

Agroforestry in American Samoa

1. Outlook of American Samoa

American Samoa, an unincorporated territory of the United States, is composed of five volcanic islands in the South Pacific—Tutuila, Tau, Ofu, Olosega and Aunu'u; and two coral atolls. The population of American Samoa as of April 2003 was 70260. The five volcanic islands are characterized by rugged mountainsides, small valleys and a narrow coastal fringe. Lush vegetation grows throughout the islands because of high rainfall (annual rainfall is 5000-6350 mm on average), the tropical climate, and fertile soil. [Misa and Vargo 1990].



Figure. American Samoa

2. Indigenous agroforestry with Taro as main crops

Most agroforestry systems in American Samoa include taro that is staple food for local people. In addition to Taro, main crops cultivated commonly by local agroforestry farmers are banana, bread fruits, yam and coconut palm. These crops are mainly cultivated for subsistence (non-commercial) purpose. Even though the scale of farming is small, local farmer cultivate cash crop such as cucumber, cabbage, green pepper, and melon.

Tuitele-Lewis [2004] who conducted field research in the western part of the Tutuila Island listed twelve common agroforestry tree species as shown in Table. Parts of these species was used as food, medicines, firewood etc and tree itself or woodlands composed of these trees could be used for shade, mulch for soil improvement, wind protection, and could be used as boundary marker, materials for crop structural support.

Table. Twelve common agroforestry tree species

Local Name	Scientific Name	Food	Medicine	Commercial	Fuel Wood	Construction	Technical	Handicrafts	Feed	Shade	Mulch/ Soil improvement	Boundary markers	Crop structural support	Wind protection	Ornamental
Niu	<i>Cocos nucifera</i>	x				x	x		x			x	x		
Ulu	<i>Artocarpus altalis</i>	x					x								
Pomuli	<i>Flueggea flexuosa</i>					x						x		x	
Tipolo	<i>Citrus aurantifolia</i>	x	x	x											
Mago	<i>Mangifera indica</i>	x			x					x					

Gatae	<i>Erythrina spp.</i>										x	x			
Moso'oi	<i>Cananga oderata</i>			x				x			x				x
Avoka	<i>Persea americana</i>	x	x		x										
Fau	<i>Hibiscus tiliaceus</i>					x							x	x	
Kuava	<i>Psidium guajava</i>	x	x		x										
Papata	<i>Macaranga harveyana</i>				x						x				x
Koko	<i>Theobroma cacao</i>	x		x											

5. Ecological value of agroforestry in Samoa

The diversity of the Samoan agroforestry system promotes stability and protection against natural disasters and pest infestations.

For example, taro pests are infrequent in an agroforest for several reasons. First, the physical separation of like crops in the intercropped planting scheme characteristic of agroforests interferes with the insect's

detection of and spread to crops of the same species. Since insect tastes are very specific,

this prevents outbreak situations from occurring. Similarly, chemical odors emitted from the various plants confuse the insect's sense of smell, which is also crucial in host detection. Finally, weeds and other non-crop components of the agroforest often act as a nectar source for biological controls, which generally are nectar-feeding wasps or flies that parasitize insect pests.



Photo Agroforest in Samoa

Source :

<http://www.agroforestry.net/events/afwksp2006.html>

Trees of the Samoan agroforest are ecologically important in many ways. They serve as windbreaks, provide shade, recycle soil nutrients and prevent soil erosion. Trees such as the *Erythrina* are important in nitrogen fixation. The agroforest also provides the habitat and food sources for the fruit bats that pollinate up to 70 percent of the native rainforest. Similarly, it helps maintain doves, pigeons, and other birds of traditional importance.

6. Importance of Agroforestry in Pacific

Traditional Polynesian societies did not separate forestry and agriculture. Instead, an integrated system of production that incorporated those activities was used to satisfy the needs of each island society. During the colonial period, single species plantations replaced many agroforestry systems throughout the Pacific Islands. This process known as "agrodeforestation," removed agroforestry systems and replaced them with large-scale cash cropping. In the past few decades there has been a re-emerging interest

in promoting agroforestry systems in the Pacific Islands. Agroforestry, which is able to provide diverse ecosystem services, is regarded as an efficient land utilization and resource use system in the context of small size and geographic isolated Pacific Islands, and has become re-evaluated in recent years [Tuitele-Lewis 2004: 38].

References

- Misa, M. and A. M. Vargo. 1990. Indigenous Agroforestry in American Samoa. Proceeding Paper presented at the Workshop on Research Methodologies and Applications for Pacific Island Agroforestry, July 16-20, 1990, Kolonia, Pohnpei, Federated States of Micronesia.
- Tuitele-Lewis, J. D. 2004. Agroforestry Farming in American Samoa: A Classification and Assessment. Master's Thesis submitted to Oregon State University.