HORTICULTURE NOTE: NO. 34

SUITABLE PLANTING MATERIALS FOR BANANA CULTIVATION IN PAPUA NEW GUINEA

Kurika L. M. and **Paofa J.**, Laloki Agricultural Research Station, PO BOX 417, Konedobu, NCD, Papua New Guinea.

ABSTRACT

This article presents information on suitable types of banana planting materials. It lays emphasis on the use of bits, the least known of the two types of planting materials for bananas.

Keywords: *Banana, planting materials, suckers, bits.*

INTRODUCTION

Bananas are the second most important food crop in Papua New Guinea (King 1986). They are widely distributed in the country in various locations from sea level up to an altitude of around 2,200 metres. Bananas are important food crops in areas around Port Moresby (Central Province), parts of the Markham valley and Snake River Valley (Morobe Province), on Cape Vogel (Milne Bay Province) and on the Gazelle Peninsula (East New Britain Province). Dwyer *et al.* (1993) also reported bananas as important staple to Kubo people near the Strickland river in the Western Province. Bananas are grown in gardens or around homesteads either mixed with other crops or as pure stands, where they provide a regular supply of food to households. Some farmers also produce bananas specifically for sale at the urban markets. In the Central Province bunches intended for sale are often wrapped in banana leaves to prevent pests damages. Bananas are also occasionally used as shade for new cocoa and coffee plantings (Ghodake *et al.* 1995, Aliga pers com.).

BANANA PLANTING MATERIALS

Farmers can plant either suckers or bits as planting materials for bananas. Planting of suckers, however, is much more widespread in the country. There are different types and sizes of both sucker and bit materials available. Farmers usually plant a mixture of sucker materials (King *et al.* 1989). This is not recommended as certain types of sucker and bit materials are more suitable than others (Figure 1).

SUCKER PLANTING MATERIAL

Sucker planting materials are the best for subsistence farmers who plant small numbers of plants at a time. The best suckers to plant are medium to large sword suckers (0.5-1.5 kg). A sword sucker is characterised by a distinct tapering from the large base and by small narrow leaves. Sword suckers generally grow best; they show - (i) high percentage of shoot emergence, (ii) shorter time from planting to shoot emergence, (iii) and bear early at 8-10 months after planting (O'Farrel *et al.* 1989). Also, two bearing plants can be raised from the original planting material to give a greater yield. The growth vigour is perhaps because of the large apical meristem and greater corm reserves. Sword suckers are planted upright and usually establish better than bit planting materials.

BIT PLANTING MATERIAL

Farmers rarely use bits as planting materials for bananas. Planting bits is not a traditional practice in the country. Bits, however, are best for semi-commercial farmers who wish to plant large plantings of bananas. This is because many more planting materials of bits can be

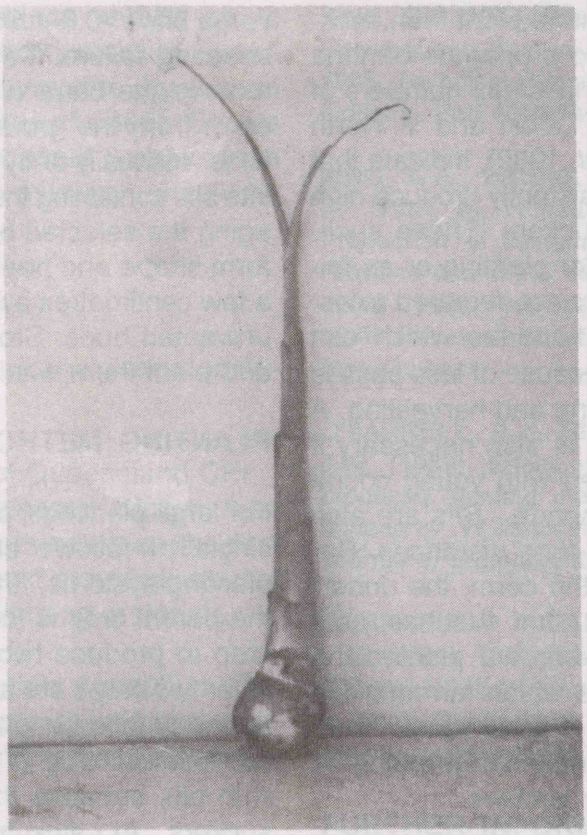

Figure 1. **Selection of banana planting materials. Banana sword sucker and banana bits.**

