THE NATIONAL SEED POTATO PROJECT

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INTRODUCTION

The National Seed Potato Project (NSPP) was established in 1976 at Kuk Agriculture Research Station near Mt Hagen in the Western Highlands Province. The project had two aims:

1. To provide growers with healthy planting material of a named variety, at a reasonable price.

2. To encourage potato production at all levels so that Papua New Guinea can produce all her requirements within the country.

The climate in the highlands is suitable for potato production all the year round but because of poor planting materials and low yields, Papua New Guinea has not been producing enough. About half of the requirement has had to be imported from Australia.

In comparison with sweet potato, the potato matures earlier and will grow at higher altitudes. Nutritionally, potatoes compare favourably with sweet potato. However, the project has no intention of replacing sweet potato as a staple. The potato would be a good supplement to the daily intake of kaukau. At altitudes over 2500 m where most cash crops will not grow, it could be a useful source of cash income.

NSPP is now based at the Highlands Agricultural Experiment Station, Aiyura (Aiyura Didiman) near Kainantu in the Eastern Highlands Province.

SEED POTATO MULTIPLICATION AT AIYURA

Each year about 12 tonnes of certified seed potatoes are imported from Victoria, Australia, to be multiplied at Aiyura Didiman.

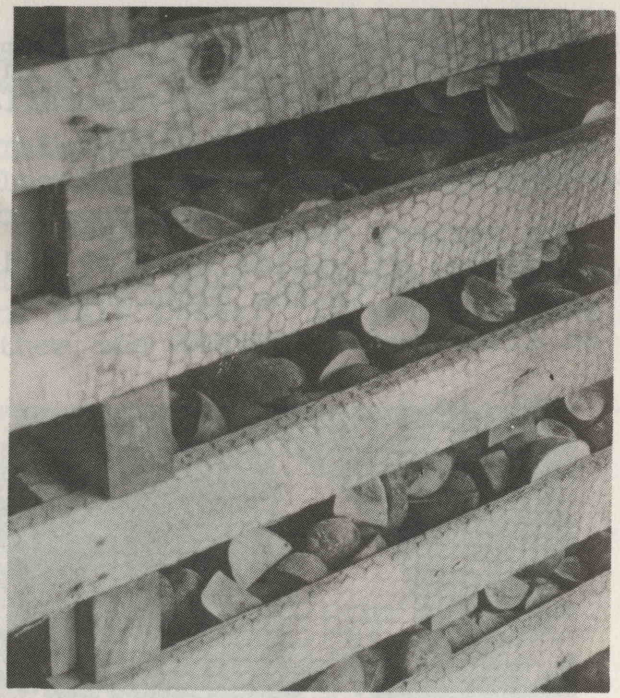
The variety Sequoia is used because, it yields heavily and grows well in the Highlands.

Bubia Muhuju inspecting a crop of seed potatoes which are ready for harvesting

During the multiplication process, every reasonable precaution is taken to keep the seed material free of infections of all types.

As a control measure for bacterial, fungal and nematode pathogens (disease causing organisms), all storage areas are treated with 5% formalin before being used. All machinery receives similar treatment before going into the field.

The seed potatoes from Australia are cut, treated with Captan dust fungicide, and dried for 2-4 weeks before planting. During cutting the tubers are carefully inspected for symptoms of disease.



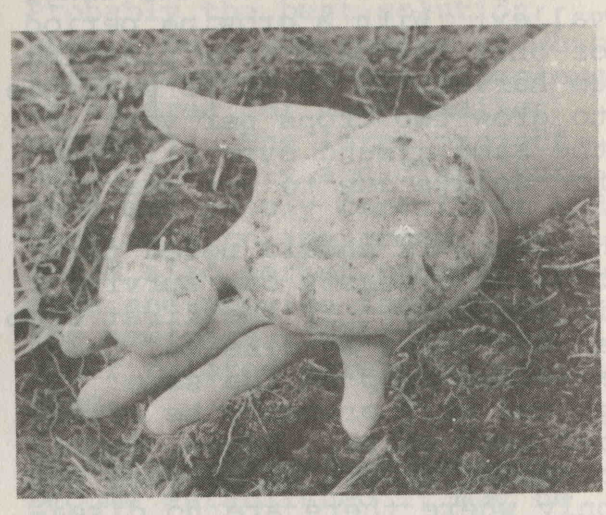
Cut seed potatoes drying on racks after treatment with fungicide

For a seed crop, planting is in rows 90 cm apart, under ridges 15 cm deep at a plant spacing of 20-25 cm. They are planted in small plots (about 0.25 ha) with a space left between each plot to prevent the spread of disease.

Diseased potatoes

The plots are rogued (inspected for bad specimens) twice during the growing period. Any diseased or virus-infected plants are removed, complete with tubers, from the seed plot and destroyed. Aphids and tuber moth are also controlled in the field by fortnightly applications of insecticide. Fungicide is applied during the earlier growing period. Driving the tractor slowly through the plots while spraying provides an excellent opportunity for

Harvesting potatoes by hand



The biggest and smallest sizes of potato suitable for seed

an extra inspection of the crop. When it is difficult for tractors to go into the plots, motorized knapsack sprayers are used.

