

RAMBUTAN COMPLETE GUIDE



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PREFACE

For a long time, cash crops were the mainstay of agriculture in Kerala. However, increasing cost of production, high price volatility of cash crops and adverse impacts of climate change, have rendered these crops neither economically viable nor sustainable in the near future. As a result, farmers are shifting to emerging fruit crops such as Rambutan, Avocado, Mangosteen etc. on a commercial basis. Also fruits like Durian, Longan, Dragonfruit, Milkfruit, etc, are planted in different scales on a trial basis. Moreover, existing crops like Jackfruit is gaining momentum due to the growing demand for the fruit and its potential for value addition. Of late, there has been increased farmer's interest in intercropping fruit plants with Cocoa, Longkong, Arecanut etc.

A unique attribute of this new opportunity is that, only less than 2 percent of India's cultivable land is suitable for cultivating these fruit crops, out of which more than 70 percent is located in Kerala. This highlights the exceptional potential of our state in growing fruits commercially. Factors such as favourable climate, extended harvest season up to eight months from various geographies within the state, and the ever-increasing domestic and global demand for fruits, could not only improve the farmers revenue but also give a big boost to the Agri- economy of the state of Kerala.

Among these profitable fruits, rambutan stands out at present. However, as a new generation crop, rambutan cultivation requires precise understanding and accurate scientific information on periodic and seasonal agricultural practices. Homegrown Biotech, instrumental in introducing these crops in the country and being the leading promoter of fruit farming in the state, have already introduced top-quality rambutan varieties – N18 and Rongrien to the farmers. Now, we bring to you a comprehensive guide that covers all scientific and cultural practices of rambutan cultivation in a simple and accessible style.

We hope 'Rambutan Complete Guide' will help the farming community with adequate information on all aspects of farming, from planting pit to post harvest.



CONTENTS

ABOUT RAMBUTAN	5
RAMBUTAN VARIETIES	6-10
RAMBUTAN N18	
RAMBUTAN RONGRIEN	
RAMBUTAN BINJAI	
RAMBUTAN SCHOOL BOY	
RAMBUTAN JARUM EMAS	
RAMBUTAN MAHARLIKA	
RAMBUTAN MALWANA SPECIAL	
RAMBUTAN E35	
KERALA VARIETIES	
WHY HOMEGROWN PLANTS?	11
PLANTING METHOD	12
FERTILIZER APPLICATION	13-14
AFTER PLANTING	
FIRST YEAR MANURING	
SECOND YEAR MANURING	
POST FLOWERING FARM OPERATIONS	15
POST HARVEST FARM OPERATIONS	16-18
IRRIGATION	19
BIRD NETTING, HARVESTING, PRUNING	20
PEST AND DISEASES	21-26
STEM BORER ATTACK	
FLOWER EATING CATERPILLAR	
CORKY BARK DISEASE	
FRUIT ROT	
MEALYBUG ATTACK	
LEAF SCORCHING DUE TO HIGH TEMPERATURE	
FRUIT DROP	
BORON DEFICIENCY	
LEAF EATING INSECTS	
SOOTY MOLD	
SCALE INSECTS ATTACK	
POTASSIUM DEFICIENCY	
WHY 40X40?	27
SIZE NOT THE ONLY CRITERIA	28
IMPORTANCE OF DOLOMITE/LIME APPLICATION	29
FLAT FRUITS	29
DRIP LINE, MULCHING	30
ABOUT HOMEGROWN "SPROUT"	31

ABOUT RAMBUTAN

Rambutan can be considered as a fruit uniquely suited for Kerala, compared to other states in India. Though this fruit can only be grown on 2% of India's arable land, Kerala as a whole is included in this small percentage. This offers Kerala's aspirational farmers a fantastic opportunity. The state has distinct tropical weather patterns in contrast to other parts of India.

Keralites are familiar with rambutan, known locally as 'mullan pazham,' as it has been grown here for many years. The traditional 'mullan pazham' (local seedling variety) and the exotic rambutan varieties which entice the taste buds from the first bite, differ significantly despite their long-standing familiarity. The best commercial rambutan varieties, including N18 (Malaysia) and Rongrien (Thailand), have been introduced by Homegrown. Homestead variants including Binjai (Indonesia), Malwana (Srilanka), School Boy (Malaysia), Jarum Emas (Malaysia), and Maharlika (Philippines), have also been introduced. Each year, more farmers are adopting these high-yielding varieties into their farms.

