

DURIAN TECHNOLOGY PACKAGE



1. **Local Name :** Durian
2. **Scientific Name:** *Durio* spp. Family: Bombaceae
3. **Varietal Recommendation**

3.1 Commercial Clones of Common Durian (*Durio zibethinus*)

<u>Clone</u>	<u>Characteristics</u>
D96	Medium sized fruit with green skin. Pulp is yellow, sweet and aromatic. Seed is big. Good yielder.
D24	Medium sized fruit, dropping in the mid season. Thick pulp with big seed. Excellent eating quality with yellow flesh that is smooth, fine textured, strongly flavored. Tendency of uneven ripening in larger size fruit. Good yielder.
D99	Small sized fruit (1.0 to 1.4 kg), roundish with prominent lobes. Thick yellow pulp with strong aroma, sweet and medium fine texture. Above average eating quality. Early dropping. Flowers are self-compatible. High consistent yielder.
D123	Originally from Thailand and is also known as Chanee. Big fruit weighting 1.8 to 2.5kg, oval shaped, slightly compressed and is yellowish-green. Fruit quality is fairly good and a good yielder.

3.2 *Other Common Durian Clones*

<u>Clone</u>	<u>Characteristics</u>
D168	Tree is of medium height and a good yielder. Fruit weights between 1.4 to 1.6 kg each and is round in shape. Fruit is brownish green in color and has a short stalk. The pulp is thick, sweet, reddish-yellow and tasty.
DS68	This clone is a local selection of big sized tree. The fruit is small weighting 0.5 to 1.5 kg, round in shape and has a bronzy colored skin. The pulp is light yellow in color, thick and with collapsed seeds. Fruit yield is high and consistent.
MDUR 78	Mid season cropper with high yield. Fruit is 1.5 to 1.8 kg. Roundish oval fruit has yellowish orange pulp which is of very good eating quality.
MDUR 79	Early dropping, medium sized fruit, lower yielding than MDUR 78. Roundish oval fruit has yellowish orange, thick pulp of very good eating quality.
MDUR 88	Mid season cropper with medium yielding ability. Medium sized fruit has golden yellow pulp that is sweet, medium fine and slightly drier than MDUR 78 and MDUR 79.

3.3 *Durian Kuning (Durio graveolens) Clones*

This local durian species is mainly cultivated in Northern Sarawak. Fruits of the selected clones have good eating qualities. It appears that cross pollination is necessary for fruit set and it is recommended to plant more than one clone.

<u>Clone</u>	<u>Characteristics</u>
DG5	Tree of medium size. Round fruit with green color skin and weights between 0.8-1.9 kg. Pulp is deep orange-yellow with fine, soft and sticky texture and taste sweet with good fragrance.

DG25	Originally from Kampong Quap in Kuching Division. Fruit is of average size (0.8-1.4kg), round with greenish-yellow skin. Pulp is orange yellow in color with fine and soft texture.
Suluk2	Originally from Limbang. Fruit is of reniform shape, average size (0.8-1.5kg) and with yellowish-green skin. Pulp is orange –yellow with sweet taste and is very fragrant.
Suluk3	Another local selection from Limbang. Fruit is fairly small (0.7-1.0kg) elliptical in shape with light yellow skin color. Pulp is orange-yellow in color, fragrant, soft and fine texture and has small seed.

3.4 *Durian Nyekak (Durio kutijensis) Clones*

The Nyekak tree is small to medium in size. It is mainly cultivated in Central and Northern Sarawak. Fruit comes about a month after the common durian season. The recommended clones are:

<u>Clone</u>	<u>Characteristics</u>
DK5	Fruit is round, of average size (0.6-1.4kg) with orange-yellow skin. It has short, sharp but rather elastic spines. The locular lines are prominent and fruit is easy to open. Flesh is orange-yellow in color with fine and sticky texture and is sweet to taste with a fragrant flavor.
DK6	The fruit of this clone is round of rather small size (0.6-0.9kg) with yellow skin. Pulp is reddish yellow in color with medium soft and dry texture, sweet and fragrant to taste and has small seed.
DK8	Fruit is oblong in shape with a short stalk, of average size (0.6-1.2kg) and has yellow skin. The locular lines are prominent and fruit is easy to pen. Pulp is yellow in color of medium soft and dry texture, sweet and fragrant to taste.

A mixture of clones including D99 as pollinators have to be planted to improve fruit set.

4. Soil and Climatic Requirement

Deep, well-drain loamy soil with gentle to undulating slopes. A dry weather period is required to initiate flowering.

5. Spacing

Recommended planting distance is 11 m x 11 m (83 trees/ha).

