Women's role in the conservation of yam genetic resources in Yap Island

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Abstract

On Yap, yam cultivation is principally women's job and, therefore, they possess in depth awareness of various cultivars and the environment in which they grow. They practice various aspects of cultivation such as seed selection, planting, weeding and harvesting. As part of the yam cultivar documentation exercise a series of participatory surveys were conducted between 2002 and 2004 across Yap Island. Evaluation of data from the surveys revealed several indigenous yet innovative practices employed by women for the cultivation of yams. They are employing traditional expertise for the conservation and sustainable use of yam agrobiodiversity. Since Federated States of Micronesia (FSM) is a signatory to the Convention of Biological Diversity (CBD), it is important to preserve, respect and maintain the traditional knowledge of local communities as suggested by the Article 8 of the CBD.

Key words

Traditional knowledge, Yam, Agrobiodiversity, Conservation

Introduction

Agrobiodiversity continues to be fundamental feature of farming systems around the world. Agrobiodiversity conservation is tied with rich cultural diversity and local knowledge especially of women, with many principles from traditional systems relevant today for large as well as small-scale production. International environmental and indigenous rights fora have now widely acknowledged the very important role indigenous women. Chapter 24 of Agenda 21 considers the importance of women to sustainable development and argues for the protection and promotion of the "traditional methods and knowledge of the indigenous people and their communities, emphasizing the particular role of women, relevant to the conservation of biological diversity and the sustainable use of biological resources" (UNIFEM-UNCED, 1995). Similarly, the Convention on Biological Diversity recognizes the role of women in the conservation and sustainable use of biological diversity and the need for the full participation of women in policy-making and the implementation of conservation strategies (UNCED, 1992).

On Yap, yam cultivation is principally women's job and, therefore, they possess in depth awareness of various cultivars and the environment in which they grow. They own a long-standing role in conserving the cultivars and managing the ecosystems. Much of this cultivar diversity have developed over several years in fields, through a process of involuntary selection and saving tubers for future planting season. These cultivars are adapted to the local ecological, social and cultural traditions. While conducting yam documentation survey between 2002 and 2004, the author came across several indigenous yet innovative practices pertaining to yam cultivation. Women farmers were employing traditional expertise for yam conservation while managing the ecosystems in which they grow. This article presents the role of women farmers in yam cultivation and some of their innovative practices in conserving the rich genetic resources.

Yam farming: Conservation through use

Yam farming on Yap represents centuries of accumulated experience and skills of women farmers handed down through generations who often sustained yields even under adverse farming conditions using locally available resources. The foundation of yam farming is comprised of traditional cultivars that women farmers have adapted over centuries, to meet their requirements. They are instrumental in all aspects of conservation – from seed selection to safe storage of the harvested tubers.

Of the five species of yams known from Yap (Merlin, M. *et al*. 1996), *Dioscorea alata* L. and *D. esculenta* (Lour.) Burk. are the most important cultivated species, followed by *D. nummularia* Lam. Traditional women farmers have established their own system for species and cultivar identification based on certain characteristic features. Generally, yams are identified by the direction of coiling of the vines to the support, presence or absence of prickles or thorns on the crown of the tuber or on the vines and color of the young and mature vines. Culturally yams are classified into two types: prestige yams that are fit for ceremonial presentation and non-prestige or ordinary yams fit for everyday consumption. Cultivars of *D. alata* like *Gabrach*, *Wonbey* and *Rowal* are more precious in terms of their cultural value.

Tuber selection

Since yam farming is predominantly women's affair, they play an important role in the tuber management and tuber selection decision-making. The yam tuber requirement is met by retention (from previous season's crop), farmer-to-farmer exchanges, cultural exchanges and from markets. The tradition of tuber selection, storage, maintenance has been practiced for many years. During this survey, it was found that growing conditions of the area, importance in terms of marketability, cultural and food values are the major determining factors in the choice of a cultivar. This selection is a sophisticated process and are built up and developed over years of experience. Decisions concerning where to store, what types of storage to use, which specific location in the house tubers are to be kept, what precautions to take etc. rest with women.