The main factors driving the increased interest in rambutan farming are the crop's excellent yield and the ease of rambutan cultivation. The red rambutan varieties are more aesthetically pleasing, widely accepted, and better prized. Scientific planting methods recommend 30 trees per acre. An acre of rambutan can generate significantly higher net income compared to an acre of rubber plantation. Rambutan trees start yielding typically from the 3rd year of planting, with the crop steadily increasing each year. The rambutan trees generally have a life span of over 100 years. A matured rambutan tree can steadily produce 200-250 kilograms from 12th year onwards.

In the modern world of today, marketing rambutan fruits apart from domestic market does not present a huge challenge. Kerala farmers who want to sell their produce abroad have an added benefit from our proximity to the Gulf countries. From the lost glory of being the spice basket of the world, Kerala may relaunch itself as the **FRUIT BASKET OF THE WORLD** sooner or later.

RAMBUTAN N18

Rambutan N18 originated in Malaysia, exhibits ideal growth and a steady high yield in Kerala. Fruits are comparatively large in size and oblong in shape. The rind and the hairs on it are red in colour and the edible fleshy portion is translucent and is wrapped around the seed. It tastes sweet with a slight tinge of tanginess. The fruits of this variety record a sweetness of 20°–22° brix. Not even monsoon showers can rob off its endearing taste. Ripened fruits are seen to stay intact on the trees for 15–20 days, leaving growers with better options for marketing. Seeds are comparatively small and have easily detachable arils. Fruits of this variety are rich sources of anti-oxidants, nutrients and carbohydrates. It has a shelf life of 3 to 4 days in normal atmospheric conditions. Each fruit weighs 40–55 grams and hence ideal for commercial cultivation.



PLANTING AT 40 X 40 FEET DISTANCE

Despite the concerns of several growers regarding planting distance, Homegrown recommends a spacing of 40 X 40 feet for the commercial cultivation of rambutan. Grower's doubts about this unusually large spacing is understandable, as they are rarely accustomed to planting cash crops at such wide intervals. These concerns include potential land wastage and weeding expenses. Some advocates planting at 20 X 20 feet initially and later removing the trees to optimize lines and rows as the trees grow, aiming to mitigate crop loss during the initial 3–4 years of fruiting.

Pros and cons of such planting distances are mentioned in page no 27.

RAMBUTAN RONGRIEN

Native to Thailand, Rongrien is the most sought-after cultivar in its homeland. Fruits which are relatively oval-shaped appear initially green in colour and over its course of ripening, changes the hue to yellow and finally to red when they reach maturity for harvest. Even as the fruits shift tints, their hair tips retain the original green colour. The arils which are comparatively solid in texture is less juicy. Each fruit weighs around 40 to 50 grams and has a shelf life of up to 4 days in normal atmospheric conditions. The fruits of this variety record a sweetness of 20°–21° brix



RAMBUTAN BINJAI

Home to Indonesia, Rambutan Binjai is still the most popular variety among growers in its homeland, thanks to its profuse bearing year after year. The rind and the hairs are both red in colour. It is spherical in shape and has a shelf life of 3 to 4 days. The aril is a bit hard and less juicy. Sweetness charts at the level of 22° brix.



RAMBUTAN SCHOOL BOY

The fruit is Christened after a school campus in Penang, Malaysia, where this variety was originally located. Rambutan School Boy later received great acclaim across the entire fruit belt of the country. School Boy, also known by the name AnakSekola, is largely grown in the Sarawak province of Malaysia, the major exporter of rambutan to overseas markets. The rind is deep red in colour while the hairs retain the original green colour throughout. Sweetness is 21° brix and the post-harvest shelf life is 3-4 days. This variety received good acceptance wherever it was introduced. The comparative smaller size of the fruit is compensated by profuse bearing.



RAMBUTAN JARUM EMAS

Another variety native to Malaysia, Rambutan Jarum Emas literally means red (jarum) gold (emas) in the local tongue. It is typically a homestead variety because the tree with large bunches of red fruits is a visual treat to the onlookers. Fruits are spherical in shape and larger in size. Deep red rind is rather thin and the hairs share the same hue. Arils are very sweet and shelf life is rather appreciable at 3-4 days. The fruits of this variety record a sweetness of 20° brix.





RAMBUTAN MAHARLIKA

Originated in Philippines, Rambutan Maharlika has gained immense popularity across all countries where this fruit is grown. The fruits are slightly longer and oblong. The initial green color of the tender fruits gradually turns into a charming wine red as they ripen. Each fruit weighs 40–45 grams, making them reasonably large. The perfectly white arils are easily detachable from the seed. However, the post-harvest shelf life is relatively short, lasting only 2–3 days. The fruits of this variety record a sweetness of 20°–21° brix.

