | 49 |
| 2003 | 35 | |
| 2004 | 42 | |

B) The number of television programs outnumbered the written publications. However, the extension programs took advantage of free deal while the television station was under the American Samoa Government. The Extension and Research station served as a resource center to distribute publications to the community. The American Samoa Department of Agriculture in addition to some local grocery stores also assisted in the distribution of publications. Three (3) posters were developed in addition to thirteen (13) Research/Extension publications. Two market directories were published and distributed, and fortunately they are available on-line at the Agricultural Development in the American Pacific (ADAP) website. The other publications will soon be on the same website while the American Samoa Community College Land Grant website is being developed.

3. Total number of farmers loaned tools/equipment from local businesses, Department of Agriculture and ASCC Land Grant.

| A) Baseline | Target | Actual |
|---|---|---|
| 2000 | 12 | 23 |
| 2001 | 14 | 19 |
| 2002 | 17 | 30 |
| 2003 | 20 | |
| 2004 | 24 | |

B) Loaning tools and equipment to the farming community is not a favored Extension practice for many reasons. However, the Agriculture Extension agents found out that by using Extension tools to help with community seedbed preparation, the groups were able to begin their farms without having to wait to buy the needed tools. The program has enabled individuals and groups to purchase their own tools and equipment during this transitional period and after their first harvest of vegetables. In fact, about 6 farmers bought their own roto-tillers for soil tilling while four others purchased high power mist blowers to use for the banana leaf streak disease control. Agriculture Extension will continue to expand this effort to other isolated islands of American Samoa.

4. Number of farmers buying seed cultivars, fertilizers and pesticides from local businesses, Department of Agriculture and ASCC Land Grant.

| A) Baseline | Target | Actual |
|---|---|---|
| 2000 | 25 | 120 |
| 2001 | 30 | 153 |
| 2002 | 36 | 255 |
| 2003 | 43 | |
| 2004 | 52 | |

B) After a few years of heated debates whether the pesticides being labeled for "general use" by USEPA in the Mainland should be applied in the territory, the local Department of Agriculture and the American Samoa EPA finally came to a cooperative agreement to apply the same federal law to all pesticides users. American Samoa pesticide users can now buy general use pesticides without requiring certification. A large number of residents bought Round-up® herbicide for outdoor weed killing. However, the extension agents have notified all users of pesticides, including such general use users, to attend on-going quarterly Pesticide Applicator Safety Training. At least 200 people bought seeds and other planting materials from Agriculture extension. An additional 55 clients were participants in pesticide and fertilizer application trainings. Those who got free plant materials are not included in this reporting.

5. Number of farmers interviewed regarding their attitude towards marketing and their marketing practices.

| A) Baseline | Target | Actual |
|---|---|---|
| 2000 | 40 | 53 |
| 2001 | 48 | 61 |
| 2002 | 58 | 73 |
| 2003 | 69 | |
| 2004 | 83 | |

B) Extension agents conducted face-to-face interviews with farmers during farm visitations. Farmers were also surveyed on the spot when they visited the extension office on a weekly basis. This two-way method is possible in our setting where the extension office is located in the center of the main island of Tutuila, making it very accessible to the community. The operators of roadside market stalls were also asked for their opinions on the current marketing situation. It was good timing for farmers' interaction, especially given the newly established Tongan market facility in the territory. Agents were especially sympathetic to the hard working farmers who spoke out in deep frustration in response to government accessions to other Pacific Island countries who tried to take advantage of the American Samoan market, while providing little protection for local farmers. Plans were initiated last year to organize a vegetable-grading workshop for local farmers with the assistance of USDA Agriculture Marketing Service. While preparing this report, a USDA-AMS representative was conducting this workshop at the Research Station in response to stakeholder input from last year. We hope to report more good news about this collaboration next year.

6. Number of Organizations/groups given assistance in developing gardens.

| A) Baseline | Target | Actual |
|---|---|---|
| 2000 | 2 | 5 |
| 2001 | 3 | 4 |
| 2002 | 4 | 6 |
| 2003 | 5 | |
| 2004 | 7 | |

B) Two Boys and Girls Scout groups, in addition to other four community organizations, were given assistance by the Agriculture Extension agents. Activities conducted varied from outdoor verbal presentations to hands-on demonstration of seedbed and nursery preparation. Plans were made to expand this type of group assistance to Vocational Rehabilitation and Disabled groups as requested but the extension agents were still waiting for confirmation of project sites. The extension agents anticipate materializing these collaborative projects with these groups in 2003.

7. Number of farmers receiving financial assistance to develop existing enterprise and increased production.

| A) Baseline | Target | Actual |
|---|---|---|
| 2000 | 3 | 3 |
| 2001 | 5 | 6 |
| 2002 | 7 | 16 |
| 2003 | 8 | |
| 2004 | 10 | |

B) Last year three farmers received Sustainable Agriculture Research and Education (SARE) to do on-farm projects while another group of thirteen producers also received a total of $20,000 in grant monies to establish marketing facilities and to improve their existing operations. These farmers were assisted and guided by the agriculture extension agents. This year, Agriculture Extension hopes to further meet this money issue by collaborating with the Women's Business Center Micro-loan program to provide financial assistance for farmers and would-be aquaculturists. To qualify for this program, the applicant has to complete an Agricultural Entrepreneurship Course in which an acceptable business plan is to be accompanied with technical assistance from extension agents from Land Grant and/or Sea Grant. By completing the course, participants will be guaranteed a micro-loan from the Women's Business Center's American Samoa Micro Loan Fund. This promises to be a great boost to local farmers in FY '03.

**d. Territorial Assessment**

The 1999 Agricultural Census was the recent Territorial Assessment in which American Samoa's households were randomly selected by a computerized system. Individual programs and collaborative projects were also assessed using a multidisciplinary approach. The following methods were used; interviews and surveys, visitation records, workshop/training evaluations, focused group discussions. An instrument is now being developed to use in the year 2003 for more thorough needs-assessment of all extension

programs in the community because the agricultural census reflects only part of CES and Research efforts.

**e. Financial and Human Resources**
9 FTE

| | |
|---|---|
| Hatch Federal | $121,115 |
| Hatch Local | $ 40,080 |
| Smith Lever Federal | $118,394 |
| Smith Lever Local | $ 33,118 |
| Multistate Research Funds Federal | $ 3,868 |
| Multistate Research Funds Local | $ 3,868 |

**IIA. KEY THEME:** AGRICULTURAL COMPETITIVENESS

**a. Activity**
Lack of financial resources to facilitate the local marketing of farmers' produce was one of the challenges faced by Agriculture Extension Services (AES) as indicated by stakeholder input in the past. Due to increased sales of produce along the roadsides and direct exposure of fresh produce to sunlight, which could eventually shorten the life shelf of any products, the newly established Taputimu Farmers' Cooperative (TFC) approached AES for help after several hopeless attempts. The two commercial banks can only accept applicants from those who consistently keep good sales records demonstrating steady income from farming, and who have a good credit rating with them. Unfortunately, most farmers are still learning record-keeping skills, and are thus unable to access traditional financing sources. In an effort to alleviate this situation, AES worked with thirteen (13) members of the TFC to put together a grant proposal through the Department of Commerce (DOC) Community Development Block Grants. The proposal was rejected twice and AES made improvements and resubmitted for the third time. Last year in the month of February, the grant reviewers finally decided to award the TFC with financial support.

**b. Impact**
The AES's endless effort was finally paid off when TFC received a grant amount of $20,000 to establish a portable market facility in the village of Nu'uuli. The thirteen members are now enjoying selling fresh produce under these shelters protected from the hot sun. Each member also received a number of farm tools and equipment as authorized by the grant conditions. This was the first time in the history of the Community Development Block Grants to approve such a large amount of money for an agricultural organization to develop marketing. As the membership grows, the co-op is planning to get more portable units to meet members' needs. CES and Research will continue to provide technical support and training for the newly formed association. The next phase of this development is to install coolers and storage facilities for farmers' produce.

**c. Source of Funding**
DOC Community Block Grants & Smith Lever

**d. Scope of Impact**
State Specific

**IIB. KEY THEME:** AGRICULTURAL PROFITABILITY

**a. Activity**
Three trials were conducted on Hatch Project SAM 016 Production of Cucumbers (*Cucumis sativus*) to determine cost of production yields, returns and break-even prices. These trials compared non-trellised, clothesline and teepee-trellised methods of producing cucumbers. Before the end trial, a workshop/field day was conducted where and average of 12 farmers, extension and research personnel attended. During the trial, extension personnel brought farmers interested in the results to view the trial. Numerous field trips from the local schools came to the AES to visit and learn from the various projects including the cucumber trials.

