FOOD-PRODUCING AGROFORESTRY LANDSCAPES FOR PACIFIC ISLANDS: A POLICY BRIEF

WHAT IS AGROFORESTRY?
Many of us were raised to believe that trees have to be cleared away in order to grow food crops or raise livestock. While it is true that trees can compete with crops for light, water, and nutrients, there are many ways to combine trees with crops, other useful plants, and animals in mutually beneficial ways. Pacific Islanders have successfully integrated trees into their food production systems for thousands of years.

In the late 1970s the English language term “agroforestry” was coined to describe farming systems that integrate trees with crops and livestock for environmental, economic, and social benefits. In addition to a new way of thinking about modern agriculture, agroforestry also became a new scientific field to describe and improve upon agroforestry systems that have existed since ancient times. Today, agroforestry has the attention of many as not only a better production system in many situations, but also a way to address challenges that accompany climate change, such as an increase in the frequency of severe weather events.

The many types of modern agroforestry systems include trees to protect from wind (windbreaks and shelterbelts), trees growing over crops (forest farming, multistory agroforestry, etc.), trees growing with livestock and poultry (silvopasture), and many more. There exist endless variations in how agroforestry practices are implemented depending upon grower preferences, environment, crop selection, and economic and ecological risk factors.

PACIFIC SYSTEMS
Since the 1960s it has become increasingly evident that traditional agricultural systems were more ecologically sustainable than modernized, commercial systems of farming which required high levels of artificial fertilizers, pesticides and machinery to remain productive. This was particularly true of those tropical systems where trees were an important component of the cultivation cycle.

LOCAL RESOURCES
The wholesale cost of commercial fertilizers more than tripled between 2006 and 2008 in the

Agroforestry systems can be more productive per unit area and generate higher incomes than single-crop agriculture (monoculture). Such systems provide several crops and make more efficient use of space. Left: A commercial orchard combining citrus, pineapple, cacao (chocolate), and banana. Right: Pineapples growing in the alley between mango and fertilizer trees.
The ten system types illustrated above represent some of the most important agroforestry systems in the Pacific Islands. All of these systems integrate trees with crops and/or livestock for environmental, economic, and social benefits. Arrows in this diagram indicate closely related systems.
U.S., and considering increasing transportation costs from the mainland U.S., costs to growers are rising even faster in Hawai‘i and elsewhere in the Pacific. Prices are only expected to climb over time, leading to increased demand for less expensive, locally available materials that can be used as fertilizers. Keeping farmers competitive in the marketplace while improving food security in the Pacific Islands requires that cost effective, stable sources of local fertilizer be available to growers, and that growers understand how to best use these resources.

PEST AND DISEASE CONTROL

The goal of an ecologically-based pest management program is to establish a resilient production system based on well-tested production practices. Resilient systems are better able to resist stressful environmental growing conditions, pest attack, and even market fluctuations. These systems can also recover faster from many negative impacts on the system. In practice, such systems are created based upon key agroecological concepts. Local indigenous knowledge often holds important, time-tested clues to establishing agroforestry production systems that are adapted to the local growing conditions.

LIVESTOCK

Livestock can play an important role in expanding the food resources of agroforestry systems in the Pacific. For centuries, island communities have cultivated agroforestry systems with sustained and diverse crop production. Seasonal abundance of various crops can be captured and converted by livestock into a high quality protein source for human consumption. In addition, livestock can perform valuable ecological services by recycling nutrients, controlling weeds and insects, aerating soil by grubbing and scratching, and providing supplemental agricultural nutrients from their wastes.

GETTING STARTED

Fortunately for those who live in the Pacific Islands, there still exist age-old agroforestry systems that help us understand what modern agroforestry systems might look like and how they can function. The traditional agroforestry systems of Pacific Islands are models for sustainability that have withstood the test of time. Not only were they developed and refined over the course of centuries, but they existed long before modern technologies and dependence upon synthetic fertilizer, fuel, and chemical inputs. As these fossil fuel-based inputs become increasingly expensive and recognized as harmful to ecosystems in the long term, agroforestry based on traditional systems holds promise for transitioning to sustainable food production.

Source: This policy brief was excerpted with permission from: Elevitch, C.R. (ed.) 2015. Agroforestry Landscapes for Pacific Islands: Creating abundant and resilient food systems. Permanent Agriculture Resources, Holualoa, Hawai‘i. www.agroforest.info

Contributing authors: Amjad Ahmad, Garien Behling, Michael Constantinides, Craig Elevitch, James B. Friday, Glen K. Fukumoto, Nguyen Hue, Harley I. Manner, Archana Pant, Ted Radovich, and Hector Valenzuela.

Publisher: Permanent Agriculture Resources (PAR), PO Box 428, Hōlualoa, Hawai‘i 96725, USA; Tel: 808-324-4427; Email: par@agroforestry.org; Web: http://www.agroforestry.org.

Sponsors: Publication was made possible by support of Western Region Sustainable Agriculture Research and Education (WSARE, www.westersare.org). This material is based upon work supported by the Cooperative State Research, Education, and Extension Service, U.S. Department of Agriculture, and Agricultural Experiment Station, Utah State University, under Cooperative Agreement 2011-47001-30398.

© 2015 by Permanent Agriculture Resources. “Food-producing agroforestry landscapes for Pacific Islands: A policy brief” is licensed under the Creative Commons Attribution-NonCommercial-NoDerivatives 4.0 International License. http://creativecommons.org/licenses/by-nc-nd/4.0/ or send a letter to Creative Commons, PO Box 1866, Mountain View, CA 94042, USA.