RAMBUTAN MALWANA SPECIAL

Malwana special is a commercial cultivar that is widely grown in Sri Lanka and is highly valued by farmers. Named after the Malwana tract in Sri Lanka, where rambutan is the single largest cultivated crop. It enjoys significant popularity due to its visual appeal when fully ripened. The fruits are rather spherical in shape, with a charming red rind and hairs. This variety has 20°–21° brix, comparatively juicier, and has a limited shelf life.



RAMBUTAN E35

Another Sri Lankan variety, Rambutan E35 is distinguished by its golden yellow rind and hairs. The fruits grow in heavy bunches and, when fully ripe, resemble a golden shower tree (purging cassia) in full bloom. The fruits are excessively sweet, with a Brix value of 22°–24° and have a short shelf life of only two days after harvest. The trees are relatively dwarfish, making them a popular choice for homestead planting. Additionally, this variety boasts higher-than-normal levels of vitamins, carbohydrates, and antioxidants, further enhancing its appeal.



KERALA VARIETIES

Several Kerala varieties, such as King, Kg10 and Caesar, are popular in Kerala. While these varieties come close to exotic ones in taste and size, they are not suitable for commercial cultivation. The fruits from these local varieties are relatively juicier, making them unsuitable for storage. Moreover, these varieties lack the ability to remain on the trees, once being fully ripened.

WHY HOMEGROWN PLANTS?

Homegrown plants undergo a rigorous selection process starting from the seeds. Unlike conventional methods, our seeds are germinated in a specific seedbed area. The saplings generated are further screened to select the best ones, and the scions are chosen from our well-maintained progeny orchard, managed by trained and experienced staff. The propagates (budlings), after their establishment, are hardened by exposing them to the ambient environment. The recovery rate may be only 40–50% of the total saplings produced. This ensures better growth and allows the plants to withstand sudden microclimatic variations.

NEED FOR WELL-AERATED SOIL

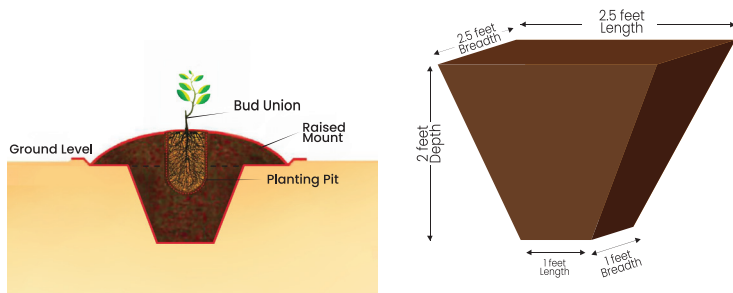
For fruit trees to thrive, the soil must have adequate air flow. Soil aeration may be impeded by extreme soil moisture levels. For healthy development and effective nutrient exchange, tree roots require a sufficient amount of oxygen in the soil. Additionally, proper development of microorganisms that help plants absorb and exchange nutrients is supported by soil porosity. Enhanced soil aeration can be achieved through dripline management, maintaining constant soil pH, C/N ratio and moderate soil tilling.

NEED FOR HARDENING

The sequential hardening process, from the shade house to open areas, helps saplings acclimatise before being planted in the field. This ensures better growth and allows the plants to withstand sudden microclimatic variations.

PLANTING METHOD

The diagram shows the scientific procedure for planting a sapling.
(Five-litre, one-year-old, medium-sized plant)



Pit Dimension : 2.5 ft length x 2.5 ft width x 2 ft depth x 1 feet base

- Excavate the pit with the dimensions shown in the diagram.
- APPLY Dolomite / Lime in the pit as well as in the excavated soil.
- Mix 15 kilograms of dried cow dung with 1 kilogram each of rock phosphate and neem cake with topsoil.
- Fill the pit with the prepared mixture, shaping the top into a hemispherical mound above ground level.
- Take a small planting pit at the centre of the raised mound.
- Sprinkle a handful of the cow dung + rock phosphate mixture to the small planting pit.
- Gently cut and take off the **polybag from the plant. Make sure that the potting soil stays intact while plant is transferred into the pit.
- Place the plant carefully without damaging the clod into the planting pit. Tighten the soil around the clod to secure it, while ensuring the bud-union remains above ground level.