**b. Impact**
One of the farmers, who were brought in by extension personnel to view the trial, recently raved about the teepee trellis method of cucumbers. After several crops of growing cucumbers on the ground to provide cucumbers weekly to the School Lunch Program and just breaking even, she started growing cucumbers last year following the research recommendations. During the first week in December 2002, she provided 1,800 lbs. to the School Lunch Program. The payment of her produce was $1,350. She provides cucumbers weekly to the School Lunch Program. She continues to rave about the practical nature of the information provided by this research.

**c. Source of Funding**
Hatch

**d. Scope of Impact**
State Specific

**IIC. KEY THEME:** AGRICULTURAL PROFITABILITY

**a. Activity**
Farmers are visited on site and at the Farmers' Market to collect data for the American Samoa Local Producers' Directory. Information was also collected at the Women's Agribusiness Fair and many one-to-one visits to farmers and producers. The commodities produced, the farmer's name, village, and phone numbers are published in the bilingual American Samoa Local Producers' Directory with headings for a total of 89 local commodities and value added products. Retailers, hotel/motels, fast food establishments and other business use this directory to make direct contact with farmers, fishermen, and producers of value-added products. The most recent mailing of the American Samoa Local Producers' Directory Volume II (2) included 350 farmers and 324 businesses.

**b. Impact**
Because of the limited arable land for agriculture, producers frequently run out of crops to sell, resulting in shortages at the retail level. Instead of waiting for their supplies until they once again have produce to sell, retailers use the American Samoa Local Producers' Directory to make contact with other growers to restock their shelves. Since being listed in the directory, the producer of *Nonu* Salve has had to double production to keep up with orders.

**c. Source of Funding**
Hatch and Penalty Mail

**d. Scope of Impact**
State Specific

**IID. KEY THEME:** SMALL FARM VIABILITY

**a. Activity**
Businesses are visited and surveyed as to what commodities they currently purchase from local producers and what they would like to purchase in the future. The findings, specifically the business name, the purchasing manager's name, location of the business and their telephone number, were consolidated into a bilingual American Samoa Marketing Directory with headings for each of the 70 locally produced commodities. Farmers, fishermen, and producers of value-added products use this directory to contact retailers, hotel/motels, and fast food businesses directly to market their products. The most recent mailing of the American Samoa Marketing Directory Volume II (2) included 350 farmers and 324 businesses.

**b. Impact**
Rather than sit at the Farmers Market all day to market their produce or drive around from store to store to inquire whether a store wants to purchase produce, by utilizing the Marketing Directory, farmers save time. One farmer told the Marketing Directory coordinator," Since I've been using the directory, I don't have to waste my time sitting all day at the Farmers' Market to sell my bananas. I deliver to the different stores and pick up the money. Since you showed me that day at the Farmers' Market that I was actually selling my bananas at $0.18 a pound, instead of the $0.50 per pound that I thought, I've made more money selling to the retailers for $0.40 a pound. I now make more money and have more time, in fact I've taken a part time job and even then, I still have a lot of time for my family. For that I'm thanking you." Other farmers express similar feedback regarding the time savings and the making of more money by utilizing the Market Directory.

**c. Source of Funding**
Hatch and Penalty Mail

**d. Scope of Impact**
State Specific

**IIE. KEY THEME:** PLANT HEALTH

a. **Activity**
Algae in the order Trentepohliales have been studied for centuries due to their plant parasitic nature and fungus-like habit. In many tropical areas, including American Samoa, knowledge of these algae is lacking. During this project, six species of *Cephaleuros* were identified on Tutuila Island, American Samoa: *C. expansa, C. henningsii, C. karstenii, C. minimus, C. parasiticus, and the most studied species, C. virescens*. Other trentepohlians collected included two species of Stomatochron, two species of *Phycopeltis*, and a single species of *Trentepohlia*. The host range of these algae consists of 145 plant species and cultivars in 100 genera and 48 families. Currently, lichens with trentepohlian phycobionts are being collected and identified in collaboration with Dr. Clifford Smith, British Natural History Museum. These lichens will form part of the Forest Health Inventory, in collaboration with the Land Grant Forestry Division and U.S. Forest Service. Grower recommendations have been developed based on this study of plant host/algal parasite relationships.

**b. Impact**
American Samoa's population is growing at almost 4% per year and habitats are rapidly being altered or destroyed. Scientist and others wishing to study the trentepohlian algae of American Samoa, their lichenized forms, or plant host ranges, will have online access to our databases (planned for 2003) and specimens conserved in our new herbarium. Growers with seriously affected plants can minimize damage by host selection, thinning, and increasing plant vigor.

**c. Source of Funding**
Hatch

**d. Scope of Impact**
State Specific

**IIF. KEY THEME:** PLANT HEALTH

**a. Activity**
A survey of brown root rot disease (see FY'01 report) revealed the importance of wood rot fungi in the forests and landscape of American Samoa. Though a necessary part of decomposition and nutrient recycling, these pathogens are undesirable in forest crops, orchards, and trees surrounded by human activities, lowering wood quality, reducing yields, and presenting a danger to people, respectively. Specimens of the most common wood rot pathogens were sent to the USDA Center for Forest Mycology Research, Forest Products Laboratory, Madison, WI, for identification. These specimens, plus over 100 tentatively identified fleshy fungi, have been accessioned into out herbarium collection. New texts on polypores of Papua New Guinea, E. Africa, and E. Asia will assist identification of American Samoa's wood rot fungi.

**b. Impact**
Scientists and others interested in the diversity of plant pathogenic and other fleshy fungi in the Territory can locate this information through online databases (planned for 2003), or visit our herbarium and study conserved specimens. Baseline information provided by these databases and the herbarium collection may be used to monitor increases or decreases in biodiversity due to population pressure, invasive species, hurricanes, or other natural or man-made disasters. Providing information on proper pruning practices and wound prevention can lead to a decrease in unnecessary tree injury and subsequent fungal infections. Healthy, uninfected trees will increase yields and create a safer human environment.

**c. Source of Funding**
Hatch

**d. Scope of Impact**
State Specific

**IIG. KEY THEME:** APICULTURE

**a. Activity**
Honeybees are not native to American Samoa but are established here as a result of early attempts to develop an apiculture enterprise. Promotion of small-scale beekeeping in the Territory could help increase incomes through sales of honey and wax and help increase crop yields through better pollination.

The Land Grant Program occasionally receives calls requesting assistance in removing feral honeybee colonies from inside building walls or other places they are not wanted. These bees have been collected by Land Grant personnel and placed in hives for observation of colony growth and honey production so that productive lines could be selected and increased for later use in an apiculture extension program.

**b. Impact**
Colonies established at the Station thus far have not proven productive enough to serve as basis for an apiculture extension program. However some information on honeyflow periods is being obtained that could prove beneficial to future beekeepers. The colonies have proven useful, however, as educational tools and to assist pollination of crops grown in research and demonstration plots at the Land Grant Station.

**d. Source of Federal Funds**
Hatch

**e. Scope of Impact**
State specific

## IIH. KEY THEME: INVASIVE SPECIES

### a. Activity

Fruit flies are a serious threat to fruit production in American Samoa. Because the species that occur in American Samoa are restricted in range to the small countries and territories of the South Pacific, relatively little research has been done on their bionomics and management. A study of these species' host ranges and phenologies in American Samoa is nearing completion and will provide the baseline information on which to base subsequent research on environmentally sound management.

Fruit fly species, which cause enormous economic damage, occur in other Pacific countries and territories. Large numbers of people and goods travel between American Samoa and these other countries and territories each year. Despite quarantine restrictions and inspections at ports of entry, accidental introduction of one or more of these exotic fruit fly species remains a distinct possibility. A trapping network was established and maintained throughout Tutuila Island to provide early warning of any exotic introductions so eradication could be undertaken if necessary before the flies become widespread.

### b. Impact

Early estimates found over half have the breadfruit and guava fruits destroyed by fruit flies. Based on results elsewhere, it is likely that research and extension efforts to improve management could reduce damage levels to less than 10%.

No country or territory will accept fruit exports from American Samoa without prior documentation of the Territory's fruit fly fauna. Having such documentation available can thus help pave the way for any future development of tropical fruits for export.

