

# Tropical banana information kit

Reprint – information current in 1998



## REPRINT INFORMATION – PLEASE READ!

For updated information please call 13 25 23 or visit the website [www.deedi.qld.gov.au](http://www.deedi.qld.gov.au)

This publication has been reprinted as a digital book without any changes to the content published in 1998. We advise readers to take particular note of the areas most likely to be out-of-date and so requiring further research:

- Chemical recommendations—check with an agronomist or Infopest [www.infopest.qld.gov.au](http://www.infopest.qld.gov.au)
- Financial information—costs and returns listed in this publication are out of date. Please contact an adviser or industry body to assist with identifying more current figures.
- Varieties—new varieties are likely to be available and some older varieties may no longer be recommended. Check with an agronomist, call the Business Information Centre on 13 25 23, visit our website [www.deedi.qld.gov.au](http://www.deedi.qld.gov.au) or contact the industry body.
- Contacts—many of the contact details may have changed and there could be several new contacts available. The industry organisation may be able to assist you to find the information or services you require.
- Organisation names—most government agencies referred to in this publication have had name changes. Contact the Business Information Centre on 13 25 23 or the industry organisation to find out the current name and contact details for these agencies.
- Additional information—many other sources of information are now available for each crop. Contact an agronomist, Business Information Centre on 13 25 23 or the industry organisation for other suggested reading.

Even with these limitations we believe this information kit provides important and valuable information for intending and existing growers.

**This publication was last revised in 1998. The information is not current and the accuracy of the information cannot be guaranteed by the State of Queensland.**

This information has been made available to assist users to identify issues involved in the production of tropical banana. This information is not to be used or relied upon by users for any purpose which may expose the user or any other person to loss or damage. Users should conduct their own inquiries and rely on their own independent professional advice.

While every care has been taken in preparing this publication, the State of Queensland accepts no responsibility for decisions or actions taken as a result of any data, information, statement or advice, expressed or implied, contained in this publication.



Queensland Government



# *Before you* **START**

*If you have never grown bananas in the wet tropics before, then you will find this section very useful. It is a brief checklist of the essential things you need to know before you start. It will help you make the right decision about growing bananas in tropical Queensland.*

*The information here is brief and to the point. We provide more detail on important areas in other sections of the kit. Symbols on the left of the page will help you make these links.*

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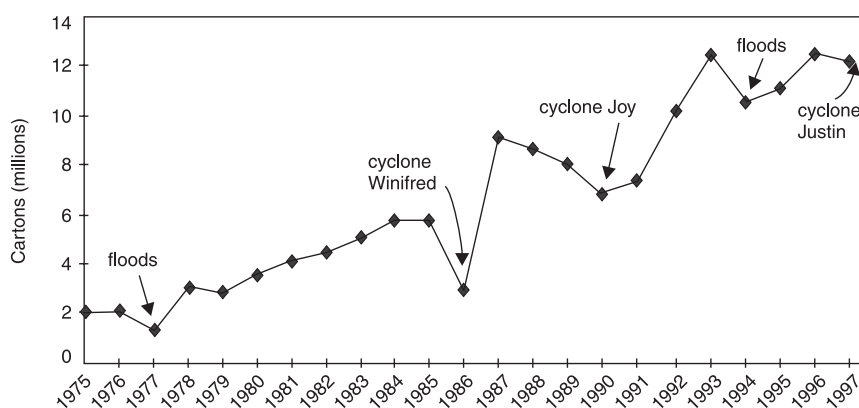
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## An overview of the tropical banana industry

The wet tropical coast of north Queensland between Babinda and Cardwell is Australia's main banana growing area, accounting for about 70% of the crop. Production has increased steadily from 2 million 13 kg cartons in 1975 to more than 12 million cartons in 1997 (about 160 000 tonnes). Banana growing has also expanded outside the traditional wet coast into the dry tropics of the Burdekin delta and the Atherton Tableland and Mackay/Sarina regions.

The other tropical banana growing regions in Australia are around Darwin in the Northern Territory, and Kununurra in Western Australia. Although production in both of these areas is expanding, they currently supply less than 7% of the national crop.