****Poly Bag: Think before you trash it ! (SAVE OUR PLANET)**

FIRST FERTILIZER APPLICATION

When a new set of leaves flush and matures	5 L Sapling (M)
	DAP or FACTAMFOS 100g
After 3 months from the previous application	NPK 150 grams

FERTILIZER APPLICATION 1ST YEAR IN THE FIELD

TIME	FERTILIZER	DOSAGE
Prior to summer	Provide mulch within the drip-line of the plant	
May	Broadcast Lime	250–300 Kg per Acre
	Composted cattle manure (Farm Yard Manure) (2 weeks after the application of dolomite)	5 Kg per Tree
June	NPK (at the base of plants 2 weeks after the application of farmyard manure)	200 gms per Tree
September	Micronutrients (for foliar application)	5–10 gms per Tree dissolved in 5 L Water

FERTILIZER APPLICATION 2ND YEAR IN THE FIELD

TIME	FERTILIZER	DOSAGE
Prior to summer	Provide mulch within the drip-line of the plant	
May	Broadcast lime	250-300 Kg per Acre
	Composted cattle manure (Farm Yard Manure) (2 weeks after the application of dolomite)	10 Kg per Tree
June	NPK (at the base of plants 2 weeks after the application of farmyard manure)	250 gms per Tree
September	Micronutrients (for foliar application)	10 gms per Tree dissolved in Water (5L/tree)
December	SOP (to be sprayed on Leaves)	15 gms per Tree dissolved in Water (5L/tree)



FARM OPERATIONS – FLOWER TO FRUIT

FERTILIZER	PERIOD	DILUTION
Before summer	Provide mulch within the drip-line of the plant	
SOP (Sulphate of Potash to be sprayed on Leaves)	After fruit set, when young fruits reach the size of a pepper corn (4 times at an interval of 30 Days)	2-3 gms in 1 Litre (2g/l, if temp > 36° C)
Micronutrients	within one week of 1 st SOP application	1-2 gm per Litre or 1-2 ml per litre
Dolomite (Broadcast at the base of plants)	At an early interval during the south west monsoon.	400 gms-2.5 Kg per tree depending on the age
Wettable sulphur (To be sprayed on leaves)	During peak monsoon, spray at an interval of 15 days, when rain pauses for 1 or 2 days. Make sure this application is terminated one month before harvest	2-3 gms per Litre
Or		
Pseudomonas		5-7 ml per Litre

Additional notes:

- During summer, if the temperature exceeds 36°C, start with foliar application of Orthosilicic acid (2ml/l) followed by Spray of calcium nitrate (2g/l) after 15 days. (calcium nitrate may be repeated a second time after 20 days)
- Apply micronutrients at 1-2 g/L or 1-2 mL/L. (as per the brand's recommendation).
- Wetting agents may be added to improve the efficiency of foliar application. (except while applying calcium nitrate, which requires only water for mixing).
- Ensure a minimum gap of 4 or 5 days between any two foliar applications.
- Dosage of dolomite may vary according to the brand and product quality.

RAMBUTAN POST HARVEST FARM OPERATIONS

Assuming that the harvest and pruning are completed by mid-September

		3-4 YRS	4-5 YRS	5-6 YRS
SEASON	FERTILIZER	DOSAGE		
After harvesting	Lime	Broadcast @ 300 Kg/Acre		
2 weeks after lime application	Composted cattle manure (Farm Yard Manure)	20 Kgs	25 Kgs	30 Kgs
2 weeks after Composted cattle Manure application	NPK	400 gms	500 gms	600 gms
4 weeks after NPK application	MOP at the base of plants	500 gms	600 gms	700 gms
2 weeks after MOP application	Micronutrients to be applied foliar *	15 gms in 15 L of water	20 gms in 20 L of water	30 gms in 30 L of water
2 weeks after micronutrients application	SOP to be applied foliar **	45 gms in 15 L of water	60 gms in 20 L of water	90 gms in 30 L of water

* Dosage of micronutrients may vary as per the brand's recommendation within the range of 1-2 g/L or 1-2 mL/L.

** SOP may be drenched within the dripline at 7g/L, instead of foliar application. Quantity of water per tree remains the same for foliar and basal applications.

Additional dose of Dolomite application may be required, if the north east monsoon exceeds normal levels.

Quantity of water required for foliar / basal application can vary according to the tree size.

