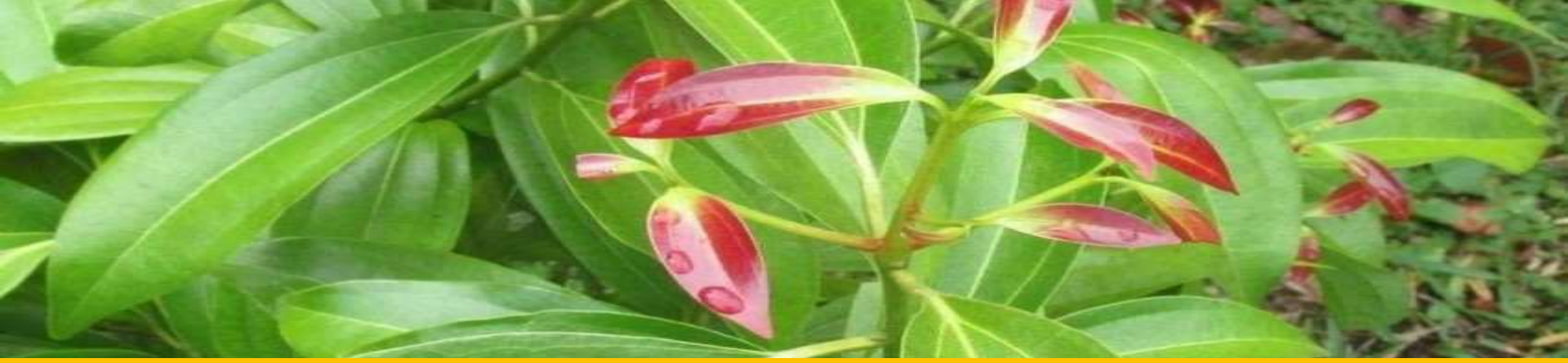
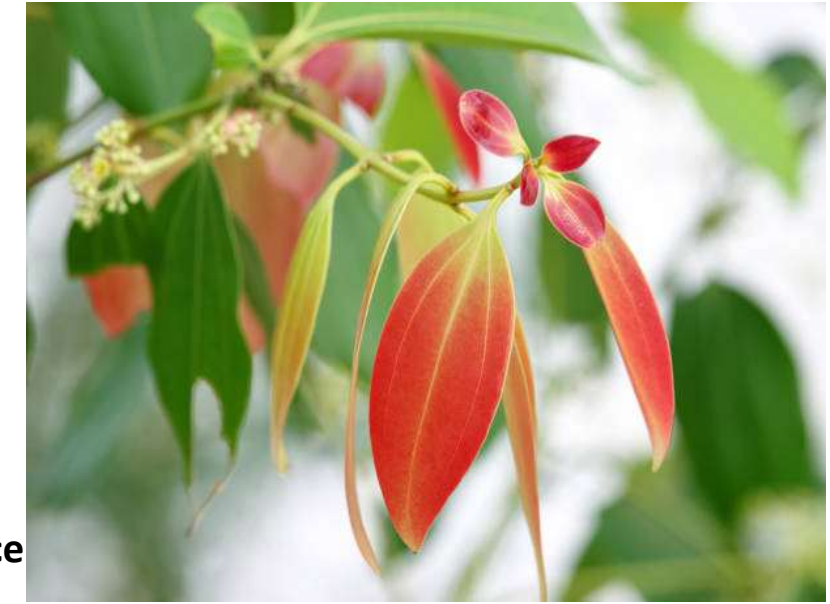


Package of Practices of Cinnamon

INTRODUCTION



- Cinnamon (*Cinnamomum zeylanicum) popularly* known as Dalchini (Sweet wood) belongs to the family Lauraceae is the earliest known spice in India.
- It is native to Sri Lanka and Malabar coast of India. It is grown in Naga hills of Assam, Coastal hills of Karnataka and Western Ghats.
- The main part, i.e, it's bark is commonly used as a spice
- It is used in medicinal preparations as a cardiac stimulant and in manufacturing of incense. It has anti-inflammatory and anti-oxidant properties.
- Leaves of Cinnamon also yields oil known as Eugenol. The oil having strong odour is used for blending of camphor.
- As far as nutritional content is concerned, it is very good source of iron, Calcium, dietary fibre and Manganese. Nutrients like Sodium, Carbohydrates, Sugar, Fatty acids & amino acids and so on.
- It is cultivated in an area of 3726ha with production of 7652 tonnes and average productivity of 23.36q/ha (DASD, Calicut, 2020-21)