Introduction and establishment of an exotic fruit fly species could devastate fruit and vegetable production in the territory. The accidental introduction of the melon fly into Hawaii initially forced farmers to quit growing crops in the melon/cucumber family. Annual commercial sales of cucumbers alone in American Samoa amounts to nearly $300,000. After over a century of research and extension efforts the melon fly, along with two other exotic species, continued to cause $3.5 million damage to Hawaii's fruits and vegetables. Fortunately none of these species has become established in American Samoa, and the surveillance program is aimed at ensuring that they never do.

### c. Source of Federal Funds

Hatch

### d. Scope of Impact

State specific

**Goal 2: A SAFE AND SECURE FOOD AND FIBER SYSTEM. TO ENSURE AN ADEQUATE FOOD AND FIBER SUPPLY AND FOOD SAFETY THROUGH IMPROVED SCIENCE BASED DETECTION, SURVEILLANCE, PREVENTION, AND EDUCATION**

**EXTENSION**

The programming for this goal in American Samoa is covered under the 3-d Food Safety and Quality (FSQ) initiative and EFNEP (Expanded Food and Nutrition Education Program). Since there are no formula funds used for this goal, this goal was not addressed in the plan of work, and therefore, not reported on here. At this point in time, there are no researchers having responsibilities relating to food safety and food security.

**Goal 3: A HEALTHY, WELL-NOURISHED POPULATION**

## I. OVERVIEW

The traditional American Samoa culture is a communal society. This means the extended family is prevalent, and people share their resources. Normally, food benefits from federal food programs and family garden produce are shared within family groups, which means most people have access to food. The traditional diet consisted of fish, pork, chicken, root crops, greens, and fruit with coconut cream for flavor. Today, animal protein and starches make up most of the diet with a lot of imported food.

The goal of the 5-Year Plan of Work is to increase the production and consumption of locally grown nutrient dense fruits and vegetables through demonstrating, offering workshops, assisting with gardening, developing and promoting recipes; touring CNR plots and gardens; providing seeds, seedlings, tools, and fertilizers to church groups, farmers, food stamp and Women, Infants, Children (WIC) clients, schools and other youth groups.

### a. Outputs

An integrated approach to fruit and vegetable production incorporating locally grown produce in the diet was used to help accomplish this goal. During the reporting period, programs have been presented in villages, schools and appropriate government offices. Food demonstrations used recipes with locally grown produce. Using local produce as part of the food stamp allocation was promoted with demonstrations of recipes using fruits and vegetables. Educational handouts on the Pacific Food Guide Pyramid, new published English/Samoan recipe book, “Team” Nutrition and "Five A Day" materials were given to food stamp recipients, students, teachers and other clients. In-school programs emphasized the production and the consumption of local fruits and vegetables with gardening projects. Seeds and seedlings were free for the people taking the programs.

### b. Outcomes

- 398 students, parents and teachers participated in gardening activities within their classrooms and schools.

- 453 additional people have participated in gardening programs including a boy/girl scout troop.
- 13 on-site vegetable gardening demonstrations were presented.
- 1,430 people completed fruit and vegetable related food, nutrition, and food safety education programs.
- 1,200 people increased their knowledge of the importance of fruit and vegetable consumption, how to select and prepare, and how to safely handle and store them
- 55% ate one or more fruits each day.
- 60 % ate two or more vegetables counting corn.
- 2,000 educational handouts on the Pacific Food Guide Pyramid, 350 recipe books in English and Samoan, “Team” Nutrition and "Five A Day" materials to 120 teachers at 5 nutrition workshops.
- 60 fact sheets on pests of trees and 55 posters of land use given at the greenhouse.

**c. Impacts**

- Many food stamp clients commented that they are using the recipes and nutrition ideas to reduce the amount of fat in their family meals, increase the use of local foods (fruits and vegetables), and get more from their food stamp dollars.
- There are now 81 small-scale vegetable farmers in American Samoa. They provide produce about once a week to the Department of Education for the school lunch program.
- The Nutrition Coalition continues to work on education and policy development. They have sponsored several successful Health Fairs over the past months and have gathered baseline data on the children of American Samoa.
- About 40 % of the students in Food Safety workshops have started eating more nutritious snacks and drinking more water instead of soda.
- According to food recalls and verbal responses, 65% of them eat one or more fruits each day and 71% eat two or more vegetables each day.
- A month after the report on food safety practices in the DOE school lunch program was presented to the administrators, nutritionists, and cooks, changes were evident. Observers noticed kitchens were cleaner, food storage units were cleaner without signs of rats, all schools had access to freezers and coolers, and preparation areas were kept more sterilized.

**e. Financial and Human Resources**

6 FTE

| | |
|---|---|
| Hatch Federal | $70,743 |
| Hatch Local | $21,720 |
| Smith Lever Federal | $80,202 |
| Smith Lever Local | $22,482 |
| Multistate Research Funds Federal | $ 1,934 |
| Multistate Research Funds Federal | $ 1,934 |

**IIA. KEY THEME:** VEGETABLE AND FRUIT PRODUCTION INCLUDING PEST AND WEED CONTROL AND FRUIT TREE PROPAGATION

a. **Activity**

Agriculture Extension Agents, Children, Youth & Families At Risk (CYFAR) Contacts, Forestry Extension Agents and 4-H Extension Agents offered many workshops and demonstrations about plant propagation, soil preparation and management, pest and disease control, fertilizer application, composting, harvesting and marketing of the produce. The Agriculture Extension division provided vegetable seeds and seedlings, planting materials and tools for the demonstrations. The Forestry division of the Land Grant provided fruit tree seedlings and assisted with the demonstrations on planting and caring for the trees as well as pruning of fruit trees. Major collaborators for this activity included: Department of Education (DOE), Department of Health (DOH), DOA, DOC, ASEPA, Parent Teachers Associations (PTA), Americorps, Diabetic Association and the CES section of ASCC Land Grant. This collaboration has solidified working relationships allowing for easier access for other programs. In fact, one of the commitments is to assist every interested member of the Diabetic Association to attain better nutrition and more physical exercise. Ten teachers attended the "Agriculture in the Classroom (AITC)" presentation at the Pacific Resources for Education and Learning (PREL) conference held in American Samoa.

b. **Impact**

There were about 1,000 seedlings given out and it is estimated that most of them were planted. The seedlings included Cocoa, Citrus Lemon, Citrus Lime, Citrus Orange, Papayas, Soursops, Mountain Apple, Guavas, Chestnuts, Star Apple, Golden Apple, *Nonu, Ifi, and Seasea*. Information was given on pest and disease control including brochures and posters about land use, which were given to students and teachers visiting the greenhouse. The seedlings were provided to Special Education School; Pavaiai, Alofau, Aunuu CCCAS, and Tauese Schools; Stream Restoration, ASEPA, The First Lady Project, the Forestry Stewardship Program and scouts, church groups, farmers and local schools. The number of people completing fruit production programs and increasing their knowledge of fruit production was 233 students, teachers, and farmers.

Vegetable seeds given out during the gardening programs included: Bakchoy Cabbage, Cucumbers, String Beans, Corn, White Radish, Green Onions, Leaf Lettuce, Taro (leaf), Green Peppers, Tomatoes, Swamp Cabbage, Sweet Potato, Pumpkins, Eggplant, Chili Peppers, Watercress, Chives, and Kohlrabi. The number of people completing vegetable gardening programs and increasing their knowledge of vegetable gardening was 851 students, teachers, parents, and farmers. Thirty-five were members of a Diabetic group. Harvested produce at the schools was used to provide wholesome and nutritious meals for the children and parents. Excess produce was sold to fund other projects for the students. Several of the farmers took to heart all the information they learned about fruits and vegetables. They provide produce about once a week to the Department of Education for the school lunch program. Many other farmers sell their produce at roadside stands and at the Farmers Market in the main part of town. Students and parents have started vegetable gardens on family land or in small containers.

CES has done a better job of delivering "Ag in the Classroom" to schools this year. As a result of the PREL presentation, many teachers are incorporating Agriculture into their curriculum.

c. **Source of Funding**
Smith Lever and Other Federal Funds

d. **Scope of Impact**
Territory Specific

**IIB. KEY THEME:** PROPER SELECTION, SAFE HANDLING, STORAGE, AND PREPARATION OF NUTRITIOUS FRUITS AND VEGETABLES

**a. Activity**
The Food Stamp Program is one of many long-running nutrition programs in American Samoa. The first five working days of each month, Nutrition Agents continue to provide services for the clients. Through lessons, songs, games, fact-sheet handouts, recipes and cooking demonstrations containing local ingredients from each of the five food groups, clients are receiving nutrition education. Emphasis is placed on eating more fruits and vegetables, reducing fat and salt consumption and eating a variety of food. Educational handouts on the Pacific Food Guide Pyramid, recipes, "Team" Nutrition and "Five A Day" materials were given to food stamp recipients, students, teachers and other clients. When the Food Stamp Staff distribute the coupons immediately following each nutrition session attendance rises tremendously.