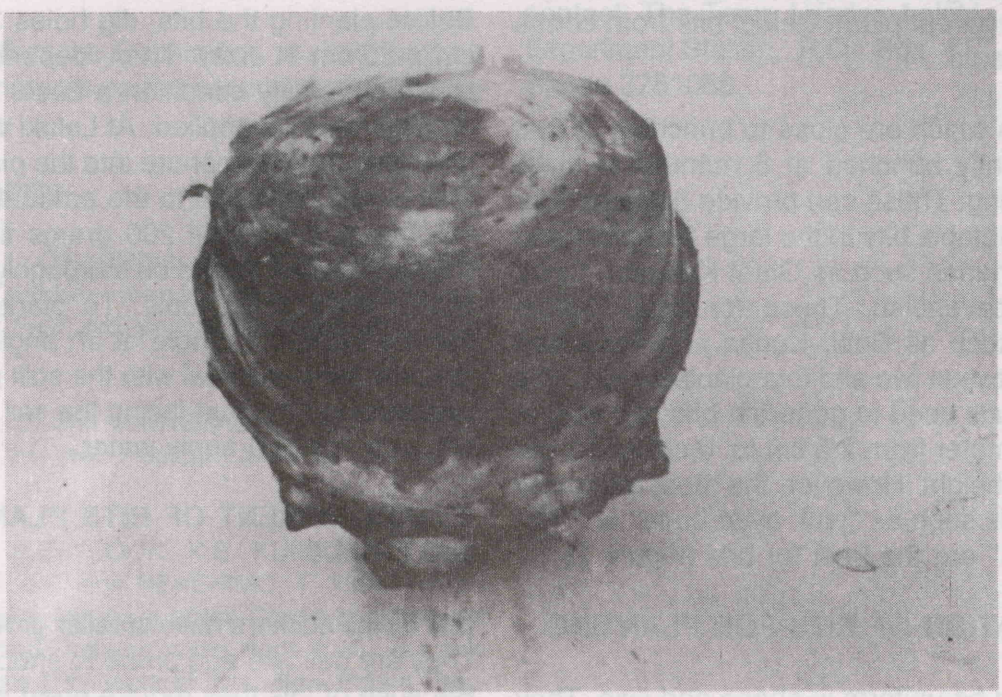

Figure 2. **Selection of bits. Banana corms and buds or eye**

obtained from a single banana plant than suckers. Bits are also useful to propagate banana varieties which produce only small numbers of suckers. Observations at Laloki and in North Queensland (O'Farrell *et al.* 1989), indicate that plants raised from bits consistently produce high numbers of even-sized suckers. These suckers could be used either for planting or as followers. Even-sized suckers are required to establish uniform crops of bananas which can reduce production costs because of less passes necessary in bunch covering and harvesting. A uniform stand of bananas is also necessary if they are to be intercropped with young cocoa and coffee seedlings for shade. Bits are also cheaper to transport over long distances. Banana bits are pieces of the corm, the underground part of the banana plant that has roots and buds or eyes. When bits are planted the buds develop into suckers which farmers can raise into bearing plants. Plants raised from suitable bit planting materials can produce as good yields as those from suckers.

SELECTION OF BITS

The numbers of buds or eyes per corm usually vary according to variety, size of the corm and age of the parent plant. Select bits from corms of large plants.

Use plants which are close to bunching or that have recently bunched at 8 months or more after planting. These can provide between four and six plantable bits in the large tetraploid and triploid bananas such as Giant Kalapua, Yawa and Tall cavendish. Those for small diploid bananas such as Babi, Kurisa and Puka can provide between two and four plantable bits. The sizes of buds used to generate bits can vary in basal diameter from 2.5 cm to 6 cm and 1 cm to 3 cm in height. However, the most advanced lateral buds such as "pink eyed buds" or " forward buds" are the best for bits (Figure 2).

PREPARATION OF BITS FOR PLANTING

Bits should be uniform in shape and size. They should have equal-sized buds, centrally positioned on their faces and cut into similar shapes. Large bits (>0.6-1.5 kg) are the best to minimise shooting failure. To prepare the bits, cut and remove the banana stem and then uproot the corm from the ground. Gently clean the corm either manually or by washing then split the corm into bits containing the selected buds. Avoid damaging the selected buds. Trim the bits to a uniform shape and peel the outer layer of the skin a few centimetres away from the bud to remove unwanted buds. Store the bits in a cool place and plant them within a week of preparation.

PLANTING METHOD

For large plantings, plant the bits by using either single row-follower or single row-double follower planting systems. In the former a single row of the parent crop is followed by a single follower crop to produce two crops of bananas. In the latter two crops are also produced but with twice as many follower plants since a double row of the follower crop is allowed. This is possible with bits because they produce uniform-sized suckers. At Laloki two plant spacings, 3.5 m x 1.8 m and 4.0 m x 2.0 m are used to plant the parent crop. These give planting densities of 1,587 and 1,250 plants/ha respectively.

Before planting the bits, dig holes 30 cm x 30 cm x 30 cm in size. Then, depending on the local soil fertility condition a basal dressing of fertiliser may be applied. At Laloki we apply 48 grams of chicken manure into the planting hole. This is roughly equal to the amount of chicken manure in one small 200 grams tin fish. The chicken manure should be thoroughly mixed with soil in the planting hole. To plant, place the banana bit into the hole at an angle of 45 degrees to the horizontal with the split parts facing upwards and the bud facing the soil. Cover the bits with soil and apply water.

ESTABLISHMENT OF BITS PLANTING MATERIALS

Bits unlike suckers have smaller growing points. They are delicate and prone to shooting failure. Because of this they require great care and attention at the initial growth stage, from planting to shoot emergence, to promote establishment.

Two important considerations should be to (i) ensure the soil is sufficiently moist by watering at least twice a week during the dry season and (ii) ensure the field is free of weeds. Shoots of bits should emerge after about 3 weeks from planting. Bits which fail to establish should be replaced at this time.

ACKNOWLEDGMENTS

The authors would like to acknowledge contributions from the following:

i. Mr. Jeff Daniells of Queensland DPI, South Johnstone Research Station, Australia who made comments on the first draft of this article and provided relevant notes on banana planting materials.

ii. Mr. Kelly Ovia of Laloki Agricultural Research Station who prepared and took photographs of planting materials for the article.

iii. Aubo Ovia and Waliya Aliga also of Laloki Agricultural Research Station whom we consulted on numbers of plantable bits per corm.

iv. Staff of the Publication section for their comments on the second draft of the article.

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FURTHER INFORMATION

If readers would like more information on suitable planting materials and recommended management practices for bananas, they should contact: The Team Leader, Laloki Agricultural Experiment Station, P.O. Box 417, Konedobu. Phone 3281068