

THE PRESENT SITUATION OF AGRICULTURE IN YAP

Michio ONJO, Satoru TAURA and Yoshitaka SAKAMAKI

Abstract

We conducted to clarify the present situation of agriculture in Yap, which is located in a typical tropical rain area. The giant swamp taro is the main crop but is being attacked by diseases so yield may decrease. A recent gradual diet change affects food production. An agricultural ecosystem suitable to the Yap environment exists, maintaining this system will lead to sustainable agriculture.

Key words: Change of diet, Food production, Giant swamp taro, Yap

Introduction

In 1999, the authors surveyed agricultural production, farming system and kinds of crops cultivated in Yap. In the surveys, we visited several villages in Yap Proper except Rumung, interviewed farmers and investigated their farms from October to November 1999. In this report, we discuss the results of these surveys and statistical data covering, the present situation and some problems of agriculture in Yap.

Climate and Population

Yap State consists of four main islands (called Yap Proper) and 15 outer islands. The area of Yap Proper is about 100km² and the highest point is 173m. The mean annual temperature is 27.2 and average monthly temperature was 27 ± 1 in 1961 to 1990 (National Astronomical Observatory 1997). This indicates that the temperature is almost constant throughout the year

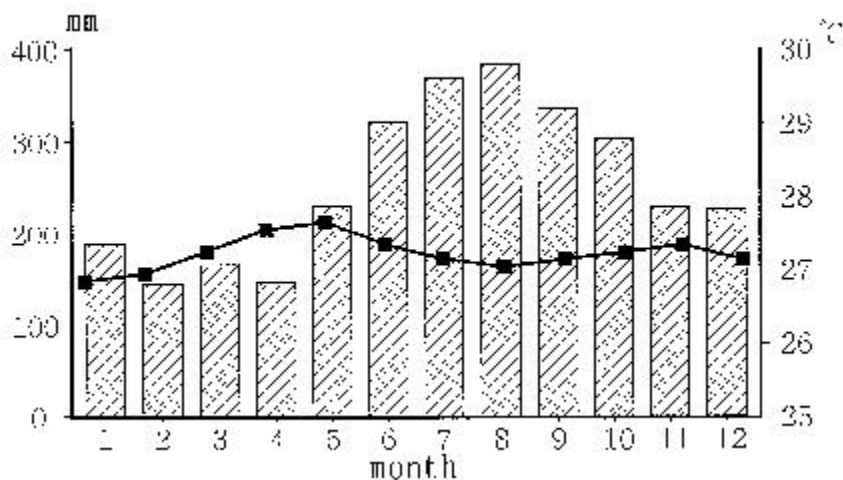


Fig. 1. Annual rainfall and temperature of Yap in 1961-1990 (National Astronomical Observatory 1997)

(Fig.1).

From 1961 to 1990 total annual rainfall was 3,049mm, the average of maximum monthly rainfall was 384.2mm in August, and the average of minimum monthly rainfall was 144.9mm in February (National Astronomical Observatory 1997). Yap Proper thus is located in a typical tropical rain area. The population in the state of Yap is estimated at 10,139. Some 66% of the total population live in Yap Proper (STANLAY 1992) and the population increases at a growth rate of 2.0% (MERLIN et al. 1996).

Land Utilization

FALANRUW (1994) classified seven vegetation types in Yap, tree gardens and taro patches (27%), savannah (22%), forest (13%), secondary forest (13%), mangroves (12%), secondary vegetations (6%) and all others (8%). The figures indicate that more than one fourth of the land area has already been used for agricultural activity. From the viewpoint of preserving natural resources, it is thus difficult to develop new agricultural land.

Taro Problems

In Yap the giant swamp taro is the main crop. This taro is suitable crops for hot and humid condition such as in Yap. Nevertheless, it takes three to seven years to harvest, this crop has several advantages. First, the upper part of corm can be cut off and replanted in the same place after harvesting (easy planting). Second, it can be harvested throughout the year (all season crop). Third, a corm may provide enough food for a family for two or three days (large amount). Fourth, taro patch can be regarded as a natural storehouse (no need for storage equipment).

However, as SAKAMAKI (2001) reported in details, we observed that giant swamp taro did not grow normally and that parts of corm were rotted in many taro patches. We believe that it is not caused by nematode but by some diseases. In this case, cloning propagation may cause diseases to spread. However seven or more varieties of giant swamp taro have been confirmed in Yap (MERLIN et al. 1996), so it may be possible to find varieties resistant to the disease. More investigations are required to solve this problem.

Diet Change

According to Yap state division of agriculture and forestry, and division of commerce and industry (1997), the ranked of imported foods in 1994 were 1. Ramen, noodles and cereals, 2. Soft drinks, 3. Canned meat, 4. Canned fish, 5. Rice, 6. Frozen meat, 7. Fruit and vegetables, 8. Confectionery, 9. Sugar and 10. Cooking oils. We also asked peoples about thier primary kind of food. They answered that they ate not only taro but also rice, ramen and canned meat or fishes. In 1994, the average household dollar value of canned meat and ramen in Yap state was about two times its value in the other three states of FSM (Yap state division of agriculture and forestry, and division of commerce and industry 1997). This data supports the results of our interview.

Since the giant swamp taro needs one to three hours for cooking, we presume that people tend to prefer to ramen or canned meat that can be cooked quickly and easily. It goes without saying that a change of diet is strongly related to agricultural production. This change may affect on the agricultural system in Yap.

Food Production and Agricultural System

Table 1 shows the main crops of Yap observed in this survey. These crops might be selected by Yapese for a long time, so that these are suitable for growth in Yap. FALANRUW(1994) also stated that “Yap’s traditional agricultural system was probably adapted to ensure a continuous supply of food”.

Generally in tropical rain areas, the ecosystem is somewhat delicate. In particular, soils might be eroded because of high rainfall, and the lack of humus makes soil poor. Therefore, we can not recommend introducing large-scale agriculture development. However small-scale agriculture, especially vegetable production can still be improved. The yield of imported cabbages, cucumbers, bell peppers, tomatoes and green beans can be increased if the proper time, location and method of cultivation are selected.

Table 1. A list of main crops observed in this survey in Yap

| Common name | Scientific name |
|----------------------|---|
| Giant swamp taro | <i>Cyrtosperma chamissonis</i> |
| Taro | <i>Colocasia esculenta</i> |
| Sweet potato | <i>Ipomoea batatas</i> |
| Yam | <i>Dioscorea alata</i> |
| | <i>Dioscorea esculenta</i> |
| Bread fruit | <i>Artocarpus altilis</i> |
| Polynesian chestnut | <i>Inocarpus edulis</i> |
| Coconut palm | <i>Cocos nucifera</i> |
| Guava | <i>Psidium guajava</i> |
| Banana | <i>Musa</i> spp. |
| Yellow passion fruit | <i>Passiflora edulis</i> f. <i>flavicarpa</i> |
| Soursop | <i>Annona muricata</i> |
| Papaya | <i>Carica papaya</i> |
| Orange | <i>Citrus</i> spp. |
| Pumpkin | <i>Cucubita</i> spp. |
| Bean | <i>Vigna</i> spp. |
| Kangkung | <i>Ipomea aquatica</i> |

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