Presentations about safe food handling, storage and preparation were part of the training for childcare providers and food stamp clients. At least 10 demonstrations were given to school age children on the correct way to wash the hands to prevent food borne illness. September was "Food Safety Month". The food safety video, developed for American Samoa by the food safety agent, was played on TV several times each week and continues to be shown about twice each month. This is an English and Samoan language production.

**b. Impact**
The Nutrition Coalition that was organized in 2001 includes nutrition representatives from ASCC Land Grant (F4-HN), Public Health, DOE (School Lunch), LBJ Medical Center, ASCC Nursing Department, WIC, Food Stamps, and the Diabetic Association. This coalition continues to work on projects to increase the health and well being of the people. They are sponsoring "Health Fairs" with the Theme: *"Taumafa Tatau – Soifua Maloloina*," or "Eat Well – Live Well! Develop a Healthy Lifestyle"

There was an average of 265 Food Stamp clients who attended the FY2002 nutrition classes during the first week of each month. Many clients commented that they are using the recipes and nutrition ideas to reduce the amount of fat in their family meals, increase the use of local foods (fruits and vegetables), and get more from their food stamp dollars. A verbal survey showed that 65% of participants were using the recipes to reduce the fat

in their meals. About 40 % of the students have started eating more nutritious snacks and drinking more water instead of soda.

An estimated 1,000 viewers watched the food safety video on TV. There were at least seven letters to the editor of the *Samoan News* during that time commenting about food safety and the concepts covered in the video. Now that awareness has increased, more people are calling the paper, radio and F4H-N about cases of food poisoning and requesting information. This may help the division to work more closely with the Department of Health to improve the safety of fast food sold on the roadside and in markets on the island.

A month after the report on food safety practices in the DOE school lunch program was presented to the administrators, nutritionists, and cooks, changes were evident. Observers noticed kitchens were cleaner, food storage units were cleaner without signs of rats, all schools had access to freezers and coolers, and preparation areas were kept more sanitized.

Approximately 2,150 educational handouts on the Pacific Food Guide Pyramid, recipes, “Team” Nutrition and "Five A Day" materials were given to food stamp recipients, students, teachers, and clients. In addition, some food safety fact sheets and hand washing posters were also distributed. A four-fold brochure on the four steps of food safety has been distributed in all the villages of American Samoa. The LBJ Tropical Medical Center has seen fewer food borne illnesses over the last year.

The number of people completing fruit and vegetable related food, nutrition, and food safety education programs and increasing their knowledge of the importance of fruit and vegetable consumption, how to select and prepare, and how to safely handle and store fruits and vegetables was an average of 126 food stamp recipients each month. Women, Infants, and Children (WIC) clients also completed information and activity lessons related to food safety for infants and children and the “Five A Day” program. There were also another 32 schools whose students learned correct hand washing techniques along with “Five a Day”. The total number of participants is estimated at about 1,500 people for the reporting time. According to food recalls and verbal responses, 65% of them eat one or more fruits each day and 71% eat two or more vegetables each day.

**c. Source of Funding**
Smith Lever

**d. Scope of Impact**
Territory Specific

## IIC. KEY THEME: HUMAN NUTRITION

a. **Activity**

The first nutrition research project for ASCC, "Survey of food frequency, health and fitness indicators among school children 6-18 years old in American Samoa" recently received both Hatch and IRB approval. While this project is in the early stages, it was developed with input from a broad-based territory wide network involved in nutrition and health education including the Department of Public Health, the LBJ Tropical Medical Center Hospital Authority, the Department of Education, and the ASCC Nursing Department.

b. **Impact**

While there are nutrition research data on American Samoan preschoolers and adults, none exists for the school-aged children. It is anticipated that this research project will help fill the gap by providing data for this missing age group. It is also expected that information on eating habits, fitness, overweight/obesity, and diabetes/anemia will be helpful in developing intervention programs to lower the rates of non-communicable diseases. Research results will be helpful in better focusing nutrition education for school aged children.

c. **Source of Funding**

Hatch

d. **Scope of Impact**

State Specific

**GOAL 4: GREATER HARMONY BETWEEN AGRICULTURE AND THE ENVIRONMENT. ENHANCE THE QUALITY OF THE ENVIRONMENT THROUGH BETTER UNDERSTANDING OF AND BUILDING ON AGRICULTURE'S AND FORESTRY'S COMPLEX LINKS WITH SOIL, WATER, AIR, AND BIOTIC RESOURCES.**

Comment:

Comment:

## I. OVERVIEW

American Samoa comprises oceanic islands with tropical rainforests and fringing coral reefs. Fragile ecosystems, limited landmass, and isolation from outside sources of input make harmony between agriculture and the environment of greater importance here than elsewhere.

Outputs and outcomes of projects undertaken at the ASCC were directed towards impacts that would help ensure that ecosystems achieve a sustainable balance of agricultural activities and biodiversity. To accomplish this, the AES, CES, Forestry Service, and their partners focused on protecting, sustaining, and enhancing soil and water resources--goals that are in accord with those of our stakeholders.

Because of limited resources in staff and budget, ASCC forms partnerships with other on-island federal agencies as well as local government agencies in order to fulfill its mission. One prime example of such inter-governmental agency cooperation is the Interagency Piggery Management Council. Under the leadership of the ASCC CES, the following agencies coordinate efforts to reduce the amount of effluent discharged by piggeries into streams: NRCS, ASEPA, Coastal Management Program (CMP), and ASDOA. Their efforts served as a catalyst in implementing and expanding existing programs.

Biological control has long been the cornerstone of integrated pest management in American Samoa. When new crop pests arrive on the archipelago, usually through the action of commerce, they initially cause severe damage. Natural enemies and abiotic factors may help reduce their populations. The success of natural enemies in American Samoa may be due to traditional farming methods such as intercropping and agroforestry, the limited use of expensive imported pesticides by subsistence farmers, and the proximity of virgin rainforest—which may contain alternative hosts and suitable habitats for natural enemies—to plantations. Sometimes, though, additional biological control agents are needed.

Surveys conducted during the past two years found that both scale pests occur on the main island of Tutuila. However, natural predators and parasitoids keep both within tolerable levels. An effort is underway to identify and introduce these predators and parasitoids to the Manua islands.

As the only land grant institution south of the equator, ASCC occupies a unique position in the USDA CSREES family. It successfully maximizes its modest resources by developing partnerships with other on-island federal agencies and with local government agencies. ASCC's leadership role in initiating such partnerships is recognized and appreciated by policy makers and the public. As long as this spirit of intra-governmental agency cooperation continues to enjoy administrative support, ASCC's impact on the community and on the environment will contribute towards a healthier, more self-sufficient lifestyle for all.

The Cooperative Extension Service and Agriculture Experiment Station have collaborated on the following efforts in order to disperse their research efforts to the public:

- 3 refereed articles, technical reports, and poster sessions
- 8 non-technical publications, workshops, or broadcasts

**e. Financial and Human Resources**

10 FTE

| | |
|---|---|
| Hatch Federal | $144,574 |
| Hatch Local | $ 49,534 |
| Smith Lever Federal | $119,852 |
| Smith Lever Local | $ 31,406 |
| Multistate Research Funds Federal | $ 5,805 |
| Multistate Research Funds Local | $ 5,805 |

## IIA. KEY THEME: BIOLOGICAL CONTROL

### a. Activity

Surveys conducted in August 2000 found heavy infestations of two scale insect species on breadfruit and coconuts in the Manu'a Islands of American Samoa. Both scale species are known to occur also on Tutuila Island, but rarely reach outbreak densities there. In 2001 and 2002, surveys were conducted of the predators and parasitoids attacking these two scale insects on Tutuila Island, in hopes of identifying one or more species of natural enemies that could be introduced to the Manu'a Islands to help bring the scales under control there.

