

Banana Growing

Horticulture Division, Darwin

Bananas grow extremely well in the monsoon affected areas of the Northern Territory and at the other end of the scale have been grown more or less satisfactorily in a protected environment in the Alice Springs area.

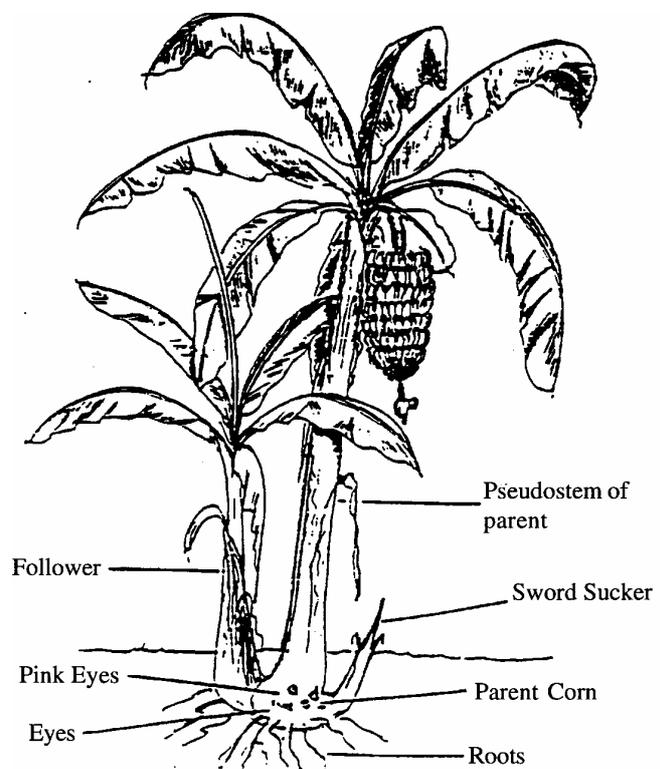
Often with the most casual management bananas may produce a reasonable bunch; however, with just a little more effort there is no reason why a 35-40 kg bunch may not be obtained.

While bananas grow in a wide range of soil types, areas which are subject to water inundation for long periods should be avoided.

VARIETIES

Banana planting material is generally at a premium in the Northern Territory, with the result that the home gardener often has to make do with any variety that is available. Commercial growers requiring large quantities of planting material generally bring it in from interstate. In this case it is of paramount importance that an inspection certificate be obtained from the Agriculture Department in the area of the source of supply as there are diseases interstate which have not been recorded in the NT.

Commercial growers generally favour William hybrid (*Mons mari*) which is quite a tall variety reaching a height of 2.5-4 m when growing under good conditions. The bunches are long and cylindrical, carrying 10-15 well spaced hands and often weighing 50 kg or more.



There is one disadvantage with this variety that, with the large bunch size and somewhat slender stem, 2 props are often required when growing in a situation exposed to wind.

Dwarf cavendish, as the name implies, has a low growing characteristic with the pseudostem growing to a height of 2-2.5 m. The bunch size will vary considerably but on a well managed stool will weigh up to 45 kg with 8-10 hands. Cavendish are susceptible to a disorder known as "choke" in which the flower does not properly emerge from the pseudostem, resulting in crop failure or a deformed bunch. This disorder results from stress such as drought or a sudden drop in temperature or both. Because of this it is suggested that varieties other than dwarf Cavendish be grown in inland areas. For more information on choke refer to Agnote No. 15, "Choke - A Disorder of Bananas".

Ladies Fingers are a tall growing variety, reaching 4-5 m, and are occasionally used as a wind break. Bunches are not large, usually 5-8 hands, with a bunch weight of about 15 kg.

Sugar Banana grows from 3-4 m, the bunches are small but the flavour of the fruit is excellent. This variety seems to produce fruit with the minimum of effort.

These are the main varieties growing in the Top End. There are others such as plantain, which is a cooking banana and some which have not been identified.

PLANT MATERIAL

Even though the extent of the planting may only involve a small number of plants, the selection and preparation of the material used is important and will relate to productivity during the life of the stool. Three types of planting material may be used. These are known as butts, suckers and bits. The latter two are most popular.

Butts: A butt is obtained by removing the corm together with a portion of the pseudostem from a plant which has recently matured a bunch, or from a plant which has to be removed for some reason or other, even though carrying a bunch. The pseudostem is severed about 10 cm above the corm and the corm itself trimmed and washed free of all soil and trash. All eyes or buds except one are gouged out and the butt is then planted so that the junction of the corm and the pseudostem is about 15 cm below ground level. Butts are seldom used by commercial growers.

