

KNOW YOUR BANANAS

By R. Michael Bourke, Agronomist, Lowlands Agricultural Experiment Station, Keravat



Musa maclayi, a wild banana. Notice how the bunch points upwards like the edible *Australimusa* varieties. There are many types of wild bananas in PNG. Scientists interested in bananas have come from all over the world to study our bananas.

Bananas are the most important food in parts of the Markham Valley, in the dry areas of the central Papuan coast, around Rabaul and in other localities such as on Cape Vogel. They tend to be more important in drier areas, but they are found almost everywhere in Papua New Guinea, in both the lowlands and the highlands. Probably only sweet potato is a more important crop on a national basis.

Many varieties

In Papua New Guinea we have very many more varieties of banana than in most other countries.

As well as edible varieties, there are many wild bananas in Papua New Guinea that do not produce edible fruits. Examples are *Musa maclayi*, *M. peekelii*, *M. acuminata*, *M. balbisiana*, *M. banksii*, *M. augustigemma* and

M. ingens. This last one, from the highlands, is the largest herb in the world.

It is important that agriculturalists know something about the different groups of bananas. Different varieties have different properties. Some have high and others have low yield. Others show more tolerance to drought. Some varieties can remain in the same ground for many years.

Edible bananas

Each edible banana is a member of either one of two groups. These are the *Australimusa* and the *Eumusa*. The *Eumusa* group is the most important.

You can tell which group any banana belongs to by the way the bunches grow.

In the *Australimusa*, the bunches grow erect, as shown in *Figure 1*. In the *Eumusa*, the bunches bend over.

Australimusa bananas come from Papua New Guinea originally, but they are not important here now. You sometimes see them in gardens, in the bush, or in the market.



An *Australimusa* banana on the Lelet Plateau of New Ireland. This type of banana can be easily recognized because the bunch points upwards. In some places they are slightly important as food.



Diploid bananas. Note the upright leaves and small bunch.

Some of the Papua New Guinean names for *Australimusa* bananas are porek (Bainyik area), mo-pa (Kainantu area), avuro (Gazelle Peninsula), and autafan, urtuk, nglas and kakongai (New Ireland).

An interesting thing about *Australimusa* bananas is that their juice is generally pink or red, and if you eat a lot of their fruit your urine goes red.

Eumusa

This is the most important group of bananas in the world.

Botanists have divided the *Eumusa* into two more main groups. They are known as "diploid" and "triploid" groups. (There is also a small group known as "tetraploids".) The differences between the two main groups are shown in *Figure 2*.

Diploid

Diploid bananas can be recognized because the leaves and petioles are stiffer than triploids and the leaves are more upright. The plants are not as big or as robust as the

triploids. It is fairly easy to tell a diploid from a triploid.

Diploid bananas are most popular in Papua New Guinea. They are not as big or as strong as triploids. Usually they do not carry as big a bunch as triploids.

For most people in Papua New Guinea diploid bananas are the nicest ones because they are traditional.

Different varieties are used for different purposes. For example some may be considered food for babies or for old people.

Most varieties are cooking ones, and are cooked while they are still unripe and firm. Some varieties can be eaten uncooked as well, if they are allowed to ripen and go soft.

Diploid bananas are commonly used as temporary shade for young cocoa, especially on the Gazelle Peninsula of New Britain. They are very suitable as temporary shade because they do not last more than about a year in one location and so die out naturally.

Triploids

The triploids are the most important group in most parts of the world.



Triploid bananas. Note the leaves bending over and larger bunch. These trees are the yava variety.



Bunches of diploid (left and rear) and triploid (right) bananas. Note how the triploid bunch is bigger than the diploid. This triploid is the widespread variety yava.

They have a bigger bunch, and they are usually a bigger stronger plant. They also last longer in one place than the diploids.

Triploid bananas have been introduced fairly recently to Papua New Guinea, and people are starting to like them, but the diploid bananas are still most popular here.

