

Breadfruit

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Botanical name: *Artocarpus altilis*

Other names: Ulu

Uses – Why grow it?

This handsome tree can produce a large crop of fruit that will be a valuable addition to any diet. The trees crop seasonally, reaching peak maturity around March. With a mix of varieties fruit can be available for much of the year. Breadfruit trees are strictly tropical and require a well selected site and a deal of care till established. The fruit is used from half filled to mature ripe usually cooked as a starchy vegetable. Breadfruit has more food value (we should specify exactly what we mean) than potato or cassava and has a distinctive but pleasant “nutty” flavour.



Noli variety, Fruit and leaves

Before you start

Can I grow breadfruit?

The most popular breadfruit types in Australia do not have seeds. They are grown from cuttings. The young trees need particular care, as they cannot take stress caused by lack of water, poor soil nutrition, strong sun, cold weather, strong winds or being eaten by stock. Once established, and under good conditions the trees will grow quickly and should fruit within 5 years. There are trees over 50 years old around Cairns still producing good crops.

Breadfruit trees benefit from pollination even the seedless types. The trees have separate male and female flowers on the same tree. Male flowers produce pollen that is attractive to insects, particularly honeybees but it is more likely that most pollination is effected by wind.

Site Selection

Breadfruit plants are medium to large trees that should be managed to grow a spreading canopy. They need plenty of space as they can grow to approx. 20 metres across. Figs, mulberry and jackfruit are closely related to breadfruit and like these plants the roots of breadfruit will search for water. The roots are likely to cause damage to septic systems and under ground water pipes if the tree is within 20 metres of them.

Although breadfruit plants like access to water they do not grow well in swampy ground. The plants like deep, free draining soil with plenty of mulch under the tree.

Temperatures around 8°C. make the plants suffer and extended cold will kill breadfruit trees.

Varieties

There are over 120 varieties of breadfruit in the Pacific area but only about 10 in north Queensland.

- Limberlost winter white, can produce two crops of medium to large fruit
- Noli, withstands around 2 degrees cooler weather and producer medium large fruit



- Mason, commercially grown producing large fruit
- Limberlost summer yellow
- Samoan dwarf
- Golden Samoan
- Rodgers
- Cannonball, vigorous tree that produces small fruit
- Seeded selections (also known as breadnut) Are vigorous trees that are often more hardy than seedless types. Their use is mainly for seeds that are prepared and eaten like jackfruit seeds



The size and shape of the leaves are used to identify varieties

How to grow Breadfruit

Planting material

Field planting is best done by planting out advanced potted trees. These are produced under nursery conditions from

- Root shoots are the most common and successful method for field planting. Root shoots can be produced by damaging selected exposed roots and using the shoot the grows.
- Root cuttings are usually very successful and able to be produced in larger numbers than root shoots. Requires advanced greenhouse techniques
- Branch cuttings, requires advanced greenhouse techniques
- Marcotts or air layers, labour intensive
- Seedlings, from seeded types only. Seedlings take longer to mature and will be variable but can be used as root stocks for grafting selected types
- Grafting onto breadfruit rootstocks, requires suitable root stock plants and advanced grafting techniques. Both cleft and approach grafts are successful.

Before freighting plants long distances ensure they have been sufficiently hardened and have a tight root ball. This should limit transport damage.

Site preparation

Planting sites should be prepared ahead of planting by digging a hole at least twice the pot diameter and twice the pot deep.

Depending on the soil type the tree may benefit from being planted on a mound in wetter and heavier clay type soils or planted in a hollow in free draining sandy soils. In all cases the incorporation of around half a bucket of compost to which a hand full or two of blood and bone fertilizer has been added should be well dug into the planting site. New trees should be protected from curious animals that are likely dig them up.

Planting and care

When the trees arrive make sure they are in good health. This may mean a few weeks of care before planting out. To reduce transplant stress, soak the trees in a tub of water just before unpotting. Remove the plant, upturn and gently tap plants out of plant pots but cut the trees out of plastic planter bags. In both cases tease the roots a little before placing in its hole. Gently fill

in with topsoil while compacting with water. Complete the planting by tying to a stake for support while the plant settles. Provide wind and sun protection if needed.

Breadfruit trees can be damaged by strong winds, especially when the trees have a good crop hanging. Broken branches need to be cut back and the wounds painted with a tree wound dressing. This “pruning” often rejuvenates older trees but reduces the next crop or two.

Fruits are produced on the ends of branches so tree height needs to be managed by top pruning to make harvesting easier. Cutting out large vertical branches will promote fruiting on lower branches and reduce major tree damage caused by storms.

Fertilising

Fertilising aims to supply plant foods that are not in the soil at a rate the plant needs as it grows. Fertilisers like mulch also have water holding and weed matting abilities. Fertilisers like lime supply calcium but also sweeten the soil by increasing the soil pH. Mildly acid soil (pH 5.5 to 6.2) is good for breadfruit.

Most soils in the peninsula will need some additional fertilising. Breadfruit trees benefit from regular application of small amounts of complete fertilisers and a five (5) to fifteen (15) cm thick blanket of mulch under the tree. Liquid foliar fertilisers applied to the leaves at weekly intervals for the first few months after planting will promote the tree’s establishment. Once established (the plant has grown new leaves at least twice) it will benefit from granule and or liquid fertilisers applied to the soil. These should be spread evenly around the tree and centred on the edge of trees shadow. Avoid placing fertilisers near the tree trunk as this can burn the plant, and won’t promote outward root growth.