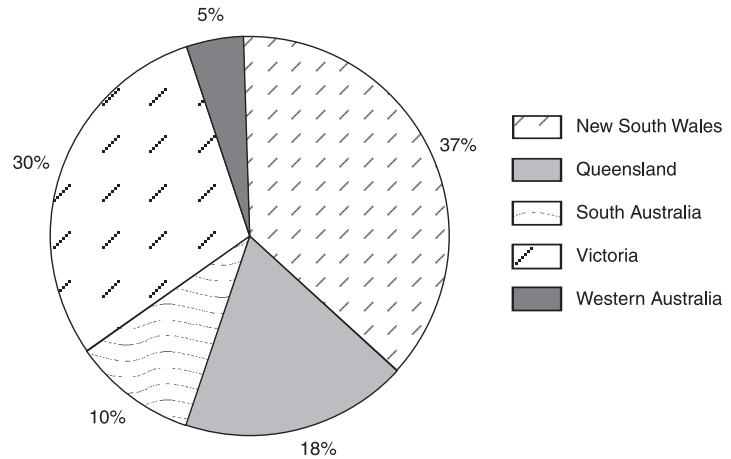
The north Queensland industry is prone to natural disasters such as cyclones and floods, which greatly influence continuity of supply (Figure 1). Another weakness is the reliance on the Cavendish variety, which makes the industry vulnerable to severe disease outbreaks.



**Figure 1.** North Queensland annual banana production 1975 to 1997

Farm or plantation sizes vary from small family units of less than 5 ha to large plantations growing more than 200 ha of bananas.

Eighty-five per cent of the north Queensland banana crop is consigned to the metropolitan wholesale markets of Sydney, Melbourne and Brisbane. The balance is sold in Adelaide, Perth and Newcastle (Figure 2). All bananas are consigned to market in a hard green condition where they are gassed with ethylene for ripening before sale. This is a specialist operation usually performed by marketing agents who only sell bananas.



**Figure 2.** Percentage of 1997 north Queensland banana production sent to five Australian states

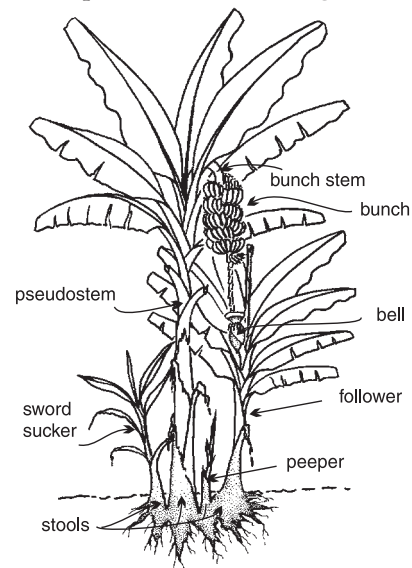
Some potential exists for the development of specialist niche markets for organically grown bananas, new varieties of both dessert and cooking bananas (plantains), and banana processing. The possible development of export markets is being investigated. Bananas are grown in many tropical countries. The major producers of export bananas are Ecuador, Colombia, Costa Rica, Honduras, Panama and the Philippines. The total world export production of bananas is 9 million tonnes of a total world production of 46 million tonnes.

### About the plant

The banana plant is a large, tree-like herb that finishes as a flower and dies. New plants grow from a corm. The plant consists of a false stem (pseudostem) that is composed of leaf sheaths with a crown of large leaves. The flower stalk grows from the top of the corm near ground level, through the centre of the pseudostem. Fruit are formed from female flowers at the top of the bunch (Figure 3).



Understanding the banana plant  
Section 4 page 3



**Figure 3.** Banana plant, bunch and fruit morphology

## Know what you are getting into

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### The industry

In Australia, bananas are a staple food line which are available year-round and are well known to consumers. Expansion in the tropics at the expense of subtropical production regions reflects competitive advantages in environment, which result in higher yields of more consistent quality fruit.

### Perceptions of good returns

Bananas can be an attractive crop for new growers because they are perceived to offer high, quick returns with low capital for establishment.

There are some major problems, however, with growing bananas in the tropics.

**Variable returns.** Market prices, and hence returns, vary considerably both within and between years, often falling below the cost of production. This is caused by seasonal fluctuations in supply and demand. These fluctuations are due to periods of overproduction and natural disasters, particularly tropical cyclones and storms.

**Natural disasters.** The north Queensland tropics is prone to severe damage from tropical cyclones, storms, extended rain periods and flooding. These events can cause major production losses and the complete loss of a crop is possible.

**High capital investment.** Capital investment is high because of the cost of suitable land and specialised equipment. A packing shed and packing equipment is needed unless there is a centralised packing facility in the district. Specialist field equipment such as bagging machines and bunch trailers are also needed, though some of these operations can be done under contract.