CLIMATE AND SOIL

- Quality of bark is highly influenced by soil and ecological factors
- Cinnamon requires hot and humid climate with annual precipitation of 1500-2500mm.
- Average temperature ranging from 20-30^{0}C is ideal.
- It can be cultivated upto an elevation of 300-350m from Mean Sea Level (MSL). Sheltered situation upto an altitude of 800-100m is also suitable.
- Prolonged spell of dry weather is not conducive for successful growth.
- Well drained soil rich in humus content is most suitable.
- Sandy loam soils liberally incorporated with organic manures are best.
- Red dark brown soils free from rocky gravel or quartz are also good for cinnamon cultivation.
- Cinnamon is considered to be suceptible to salinity and a bitter product results from waterlogged and marshy conditions.

VARIETIES:

- Nithyasree
- Navasree
- Sugandhini
- Konkan Tej

PROPAGATION:

- Cinnamon is commonly propagated through seeds, though it can by cuttings and by air layers. Cinnamon fruits ripe during July-August. Fully ripen fruits are either collected from tree or fallen on the ground. Seeds are then removed from the fruit, washed free of pulp and sown without much delay as the seeds have low viability. Seeds are sown in the sand beds or in the polythene bags containing sand, soil and FYM in 3:3:1 ratio. The seeds germinate within 10-20 days. The seedlings requires artificial shade till they attain 6 months age.

PLANTING

- Pits of 50cm are dug at a distance of 3x3m.
- Pits are filled with compost and top soil before they are planted.
- Cinnamon were planted during June-July to take the advantage of monsoon for establishment of young seedlings.
- One year seedlings are planted. In each pit, 5 seedlings can be planted. Seeds can be planted directly in the pit filled with compost and top soil. Partial shade in the intial period is necessary for rapid growth.

MANURING & FERTILIZATION:

- In the first year, 20Kg N, 18Kg P_2O_5 and 25Kg K_2O is required per seedling.
- After 3 years of planting, 29Kg FYM, 4Kg Neem cake, 150g N, 75Kg P_2O_5 and 150Kg K_2O is required per plant. It should be applied in two split doses in first week of September and March.
- Fertilizers should be applied along with watering for better growth. Since the crop is moderate feeder, it requires multiple feeding during its growing season.

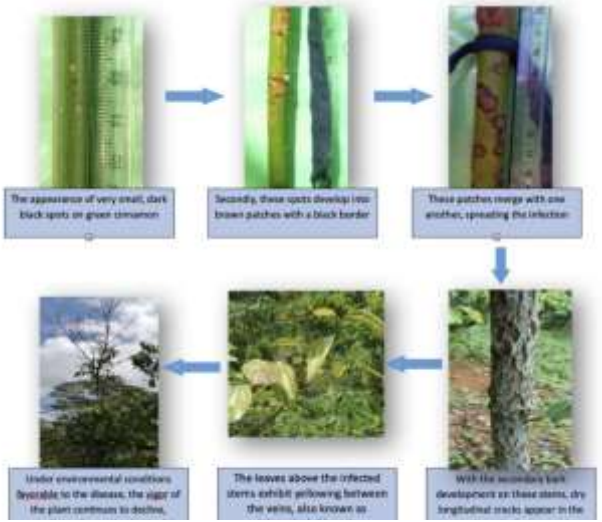
AFTER CARE:

- When seedlings were 3-4 years, the shoot is cut from the height of 30cm from the ground level (Called as Coppicing), so that side shoots were produced. It helps in creating a shape of low bush.
- Newly planted seedlings should be watered regularly. Watering shouldn't be done until top 2cm is dry.
- Manual weeding should done 3-4 times a year in first 3-4 years. Later on, it should be done two times a year, i.e, in June-July and Oct-Nov. Mulching, mechanical cultivation or herbicide can be applied.
- Seedlings grow to a height of 2m in 7 years.