RAMBUTAN POST HARVEST FARM OPERATIONS

Assuming that the harvest and pruning are completed by mid-September

		6-7 YRS	7-8 YRS	8-9 YRS
SEASON	FERTILIZER	DOSAGE		
After harvesting	Lime	Broadcast @ 300 Kg/Acre		
2 weeks after dolomite application	Composted cattle manure (Farm Yard Manure)	35 Kgs	40 Kgs	45 Kgs
2 weeks after Composted cattle Manure application	NPK	700 gms	800 gms	1 kg
4 weeks after NPK application	MOP at the base of plants	800 gms	900 gms	1 Kg
2 weeks after MOP application	Micronutrients to be applied foliar *	40 gms in 40 L of water	50 gms in 50 L of water	60 gms in 60 L of water
2 weeks after micronutrients application	SOP to be applied foliar **	120 gms in 40 L of water	150 gms in 50 L of water	180 gms in 60 L of water

- * Dosage of micronutrients may vary as per the brand's recommendation within the range of 1-2 g/L or 1-2 mL/L
- ** SOP may be drenched within the dripline at 7g/L, instead of foliar application. Quantity of water per tree remains the same for foliar and basal applications.

Additional dose of Dolomite application may be required, if the north east monsoon exceeds normal levels.

Quantity of water required for foliar / basal application can vary according to the tree size.

RAMBUTAN POST HARVEST FARM OPERATIONS

Assuming that the harvest and pruning are completed by mid-September

		9-10 YRS	10-11 YRS	11-12 YRS
SEASON	FERTILIZER	DOSAGE		
After harvesting	Lime	Broadcast @ 300 Kg/Acre		
2 weeks after lime application	Composted cattle manure (Farm Yard Manure)	50 Kgs	60 Kgs	70 Kgs
2 weeks after Composted cattle Manure application	NPK	1.2 Kg	1.5 Kg	1.5 kg
4 weeks after NPK application	MOP at the base of plants	1.2 Kg	1.5 Kg	1.5 Kg
2 weeks after MOP application	Micronutrients to be applied foliar *	70 gms in 70 L of water	80 gms in 80 L of water	80 gms in 80 L of water
2 weeks after micronutrients application	SOP to be applied foliar **	210 gms in 70 L of water	240 gms in 80 L of water	240 gms in 80 L of water

* Dosage of micronutrients may vary as per the brand's recommendation within the range of 1-2 g/L or 1-2 mL/L.

** SOP may be drenched within the dripline at 7g/L, instead of foliar application. Quantity of water per tree remains the same for foliar and basal applications.

Additional dose of Dolomite application may be required, if the north east monsoon exceeds normal levels

Quantity of water required for foliar / basal application can vary according to the tree size.

- Routine removal of water shoots is mandatory.
- If abnormal flower drop is noticed, apply potassium Nitrate (KNO_3 13:0:45) @ 3 g/l, which may reinitiate flowering.
Ideal soil PH for Rambutan is 5.5 – 6.5.
- Proper mulching maintains soil temperature and humidity
- at optimum levels.
- Nitrogen containing fertilizers are not recommended from November onwards.
- Soil testing may be done once in 2 years. Follow the recommendations of the test report after consulting Homegrown team.

IRRIGATION

- Rambutan plants / trees require soil moisture at all times during the year.
- For newly planted saplings, daily irrigation is mandatory until root establishment.
- Rate of irrigation may be fixed according to the soil type.
- Avoid water logging at the base of plants.

Age of the trees	Minimum Water requirement
0-1 Yrs	5-10 Litres
1-2 Yrs	10-20 Litres
2-3 Yrs	20-40 Litres
3-4 Yrs	30-60 Litres
4-5 Yrs	40-80 Litres
5-6 Yrs	50-100 Litres
6-7 Yrs	60-120 Litres
7-8 Yrs	70-140 Litres
8-9 Yrs	80-160 Litres
9-10 Yrs	90-180 Litres
10 Yrs onward	100-200 Litres



NETTING OF TREES TO PROTECT FROM BIRDS AND BATS

When rambutan fruits start to ripen, the tree needs to be covered with nets to avoid bird/pests attack causing heavy damage to the crops.



HARVESTING

Rambutan typically requires 150 days to mature for harvest. The fruit starts green in color turning yellow and finally red. Ripened fruits can safely remain on the tree up to 2 weeks.

Harvesting quality/ standards can be improved using devices like "cut and hold".



PRUNING

Pruning is required to remove the peripheral growth and water shoots after harvest, to improve the yields in the subsequent years. It also involves removal of dried and damaged branches.