### The plantation

Bananas are grown as a perennial crop. The mother plant dies after fruiting and several daughter plants (suckers) emerge from the side of the corm and eventually produce a new bunch. From planting to bunch harvest takes about 12 months, with crop cycling (the period from one harvest to the next) about 8 to 11 months. The average life of a commercial plantation is five to seven years, after which the land is fallowed. The first crop is referred to as the plant crop and subsequent crops are called ratoons.

Irrigation is necessary during drier periods of the year to achieve optimum yield and fruit quality. Common irrigation methods include overhead sprinklers, travelling irrigators, under-tree minisprinklers and trickle irrigation.

Bananas require good fertiliser and pest management. Fertilising is mostly with nitrogen and potassium, however, other nutrients need to be applied at times. Lime is needed to maintain soil pH. Several fungal leaf diseases, insect pests and nematodes must be managed continually to produce quality bananas.



Legislation  
Section 4 page 8



## Industry regulations

A range of state legislation, which focuses on compulsory levy collection, pest and disease management, and workplace health and safety, covers the Queensland banana industry.

## Business skills

Bananas are a high risk, demanding crop that requires constant attention to production, personnel, marketing and financial management. Your success will depend greatly on your ability to come to grips with these management issues.

## Marketing

The banana market is becoming more quality conscious and demanding high standard fruit. Maximising your returns will depend on your ability to meet these standards. The market is largely domestic, with a limited export potential. It is subject to threats of imports from countries with low labour costs. Imported bananas are presently prohibited due to quarantine measures to prevent the introduction of exotic diseases.

## Pests and diseases

Bananas are subject to a wide range of pest and disease problems requiring extensive use of chemicals and intensive management for their control. There are also several exotic pests and diseases in our neighbouring countries that are a major threat to the Australian banana industry.



Problem solver  
Section 5

## Industry developments

The north Queensland banana industry is highly innovative and has undergone significant changes in its modern history. Possible future developments include further mechanisation of field activities such as harvesting; expansion of centralised packing facilities and cooperative marketing; exports of clean, green bananas; niche marketing of new varieties; and organically grown bananas.

## What you can expect to make

### Yields

Yields of irrigated Cavendish bananas can range from 1800 to 3000 cartons per hectare per crop cycle. Management practices, plantation

density, plantation age, pest and disease incidence and seasonal variations in climate influence yield.



### Prices

Prices for Cavendish bananas vary widely in any one year and from year to year, and you should not look at prices for a single year to draw conclusions on trends and variations. The price can range from \$5 to \$15 per carton because of variations in supply and fruit quality. Prolonged higher prices are only achieved when significant natural disasters such as cyclones, storms or floods damage a large section of the tropical banana industry. Cyclical downturns in prices and returns also occur at intervals from overproduction.

### Production costs

For an average yield of 2500 cartons per hectare, the production costs for Cavendish bananas in north Queensland are estimated at \$25 000 to \$30 000 per hectare or about \$10 to \$12 per 13 kg carton. These include all growing and marketing costs such as fertilisers, sprays, fuel and casual labour.

The fixed costs include items such as taxes, rates, depreciation, interest repayments on loans and permanent labour. They will add a further \$320 000 to the cost of running an 18 ha farm with 12 ha of bananas.

### Income

The profitability of bananas is very sensitive to market prices and yields. In any year, there may be periods when the returns do not cover the cost of production and other times when the price may be returning high levels of profit. A small change in price can mean the difference between a profit and loss, so a high level of budgeting skill is required. As banana returns can range from \$5 to \$15 per carton, income can range from a loss of \$15 000 per hectare per year to a profit of \$10 000 per hectare per year, assuming an average yield of 2500 cartons per hectare and \$11/carton cost of production.

### The capital you need

Plant, equipment, land and buildings are the big capital costs in setting up a banana farm. If starting from scratch you will need about \$560 000 to set up an 18 ha farm with 12 ha of bearing bananas.

Twelve hectares of bearing bananas is considered the minimum size for a viable family operation where bananas are the sole source of income. The bigger area allows for expansion, the planting of replacement blocks and fallowing of old blocks.

Good banana land with adequate water may cost up to \$20 000 per hectare. You will need about \$200 000 to buy essential equipment for



Economics of  
growing bananas  
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12 ha of bearing banana land. This covers the cost of irrigation equipment and infrastructure; tractors; picking trailers; cultivating and spraying equipment; a packing shed and packing equipment. You could save some money by buying used equipment.

