

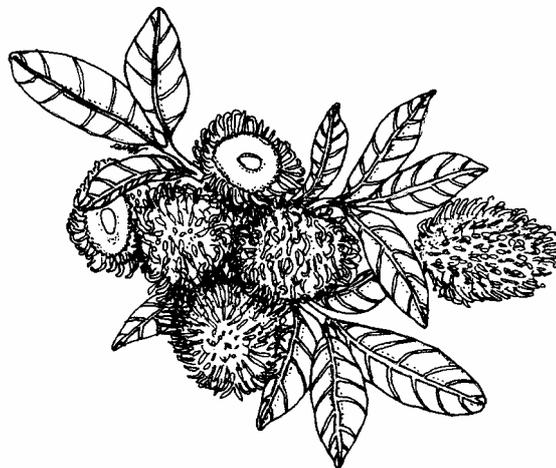
Rambutan Postharvest Handling

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Rambutan is a tree fruit cultivated throughout the humid tropics. The most attractive and distinctive features of a rambutan are its bright red and yellow colours, but most particularly its soft hairs (called spinterns). This attractive appearance is short lived once the fruit is harvested, as the spinterns desiccate and shrivel, turning brown to black in colour. This is followed by a general browning of the skin after 4-5 days at ambient temperature. The fleshy part of the fruit does not deteriorate as fast as the skin, but this desiccation of the skin and subsequent browning leads to a significant downgrading of fruit quality and returns to the grower.

Rambutans are considered at optimum maturity and ready for harvest from 12-16 weeks after commencement of flowering, when the fruit are fully coloured red or yellow. They are non-climacteric and will not ripen once removed from the tree. Thus, rambutan fruit should be selectively harvested and not bunch-harvested. Although the rambutan is generally harvested on the basis of its skin colour, flavour should also be at an optimum. As the fruit ripens on the tree, sweetness increases and acidity decreases.

Consequently, fruit harvested too early are acidic and lack sweetness, while fruit harvested too late can be bland. Generally, depending on the cultivar, the fruit has a total soluble solids (TSS) and titratable acidity (TA) in the range 17-21° Brix and 0.7-5.5 meq/g respectively, at harvestable maturity.



Deterioration in quality is primarily for two reasons:

1. drying out of the spinterns followed by the skin, and
2. mechanical damage to the spinterns causing further fruit damage.

To avoid drying harvesting is best done in the early morning or late evening and harvested fruit should be kept under shade, preferably covered. Care should be taken during harvesting to avoid rough handling.

When removing fruit from the panicles, discard undersized, damaged, diseased and half coloured fruit. De-stemmed fruits are washed and carefully brushed manually to remove adhering debris. A better system consists of loading fruits into a hopper filled with water from which they are taken up by an elevator to the spray unit. The spray unit has single jets to spray fruits as they move along the roller brushes and remove adhering debris.

Depending on market requirements (e.g. domestic markets like Perth and Adelaide), a fruit fly treatment of dimethoate may be required at 400 ppm (i.e. 40 % concentrate mixed at 1 ml/L). Fruits can be dipped in a dimethoate tank or dimethoate is incorporated as a non-recirculating spray in the spray unit. Fruit is to remain wet for one minute. Dimethoate spray solutions should be changed every 5-7 days and the dip concentrate checked frequently. Also it is essential to obtain a certificate of the treatment procedures from AQIS who will send an inspector to check the system. Growers should wear protective clothing when preparing dips and handling treated fruits.

After washing and/or treatment, fruits should be graded by single weight and colour. Weight graders can be attached in line after the spray unit. During packing, it is advisable to spray the fruit in the boxes with a fine mist of water to prevent dehydration. When boxes are full, they should be sealed and returned to the cool room.

High humidity should be maintained in the cool room. Fruit should be pre-cooled prior to packing. Present findings indicate that 10°C is the best temperature for the storage of the majority of cultivars. Low temperatures (under 5°C) will cause chilling injury in about a week.

Varieties should not be mixed when packing and containers should be labelled with the name of the variety. This assists with sizing and colour grading.

It is important to reduce weight loss if you want to reduce browning. There are a range of packaging options available to do this but it is up to the grower to know what the market requires.

Single layer trays - 2.5 kg

At present most growers pack single layer trays. A plastic liner such as an Everfresh® bag should be placed in the tray first, when packing is completed it is folded over to seal the fruit. This is important to prevent fruit dehydrating on the way to market. Fruit must be size graded and preferably colour graded as well. The fruit are pattern packed in rows with the stem end down. They should fit snugly into the tray but not crush each other, i.e. there should not be any space for movement in the tray when fully packed. To facilitate packing styrofoam inserts are used by growers in Qld to hold fruit firmly in the box.

General produce carton

This is a carton usually used for 10 kg of vegetables. When used for rambutan it holds two liner bags containing 2.5 kg of fruit each. The bags are filled and shaken to settle the fruit and to ensure the carton is full.

Punnet packing

Some Queensland growers are currently packing fruit in plastic punnets. Ten punnets of 250 g each (6 fruit per punnet) are individually wrapped with a PVC film such as Clingwrap. The punnets are then placed in a cardboard box for easy handling. A larger punnet system uses six punnets of 850 g (15 fruit per punnet) similarly wrapped and placed in a cardboard box.

Harvesting at optimum maturity, careful handling, storage at 10°C in boxes and liners or punnets will give an effective storage life of up to two weeks.

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