Triploids are often planted around houses and along roads and as boundaries between gardens. They are planted in places where people want them to keep growing for many years.

Around Rabaul and in parts of the Markham Valley triploids have become the most important type of banana.

How to identify banana groups

When you see a banana plant, first of all decide whether it is an *Australimusa* (erect bunch) or a *Eumusa* (bunch bends over) (see *Figure 1*).

If it is a *Eumusa*, decide whether it is a diploid (leaves point upwards) or a triploid (leaves bend over more) (see *Figure 2*).

If it is a triploid, you can decide what type of triploid banana it is by looking at the *Table*. You look for such things as stem colour, the shape and colour of the bracts, and other things. The bracts are the reddish coloured leaves which cover the young bunch of bananas.

Notice that a bunch of bananas has two parts. The female part is the first part of the bunch, the bananas which you eat. The male part is the second part of the bunch, the last part to be uncovered. It consists of small flowers shaped like young bananas, but after a few days they fall off the plant.

The *Table* will tell you whether the banana belongs to the "A group" or the "B group". (Note that all diploid bananas belong to the A group.)

Figure 3 also shows some of the differences between A and B groups.

Characteristics of A and B groups of bananas

Things to look at	"A group"	"B group"
Stem colour*	A lot of black or brown blotches	Few or no blotches
Canal of petiole	Canal is open. The dry wings do not clasp the stem	Canal closed. No wings at the bottom
Stalk of bunch	Usually hairy	Not hairy
Stalk of fruit	Short	Long
Shoulder of bract	Near the top of the bract	Lower down on the bract
Bract curling*	Bracts curl up and roll back	Bracts lift up but do not roll
Bract shape	Pointed	Rounded
Bract point	Sharp	Blunt
Bract colour	Red, dull purple, yellow or green outside. Pink or yellow inside	Brownish purple outside. Bright crimson inside
Bract colour fading inside*	Inside colour is yellow towards the base	Inside the bract the colour is crimson towards the base
Scars from the bract	Large	Small
Male flower colour	White	Pink

*These are easy things to see.

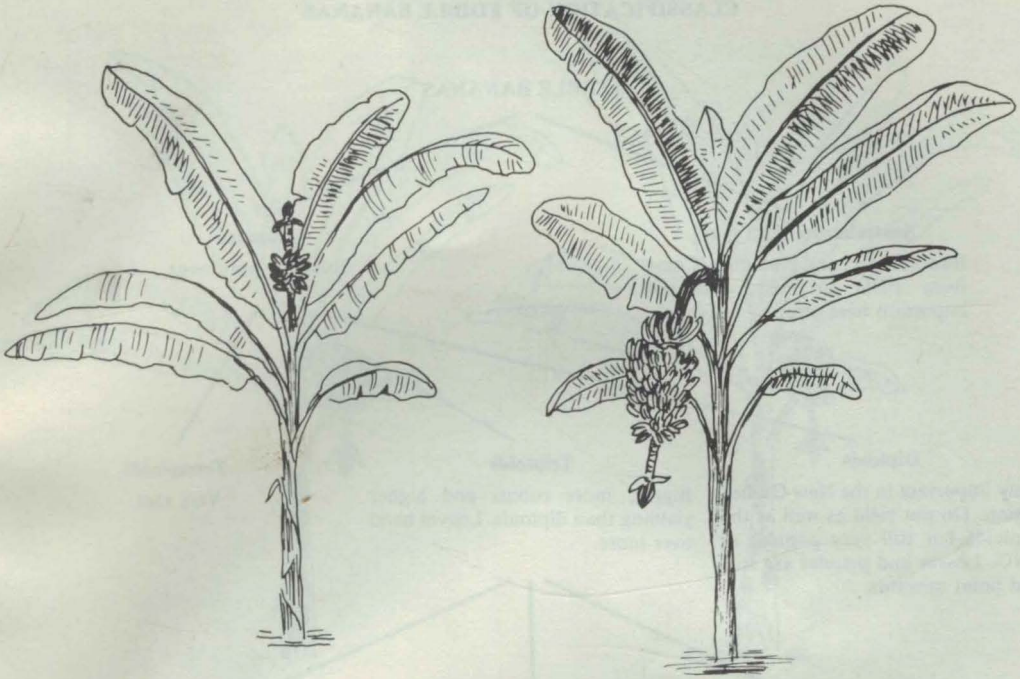


Figure 1.—Australimusa and Eumusa bananas.