## The farm you need

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Growing the crop  
Section 3

### Soil and drainage

Bananas can be grown on a wide range of soils provided there is good drainage, adequate fertility and moisture. The best soils are deep, well drained, water retentive loams with a high humus content. Soils of volcanic or alluvial origin are preferred. Avoid planting bananas in low-lying, water-logged areas.

### Climate

Bananas grow best in a tropical climate. The optimum temperature for growth is about 27°C with chilling damage of fruit occurring at temperatures below 13°C. The wet tropical coast provides the best climate for production, but bananas can also be grown in drier areas with abundant irrigation such as the Burdekin delta and the Atherton Tableland.

### Slope

Bananas can be grown on slight to moderately sloping land (less than 15% slope) but growers should remember that, for good plantation management, machinery access is essential in all weather conditions. For erosion control on sloping land, appropriate row direction and mounding, and minimal disturbance of the interrow is recommended. A good grass cover should be maintained on the interrow.

### Water

Bananas require regular watering, from 20 to 60 mm of rainfall or irrigation per week. This is necessary for good growth throughout all stages of development. You may need to license irrigation sources with the Department of Natural Resources. Bananas do not tolerate irrigation water with a salinity (electrical conductivity) of more than 0.65 deciSiemens per metre (dS/m).



Irrigation  
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### Location

Proximity to banana industry support services such as agribusiness providers, carton manufacturers, transport and labour should be considered when choosing an appropriate site.

Farms located close to residential zoning need to consider town planning regulations in relation to buffer zones separating agricultural and non-agricultural land.



## The machinery and equipment you need

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This is the machinery and equipment you need:

### Tractors and vehicles

- 2 tractors 60 kW
- 4WD utility

### Implements

- spray machine
- boom spray
- rotary hoe
- disc plough
- fertiliser spreader
- slasher
- 2 trailers
- 4WD bagging machine

### Irrigation equipment

- solid-set irrigation and pump

### Workshop and other

- pallet jack
- dipping bin
- banana bags
- scales
- pallet stacker
- packing wheel, gluer/taper
- miscellaneous tools

### Buildings

- pallet wells
- packing shed (includes concrete floor, split level and butchers rail system)
- storage shed.

## The labour you need

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Banana production is a highly labour intensive enterprise that does not lend itself easily to mechanisation. Two people can manage the first 4 ha of bananas with some casual labour for packing fruit. For every additional 4 ha of bananas, one additional full-time employee is necessary. There are no significant seasonal breaks as there are for other crops because bananas produce year-round.

Heavy manual labour is involved in almost every aspect of production. The work is repetitive and often performed under difficult conditions




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Personnel  
management  
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a key issue

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 Workplace health  
and safety  
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with some tasks such as packing fruit into cartons requiring specialised skills. As a result, maintaining a skilled and reliable labour force is difficult. Plantation managers also need to be aware of the workplace health and safety issues with banana production. You can contract services such as preparation of planting material, fungicide applications, bell injection, bunch covering and desuckering. Consultants and agribusiness personnel can be engaged to provide information on pest, disease and fertiliser management.

## Harvesting and marketing considerations

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### Harvesting

Harvesting bananas is hard work and involves carrying heavy bunches, often weighing more than 50 kg, to field trailers. Particular care and training is needed to avoid injuries to workers and damage to fruit. Always use padding to protect bunches during transport to the packing shed. Specially designed bunch trailers are generally used.

Bananas deteriorate rapidly in hot sun, reducing their shelf life. They should be harvested quickly and kept shaded while in the field. It is best to cool the fruit below 15°C quickly by getting packed fruit to cold rooms as soon as possible.

### Packing

Although many growers pack their own fruit, the cost of establishing a shed can be considerable. It is worth investigating central packing facilities or packing with your neighbour(s).

### Market options

There are several options for marketing your fruit. They include:

- individual growers, grower groups or cooperatives selling direct to central produce markets in Australia's major cities;
- direct selling to major city chain stores and fruit barns;
- selling locally.

Traditionally growers sent fruit to their preferred agent for sale but cooperatives and marketing groups have started so that growers can play a bigger role in the marketing of their fruit.

Bananas are transported to the markets in a hard green condition and need to be ripened with ethylene gas before selling. This is a specialist operation lasting about a week and the facilities are expensive. For this reason bananas are sold only by specialist banana agents.



more info

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 Marketing  
Section 3 page 32
 

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