### b. Impact

Specimens of predators and parasitoids have been sent to experts for identification. Some species were found to be common on Tutuila but absent from Manu'a. These species will become candidates for introduction into the Manu'a Islands to bring about biological control of the scales infesting breadfruit and coconuts there. No assessments were made of economic damage attributable to the scales. However, it is clear that if biological control succeeded in reducing the levels of infestation in Manu'a to those seen on Tutuila, then the Manu'a residents would benefit from increased production of these two important traditional staple crops.

### c. Source of Funding

Hatch

### d. Scope of Impact

State Specific

## IIB. KEY THEME: FOREST CROPS

### a. Activity

In 1998 a research project was conducted to examine regeneration of eight potential commercially useful hardwood tree species on an abandoned agricultural plantation. Although regeneration was successful for some species, one of the major conclusions of the study was that flat agricultural land was too valuable for silvicultural production. As a result, a second study was designed to investigate the regeneration capacity of these species on slopes greater than 70% because such slopes are ill suited for agriculture. Moreover, because survival of several tree species was very poor in the cleared plantation, a second element of percent canopy cover removal was added to test the effect of shading on seedling regeneration. Efforts to locate a suitable parcel of land to conduct the project were initiated.

### b. Impact

This project will have two primary impacts. First, it will provide information about the conditions required to grow various commercially useful trees on land that would otherwise not be available for economic production. Presently land is being cleared on steep slopes for agriculture. When these plantations are abandoned, trees can be planted for commercial use to derive economic benefit from the land. The species selected in this

project have traditionally been used for Samoan craftwork and construction. The second impact is that the project will provide information about regenerating forest trees for environmental purposes. Reforestation efforts in areas such as the National Park of American Samoa and those disturbed by hurricanes would benefit from a better understanding of how these tree species, most of which are native, respond to different levels of canopy cover.

**c. Source of Funding**
McIntire-Stennis

**d. Scope of Impact**
State Specific

**IIC. KEY THEME:** SUSTAINABLE AGRICULTURE

**a. Activity**
Population pressure, scarcity of available agricultural land and the need for more food production are forcing farmers to encroach the very steep hills and to clear native forest. As a result, traditional taro farming practice in American Samoa leads to serious soil degradation through soil erosion and landslides, especially on steep slopes, which then lead to siltation of streams and coral reefs. Landslides threaten lives and property of people living below the steep slopes. Also, there is low availability of agricultural inputs such as fertilizers and if available, their exorbitant prices and perhaps lack of technical information on the application of these chemicals pose danger to the environment. In an attempt to alleviate these problems, the Horticultural section of the Community and Natural Resources (CNR) Division of the American Samoa Community College (ASCC) is currently conducting field experiments to evaluate bush asparagus bean *(Vigna sesquipendalis* L.) as a possible intercrop with taro *(Colocasia esculenta* L.). Three of the on-going experiments are located in the farmers' farms and one at the CNR Experimental Station's research plots. Taro as the main crop is planted at two population densities, with and without beans where two rows of beans are planted between taro rows. The treatments are randomly assigned to the plots in a randomized complete block design with four replications. Data collected for statistical analysis include: leaf area index, light interception, incidences of army and horn worm attacks, monitoring of diseases, and fresh weights (at harvest) of both taro and beans. The results obtained from this research will be used to advise the American Samoan farmers on improved taro and bean production at environmental friendly conditions, where weeds and pests are minimized.

**b. Impact**
The project is at its data collection stage. Analysis of variance carried out on primary measures from the first growing season indicate that asparagus bush beans are significantly *(a=O.O5)* smothering weeds in *taro* intercropped with the beans as compared with taro grown as monoculture. Field observations also show that bush asparagus beans have a potential to reduce incidences of army and hornworm infestation in taro grown as an intercrop with the beans, as compared to the army and hornworm incidences in monoculture taro. Results from the completed first growing season indicate no significant reduction in taro corm yield per plant at both taro population densities,

while Relative Yield Totals (RYT) calculations, based on results from the first growing season shows a great potential in yield advantage when taro is intercropped with beans. It is expected that with the adoption of the farming method introduced here, farmers in American Samoa will improve the supply of taro and long beans for the local markets, the school lunch program, as well as for their subsistent food supply. The farming method advocates use of no chemicals, is environmental friendly, and also sustains the soil for long-term crop production.

**c. Source of Funding**
Hatch

**d. Scope of Impact**
State Specific

**IID. KEY THEME:** WATER QUALITY

**a. Activity**
In cooperation with the local Natural Resource Conservation Service, the American Samoa Environmental Protection Agency (ASEPA), and the AS Power Authority (the local water utility), ASCC collected 511 grab samples from 27 permanent streams representing 21 of 33 major watersheds on Tutuila Island, American Samoa. *In situ* tests included pH, turbidity, dissolved oxygen, temperature, and salinity. Laboratory analyses for levels of calcium, magnesium, potassium, and sodium were performed on all samples, while analyses for levels of inorganic phosphate, nitrate-N, and ammonium-N were performed on samples exhibiting high turbidity, low dissolved oxygen, or odor.

**b. Impact**
Analysis of stream waters found only occasional incidents where values exceeded the American Samoa Water Quality Standards. These values varied by less than 10% from acceptable levels, were not consistent over sampling periods, and did not represent direct sources of drinking water. Results were shared with ASEPA, regulator of the water quality standards, for re-sampling and verification.

**c. Source of Funding**
Hatch

**d. Scope of Impact**
State Specific

**IIE. KEY THEME:** WASTE MANAGEMENT

**a. Activity**
Composting is not a new idea to the Samoan community. Previously, however, composting was not done properly and most composting facilities served as breeding places for rats, centipedes and especially the rhinoceros beetles, rather than as efficient compost producers. As more and more pig farmers were being cited by the American Samoa Environmental Protection Agency (ASEPA) and Public Health Officials for

improper disposal of piggery manure, Agriculture Extension was one of the major agencies who responded immediately by collaboration with USDA-Natural Resources Conservation Service (NRCS), ASEPA, Public Health, American Samoa Power Authority (ASPA) Waste Water division, Department of Agriculture (DOA), the Soil and Water Conservation District Board and extension agents from the University of Hawaii (UH) College of Tropical Agriculture and Human Resources (CTAHR). This coalition organized workshops for the community last year. Agriculture Extension spearheaded the collaboration so that all interested parties would be disseminating similar information rather than confusing local farmers. Five workshops were conducted at five different farm sites, attracting approximately 145 participants during a one-week period. The demonstrations involved models of composting systems, a deep litter system, and a drip irrigation system and composting facilities being used by individual farmers and the Land Grant Research Station. Participants were able to attend field trips and presentations by composting experts, as well as witness working beneficial use waste management systems.

**b. Impact**

As a result of this cooperative effort among government agencies in which CNR Agriculture Extension committed to establishing station demonstrations to convince the public on ways to manage pig waste as a resource instead of treating it as waste. Three pig farmers adopted proper composting techniques in which the end products were displayed at their farms during farmers' field trips. One of the three hog farmers also adopted a deep litter system as another environmentally, friendly option to manage pig waste. Samoa News, the largest newspaper in the territory, provided a full coverage of these activities during field days.

**c. Source of Funding**

Smith Lever & NRCS

**d. Scope of Impact**

State Specific

**Goal 5: ENHANCED ECONOMIC OPPORTUNITY AND QUALITY OF LIFE FOR AMERICANS**

## I. OVERVIEW

There are many economic and social challenges that face Samoan families. One that seems to underlie almost every issue is the confrontation of two very different cultures. As American Samoa becomes more and more westernized, families are forced to reconcile their traditional culture of respect for elders and communal living with the often directly opposite western value of individualism. There is a need to help ease the transition for the youth and assist them with valuing their Samoan Culture. Another challenge is the changing population as it affects the inhabitable land and family values. With about 18% unemployment, ever-increasing cost of living, almost 60% with incomes below the U.S. poverty level, and more than

50% of average spending going to food and housing, the people need enhanced economic opportunity to maintain and increase their quality of life.

**a. Outputs**

To address this goal during FY 2002, programs were offered in the following areas: Entrepreneurship and Home based businesses, Youth at Risk issues, Samoan Culture and Arts/Crafts, Clothing Construction, Farm Safety, *Elei* Fabric Art Printing, Self-care for Mental Health Clients and Youth Development Issues. Samoan Culture has been included in program development and delivery of all areas.