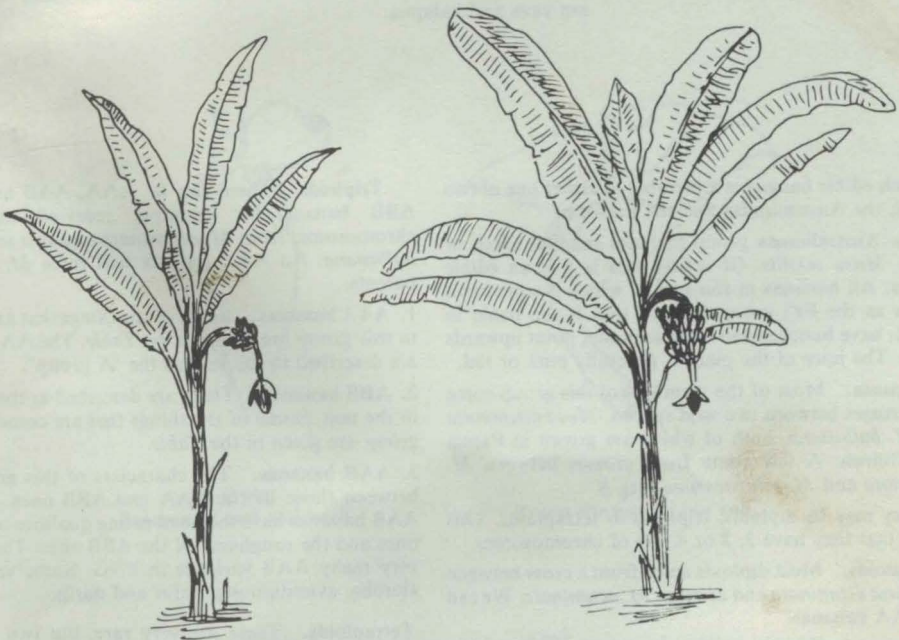
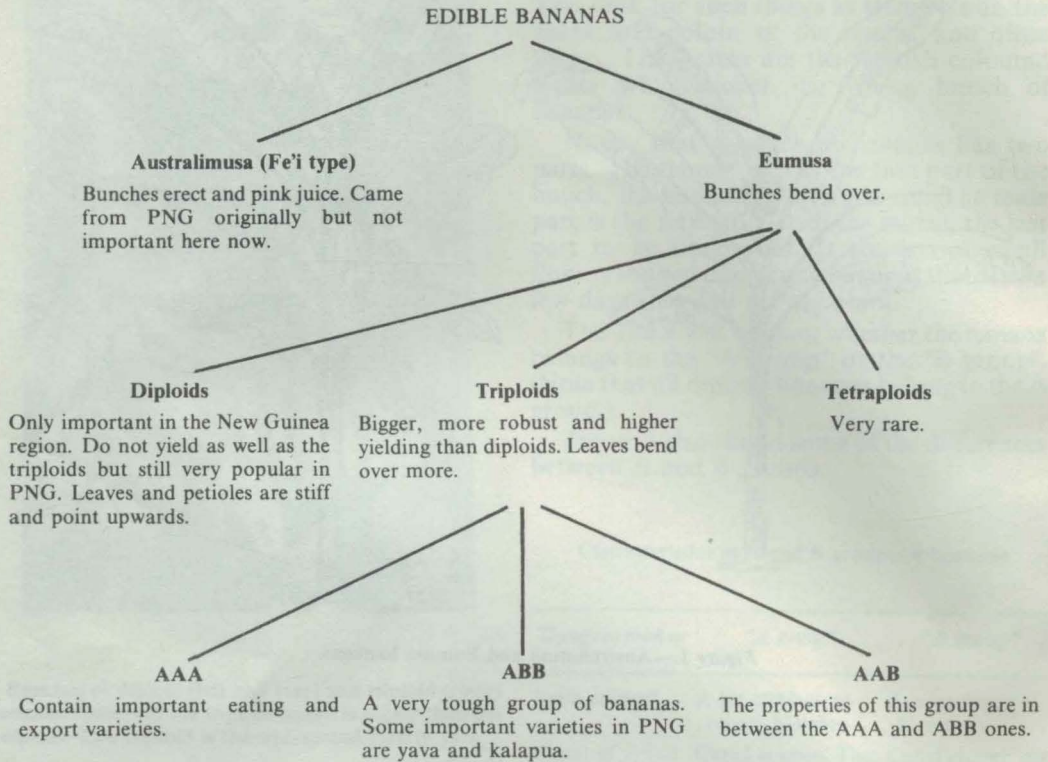


