



Banana

DRDPIFR, Darwin

Name: Banana *Musa* sp (Musaceae).

Origin: Edible bananas originated in the Indo-Malaysian region.

Distribution: Bananas are grown in every humid tropical region of the world today and constitute the fourth largest fruit crop.

Australian Distribution: The wet tropical coast of northern Queensland from Babinda to Cardwell is the main growing centre for Australian bananas as well as around Darwin in the Northern Territory and northern Western Australia around Kununurra.

Preferred Climate and Soil Type: Bananas grow best in a humid, tropical environment with optimum temperatures for growth around 27°C during the day and minimum temperatures not below 13°C. There also should be adequate rainfall with no fewer than three dry months per year during which irrigation is critical every 3-10 days using overhead systems and every 1-6 days using under-tree systems.

Bananas can be grown on a range of soils but will not be an economically viable crop unless the soil is deep, well-drained and slightly acidic. Soils should also have a high humus content.

Description: The banana is a large "tree-like" herb with a false stem (pseudostem) composed of leaf sheaths with a crown of leaves reaching heights of 6 to 7 metres arising from a rhizome (corm). The flower (or inflorescence) is a terminal spike that grows from the tip of the stem. It initially starts off as a purple bell-shaped bud, which opens to reveal white flowers inside. Female flowers occupy the bottom 5-15 rows, immediately above them are some rows of hermaphrodite flowers and the male flowers are in the upper rows. Male flowers usually drop off after fertilisation of the female flowers. Female flowers develop into the fruit in clusters (hands) around the flower spike. The fruit turns from deep green to yellow when ripe with size of individual fruit varying from 6-30 cm in length and 2-5 cm in width.

Varieties: Ninety five percent of the Australian market is Cavendish with Williams the most popular. Mons Mari and Grande Naine are two other commonly grown varieties. Lady finger is also a prominent variety within the Australian industry.

Culture: If the soil is compact then deep ploughing will be necessary to improve aeration and water filtration whereas on sloping terrain contouring of rows will be necessary to minimise erosion. Generally bananas require 10-12 months from planting before harvesting can occur and where low minimum temperatures are experienced this is even longer. Planting material may be obtained by using tissue cultured material or only buying field-grown material from accredited, disease-free sources. Planting material for commercial banana plantings comes from two sources – vegetative planting (suckers or bulbs) or tissue cultured plantlets grown in sterile conditions.

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Bananas can be grown either in single or double rows with plantings typically of between 1500-3000 plants per hectare.

Windbreaks are necessary to protect banana plantings from high winds.

Pests and Diseases: There are a number of serious diseases and pests which affect bananas including:

- Black sigatoka (*Mycosphaella fijensis*);
- Yellow sigatoka (*Mycosphaella*);
- Banana bunchy Top virus; and
- Panama disease – Tropical Race 4 Fusarium Wilt (*Fusarium oxysporum* f.sp. *cubense*).

Panama disease is a notifiable disease under the *Plant Protection Act* 1989. Currently there is no cure for it. Quarantine restrictions are in place in various parts of the Northern Territory regarding the transportation of banana material and soil from banana properties.

Insect pests that attack bananas include:

- Banana spider mite (*Tetranychus lambi*);
- Banana aphid (*Pentalonia nigronervosa*);
- Banana flower thrips (*Thrips hawaiiensis*);
- Banana rust thrips (*Chaetanaphothrips signipennis*);
- Nematodes – burrowing, spiral and root knot; and
- Banana weevil borer (*Cosmopolites sordidus*).

Fruiting Season: Bunch covers are used to increase yield, improve fruit quality and help protect against chemical spray. Covers can be reused. Bananas can fruit all year. The covers are placed on the fruit as soon as the fingers start curling or sometimes earlier if bats and birds are a problem which scratch the fruit when feeding on the flowers.

Harvesting: Bananas are hand harvested with one person cutting and one person carrying the bunch after it is lowered onto the carriers' shoulders. The bunches are loaded in an upright position onto a tractor-drawn trailer which is padded with foam to prevent bruising. Bunches deteriorate rapidly in the sun so once harvested fruit should be transported immediately into the packing shed or cool room. The hands of the fruit are then separated from the bunch and graded and sorted for size and quality.

Storage Conditions: Bananas are generally ripened using storage rooms set at around 90-95% relative humidity and a temperature range from 15-24°C. Multiple exposures to ethylene gas will speed up the ripening process. Fruit must be kept cool (between 13 and 15°C) and 80-85% relative humidity after removal from storage and during delivery to market to maintain quality and avoid rapid spoilage.

Culinary Uses: Banana leaves, pseudostems, fruit stalks and peels can all be used for various culinary purposes. Bananas are primarily eaten as a fruit, either on its own or as a part of a salad. All parts of the banana have medicinal applications as well.