Harvesting is done by hand three to four months after planting. Tubers of 50-250 g are suitable for seed. The larger potatoes can be cut. A good multiplication rate is seven or eight potatoes per original seed.

Before the second multiplication, the potatoes are sprouted on wire racks for about three months. During this time, the seed potatoes are sprayed at two-weekly intervals with insecticides for the control of aphids and tuber moth.

DISTRIBUTION TO THE PROVINCES

After harvest, some of the first multiplication seed potatoes are distributed to provincial D.P.I. offices at Kundiawa, Mt Hagen and Mendi for sprouting and second multiplication. Distribution to local growers is done from these areas directly.

The second multiplication plots are also inspected and rogued during the growing period by the NSSP staff. Routine spraying and general care while sprouting and in the field is the responsibility of the staff at various localities, but seed preparation before planting is usually done by NSPP staff. Mistakes at this stage can have serious and far reaching effects.

Enga Province

D.P.I. Enga has a vigorous seed potato project similar to NSPP and is doing a good job of providing seeds regularly to the growers. The Enga Province has been the major producer (80%) of potatoes in Papua New Guinea. Despite this, at first, the demand for seed by growers was slow but any seed produced now is always sold and growers still need more.

Eastern Highlands

The seeds are produced and distributed from Aiyura Didiman. The demand for seed potatoes by local growers is high and about 10 growers visit Aiyura per week for seed. As a direct result of planting seed from NSPP, the size and the quality of potatoes which are coming onto the markets have improved.

Western Highlands

D.P.I. Mt Hagen has also been distributing a lot of seeds and the demands are still high. Due to unavailability of suitable D.P.I. land for seed production, land belonging to local growers is used on a contract basis.

Simbu and Southern Highlands

Both these provinces have the problem of lack of suitable areas for multiplication. The demand is high. A lot of seed has been distributed from Kundiawa, with some extra from various district headquarters.

EXTENSION WORK

As the potato is a fairly new crop in P.N.G. it is important to pass on information to both didimen and farmers. So far, four well-attended seminars aimed at D.P.I. extension staff have been conducted throughout the highlands. Comprehensive notes have been prepared by all those involved in the various aspects of seed potato work. The demand for this material has been such that already a third edition has been distributed.

Six successful growers' field days have been held in the highlands. A handout written in Pidgin on the basic aspects of potato production has been printed and widely distributed at the field days. We hope to hold these events again wherever there are enough interested growers.

Groups of students from the Agricultural colleges, U.P.N.G., Medical college, Lae Unitech, and various provincial high schools have visited Kuk and Aiyura to inspect the activities of NSPP. Many inspections of established and proposed potato growing projects have been made. Another approach planned for the future is individual training, at Aiyura, of growers and didimen. The training would be on the job for two weeks or more, and would cover basic and advanced methods of production, handling and marketing, etc.

SELF-SUFFICIENCY

There is no reason why Papua New Guinea should not be self sufficient in potato production. One only has to look at the present production rates, especially in the well drained valley areas such as the Wahgi valley. With a growing period of only 100 days from planting to harvest it is quite possible to grow two crops per year on the same ground even allowing for delays due to wet weather.

However, it should noted that certain diseases can survive in the soil. If the first crop showed signs of disease, then a second crop on the same ground will probably be affected much worse. Hence, double cropping should be carried out only where there are no diseases present in the first crop.

The level of management for the successful production of potatoes is much higher than that needed to grow kaukau. Some costs, such as fertilizer, chemicals, fuel and freight may be appreciably higher than in other countries. However there is no need for irrigation in most of the potato growing areas of P.N.G. Year-round production makes it unnecessary to erect costly stores.

It would be quite possible for two or three experienced growers or business groups to supply the 3000-5000 tonnes of potatoes which are consumed annually in this country. The area required would be about 200 hectares per annum.

Whether P.N.G. will become self-reliant in potato production and when, depends on what type of production is encouraged. If large scale well managed projects are established, production could meet demand in only two years. On the other hand, relying on supplies from hundreds of small subsistence garden type projects requires a tremendous amount of extension work in return for little change in the present unsatisfactory situation.

Probably the best solution should be a compromise in which large growers become a nucleus in an area for many smaller projects. The large project would multiply and distribute seed and supply fertilizer and chemicals to the group. It could also market growers' produce and provide facilities for seminars, field days and other related extension activities.

As large groups and projects become established it may be possible to relieve research stations of some of the burden by establishing second multiplication plots at the projects.

Provided the plots were inspected and rogued by NSPP staff there is no reason why there should be any decline in the quality of the planting material

In fact such routine visits could do much to promote good public relations and provide an opportunity for some very effective extension work.