Figure 2.—Diploid and triploid groups of Eumusa bananas.

CLASSIFICATION OF EDIBLE BANANAS



Each edible banana is a member of either one of two groups, the *Australimusa* and the *Eumusa*.

The *Australimusa* group includes manilla hemp or abaca, *Musa textilis*. Of course this is not an edible banana. All bananas in this group, which is sometimes known as the Fe'i group because that is the name in Samoa, have bunches and male axes that point upwards (erect). The juice of the plant is generally pink or red.

Eumusa. Most of the members of this group come from crosses between two wild species, *Musa acuminata* and *M. balbisiana*, both of which are grown in Papua New Guinea. A few come from crosses between *M. acuminata* and *M. schizocarpa*.

They may be diploids, triploids or tetraploids. This means that they have 2, 3 or 4 sets of chromosomes.

Diploids. Most diploids come from a cross between one *Musa acuminata* and another *M. acuminata*. We call them AA bananas.

Diploid bananas can be recognized because their leaves and petioles are stiffer than triploids and the leaves are more upright.

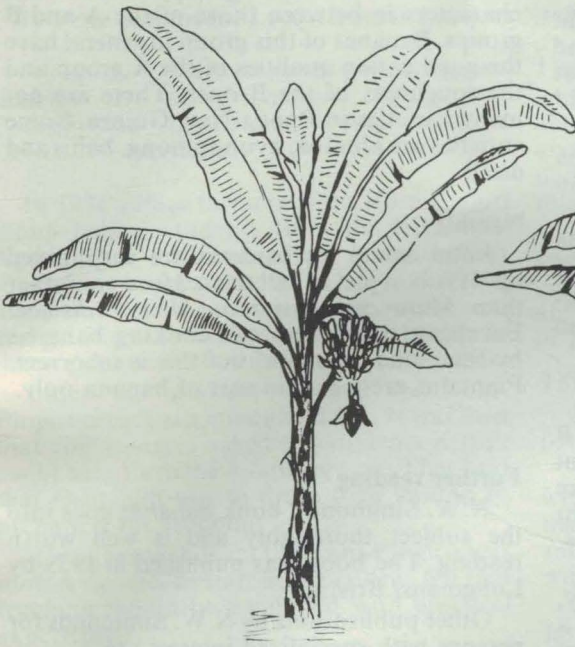
Triploids. These can be AAA, AAB or ABB. An ABB banana for example received one set of chromosomes from *M. acuminata* and two sets from *M. balbisiana*. An AAA banana had three *M. acuminata* parents.

1. **AAA bananas.** Some of the things that are common to this group are given in the *Table*. The AAA bananas are described in the text as the "A group".

2. **ABB bananas.** These are described as the "B group" in the text. Some of the things that are common to this group are given in the *Table*.