The direct involvement and decision-making of women farmers in cultivars choice, selection of planting sites, tuber selection, storage, maintenance and further management indicate they have access to and control over yam genetic resources and are important stakeholders in the conservation and utilization. The traditional tuber supply system is an important source of cultivar diversity. Each year farmers decide how many tubers to plant and where the tubers come from. Bellon, M.R. & Smale, M. (1998, p.2) defined this as the process of seed flow and divided it into three components of on-farm crop management: (i) seed flow refer to the process by which farmers obtain the physical unit of seed for a given variety, (ii) variety choice is the process by which farmers decide which varieties to grow, and (iii) seed selection and management is the process by which a farmer selects seed from his or her own crop in the preceding season, exchanges or purchases from other farmers or markets.

Yam gardens

Yam is cultivated as a seasonal crop on Yap. Usual planting time is between January and March. Harvesting generally begins from October. Expertise and experience is involved in the timing of planting, field preparation and planting, and choosing varieties that are adapted to the site and

microhabitat that produce the desired size of tuber. Though a wooded area is considered as best place for growing yams, traditional slash and burn types of farming trend is now dwindling, thanks to the community forestry awareness program undertaken by the Division of Agriculture. They educated women's group about the importance of forest trees and assisted in adopting efficient methods of yam cultivation using bamboo trellises in open areas. In one such experiment at Aringel village, Falanruw (2005) reported that yams grown on traditional trellises produced nearly three times more tubers than the old slash and burn type of farming. The women farmers' 'little experimental garden' was a good model to show how to save trees and produce more yams.

In preparation of yam gardens using bamboo trellises, usually a boundary of stems and logs is erected about the yam plantings, which is then filled with mulch. The mulch buffers rainfall, maintains humidity and retard weeds. This 'technology' is conservation-effective and for the farmers' perspective provides direct benefits in the form of improved soil fertility and higher yields, as well as lower erosion rate and better soil moisture conservation. Falanruw (1994a, p. 12) says, 'a magical aura surrounds yam crop because of variable rainfall and several other factors affecting its growth, and a good harvest may be interpreted as gift from heaven.' These kinds of technologies are comparable with 'nutrient husbandry' without external inputs (IITA, 1992).

At a time yam begin to sprout, farmers place long bamboo poles around like a tripod onto which ultimately the vines climb. Generally, men found helping women during the early part of yam garden preparation. The sprout is then tied to the closest bamboo pole and allowed to grow further. Initially farmers prevent the upward growth of the vine by coiling them around the base of the trellises. This will not only help to space the growing vines equally around the poles giving ample sunlight but also hold the poles together by serving as 'living rope.' At this stage, farmers also pinch off shoots that develop from leaf axils and allow only the main vine to climb.

Once the vines established on the poles, farmers utilize the space between rows by growing sweet potatoes, pumpkins, watermelons etc. This is a wise method to get rid of the weeds from the yam garden by making best use of the space.

Yam gardens follow a rotational basis. The land for growing yams is used for a period of one to two years at a time. After harvest, the land is left fallow or untouched until grasses, shrubs and other vegetation reclaimed the area. In this way, farmers practice a method of getting green manure. Thus, traditional Yapese yam gardens involve adaptive methods and appropriate timing of activities to take advantage of natural processes and resources. Falanruw (1994) classified this "technology" as "nature intensive."

Conclusion

The fundamental need for the conservation of yam genetic resources is their conservation *in situ* in their natural ecosystems and habitats and the maintenance and recovery of those resources in danger of extinction in their natural environments. Women's special knowledge of the value and diverse uses of cultivars for food value, cultural and social significance has important implications for the conservation of yam genetic resources. The decision to grow and conserve different cultivars depends, to a large extent, on their usefulness to the farmer and community.

Women are also key decision makers in determining which cultivars to keep for home consumption and which ones to sell at the local market.

Farmer's local knowledge is comprised of structured systems of classification and self-management governing resource base (Bunning, S.E. & Hill, C.L.M. 1996). These knowledge systems are dynamic, responding to, and developing from location specific agro-ecological changes. They contain a set of empirical observations about local environments and are often expressed using farmers' own technologies. They are developed by those members of social group charged with specific resource management and production responsibilities (Fernandez, M.E. 1994). What continue to be ignored are not only women's contributions in terms of labor and skills, but also their decision-making about how yam resources are used to satisfy the multiple needs of households. Their expertise and responsibility for decision-making about the use of yam genetic resources makes their contribution and participation central to yam genetic resources conservation. Since Federated States of Micronesia (FSM) is a signatory to the Convention of Biological Diversity (CBD), it is important to preserve, respect and maintain women farmers' traditional knowledge as suggested by the Article 8 of the CBD.

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