GROWING BANANAS IN THE WET TROPICAL LOWLANDS

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ABSTRACT

Bananas were a staple carbohydrate food for Kubo people who lived near the Strickland River, NNW of Nomad, in the Western Province. In this area of very high rainfall, small gardens were cut in secondary-growth forest on the banks of larger streams and the river. The garden areas were not burned and they were not fenced. Men and women shared the work and the gardens produced bunches of bananas between 8.5 and 20 months after planting. After 20 months the gardens were abandoned. When bananas were in short supply the people relied on sago and, because both these foods contain little protein, their diet included many kinds of wild animals. Some differences are described between the gardening practices of Kubo people and of other Papua New Guineans who grow bananas in regions of seasonal rainfall.

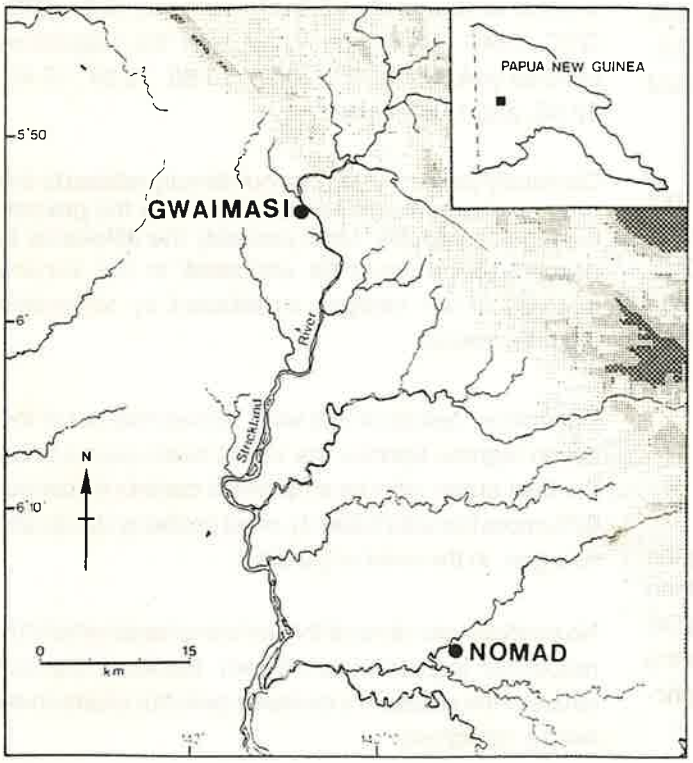

Figure 1. **Location map**. Land over 200 metres altitude is shaded.

In 1986-87 the authors lived with a small group of people at a remote village near the Strickland River, 50 km NNW of the Government station at Nomad, in the Western Province (Fig. 1). Gwaimasi village was at 80 m altitude. In this region annual rainfall was more than 6 metres. There was no dry season.

Twenty-five people lived at the village. They spoke the Kubo language and used about 50 km² of forested land to satisfy all subsistence needs. Half their energy needs were supplied by bananas.

WORK AT GARDENS

Banana gardens were made beside the river and large streams. They were cut in secondary growth forest that was more that 15 years old.

To start a garden, people first cleared the undergrowth beneath trees. Then they transported banana suckers from old gardens to the new site. Women planted most of the suckers and men felled the trees on top of the crop. The garden was not burned and was not fenced. When the banana plants were about 6 months old the garden was weeded. Women did most of the weeding. People who did not own the garden often helped with the work.

On an average, these tasks required that people worked at banana gardens on about 24 days in each year. Most work was needed when it was time to harvest the crop. Men and women did the same amount of gardening work.

Most banana gardens were small. The average size of family plots was only 0.20 hectares. But sometimes several families worked together and made larger gardens. The largest banana garden was 1.13 hectares. In 1986 and 1987 most bananas were planted in the months of December to March and again in July and August. We do not know whether this pattern occurs every year.

A garden of 0.20 hectare included about 276 banana plants of many different varieties. (The people named 40 varieties.) The average density of banana plants was 13.8 plants in 100 m².

Photo by P. D. Dwyer

Young banana plants grow up through logs at a Kubo banana garden.

Photo by P. D. Dwyer

Recording production at a Kubo banana garden.

Photo by P. D. Dwyer

Four Kubo varieties of banana.

Photo by P. D. Dwyer

Most Kubo gardens are made on the levee banks of the Strickland River.