6. Fertiliser Application

Year	Time of Application	Type of fertiliser	Amount/Year (kg)	Rate/Application (kg)
0	At planting	Rock Phosphate	0.20	0.20
		Dolomite	0.10	0.10
		Organic manure	5-10	5-10
1	Every 2 month	15:15:15	0	0.008
2	Every 3 month	15:15:15	0	0.25
3	Every 3 month	15:15:15	0	0.50
4	Every 3 month	15:15:15	3	0.75
5	Every 3 month	12:12:17:2+TE	4	1.00
6	Every 4 month	12:12:17:2+TE	5	1.67
7	Every 4 month	12:12:17:2+TE	6	2.00
8	Every 6 month	12:12:17:2+TE	8	4.00
9	Every 6 month	12:12:17:2+TE	9	4.50
10 and above	Every 6 month	12:12:17:2+TE		5.00

In addition, application of organic manure at 20 – 40 kg/tree/year is recommended.

7. Vegetative Stage

4 – 7 years.

8. Economic Life

25 – 30 years.

9. Yield

<u>Age (years)</u>	<u>Fruit yield (mt/ha/yr)</u>
7	1.3
8-10	5.3
11-13	10.6
14-25	13.2

10.0 Pests of Durian

10.1 *Durian Seed borer*

Damage symptoms:

Newly hatched larvae feed initially on the skin of the fruit and later bore into the husk and then into the seeds. An exit hole measuring 5-8 mm in diameter surrounded by white orange excreta can be observed on the surface of the fruit.

Control:

Set up light trap to reduce moth population

10.2 *Pinhole borer*

Damage symptoms:

The adult beetle is 6 – 8 mm long, almost rectangular in shape and brownish black in colour. Both larva and adult bore and tunnel into the bark and woody part of the durian tree. The bore dust produced by the adult is fibrous, pale in colour and consisted of many short pieces of about 0.15 – 0.18 mm long. The bore dust produced by the larva is granular. The life cycle is fairly long and takes about two years. The symptom of damage is the brown to black coloured wood surrounding the tunnels.

Control:

- (i) Trunk injection with dimethoate
- (ii) Application of carbofuran at 1 kg per tree during off-fruiting period

10.3 *Hawk moth*

Damage symptoms:

The adult moth is brownish and measures 3 cm long. It has a distinct eye-like shape on the forewings. The larvae which feed on the leaves are voracious defoliators. The creamy pink eggs are laid in groups of 6 – 12 on the underside of leaves. The eggs measure about

1.5 –2 mm long. The larvae are colourful depending on their growth stages. Young larvae are greenish, while the mature larvae are reddish to bluish in colour. The larva has a spine-like horn on the dorsal side of the last segment of the abdomen. Fully grown larvae measure 6 – 8 cm long. These larvae fall to the ground to pupate and a clicking sound is produced when they fall down. The life cycle is completed in 32 – 44 days. The egg stage lasts for 4 – 6 days, the larvae stage 17 – 21 days and the pupa stage 12 – 17 days respectively. Affected trees suffer from severe leaf fall and dieback eventually.

Control:

- (i) Trunk injection with methamidophos and fogging with deltamethrin during early stage of infestation and off-fruiting period.
- (ii) Trunk injection with dimethoate

11.0 Diseases of Durian

11.1 Rhizoctonia leaf blight

The causal organism is the fungus, *Rhizoctonia solani*. Symptoms on the leaf start with small water-soaked lesions, which coalesce to form larger irregular light brown patches with dark brown margins. Under warm humid conditions, the mycelium spreads to adjoining leaves when they come into contact. Sometimes, light brown sclerotia appear on the patches. Leaf drop and twig dieback occur during severe infection. This disease also affects seedlings at the nursery stage.

Disease control:

This disease can be controlled by spraying pencycuron. In the nursery, do not place the seedlings too close to each other and ensure that the nursery is not too wet.

11.2 Patch canker

This disease, which affects the main trunk and branches, is caused by *Phytophthora palmivora*. It causes dark brown to black lesions on the bark of the branches or trunk, especially at the crotch. A reddish brown gummy substance oozes out of the bark under wet conditions. Leaf defoliation and branch dieback can occur under severe conditions. The fungus can also infect the roots and fruit.

Disease control:

Practise pruning to allow light penetration and good ventilation. Drainage is also important. Practise wider spacing. Remove dead trees to avoid spreading.

Scrape off the affected bark and paint with a fungicide such as metalaxyl or fosetyl-aluminium. Can also inject the trunk with phosphorus acid. For root infection, do drenching.

11.3 *Pink disease*

This disease which is caused by the fungus, *Erythricium salmonicolor*, is usually serious in high-density planted areas or under shade during high rainfall. Symptoms include silky-white mycelial threads on the bark of branches and trunk. Under wet conditions, they turn slightly pink in color and rough pink encrustations are formed. The bark later cracks and the branches dry up and wilt.

Disease control:

Avoid close planting or intense shading. Prune off infected parts of the plant, and practice good field hygiene by removing all plant debris. Monitor the disease in the field closely for recurrence of the disease. Paint newly affected plant parts with tridemorph.