Suckers: Suckers are offshoots from the corm or parent plant and make excellent planting material provided they are large and vigorous enough, and retain the narrow sword leaf until they are 35-40 cm high. They should not be taken from an immature plant prior to bunching. Suckers from immature plants or stools are usually soft and watery and thin at the base. They are likely to result in poor establishment unless weather conditions are very favourable. Broad leaf suckers with spindly stems and small bases are often referred to as water-suckers and should be discarded. Care must be taken when separating the sucker from the corm to avoid damage to the butt as suckers so damaged make poor planting material.

The types of tools used for separating the suckers from the butt are many and varied. For the home gardener a spade-type implement will be quite satisfactory.

Bits: Bits are considered by many to be the best type of plant material on larger areas, owing to their normally rapid growth, the development of a deep rooting system and the even stands that develop from them. Bits are obtained from stools that are to be discarded, so the supply is limited. The corm of each banana plant has a number of buds or "eyes", each of which is

capable of producing a plant. The upper buds, known as "pink eyes" because of their colour, are younger and develop faster, producing more vigorous plants. To obtain "bits" of planting, the whole butt of the plant is removed from the soil and the pseudostem cut off about 10-12 cm above the corm. The buds are located by carefully removing the outer layers of leaf bases until the buds are exposed. These are very tender and susceptible to bruising. Two "pink eyes" will be found approximately opposite one another on the corm so the butt can therefore be split into two "bits" and any lower buds gouged out.

"Bits" sizes range from 0.75-1.6 kg depending on the size of the corm. If planting material is scarce, as is often the case in the NT, it is possible to divide the corm into smaller bits, each with an "eye". These will require more care and management until they emerge and for some time after. In the long term they may prove a false economy.

Whatever material is selected ensure that it is free of trash, soil, etc., particularly when the source has been from a long established garden which, in all probability, is infested with nematodes. There are several methods of treating corms for the control of nematodes prior to planting.

MANAGEMENT

Spacing: The spacing between plants is probably not very important where only a few stools are concerned. Most commercial growers have their preference, in some cases double or single row management is used. In the former 1.8 m centres are used with wide spacing between each double row, whilst single rows spacing may be 1.8-2.5 m between plants and 2.75-3.00 m between rows. If only 8 or 10 plants are to be established these could be planted on a double row pattern with 1.8 m between rows and plants. Under this system the bunches will develop on the outside of each row.

Planting: If practical the area to be planted should be cultivated to the greatest depth possible. The planting holes should be at least 40 cm deep by 45 cm diameter. The sucker or bit is placed in position and covered to a depth of about 10 cm. The soil is tramped down firmly. More loose soil is then added so that the sucker has about 15 cm above the junction of the pseudostem and a bit has the "eye" buried to a similar depth.

Fertiliser: If well decomposed animal manure is available this may be mixed with the soil in the bottom of the hole prior to planting. If a chemical fertiliser is to be used at the time of planting, care must be taken to ensure that this does not come in contact with the plant material and cause burning. A fertiliser mixture containing nitrogen, phosphorus and potash (250-300 gm) should be incorporated with the soil in the bottom of the hole and covered with 10-15 cm of fertiliser-free soil. The banana is a gross feeder and makes heavy demands on available plant foods. Many different fertilisers have been used but a nitrogen-phosphorus-potassium formulation similar to 6.3:6.5:32.0 has been found satisfactory in the Top End. A commercial mixture similar to this formula is available in Darwin.

Unlike for other tropical fruits, the fertilising of bananas under correct management is a continuous process with no definite end.

A suggested fertilising program, would be:

From planting till first flowering:

Complete NPK fert. 250-300 g/site worked into the soil at planting.

Complete NPK fert. 100-200 g/plant site per month till first flowering.

Mature plants, should be fertilised every 4-6 weeks with:

Muriate of potash at 180 g/plant site

Urea at 90 g/plant site

Annual applications Nov.-Dec. of;

Single superphosphate (+ zinc) at 50 g/square metre

Dolomite at 200 g/square metre

Young newly planted bananas should receive 3 sprays of zinc sulphate in the first year. Older plantations get enough Zn from regular sprays of Mancozeb applied to control leaf spot.

Desuckering: The plant should be expected to flower 5-6 months after emergence. It is at this stage of growth that the sucker, or follower, which is to bear the next bunch is selected and allowed to remain on the stool. Generally all sucker growth prior to and after selection of the desired follower is removed. Some growers leave two followers. If allowed to remain on the parent plant, these unwanted suckers reduce the vigour of the parent plant with resultant small bananas, low yields and inferior fruit.

The procedure is repeated when the following sucker flowers.

Irrigation: The amount of water required for good production is governed by soil types. A light well drained soil would require at least 125 mm weekly whilst a heavier structured soil may get by at 70 mm weekly. On a single stool basis this would represent a weekly application rate of 180 to 540 litres. On very light, sandy soils split applications would be beneficial.