Photo by J. B. Wilmer

At Kubo gardens the banana suckers are planted first and the trees are felled on top.

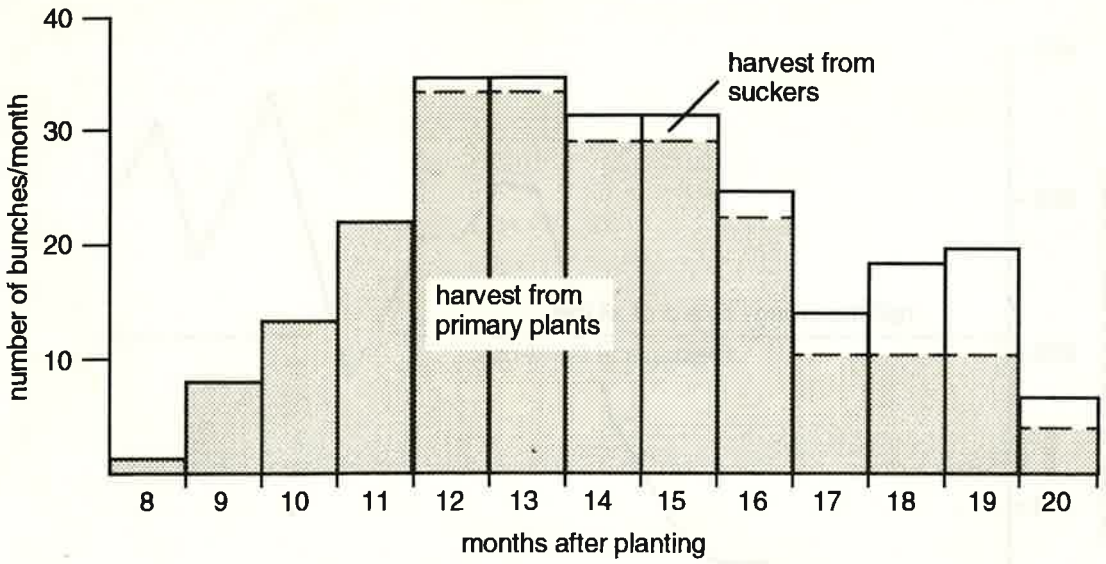

Figure 2. **Expected yield of bananas from a 0.20 hectare garden.**

YIELDS

The first bunches of bananas were harvested 8.5 months after planting and the yield was finished 20 months after planting. Figure 2 shows the yield pattern from a typical garden. Most bunches were obtained between 11 and 16 months after planting.

By 20 months weeds, vines and regrowth had invaded the garden. Remaining banana plants were in poor condition. The people did not harvest many bunches from the suckers that grew at the base of parent plants. They used the suckers to make new gardens.

The total yield of bananas from a small, 0.20 hectare garden was about 262 bunches. The combined weight of these bunches was about 1500 kg. After the banana skins were removed the weight of edible fruit was about 900 kg.

CONSUMPTION

In early 1986, Gwaimasi was a new village. At this time, there were few bananas available to eat. In September 1986 the new gardens that had been made in January started to produce bananas. By 1987 the yield from all gardens was more than 180 bunches each month.

Some bananas were fed to village pigs and others were eaten by visiting research workers. But, on an average, from September 1986 to October 1986, adults at Gwaimasi ate one third of a bunch of bananas (or 16.5 fingers) each day. Nearly all the bananas were starchy varieties that were cooked on the fire or, sometimes, boiled.

We have estimated that bananas provided the people with at least half of their energy needs; that is, between 1200 and 1600 kilocalories to each adult person each day. Thus bananas are a very important staple food for Kubo people.

At Gwaimasi the importance of bananas changed through the life of the village. In September 1986 they provided only 14 percent of people's energy needs; in August 1987 they provided about 85 percent of energy needs. These changes through time are shown in Figure 3. When bananas were in short supply people ate some taro and yams and a lot of sago flour.

COMPARATIVE STUDIES

Bananas are more important to Kubo people than they are to many other Papua New Guineans. For example, Amele people of Madang Province eat only one third as many bananas as do Kubo people. And at Kaiapit (Morobe Province) and Oriomo (Western Province) bananas provide less than 30 percent of people's energy needs.

