

NUTMEG

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The nutmeg tree, *Myristica fragrans*, indigenous to the Moluccas and other islands of the East Indian Archipelago is unique among the spice plants, as it produces two separate spices, the nutmeg and the mace. Over 50% of the world exports of nutmeg and mace originate from Indonesia and Grenada is the second largest exporter of nutmeg and mace. In India, nutmeg is mainly grown in Trichur, Ernakulam and Kottayam districts of Kerala and hilly regions of Kanyakumari and Tirunelveli districts of Tamil Nadu. Nutmeg is a handsome, densely foliaged evergreen tree, belonging to the family, *Myristicaceae* with spreading branches, dark grey bark and small, pale yellow, bell-shaped flowers

The fleshy fruit, is globose in form and lemon yellow to light brown in

colour. When ripe, it splits in half, exposing, the beautiful, brilliant, scarlet, net like aril, known as the mace, which closely enwraps a lustrous, dark brown, brittle shell, inside which is the seed, the nutmeg of commerce. The nutmeg seeds are about 3 cm long and 2 cm wide. The strongly aromatic mace is about 3.5 cm long and 15 mm thick, when dried it is yellowish brown in colour.

CULTURAL ASPECTS :

Nutmeg thrives well in humid tropical climate of the South Western Regions of our country, which receive fairly high rainfall (150 - 300 cm). It thrives well in sheltered valleys. Friable, well drained sandy soils rich in humus are suitable for its cultivation.

Propagation is usually carried out by planting fresh selected seeds in a

well-watered nursery. Seeds must be dibbled in sand bed of 90 to 120 cm wide, 15 cm thick and as long as necessary. Germination commences in 4 to 6 weeks. Seedlings should be transferred from nursery beds to polythene bags of 15 cm X 22 cm X 300 gauge size, immediately after sprouting; as if it is delayed, the root system is likely to get damaged. The usual potting mixture (forest soil, sand and well decomposed cowdung in a ratio of 7 : 7 : 2) is used for filling up the polythene bags. The young plants of one year old are rebagged to a bigger polythene bag of 22 cm X 35 cm X 250 gauge size, and they are kept in this bag for another year. Two year old seedlings are ideal for field planting.

Planting is done during the South West Monsoon period. Seedlings are planted in pits of 75 cm cube with a spacing of 9 meters either way, in light shade. Regulation of shade is an important operation in raising plantations of nutmeg. It requires a medium shade, especially during its initial stages of growth. For providing partial shade, fast growing shade trees like acacia, leucaena etc. are planted in between them, a few months prior to planting. Good banana suckers may also be planted in the three sides of each pit. As the plant grows older, the banana as well as the shade trees could be thinned out. Sometimes with this object of providing shade, nutmeg trees are often interplanted in other established plantations. It could be successfully planted in coffee, cardamom and coconut plantations.

After planting, irrigation is to be given at the rate of at least 2 pots of water thrice a week for the young plants till four years old, particularly during the summer months. The watering has to be increased, when the plants grow bigger. Basins of the plants must be kept free of weeds and they are to be mulched with dry leaves during summer to conserve moisture. The trees are to be manured every year, in shallow trenches or pits dug around the plants. The Kerala Agricultural Department recommends 20 g N (40 g urea), 189 g P₂O₅ (110 g superphosphate) and 50 g K₂O (80 g muriate of potash) in the first year and progressively increasing the dose to 500 g N, (1090 g urea), 250 g P₂O₅ (1560 g superphosphate) and 1000 g K₂O (1670 g muriate of potash) in subsequent years for a fully grown tree of 15 years or more.

The nutmeg tree is slow-growing, and the first small crop may not be obtained until the seventh year. The yield increases with age, the most productive period being between the 15th and 30th years. Some trees may still be in production at the age of ninety. A 20-year old tree, gives on an average 3000 fruits. The peak harvests are usually during the months of May to September. Individual fruits weigh on an average 60 g of which the seed weighs 6-7 g, mace 3-4 g and the rest pericarp.

The nutmeg tree is usually dioecious—that is, the male flowers are borne on one tree and the female flowers on another. Though the males occasionally bear some fruits, the trees with only female flowers are the main crop-yielders. For efficient pollination and fertilization, the ratio of about one male to supply pollen for every ten females is considered optimum in a nutmeg plantation. Hence retaining 10% males, the rest are either destroyed or are grafted with selected female scions. To avoid this

problem, the epicotyl grafts produced using scions taken from high yielding selected female trees may be planted.

THE METHOD OF PRODUCING EPICOTYL GRAFTS :

- 1) Take healthy 20-days old sprout (root stock).
- 2) Select a good scion (of lead pencil thickness) from a high yielding female tree.
- 3) Cut the top and make a vertical slit to a length of 3-4 cm in the root stock.
- 4) Make a wedge cut of 3-4 cm length in scion.
- 5) Insert the scion the slit of the root stock and tie it firmly with a polythene strip.
- 6) Keep the grafted root stock in a polythene bag with soil. Cover the entire graft in a polythene bag and tie it at the base.
- 7) Remove the cover bag when new leaf emerges—also remove the polythene strip at the site of grafting.

PROCESSING :

The collected fruits are brought to the central drying area and spread out to avoid fermentation. The nuts, including the mace, are carefully removed from the husks. The mace is detached from the seed shell by

hand or with a knife and flattened out to dry slowly in the sun for 10 to 14 days. During drying, the mace gradually becomes, brittle, turning from scarlet to orange to yellowish-brown. It is during the curing, it acquires the peculiar pungent aroma. After the removal of the mace, the unshelled nutmeg seeds are dried separately for 4 to 8 weeks in the sun till the kernel rattles in the shell. The shell is then broken with a wooden mallet and the nutmegs are removed.

