A Comparative Study of Low Input and High Input Taro Production in the American Pacific with Special Reference to Pest Control

Agnes Vargo (American Samoa – Research & Education Grant)

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Title: A Comparative Study of Low Input and High Input Taro Production in the American Pacific with Special Reference to Pest Control
Principal Investigator:

Agnes Vargo
Entomologist
American Samoa Community College
Community and Natural Resources
P.O. Box 5319
Pago Pago, AS 96799
(684) 699-1794
amsvargo@yahoo.com

Co-Principal Investigators, Cooperators and (Rapid Rural Appraisal [RRA]) Team:

• University of Guam: Harley J. Manner, Don Nafais, Frank Cruz, Ike Schreiner, Peter Taitatengto, George Wall, Ramile Wilesone, Pacific Wall, Les Vasone, Vince Santos

• University of Hawaii’s: Dwight Sato, Ping Sun Leung, Jill McArthur, Linda Hamilton, Ramon de la Pena, Jim Fownes, Jim Silva, George Santos, Peter Rotar, Perry Phillips.

• Northern Marianas Community College: Lola Raguas, Sid Cabrera, Harly Richlands, Chao Hon Chu, Florendo C. Quebral, Isaoed Cabrera.

• Palau: Mershadang Nigmaidu and Robert Bishop

• American Samoa: Pomerik KNauvuli, Patsoo Taotao, Lloyd Akr, Ropi Aeta, Sosene Asilo, Dan Costa, Sinlaga Fasone, Mike Mua, John Freit, Dorus Dansa, Carole Sinuivana, Larry Hirata, Torri Elvars, Sinup Fenves, Jesu Fenves, Bernarw Sorga, Dem Vapa, Willy Wong, Dino Gehring, Olo, Tai.

• University of the South Pacific: Alafia Camus, Apia, W. Samoa: Brent Jacobs, Freddy Waii

• United States Forest Service: Len Newell

Special Recognition:

• Joe O’Rally, University of Hawaii’s, RRA Methodology

• Ken Rohrwe: University of Hawaii’s, facilitation of grant writing

• Lisa Ferrington: Overall administrative facilitation of grant and RRA.

• Doug Harushita: Video

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Situation:

Taro, used as a food, a medicine or an ornamental, is a special crop in the Pacific islands. For centuries, islands have maintained their fragile ecosystems using traditional agricultural practices that incorporate a wealth of environmental knowledge. With an influx of “modern, Western methods,” project planners realized the importance of documenting these traditional methods and verifying and publicizing them to prevent their abandonment.

Objective:

1. Conduct a Rapid Rural Appraisal in the American Pacific islands to document traditional methods of pest control, soil fertility and soil conservation practices in growing taro (Colocasia esculenta)

2. Document and publicize the traditional methods as a way to preserve and promote their use in island agriculture.

Co-Principal Investigators, Cooperators and (Rapid Rural Appraisal [RRA]) Team:

American Samoa Team:

Lisa Ferentinos: Overall administrative facilitation of grant and RRA

Agricultural economist
American Samoa Community College
Community and Natural Resources
P.O. Box 5319
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amsvargo@yahoo.com

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The islands or island groups visited included:

• Hawaii, Hawai’i
• Guam
• Palau
• Saipan, Rota and Tinian
• Polypei
• Yap
• Ulithi
• Chuk (Truk)
• American Samoa

These islands, north and south of the Equator, are populated with various ethnic groups. Polynesians, Micronesians, Chamorros and others. Local extension agents or farmers were also on the teams, allowing them to compare and exchange ideas with at least one other island group.

In a second phase of funding, experiments based on the traditional practices were conducted, a conference was held in Hawai’i to present findings and several publications and a video were produced.

Actions:

In 1989 and 1990, principal investigator Agnes Vargo led a multidisciplinary team that conducted a Rapid Rural Appraisal of Pacific island agricultural practices.

RRA is a survey tool that contains both open-ended (sociological) and specific questions. The farmer provides his or her own answer, and subsequent questions are based on that answer.

The RRA team included:

• Agricultural economist
• Agricultural extension specialist
• Animal scientist
• Anthropologist
• Community development specialist
• Entomologist
• Environmental psychologist
• Forester
• Plant Pathologist
• Soil scientist
• Weed Scientist
• Geographer

Results:

The survey found that indigenous cultures incorporate natural pest management as well as sustainable and effective methods of soil conservation and fertility into their traditional taro agriculture systems.

• In Palau and American Samoa, Coleus bluei, also known as “pate,” is grown in and around taro fields to repel insects, like taro armyworms or taro plant hoppers.

• Taro patches in Palau and Yap are surrounded by a variety of medicinal plants, thought to reduce pest numbers. While the mode of action is unknown, one theory suggests that certain trees increase soil fertility, resulting in healthier, more pest-resistant taro.

• Farmers in Samoa report that two grows well when planted near Erythrina, a tree known to fix nitrogen. Some farmers believe the tree’s roots secrete a substance that enhances taro growth; others believe a substance from the root suppresses weeds; still others believe the substance simulates two growth, blocking sunlight that might encourage weed growth.

• On Palau, where taro is considered the “Mother of Life,” Hibiscus tiliaceus (Hau Fau) has been effective methods of soil conservation and fertility into their traditional taro agriculture systems: "The best fertilizer is the footsteps around the plant."

• Coupling the environmentally aware advancements of modern technology with time tested natural solutions.

• At most locations, decomposing plant and animal materials, including coconut fronds, macadamia husks, banana and breadfruit leaves and pig waste, were used as natural fertilizers.

• Potential Benefits:

1. Planting stick, or use in Samoa.

2. Taro intercropped with banana and papaya.

3. Giant taro, ta aum in Samoan, Alocasia sp.

4. Puna plane, Erythrina sp. which fixes nitrogen.

Potential Benefits:

These results are just the beginning of attempts to document and preserve valuable traditional agricultural practices. As a Samoan proverb states, “In samoan laulau,” literally, to “collect the taro leaves.” In a practical sense, it means a critical situation exists that requires obtaining the opinions of all to find appropriate solutions.

While Hawai’i’s, Guam and Saipan have lost many of their traditional values, American Samoa, Chuk, Palau and Pohnpei actively maintain their cultures. But they too face a steady flux of Western influences.

Coupling the environmentally aware advancements of modern technology with time tested traditional practices of traditional Pacific agriculture can promote a more self-sufficient, ecologically sound economy and environment for the future.