PEST AND DISEASES OF RAMBUTAN

STEM BORER ATTACK/GIRDLER ATTACK

Causative organism:

- Caterpillar or beetles

Symptoms:

- Leaf yellowing, defoliation or wilting holes on the stem
- Girdling around the stem

Impact:

- The tree may die when the infestation is severe, particularly when it attacks the main stem.

Occurrence:

- No specific season

Remedy:

- Mandatory training and pruning of trees
- Orchard sanitation and weed control measures at regular intervals. Routine scouting.

Solution:

- Drench Imidacloprid @ 1ml/l
- Apply chlorpyrifos paste (China clay + 2% chlorpyrifos) at the affected area of the stem.



FLOWER EATING CATERPILLAR

Symptoms:

- Drying up of the flowers / panicle.

Impact:

- Excess flower damage and crop loss

Occurrence:

- During flowering

Remedy:

- Spray Fame (Flubendiamide) @ 0.3 ml/l Or Spray coragen @ 0.4ml/L after 4 pm.



CORKY BARK DISEASE

Causative organism:

- Fungus

Symptoms:

- Cankers which develop on branches are dark brown to black, slightly roughened and irregularly spherical in appearance.
- Cankers are raised from the bark surface, with deep fissures.

Impact:

- Die back of branches
- Poor yield

Occurrence:

- Mostly found in poorly managed orchards and high-density farms.
- Found more prominent during monsoon

Remedy:

- Clean the affected area with a wire brush and apply Bordeaux paste.
- Ensure adequate air circulation and sunlight penetration in the canopy by proper pruning of trees.
- Spray SAAF at 2g/l at leaves, just before monsoon as a prophylactic measure.



FRUIT ROT

Causative organism:

- Fungus

Symptoms:

- Black spot on the fruit skin and fruit drop. Arils may also be affected.

Impact:

- Crop loss
- Fruit drop

Occurrence:

- During fruit ripening, especially during rainy season

Remedy:

- During peak monsoon, spray wettable Sulphur at 2-3g/l at intervals of 15 days, when rain pauses for one or two days.



MEALY BUG ATTACK

Causative organism:

- Mealybug adult and nymph

Symptoms:

- White, cotton-like masses on stems, leaves or fruit.
- Stunted growth.
- Presence of honeydew or sooty mold.
- Fruit drop

Impact:

- Die back of branches
- Poor yield

Occurrence:

- Throughout the year, more prominent during monsoon

Remedy:

- Spray Thiamethoxam (Actara) at 0.5g/l, three days later spray wettable Sulphur at 3g/l. These applications shall be terminated one month before harvest.



LEAF SCORCHING DUE TO HIGH TEMPERATURE

Symptoms:

- Browning and yellowing of the leaves
- Wilting of the leaves, particularly in hot and dry weather
- Diminishing leaf size and curling of leaves
- Early and immature leaf fall.

Impact:

- Growth retardation
- Poor yield

Occurrence:

- During summer

Remedy:

- Spray Orthosilicic acid (2ml/l) followed by spray of calcium nitrate (2g/l) after 15 days. (calcium nitrate may be repeated a second time after 20 days).
- Make sure the tree is getting enough water.



FRUIT DROP

- An ideal crop for rambutan is 15 to 20 fruits per panicle, whereas a good panicle will have up to 1500 flowers on an average during flowering. However, abnormal fruit fall may happen due to several factors. A few of them are mentioned below.

1) **WATER STRESS:** during summer due to insufficient irrigation. (refer page no 19)

2) **HEAVY RAINFALL DURING MONSOON:**

Remedy:

- **pH correction:** Recommended pH is 5.5–6.5 for tropical fruits. This could be achieved by lime/dolomite application. (refer page no 15–19)

- **Spray wettable Sulphur:** during peak monsoon, at 2–3g/l at an interval of 15 days, when rain pauses for 1 or 2 days. Make sure this application is terminated one month before harvest.

3) **NUTRIENT DEFICIENCY:**

Remedy:

- Due to the deficiency of nutrients such as potassium and boron. (Pls refer page 15–19 for the detailed fertilizer schedule.)

4) **LACK OF SUNLIGHT RECEPTION AND AERATION:**

Only branches with adequate aeration and full sunlight can support healthy fruit growth.

Remedy:

- Regular removal of water shoots is mandatory.
- Timely pruning after harvest is necessary.



FRUIT CRACKING

Symptoms:

- Fruit becomes soft, watery and cracks open.

Impact:

- Crop loss

Occurrence:

- Micronutrient deficiency (Boron) during fruit development.

Remedy:

- Micronutrient application
- Follow the POP

(Pls refer page 15–19 for the detailed fertilizer schedule.)