Fertilisers work best when applied with or just before watering or steady rain. Heavy rain with surface water runoff will wash fertiliser away.

As a guide, use a mixture fertiliser (12% nitrogen, 5% phosphorous, 14% potassium) for breadfruit. Apply the fertiliser on a monthly basis at a rate of 10 grams for each square metre (m²) of canopy area.

For example, a one (1) year old tree with 1m² of canopy area would receive 10 grams of fertiliser each month. A five (5) year old tree with a canopy area of 40 m² would receive 40 grams each month

Irrigation

Light shade over young trees will reduce the need for watering. Trees up to two years will benefit from regular watering, at least weekly. Well-established trees will tolerate dry spells of a few weeks but extended dry weather particularly with hot dry winds will cause the tree to suffer or die. Adequate irrigation will depend on the soil type and evaporation rate but 20 mm a week in one or two waterings is a guide.

Some breadfruit varieties will tolerate brackish water but water low in soluble solids should be sourced for irrigating.



Problems (pests, diseases and weeds)

Young trees will suffer from leaf eating insects so check the plants regularly and remove the beetles, grasshoppers or grubs. Some insecticides are registered for control of these pests in large orchard plantings. Fruit spotting bug damage to fruit results in large dimples on mature fruit and hard spots in the flesh. The damage is usually occasional and chemical controls are not normally warranted.

Trees at any age can suffer from leaf and trunk damage caused by stock. Horses, cattle and wallabies all like eating breadfruit leaves. Horses, pigs and wallabies like to chew the bark and dogs, bandicoots and pigs will dig up newly planted trees. Adequate fencing of the orchard and laying wire mesh on the ground around the trees will usually protect the trees.

Older leaves and branches may get algal growth; blue, green, brown patches or spots that look like a problem but really aren't.

In extended wet periods mature fruit on the tree may suffer skin rots. Harvesting a little earlier can reduce this.

Harvesting, selling and using

Harvesting

Fruit grow on stems about 10 to 15 cm long and between 1.5 and 3cm thick. Immediately upon cutting, the stems will bleed sticky white sap and although the sap is not as irritating as that of jackfruit, every effort should be made to avoid it. Depending on the intended use will determine at which stage of maturity fruit is picked.

Fruit can be used at any stage but generally picked at half grown to mature green stage for use as a starchy cooked vegetable. Fruit left to mature and soften are used as a sweeter cooked vegetable or, in some varieties, as an uncooked fruit.

Mature fruits will vary in size according to variety and growth conditions. Fruits between 1 and 2 kg are of a good size. Maturity is usually first indicated by white sap bleeding on the fruit's skin and the skin becoming smoother, losing the roughness of the old flower ends. After this stage fruits may change colour from dark green to lighter green or pale yellow. The fruits will hang till they soften and drop.

Ladders and long handled fruit pickers make harvesting easier and safer while allowing fruit to be handled gently. The best time to pick fruit is early morning before the sun heats it up.

Selling

Trim the stalk to level with the fruit. Newly picked fruit can be left in the shade till the sap bleeding stops then washed in clean running water. Fruit for sale should be graded by selecting even shaped fruit free of skin damage at a similar maturity. Fruit needs to be kept cool and once dry should be packed firmly in a sturdy box.

Mature breadfruit will often ripen within a day or two unless kept cool (10 to 13 degrees C.). Cold air, below 8 degrees C, and especially cold dry air blackens the fruit skin making it unattractive but the flesh remains usable.

Using

Depending on the variety and maturity stage, breadfruit can be used in many ways such as

- Baked whole, particularly good for mature fruit just softening
- Baked in pieces, usually peeled and with core removed
- Fried or deep fried, after peeling, removing core and slicing thinly

- Boiled, after peeling, removing core and cutting into large cubes
- Blended, mature soft fruit or cooked fruit can be mixed with flour and used as a base for further cooking

Cooked breadfruit is a useful source of carbohydrate, calcium, phosphorus, iron, vitamin C, and vitamin B

Further reading

- The Breadfruit Institute website at <http://www.breadfruit.org/>. This Institute aims to promote the study and use of breadfruit for food and reforestation. The site has current information and good photos of many varieties
- Na Lima Kokua – Pacific Tropical Botanical Garden publication on breadfruit. This booklet is 16 pages on the crop with 26 recipes
- Breadfruit varieties in the Pacific atolls (1988) D. Ragone. United Nations Development Programme – Integrated Atoll Development Project. 45 pages covering growing, uses and varieties

Recipes

Boiled breadfruit:

Ingredients: One hard green breadfruit, salt, pepper, salad oil, salad vinegar, water

- ❖ Half fill a suitable sized pot with clean water and add salt and pepper to taste
- ❖ While bringing the pot to the boil, peel and core the breadfruit then cut into mouth sized pieces
- ❖ Add breadfruit pieces to the boiling water and simmer till cooked (approx 15 to 20 minutes). Drain and mix in oil and vinegar to taste (or coconut cream)
- ❖ Serve hot with green vegetables or cold with salad

Further Horticulture information

Contact DPI&F Call Centre:

Ph: 13 25 23 (8 am to 6 pm Monday Tuesday Thursday Friday. 9am to 6pm Wednesday)

Ph: 07 3404 6999 - Non-Queensland residents

E-mail: callweb@dpi.qld.gov.au

Peninsula garden notes

This information series is aimed at promoting gardening activities in Cape York Peninsula. The crop plants and gardening techniques outlined have been chosen with the specific requirements and constraints of the Cape York Peninsula Area in mind.

Disclaimer

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