1. To help ease the difficulties created during social transition, the Family, 4-H, and Nutrition staff have increased workshops in Culture Awareness. Pilot projects were successful in FY2001 so have continued during 2002. These included cultural arts and crafts, nature art and *siapo* (tapa) making.
2. To increase social stability, Childcare Provider training and Parenting Education programs were updated and adapted to American Samoa. The instructor is a technical advisor for the Day Care Centers and will be offering village workshops on parenting issues.
3. To increase economic opportunities for homemakers, farmers, and workers, Entrepreneurship and Home-Based Business courses were offered.
4. To increase social stability, the number participating in the Children Youth and Families at Risk programs increased even though the funding for CYFAR has been completed and is now on sustainability.

**b. Outcomes**

- 65% of the parenting participants actually adopted one or more principles, behaviors, or practices within six months after completing one or more programs.
- Over 600 youth, teachers and parents participated in Culture Awareness programs.
- 56% plan to use the skills learned in keeping their culture strong.
- Seven F4-HN Agents spent about 100 hours each with over 500 youth in the elementary schools completing the reading literacy programs.
- 13 “Parents As Teachers” trainers took the 3 credit hour parenting course taught by the Family and Consumer Sciences program. All 13 said they used at least 10 of the principles, behaviors, or practices as they worked with parents in the schools.
- The Show and Sell Festival attracted 131 participants at Show and Sell Festival asked questions, learned and viewed the pesticide safety display.

**c. Impacts**

- Business start-ups at the completion of the NxLevel courses included Happy Trucking Company (female-owned), Village Pizza/Grocery Store, Electronic Express (couple owned), Electrical Contractor, the first supermarket in American Samoa (male-owned); a sewing shop, day care center, and an auto shop.
- Eighty percent of the CYFAR participants changed attitudes towards the Samoan culture and have developed a sense of pride in their identity as Samoans and appreciate the cultural uniqueness and diversity.
- Collaboration of agencies has ensured program sustainability for CYFAR activities.

- Since the farm safety awareness program, 9 staff members have been wearing proper protective clothing and practicing safe habits. There have not been any documented reports of known fatalities or major injuries. A few minor injuries were reported, however, they could be treated at home.
- Seventy Percent of the childcare providers have requested additional training.
- All 13 of the Parents As Trainers said they used at least 10 of the Parenting principles, behaviors, or practices as they worked with parents in the schools.
- The Mental Health workers have reported that the clients are starting to help with their family meal preparation in their homes. Family members are starting to make positive comments to the workers about the differences they see in their family member.

**d. Financial and Human Resources**
4.1 FTE

| | |
|---|---|
| Hatch Federal | |
| Hatch Local | |
| Smith Lever Federal | $63,470 |
| Smith Lever Local | $19,993 |
| Multistate Research Funds Federal | |
| Multistate Research Funds Local | |

**IIA. KEY THEME:** ENTREPRENEURSHIP/HOME BASED BUSINESSES

a. **Activity**
The ASCC Cooperative Extension Service (CES) continues to collaborate with the ASCC Small Business Development Center and the Women's Business Center to form the American Samoa Small Business Development Network. Through the network, five CES staff members were certified to instruct all the courses offered through the NxLevel® entrepreneurship series. They include *Business Start-Ups, Micro-entrepreneurship: Business Plan Basics, Entrepreneurs, Agricultural Entrepreneurs, and Youth Enterprise Academy.* In this reporting period, three CES agents co-taught with SBDC counselors 3 courses of Micro and Business Start-Ups. Participants who completed the courses during the reporting period included a trucker, some grocery store owners, a couple running a computer store, an electrical contractor, some sewing shop owners, and a few day care providers. CES Agents also gave presentations to local artisans at the Office of Tourism's annual *Moso'oi* Festival. They invited many former participants to share ideas to promote their businesses. Applications for the small business grants have increased and more are being funded. The NxLevel® instructors are now working on a one-to-one program to get the business plans finished so all participants can feel successful.

b. **Impact**
During this reporting period, at least 40 people participated in the Business Start-Ups NxLevel® courses. Business start-ups at the completion of the courses included Happy Trucking Company (female owned), Village Pizza/Grocery Store (male owned), four

small grocery stores or bush stores (3 female, 1 male owned), "Electronic Express" computer store (couple owned), Electrical Contractor, the first Supermarket in American Samoa (male owned); a Sewing Shop, Day Care Center, and an Auto Shop. A few of the people are still working on the business plan so they can get grants or loans to open a business. Several participants obtained commercial loans from the ANZ Amerika Samoa Bank after submitting business plans completed in the courses. The network partners collaborated with the Hawaii Community Loan Fund and Bank of Hawaii (BOH) to implement a local micro-fund program. As a result of the presentations of the CES and SBDC instructors and their clients, the BOH has approved funding, and the local program has begun. The NxLevel® courses and instructors have received high praises from the participants, and have been endorsed by both the Bank of Hawaii and the Amerika Samoa Bank. As a result of the impact seen during the first and second year, the American Samoa Power Authority encourages its marketing and customer service employees to enroll in the course. During the reporting for FY 2003, we will be able to show evidence of how this theme has impacted the businesses, owners, consumers of their products or service, and expected increases over the next few years.

c. **Source of Funding**
Smith Lever

d. **Scope of Impact**
Territory Specific

**IIB. KEY THEME:** CHILDREN, YOUTH & FAMILIES AT RISK

a. **Activity**
4-H Cross Culture Awareness Project --- The purpose of this project was to promote Samoan traditional costumes, art, crafts, language, music, culture, sports and agricultural practices. The importance of the identity and the appreciation of the uniqueness of the culture were always emphasized through the workshops offered. Workshop topics included Samoan Music, dance, oratory, legends and myths, *siapo* (tapa making) *elei* (fabric printing), carving and respectful language and behavior. Their understanding of the culture was enhanced through the activities offered. There have been many requests from the schools (both public and private) for this program so it was continued in FY2002 and into 2003.

Reading Readiness Project -- The purpose of this project was to instill in young children a love and interest for reading. The project staff designed activities to build self-confidence and equip children with behavioral skills needed for the successful completion of this activity. In addition, on-going tutorial sessions were on site for children who were school dropouts or slacking behind in the project. Puppets were used to get the children interested in the stories.

Children and Youth At Risk program materials are being developed, translated, and/or adapted for the American Samoa Territory. Some have been pilot tested and changes are being made so they can be adopted and used with all youth development programs.

These materials include science and math applications, clothing/sewing information, and Samoan cultural project materials.

b. **Impact**
More than 600 youth were involved in 45 cultural workshops and activities. Eighty percent of the participants changed attitudes towards the Samoan culture and have developed a sense of pride in their identity as Samoans and appreciate the cultural uniqueness and diversity. Collaboration with the Department of Education, ASCC Samoan & Pacific Studies, Amerika Samoa Humanities Council, and Village Councils has ensured program sustainability.

More than 500 school age children participated in more than 35 in-school reading and enrichment programs using the "Read to Me Samoa" approach and Samoan reading materials along with English materials. Parents have also started reading more to their children, hence spending quality time as a family.

c. **Source of Funding**
Smith Lever and Other Federal Funds

d. **Scope of Impact**
Territory Specific

**IIC. KEY THEME**: FARM SAFETY & PESTICIDE APPLICATION

a. **Activity**
American Samoa is one of a few places that farming still hasn't been mechanized. Population increases pose added pressures with decreasing land available for farmers. ASCC-CES has been charged with establishing farm safety and health programs with the intent of encouraging farmers to adopt safe farming practices, in order to reduce the incidence of disabilities incurred by agricultural workers resulting from disease or injury. Phase one of the project was to train the CES staff, research assistants and ASCC groundskeepers working outdoors and at Experiment Station Demonstration sites. The second phase was to organize and conduct group workshops in the villages and at special college events to attract more participants. About three different workshops were conducted in the islands of Manu'a and Tutuila.