Insect Pests & Diseases:

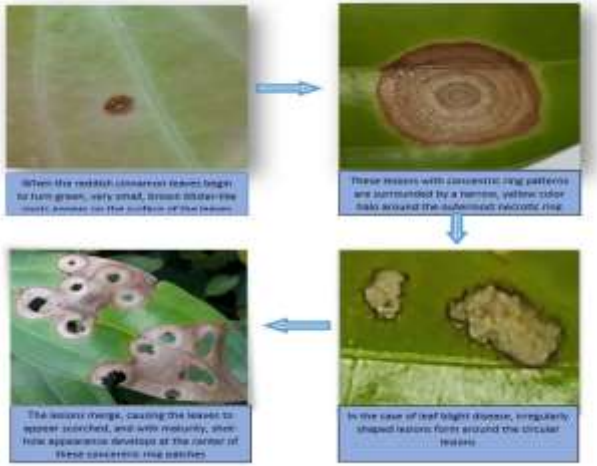
❖ Rough Bark Disease:

This is a fungal disease due to which the bark becomes rough and peeling of bark becomes difficult. This becomes difficult to harvest and also the quality decreases.



❖ Leaf Blight:

This disease is severe during rainy season. Mostly causes economic damage during nursery and sapling stage after establishment in field



Insect Pests & Diseases:

❖ White root Disease:

This is a common fungal disease in plantations established on lands previously used for rubber cultivation or plots adjacent to rubber cultivation.

❖ Leaf Blight:

Infected root develops a brown colour often accompanied by a sand or soil crust. Additionally, a clear brownish line patterns penetrating on the inner part of the root. Found on both early stage and matured plants. Mostly found in shaded areas & soils with poor water drainage areas.

Insect Pests & Diseases:

❖ Swollen Fruit Disease:

This fungal disease causes fruits to swollen and deform beyond normal size. Peeling of bark becomes difficult due to this disease.

❖ Black Sooty Mould:

Mostly observed in shaded areas. It is manifested as white, grey or black spots on the leaf surface.

❖ Algal Leaf Spots:

This green alga appears as small yellow, orange or brown spots on cinnamon leaves.

Timely IPM management helps to curb the insect pest attack in Cinnamon plant.

Insect Pests & Diseases:

❖ Pink Stem Borer:

The larvae bores into the base of cinnamon bush devouring the internal tissues, thereby causing decaying of base and disruption in emergence of new shoots.

❖ Leaf Galls:

Plant louse sucking cell sap causes galls on upper side of leaves which is prominent in wet and cool climates during nursery & sapling stage. Newly formed ones are pink in colour and later turns to greenish at maturity stage.

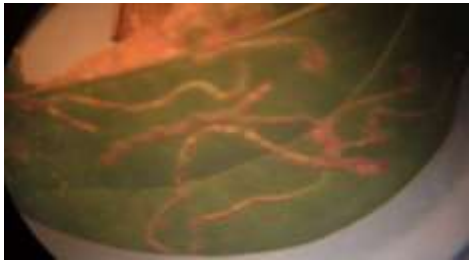
Leaf galls are also caused by mites , but it causes on lower side of leaves in new flushes.

Insect Pests & Diseases:

❖ Cinnamon Thrips:

The thrips sucks the cell sap on immature leaves causes leaf tip to appear burnt. Severe attacks can lead to leaf shedding, death of apical buds, formation of deformed buds and even death of plants.

❖ Leaf Miner:



Larvae of leaf miner tunnel through lower & upper epidermal layers of leaves. Mostly found in nurseries and newly planted trees.