The use of grass or any organic mulch is not only of nutritional benefit in the long term, but will assist moisture retention.

The method of distribution of water is not of major importance in small plantings provided an area in excess of 2 m around the stool is soaked at each irrigation.

On a reasonably well drained soil type, it would be difficult to over-water bananas, but inferior bananas will most certainly result from inadequate moisture.

Harvesting: Under reasonable management, flowering should occur about 5-6 months after emergence, the bunch maturing 3-4 months later. Only fully matured bunches of well filled fruit should be harvested. Bunches should not be left on the plant until the fruit begins to colour or the fingers will soon commence to split. The bunch is ready to cut when the fruit is evenly rounded without showing prominent ribs. When the remaining portion of the flower end of the fruit has completely dried off and shows no bleeding when broken off, the fruit may be considered ready for harvest. The stem which has borne the bunch may either be left in the area for mulch or removed for compost elsewhere.

Ripening: Commercial growers producing for the local market permit ripening to commence on the property but in most interstate areas fruit is forwarded to central markets in a green condition and ripened there. The equipment used in both cases gives control of fruit temperature, ventilation and humidity and provides a measured induction of ethylene gas to control ripening. This equipment would not be economical for the small grower.

During the warmer months, when ripening for domestic purposes, the easiest method is to hang the bunch in a cool, ventilated area. Ripening will commence in 3-4 days. Some fruit losses must be expected. Do not hang in a poorly ventilated area, under an uninsulated iron roof for instance, as the fruit will turn black in a day or so. It may be necessary to drape the bunch with mosquito netting or similar material as protection against birds, possums and insects.

In the cooler months, ripening may be hastened by placing fruit in a 200 litre drum with a few pieces of carbide in the bottom, the drum opening being covered with a sack. The time that the fruit is left in the drum will be governed by temperature and humidity. At 25°C 24 hours would be sufficient. The bunch is then hung in a well ventilated position and the fruit should commence to ripen in a day or so.

CSIRO Division of Food Preservation suggests the following method for the storage of banana bunches which would perhaps be applicable to our dry season conditions:

Bunches are placed in a polyethylene sleeve (about 004 mm thickness) and the film is tied at both ends of the bunch to provide a modified atmosphere around the fruit. These conditions dramatically delay ripening even at temperatures of 25-30°C and are all that is necessary to hold the bunch in an unripened condition for a week or so. If longer storage is required, the packing of an inert carrier (such as vermiculite, coke or pumice), impregnated with a strong solution of potassium permanganate (Condy's crystals) further delays the ripening of the fruit. The potassium permanganate absorbs the ethylene gas which would otherwise accumulate and trigger off ripening of the fruit. Periodically during storage, the fruit is felt to determine whether softening of the fruit has begun. Storage is terminated at the first sign of fruit starting to soften, otherwise the fruit will remain green, but the flesh will deteriorate (Agricultural Gazette of NSW, October 1979).

Diseases: Fortunately bananas are relatively free of diseases in the NT. Probably the most common and most destructive in commercial plantations are leaf spot or Sigatoka disease and nematode diseases.

Symptoms of Sigatoka: Before flowering the 3rd or 4th leaf from the centre shows light yellow or brown green streaks 1-2 mm long, parallel to the veins. The 5th and 6th leaves show muddy brown or black elliptical spots up to 1 cm long. On older leaves, spots are light grey, with a dark brown border often surrounded by a narrow yellow band. Small grey specks, which are tufts of fungal spores, appear on the spots during wet weather. If spots are numerous, they coalesce to form large dead areas. The heart leaves are usually free from visible spotting until flowering and leaf production have ceased.

Control:

1. Destroy spotted leaves and trash.
2. Spray to point of run off with manzoceb and white oil every 2 weeks during the wet season and 5-6 weeks during the dry

Application rate:

Manzoceb - 2 kg/ha plus white oil or misting oil - 2 kg/ha

Using tractor mounted blower - 500-600 L water/ha

Using shoulder mounted equip. - 60-100 L water/ha

INSECT PESTS

Fortunately there are very few insect pests of bananas in the NT. Some damage from banana borer has been recorded, but it was of little significance. Should you suspect an insect problem do not hesitate to contact the Entomology Section, Department of Business, Industry and Resource Development.

FURTHER INFORMATION

For further information contact the Horticultural Officer at Berrimah Agricultural Research Centre.

ACKNOWLEDGEMENTS

Queensland Department of Primary Industries

NOTE

All pesticides are subject to registration in the Northern Territory. It is the responsibility of the user to use only pesticides which are registered for the purpose in hand.

READ THE LABEL CAREFULL

Please visit us on our website at www.primaryindustry.nt.gov.au

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