Agriculture Extension Service in conjunction with the American Samoa Environmental Protection Agency (ASEPA) continued to address pesticide safety in the territory using several different approaches. Three Pesticide Applicator Safety Certification Trainings were administered for this reporting period. That one training each quarter for 20 hours. However, pesticide safety awareness programs were also presented at fairs, schools, and workshops for government agencies, non-profit organizations and farmers. Six non-certification pesticide safety presentations were delivered to two Le Tausagi Annual Environmental Camps, isolated farmers in the Manu'a islands, church groups and government agencies. The new "Show and Sell Festival" hosted by ASCC attracted more participants to view a pesticide safety display booth. These programs were aimed at

educating different age segments of the population with hope to provide a better understanding and to make better choices about pesticide use and safety.

b. **Impact**

c. **Source of Funding**
Farm Safety, PAT 3-D and Smith Lever

d. **Scope of Impact**
Territory Specific

**IID. KEY THEME:** CHILDCARE & YOUTH DEVELOPMENT

a. **Activity**
A six-month training program (52 contact hours) was offered to the childcare providers employed in the 16 licensed centers on Tutuila. Participants represented 13 of the 16 centers. The training was a joint effort with the Department of Human and Social Services. The F4-HN Program Manager was the instructor for the training with assistance from members of the staff. The providers demonstrated a lot of commitment in giving up every other Saturday and time with families to take the training. Training sessions included the following topics: Ages and stages of development, nutrition and food safety, running the business, CPR training, developing curriculum, organizing the facility and setting up learning centers, arts and crafts, positive behavior management, power of play and storytelling. Upon completion of training, each center that was represented received $125 worth of books, building blocks, puppets, or other equipment. The instructor is now a technical advisor for the Day Care Centers and will be offering workshops on issues requested by the providers. Youth Development issues have been involved with the Parenting Education course offered at ASCC by the Program Manager. Thirteen "Parents As Teachers" trainers took the 3 credit hour parenting course taught by the Family and Consumer Sciences program.

b. **Impact**
Thirty-two childcare providers were certified during a graduation ceremony, Last FY. One worker received an award for being so dedicated that she traveled a great distance and had 100% attendance at the training.

Providers were heard to say: "I learned how to discipline the children without hitting them." "I learned so much and had such fun going through the whole thing, I'd do it again." "I attended all the sessions and we need more seminars, workshops and continuous training in the future so we can maintain and continue to improve the skills that we have just learned." "We are applying the many principles of food safety and nutrition to our daycare center." "Our center is so much more organized and is a learning center for the children." "There is such power in using play and storytelling with the children." "I enjoyed the hands-on experiences that helped us apply the ideas." Seventy Percent of the childcare providers have requested additional training.

All 13 of the PAT trainers said they used at least 10 of the Parenting principles, behaviors, or practices as they worked with parents in the schools. Parenting workshops are being planned for the villages, Faith Community, and for DOE Teachers as a result of stakeholder input.

c. **Source of Funding**
Smith Lever and Other Federal Funds

d. **Scope of Impact**
Territory Specific

**IIE. KEY THEME:** DEPENDENT CARE OR SELF-HELP

**a. Activity**
The Mental Health Program continues to be an on-going program for the F4HN and the Mental Health Services. The F4HN program will continue to work with mental health clients in different varieties of hands-on learning activities. Nutrition Education and cooking demonstrations were the first activities used with the 28 Mental Health clients during FY2002. They were in attendance every Wednesday for their weekly activity. Each visit was always a success due to the response and support of the clients who are always patient and very cooperative with the lessons, nutrition games and songs, and the different recipes demonstrated. There were opportunities for clients to become involved in assisting with preparing and serving delicious and nutritious meals! Other lessons have been on clothing care, sewing easy projects and cultural arts and crafts.

**b. Impact**
One staff member said, "It is a great feeling of sharing and caring for these people, we are able to share what they hear, feel and think. Sometimes they share with us their feelings of joy because they know that there are people who really want to help them."

The Mental Health workers have reported that the clients are starting to help with their family meal preparation in their homes. Family members are starting to make positive comments to the workers about the differences they see in their family member.

The group of clients held a bazaar in December 2001 to sale their arts and crafts and some food items. The staff said how successful it was. The clients stood a little taller when people purchased their products.

**c. Source of Funding**
Smith Lever and Other Federal Funds

**d. Scope of Impact**
Territory Specific

## III. STAKEHOLDER INPUT PROCESS

The low attendance of clients during public meetings two years ago encouraged the CES to refine its approach in obtaining stakeholder input. Rather than waiting for the clients to come to public meetings, the extension agents went out to the community and collected stakeholder input. CES decided to obtain a wide variety of responses through an integrated approach in which surveys, interviews and discussions were conducted during workshops, school presentations, farm visitations, village presentations, program council meetings, and when clients visit or call the extension office for technical assistance. Recommendations were also compiled from special presentations to traditional leaders (Samoan Affairs Office) and government agencies, church groups, girls/boys scout organizations and individuals who responded as a result of information dissemination to the media (Television programs and Newspaper articles). While every household in American Samoa did not have the opportunity to participate in this process, at least the vast majority of the participants were students, farmers, homemakers, entrepreneurs, 4-H leaders and members. These clients participate in extension programs and receive direct benefit from research projects. These individuals have suggested good ideas including programs that are out of CES control.

One of the recommendations by reviewers' last year was to include diverse views from other people including minority groups. With the cooperative effort of both CES and Research, the inclusion of Asian and local business community through the marketing project survey, was able to accomplish successfully. CES feels that without the support of traditional leaders, nothing would work no matter how well the programs are planned and organized. We had success in gathering inputs from our local leaders by integrating our programs with other government agencies on some of the critical issues. Last year was a success in that meetings were held including presentations to traditional leaders at Samoan Affairs Office and the village community as well. From the School Lunch Program cooks, government agencies to non-government organizations, a lot of constructive suggestions on ways to improve future programs were collectively gathered from these meetings. Some of these groups still view the Land Grant Program as a State/Local Department of Agriculture due to the nature of CES functions and program visibility in the community. However, more improvements are expected in the near future as more friendly approaches are created to keep the flow of communication open between the ASCC CNR and the local community.

The surveys/interviews and discussions were generally held in the Samoan language. Bi-lingual sessions were also conducted for mixed audiences. The interviews were conducted either on an individual basis or group sessions. The information collected from surveys and focused group discussions will be used to develop and improve program areas as addressed by each goal. A new survey instrument is being developed to use in 2003 to include all CES programs. This new strategy may ease the burden of surveying only one individual program but it is going to be collective effort of CES. A total of 2,392 persons participated in the process.

The following is a summary of the stakeholder inputs:

**Families, 4-H & Nutrition (F4HN) Community Survey**

The F4HN has made a lot of improvements to include more clients and other community members who never participated in this effort before. A total of 550 adults and 150 youths contributed to the stakeholder input process. The surveys and focused group discussions provided the following program priorities for CNR to address:

- More nutrition in the school system, more health fairs so each school has the opportunity including the private schools
- Need Healthy lifestyle programs that include nutrition and exercise
- Take financial and parenting programs to the villages and not just ASCC
- Train the Health teachers in Sexuality Education so they can incorporate it into their curriculum
- Offer more training for the child care providers
- Get a stronger youth development program going with a variety of projects and more after school programs (to accommodate students and working parents)
- Revive basic sewing program
- Strengthen collaboration with other government agencies and civic organizations who do similar programs
- Increase 4H program exposure to the media for community awareness

Families, 4H and Nutrition Program are now extending its program to include basic sewing education as a result of many requests. The schools as well as the village community will have a chance to once again enjoying making their own outfits. F4HNP anticipates to include more civic groups (youths and adults) in the community to get involved in some of the programs. The programs plan to take advantage of the media (TV, radios & newspapers) to promote public awareness. In fact this process has already begun. F4HNP keeps adjusting its yearly programs depending on the community need being addressed as a result of program evaluation and stakeholder input contribution.

**Agriculture Extension Service (AES) Survey**

Agriculture Extension had experienced a shortage of manpower as the division went through a transitional period of personnel reshuffling. Even though farm visitation was a time consuming undertaking, but it was a harmonious and comfortable way to open up more thoughts and discussions than being in a larger group. Because of the nature of the Samoan culture, the general public are not as open in big meetings where traditional leaders are present than in small groups and private discussions. Agriculture Extension used an integrated approach whereby surveys, interviews and discussions were documented as a result of: farm visits, farmers' office visitations, community meetings/presentations, farmer call-ins and trainings/workshops. About 658 people participated in this process. The participants suggested the following list of priorities.