LEAF EATING INSECTS

Causative organism:

- Caterpillar or beetles

Symptoms:

- Eaten leaves
(weak plants /stressed plants are more prone to this attack)

Impact:

- Defoliation
- Growth retardation.

Occurrence:

- During new leaf emergence

Remedy:

- Orchard sanitation and weed control measures at regular intervals
- Spray CORAGEN at 0.4 mL/L, if caterpillars are present. If there is no sign of insects and the leaves are still found eaten, the presence of beetles active at night might be the cause. . In such cases, drench and spray Imidacloprid at 1 ml/l.



SOOTY MOLD

Causative organism:

- Caused by fungus using the honeydew excreted by sucking pests

Symptoms:

- Stem, leaves and fruits develop a black sooty mold on the surface.

Impact:

- Growth retardation of the tree
- Fruit drop
- Crop loss

Remedy:

- Control sucking pests such as Mealy Bug, scale insects etc.
- Spray Wettable Sulphur @ 2-3g/l, (To be applied 3 days after the application of insecticides.)

(Refer page no : 25 – mealy bug)



SCALE INSECTS ATTACK

Causative organism:

- Scale insects

Symptoms:

- Slow growth rate
- Drying up of twigs and small branches

Impact:

- Presence of honeydew or sooty mold
- Poor yield
- Slow tree growth
- Poor yield



Occurrence:

- Throughout the year, more prominent during summer

Remedy:

- Spray verticillium lecanii @ 5ml/l (Bio control) Or Thiamethoxam (Actara) @ 0.5g/l

POTASSIUM DEFICIENCY

Symptoms:

- Leaf tip turns brown and spread across leaf margins.

Impact:

- Stunted growth
- Fruit drop
- Poor yield

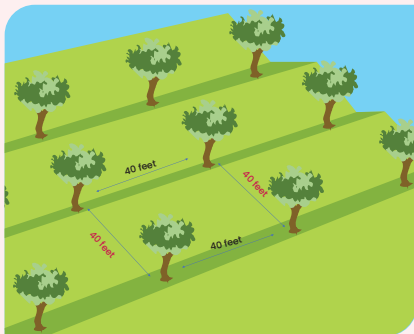
Occurrence:

- During summer and monsoon

Remedy:

- Soil pH correction .(pH 5.5- 6.5)
- Ensure sufficient irrigation
- Spray sop @ 3g/l, twice at the interval of 20 days Or, give muriate of potash (refer page : 15-19)





(image shows contour planting at a spacing of 40 x 40 feet)

WHY 40 X 40?

In 40 X 40 feet planting, the tree tends to spread laterally, typical to budded plants. As the canopy expands, yield also increases. The space between the rows can be utilized for companion crops such as pineapple, banana, yams, taro, ginger, and turmeric during the initial years for additional revenue as well as to save on weeding cost. **However, a 20×40 ft spacing may be possible if the alternate tree on the line is removed after 7 to 8 years of planting while the branches start to overlap and cause shade.**

RISKS OF PLANTING AT 20 X 20 FEET DISTANCE

In 20 X 20 planting, the plants tend to grow vertically from the initial years. This will necessitate harsh pruning, leading to a drop-in production in the coming years. This is due to branches getting interlocked, poor sunlight reception and air circulation within the canopy which would eventually curtail productivity substantially. Moreover, the reluctance of growers to cut off the trees after 6–7 years of growth is predictable. Planting may be done at a spacing of 20 X 20 feet, if the growers are ready to relentlessly cut off every alternate row vertically and horizontally at the 6th year. In such cases, every two out of three trees will have to be cut off to normalise spacing. The trauma doesn't end there because all the remaining trees will have to undergo harsh pruning in order to regain the tree shape and canopy, which can certainly impact the total crop for the next two years.

SIZE NOT THE ONLY CRITERIA



Size should not be the sole criterion for selecting rambutan varieties for commercial cultivation. Other important factors include productivity, shelf life, sugar-acid balance, brix value, seed-to-flesh ratio, color of the rind, rind thickness, and also the number of days the ripe fruits can remain on the tree.



APPRAISAL OF FRUITS FOR COMMERCIAL CULTIVATION

A fruit's commercial worth is determined by two factors: Its sensory quality and nutritional value. The sensory quality of the fruit is determined by how well it appeals to the consumer's five senses. The sensory appeal is defined by taste, smell, colour, texture, and visual appeal. Since rambutan is essentially a juicy fruit, its sugar-acid balance should also be taken into consideration, making it difficult to evaluate this fruit on the basis of its sweetness (brix value) alone. The N18 variety's perfect sugar-acid balance makes it outstanding, according to experts.