3. **AAB bananas.** The characters of this group are in between those of the AAA and ABB ones. In general AAB bananas have the good eating qualities of the AAA ones and the toughness of the ABB ones. There are not very many AAB varieties in PNG. Some varieties are alumba, avundumong, balus and darip.

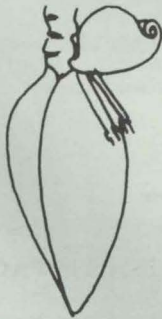
Tetraploids. These are very rare, but two are known from New Britain, called atan and kudu-kudu. They are members of the AAAB group. From Bougainville is known an AABB banana called kalamagol.



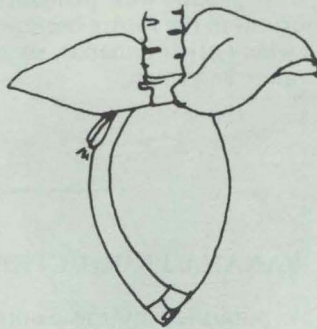
A group
A lot of blotches



B group
Few blotches



A group
Bracts curl and roll back



B group
Bracts lift but do not roll

Figure 3.—Some of the differences between "A" and "B" groups of triploid bananas.

"A group"

These bananas include some important eating varieties such as Gros Michel and Cavendish types. These are the most important types of bananas that are exported from one country to another.

Varieties of Gros Michel known in Papua New Guinea include avabakor and disu varieties.

Varieties of Cavendish known here include siana and siana vavina varieties.

The red banana (samo variety) and green-red banana (warabia or ineve varieties) also belong to this group.

"B group"

There are only a few varieties of the B group bananas in Papua New Guinea, but they are very important because they are "tough" bananas. They can withstand drought and are tolerant of shade and nematodes. They still bear well when the soil is poor.

Yava is a very common variety, particularly on the Gazelle Peninsula. It is a very tough banana plant and does not get much leaf spot disease. This is important because leaf spot can stop the fruit from growing properly in other varieties, such as Cavendish.

Other common varieties are kalapur, which is important in the Markham Valley, and sukuru.

Members of this group will probably become more important in the future because they can be grown where other bananas, such as the diploids, cannot be grown.

There is another group, which has characters in between those of the A and B groups. Bananas of this group in general have the good eating qualities of the A group and the toughness of the B ones. There are not many varieties in Papua New Guinea. Some varieties are alumba, avundumong, balus and darip.

Naming

Latin names for bananas are very mixed up. It is best just to call them *Musa* sp. rather than *Musa cavendishii* or *M. paradisiaca*. Europeans sometimes call cooking bananas by the name "plantain" but this is incorrect. Plantains are a certain sort of banana only.

Further reading

N.W. Simmonds' book *Bananas* goes into the subject thoroughly and is well worth reading. The book was published in 1959 by Longmans, Bristol.

Other publications by N.W. Simmonds for persons with specialized interest are—

A banana collecting expedition to South East Asia and the Pacific. *Tropical Agriculture, Trinidad*, 33(4): 251-271 (1956).

The Evolution of the Banana. Longmans, Green & Company, London (1962).

This paper has been written from LAES Information Bulletin No. 6 of May 1975 "Know your bananas" by R. Michael Bourke.

BANANA PRODUCTION IN THE SOUTH PACIFIC

This Handbook published by the South Pacific Commission contains detailed information about all aspects of commercial banana production.

The language is simple. The book is well illustrated.

The Chapters on harvesting and packing methods, pest control and control of diseases described are not known at present in PNG, while others which occur are not discussed in this book.

This book can be ordered from the South Pacific Commission Publications Bureau
PO Box 306
Haymarket NSW 2000
Australia.

The cost is \$A1.00, post free. Airmail postage extra.

SPC Handbook No. 5 (1970). "Banana production in the South Pacific." Edited by M. Lambert. South Pacific Commission, Noumea. 70 pages.