- Marketing produce grading workshop
- Find alternative pesticides for scab-moth control
- Need Extension publications on vegetable nutritional values

- Seek financial assistance to improve piggery waste management/disposal
- Increase multiplication of superior taro varieties (Palau #10 and Philippino taros)
- Follow up on progress of vegetable gardens for those who bought seeds from ASCC CNR
- Find an alternative fungicide to control banana leaf-spot disease
- Need Extension publications on how to grow vegetables
- Need a variety of vegetable seeds
- Great demand for better breeding stock (pigs)
- Farmers want CNR to continue to supply seeds for them
- Find more grants for farmers
- Request ASCC CNR to write grant proposals for farmers
- Include us (farmers) in the next Marketing Directory
- Need fruit trees for farmers

Agriculture Extension has been working very closely with the farming community on SARE grants. Workshops were conducted by the agents to guide the applicants on current requirements and the actual filling of applications. American Samoa submitted the most grant proposals last year compared with all States of the Western Region according to Utah State University who administers WSARE. Research is now working with USEPA to find alternatives to deal with pests and disease control of bananas. Agriculture Extension has recently scaled down its multiplication of phytophora resistant taro varieties due to many of planting materials being distributed in the past. However, the production of taro cormels will be increased to meet this demand. Agriculture Extension will try its utmost to make sure the community is aware of funding limitation and the available resources.

**Forestry Survey**

Constant exposures to the media and continued collaboration with other government agencies that conduct similar conservation programs helped ensure success of Forestry's programs. 1,034 participants contributed to forestry stakeholder input process through; village meetings, school presentations, Arbor week activities, (Urban Community Forest, traditional leaders & Forestry Stewardship Prog. Council) meetings, visitations, surveys and individual discussions. These groups and individuals strongly recommended the following topics even though some of these areas are already in progress:

- Village communities around the coastal areas have requested more trees for coastal stabilization projects and land security
- Samoan healers (*Taulasea)* paid many visits to the Medicinal Garden at the CNR Station for site inspection and species identification. These individuals requested to have plant materials from the garden and the forests for medicines they wanted.
- The public requested information and planting materials on floriculture (flowering plants) for household gardens as well as Greenhouses for the production of flowers to distribute locally.
- The Mayors (Pulenu'us) of Faleasao and Fitiuta Villages have urgently requested the installation of Coastal Stabilization Tree Projects at the shorelines. The project will help to buffer the coastal zone from heavy winds and reduce the salt sprays.

- The students and the general people have shown enthusiasm to participate in tree planting activities and the cerebration of the Arbor festival in November each year.
- A greenhouse has been planned to be built at Manu'a High School (MHS) due to the demand of more planting materials from the people of the island and from the schools to facilitate their agroforestry projects.
- Clients would like to have improved varieties of Samoan tree species, fruit trees, and beautiful flowering plants available for them.
- Many hillside clients have requested the multiplication of Nitrogen Fixing Trees for replenishing of soil fertility at their plantation sites. The commercial fertilizer is expensive and most are washed downhill.
- Participants in the Enviro-Camp *Tifitifi* in Manu'a Island had indicated that the people of Manu'a would like to increase production of agricultural produce for exports. The boat that serves Manu'a should be filled with produce from the islands for sale in Tutuila. The people wanted reliable transportation and a steady market for their produce.
- Clients are still in need of having more *ava* (*Piper methysticum*) planting materials for their plantations. They wanted to sell *ava* produce to outside markets and to supply the ava for local ceremonies on the islands.
- Clients expressed their needs to have a strong program for plant health to protect crops from pests and diseases as well as invasive species.

Education alone is not enough to fight the problem of land management in the territory given the large amount of land in customary ownership. However, CNR will discuss ways to bring attention to issues of deforestation and improper agricultural practices in the islands by addressing the Legislature of American Samoa.

The three schools in Tau have been informed about the new greenhouse at Manu'a High School. The students and teachers have shown enthusiasm to make it happen soon, so that they could come and visit a variety of plant materials, and to learn new ideas for plant propagation. With the development of this greenhouse in Manu'a, a need arises to hire two nursery staff to man the operation. Two forestry employees will act as liaisons between CNR and Manu'a High School for technical information. Having a greenhouse in Manu'a will greatly high transportation costs of materials from Tutuila to Manu'a and reduce the risk of introducing pests, diseases, and invasive species into the Islands.

**ASCC Partnerships**

Many of the ASCC Division of Community & Natural Resources staff members serve as members of councils and committees of external organizations. Inputs are generated through these interactions with collaborating agencies and organizations. The following government and non-government stakeholder organizations have regular opportunities to provide input:

- American Samoa Community College (ASCC) Board of Higher Education
- Community & Natural Resources (CNR) Advisory Council
    - ⇒ Urban and Community Forestry Advisory Council
    - ⇒ Forest Stewardship Advisory Council
    - ⇒ Conservation Education Council
    - ⇒ ASCC Small Business Development Center

    - ⇒ ASCC Department of Samoan & Pacific Studies
    - ⇒ American Samoa Small Business Development Network
- Interagency Piggery Management Council
- American Samoa Soil & Water Conservation District
- Natural Resources Conservation Service (USDA-NRCS)
- U.S National Park Service
- Department of Commerce (DOC)
    - ⇒ Coastal Zone Management Program
    - ⇒ Fagatele Bay Marine Sanctuary
    - ⇒ Office of Tourism
- Department of Agriculture (DOA)
- Public Health Department (PH)
- Department of Marine & Wildlife Resources (DMWR)
- Governor's Office
    - ⇒ American Samoa Historic Preservation Office American Samoa Historic Preservation Office
    - ⇒ Office of Protection & Advocacy for Disabled
    - ⇒ American Samoa Environmental Protection Agency (ASEPA)
    - ⇒ Office of Samoan Affairs (OSA)
- Department Parks & Recreation
- Territorial Administration on Aging (TAOA)
- Department of Port Administration
- Territorial Emergency Management Coordinating Office (TEMCO)
- Department of Public Works
- American Samoa Power Authority
- Office of Public Information
- Samoa News and Samoa Post
- Private and Public Schools
- Church Organizations (youths, women, men)
- Village Councils
- Village men and or women's groups
- Le Tausagi Environmental Group
- Boys and Girls Scouts of America
- 4H school & village clubs
- Women's Business Center
- Diabetic Association
- Humane Society
- Taputimu Farmers' Cooperative
- American Samoa Farmer's Cooperative
- American Samoa Vegetable Farmer's Federation
- Tongan Community
- American Samoa Nutrition Coalition
- American Samoa Coalition for Teen Pregnancy Prevention
- Star Kist Samoa

- Samoa Packing
- Individual Business Community

## IV. PROGRAM REVIEW PROCESS

No changes have been made in the programs review process. The guidelines as outlined in the 2000-2004 Plan of Work are being followed.

## V. EVALUATION OF THE SUCCESSFUL MULTI AND JOINT ACTIVITIES

The multi-state and integrated research and extension requirements do not apply to the formula funds received by American Samoa. American Samoa, the only Land Grant Institution south of the equator, is somewhat isolated. The University of Hawaii is the closest Land Grant Institution and is approximately 2,500 miles away. However, ASCC does participate in joint projects with partners in the American Pacific through Agricultural Development in the American Pacific (ADAP) projects, multistate research projects, and research coordinating committees. The work supported by Hatch and Smith Lever funds included multidisciplinary and joint research and extension projects. The following questions are addressed focusing on multidisciplinary and joint research and extension.

Did the planned programs address the critical issues of strategic importance including those identified by the stakeholders? Where feasible, the stakeholder-input process is included in the programs and projects. Some of the issues that continue to be identified by the stakeholders are already being addresses while others are outside the scope of our mission.

Did the planned programs address the needs of the under-served and under-represented populations of the Territory? The population of American Samoa is 88% Samoan with 58% of the population living below the poverty level. A large majority of the population consists of second language English speakers. The programs and projects have been designed with these demographic facts in mind. The extension agents are bilingual (English and Samoan). Almost all of the extension programs are conducted in Samoan with a few in English with Samoan translation. Printed materials are Samoan/English, as is television programming. Researchers visiting clients make use of translators when necessary. All persons requesting programs, information, technical assistance from research and extension receive assistance.

Did the planned programs describe the expected outcomes and impacts? The programs did achieve the expected outcomes. The programs/projects were designed to meet the needs of the people of American Samoa and for the most part were on target.

Did the planned programs result in improved effectiveness and/or efficiency? There is increased communication between research and extension and among disciplines. This is resulting in more joint programs/projects and better utilization of expertise of the staff, which allows for better service to the community. The program managers are also revising program delivery for better utilization of staff time and more effective programming.

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February 21, 2003

To Whom It May Concern:

I am hereby authorizing Ms. Eseta Su'a-Kalio to submit our Annnual Report of Accomplishments and Impacts electronically. I shall be traveling at the time the document is due, and this will insure timely submission of our report. Thank you.

Sincerely,

Carol S. Whitaker, Ed.D., CFCS
Dean Community and Natural Resources