The nutritional makeup of a fruit determines its dietary quality. Put differently, a fruit is considered valuable based on how well it benefits the consumer's general health. A fruit is only considered good if its sensory and nutritional qualities are well balanced. The ease with which the seed may be extracted from the flesh is another criterion.

IMPORTANCE OF DOLOMITE / LIME APPLICATION

Rainfall intensity and the number of rainy days has increased unusually in Kerala recently. This climatic aberration induces premature leaf flushing and prevents stress periods from happening. The lengthy and intense rainfall result in fruit drop, nutrient depletion, fungal problems, and pest infestations severely.

Climate anomalies necessitate prompt interventions of cultural practices. Heavy rainfall causes soil erosion and inhibits soil aeration. Consequently, soil acidity rises. Diseases like root rot and dieback are caused by soil pathogens that proliferate as the pH of the soil changes. Ensure that the pH of the soil does not drops below 5.5, since it negatively impacts the plant's ability to absorb fertilizers from the soil. In such conditions dolomite may be applied more than once in an year.

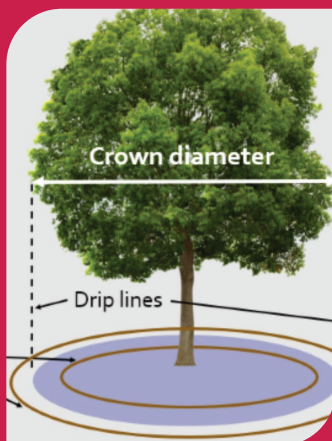
FLAT / ABORTED FRUIT

This is primarily an issue with pollination during higher temperatures. The majority of the unfertilised flowers become flat or underdeveloped fruits. Because plants naturally cool the canopy by trans-evaporation, floral parts are the first to feel the brunt of the heat, which might impede ideal pollination if the soil moisture is insufficient.

There is also evidence that pineapple intercropped farms have a greater tendency for occurrence of flat fruits. This is because the leaves of the pineapple reflect more heat, and the soil becomes sandier, which reduces the soil's capacity to store water. Higher soil organic carbon levels, application of mulch, and increased irrigation are recommended for fields facing these problems. Providing temporary shade nets and overhead sprinklers can also help these scenarios

DRIP LINE

Area at the base of plants that comes directly beneath the canopy may be considered as its dripline. In other words, a drop of water from the canopy of the plant falls down on its drip line. It can easily be understood if the analogy of a drop of water falling down from an umbrella is brought to mind. This area around a plant is also called the Critical Root Zone (CRZ) or the Root Protection Zone (RPZ) of the plant as the roots of the plant absorb both water and nutrients mainly from this area. A close examination of this zone reveals the presence of several feeder roots that support the tree. Hence providing nutrients and water at the drip line ensures promising growth of the tree and best yield.



MULCHING

sufficient mulching is essential to protect the base of plants before the onset of summer. It should be placed within the drip line, 1-2 feet away from the main stem of the plant. Ensure to remove the mulch before the monsoon season begins.

Composted leaves, twigs, chaff, and dried weeds can be used as mulch materials. However, green leaves and timber residues are not advised, as they tend to increase the temperature at the base of the plants and may also cause termite infestation.

ABOUT HOMEGROWN “SPROUT”

A diverse media consisting of animal manures, plant based green & dry matter and organic fillers. Complete digestion is ensured through a mechanical process, achieved in 45 days. Fortified with bio-agents, Homegrown ‘sprout’ ensures nutrients in plant available form, maintaining an optimum C/N ratio as good as forest soil.



AS PIT MIX:

The benefits of using HG pit mix during planting will result in a perfect mixture that guarantees plant growth with adequate root development, soil drainage, and aeration. The media's bulk density is designed to make it an ideal pit filler, blending with the surrounding soil to provide excellent organic carbon and longer plant nutrient availability. It is always desirable to use fully digested organic manure while planting.

AFTER HARVEST – TOP UP:

The plant is exhausted right from fruit bearing to harvest and hence need to be rejuvenated in order to cycle nutrients, balance growth, and get ready for the next season. Giving plants the proper nutrients during the post-harvest period is crucial. The fully broken down ‘Sprout’ will ensure that the essential nutrients supplied to plants will require only the minimum energy for their uptake.



**STRENGTHENING FAMILY BONDS,
WITH EVERY HOMEGROWN TREE**



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