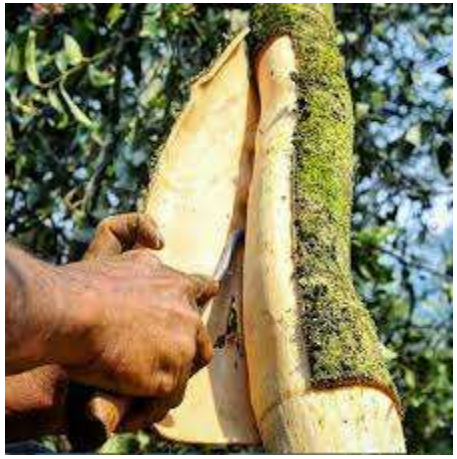
❖ Root Grubs:

Soil dwelling grubs eat away the roots leading to death of plants.

Proper IDM practices reduces the incidence of diseases

Harvesting

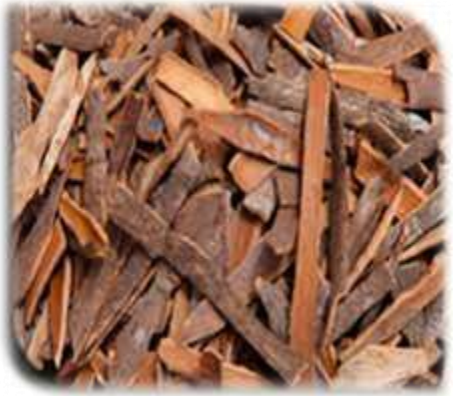
- Cinnamon is harvested after growing the tree for 2-3 years & the coppicing (Cutting back the trees to desired height) it in Jun-Jul.
- It is harvested when the plant reaches 1-5-2.0m with three to four shoots and the bark turns brown in colour. The main shoot is cut back to a height of 6cm from ground level.
- Ideal time of harvesting the shoots is Sept-Nov. Side shoots having finger thickness & uniform bark colour is ideal for bark extraction.
- A test cut is made first to know the suitability of peeling. If it separates easily, then it is commenced immediately.
- Stems are cut with a knife having round edge at end close to ground and straight (1-1.25cm length, 1.25cm thickness)



Processing & Storage

- Harvested shoots are bundled together and transported to pack house for processing
- Processing accounts for 60% of the cost of cultivation as it is labour intensive and is made by hand of skilled labourers.
- Quality depends on how well the bark is removed from the stem and drying of the product. Larger pieces are known as quills and sold at a higher rate than the smaller ones .
- Peeled and rolled slips are taken to piping yard. These slips are kept on a horizontal stick supported on a stand.
- Outer skin of the slips are scrapped off with a curved knife. These scrapped slips are graded according to thickness.

Cinnamon Quills



Cinnamon Bark

Processing & Storage

- These graded slips are rolled to form pipes by fitting them over outer cover of pipes. After that it is dried. It is called quills.
- These quills are placed on coir ropes racks for shade drying for 4-5 days to avoid wrapping. Again they are placed in subdued sunlight for further drying. After drying, they are packed in mats for marketing.
- The quills are graded from '00000' being the finest quality to 0 as coarsest quality.
- Different grades of cinnamon are powdered and packaged in polypropylene moisture proof bags to retain flavour.
- Dried cinnamon quills (10% moisture) should be stored in a moisture proof containers away from sunlight to retain it's flavour and aroma.

Marketing

- A number of private and local market is available for marketing of Cinnamon.
- Marketing can be accessed through e-NAM.
- Government co-operatives can play a major role in marketing of this product.

Cost of Cultivation

Sl.No.	Particulars	Cost (Rs/ha)
1	Land Preparation and development	20,000
2	Cost of planting materials	18,000
3	Manures and fertilizers	17,000
4	Plant protection measures	16,500
5	Cost of Irrigation	14,500
6	Cost of labour wages (Planting, Intercultural operations)	15,000
7	Cost of farm machinery hiring charges	5,000
8	Rental cost of land	20,000
9	Cost of cultivation (Rs/ha)	8,78,221
10	Cost of harvesting	8,000

Cost of Cultivation

Sl.No.	Particulars	Cost (Rs/ha)
11	Cost of marketing	5,000
12	Miscellaneous cost	2,000
13	Total cost of cultivation	1,34,000
14	Av. yield	300 kg quills/ha
15	Av. selling price	1200/kg
16	Av. Total income	3,60,000
17	Net income	2,26,000

THANK YOU

Cinnamon