The essential oils of nutmeg and mace contain about 4% of a highly toxic substance, myristicin, which if taken in excessive dose, can cause a fatty degeneration of the liver cells. For this reason, the oils are used in very small amounts. Nutmegs are used as a cure for headaches, fevers, bad breath and intestinal disorders. It is a carminative, aphrodisiac and for treatment of various ailments of the kidneys and stomach. Ground nutmeg is used to flavour sausages, meat products, prepared sauces, etc. It is a popular condiment in puddings, fruit pies etc. Mace is favoured for flavouring pound cakes, fish sauces, meat stuffings etc. Nutmeg contains 25 to 40% fixed or fatty oils, some times known as nutmeg butter. It is obtained by subjecting the nuts to hydraulic pressure under heat. It is used in a manufacture of essential oils, perfumes and soaps and as flavouring agent in cooking and confectionary.

INDIAN PLASTICS

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PASTIME

R. Radcliffe who takes a great interest in raising gardens, speaks here on

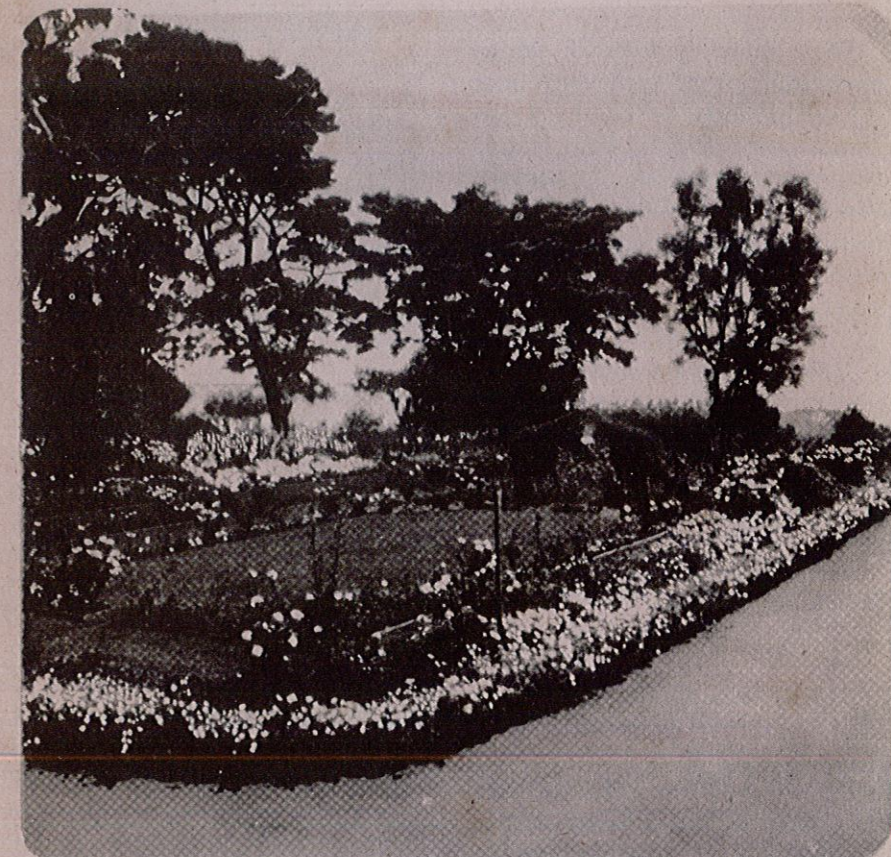
GARDENING

I find a great pleasure and relaxation in looking after my garden. The day is often not long enough or endurance fails a little. It is an absorbing hobby, full of rewards for care, probably one of the most rewarding of all creative things we do. To plant a seed or cutting or a plant, watch it grow, place it well so that it shows off its beauty and form, fashion a piece of earth so that it becomes a satisfying whole and a continuing spring of pleasure. A pleasure that is not selfish but can be shared with others. A hobby that brings friendly rivalry with those of a like mind. A recreation that is blameless and wholly good. A challenge, too, in bringing on a difficult plant, protect it from excessive rain, sun or frost; is not a challenge good for us all?

How many kinds of gardens are there? The large park-lands of settled Europe with just a small formal garden near the residence; landscaped with trees and lakes with classical statutory placed in places to where the eye is lead by skilful planning.

- The ornate, very formal gardens of Italy and France as at Versailles;
- The informal, English garden with large herbaceous borders and a rose garden.
- The small cottage garden of the country.
- The window-box gardens of the cities and towns.
- The parks of the big cities.

The Planters' Chronicle - March 1987



- The water garden.
- The Japanese garden.
- And not least, the vegetable gardens of homes and the Allotments of crowded urban areas where space near houses or flats in rows of streets does not allow the making of a garden.

The list is almost endless and in most countries where man may go, he usually makes a garden of some kind within the limitations of his space, money and leisure available. The English carry their gardens about with them. Our Botanical

Garden has much to owe to the first English settlers on these Hills; the wonderful gardens at Peridenya in Sri Lanka. Some of this love of gardens has rubbed off here but not enough. It has been said by a great Preacher that Man can not live by bread alone. A Persian of olden days spent his last coin on a bunch of violets and not on bread. Perhaps, an extreme act but who does not sometimes wish to reach to the sky in ecstasy? Who has not heard of a Persian Garden, an essential part of old Persian houses and their culture?

One garden that I recall which has made a lasting impression on me