Amele, Kaiapit and Oriomo are in regions with less than 3.5 metres of rain each year. There is a distinct dry season in these regions and people grow bananas in ways that are different from Kubo patterns. In the Amele area, for example, the yield of bananas from an

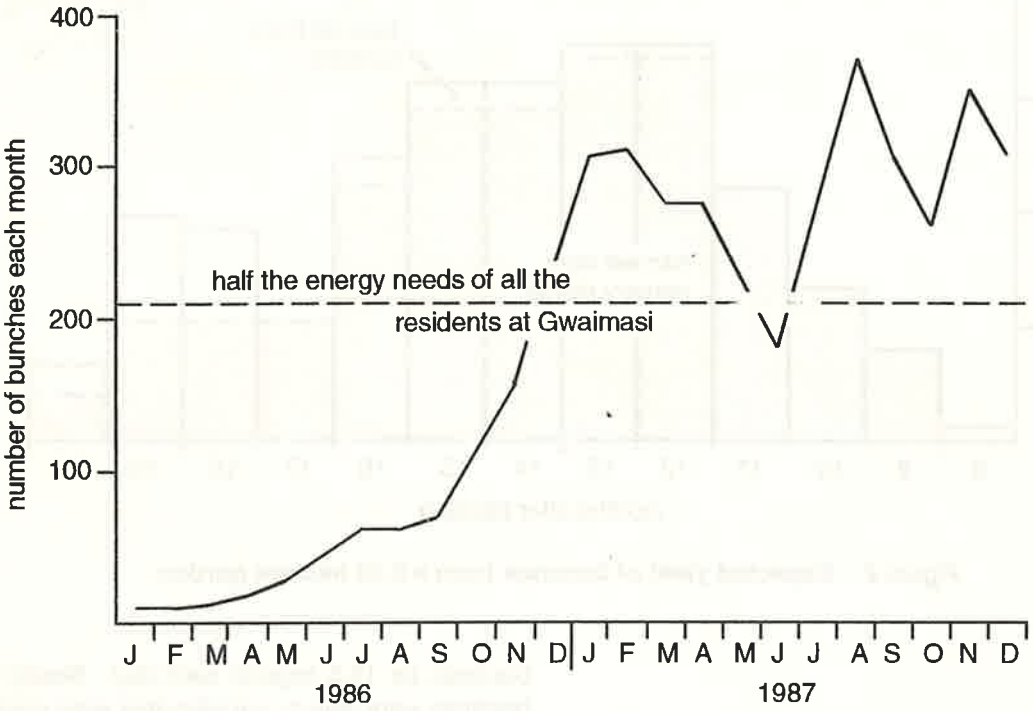

Figure 3. **Supply of bananas at Gwaimasi village in 1986 and 1987**

area of 0.20 hectares is less than the yield obtained by Kubo. This difference is because at Amele gardens the bananas are planted further apart (10.3 plants in 100m^2) than in Kubo gardens.

The varieties of bananas grown by the people are also different. Triploid varieties, which produce larger bunches and last longer in one place than diploid varieties, are not grown by Kubo people. In the Kabadi area of Central Province, where rainfall is less than 1.5 metres each year, most bananas are of the triploid kind. An article by R.M. Bourke, in *Harvest* (1976), describes the differences between diploid and triploid bananas.

Production of bananas from a Kubo garden was completed 20 months after planting. But in the Markham Valley banana gardens may produce fruit for more than 10 years. This difference may be a result of rainfall patterns.

Near the Strickland River, the very high rainfall may wash nutrients out of the soils. High rainfall may also increase the number of pests that spoil banana plants by damaging roots. In this region, therefore, people may often make new gardens to avoid pests and to find good soil. More research is needed to understand why banana gardens in this very wet region produce fruit for only a short time.

BANANAS, SAGO AND ANIMAL FOODS

Kubo people are very mobile. Every few years they change the location of villages. When they move to a new place they must wait for 11 months before new gardens produce lots of bananas. While they wait they rely on sago flour. The sago palms are common in swamps; many are wild palms but others have been planted by people.

Bananas and sago flour supply lots of energy in the diet but are not good sources of essential nutrients. They do not contain much protein. To obtain enough protein Kubo people use different techniques to capture many kinds of animals. Wild pigs and catfish are the most important protein foods.

Kubo people need sago palms to supplement energy supply when bananas are in short supply and they need animal foods to supply protein. Therefore, banana gardening in the wet tropical lowlands is only one part of a more complex subsistence base. All the parts are connected.

FURTHER READING

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