

LOCAL NAMES

Dutch (nootmuskaatboom,nootmuskaat,foelie); English (nutmeg tree,mace,nutmeg); French (muscadier commun,noix muscade,muscadier); German (muskatbaum); Italian (mace,noce moscata); Portuguese (moscadeira); Spanish (nogal moscado,nuez moscada)

BOTANIC DESCRIPTION

M. fragrans is a spreading, medium to large sized, aromatic evergreen tree usually growing to around 5-13 m high, occasionally 20 m.

Leaves alternate, pointed, dark green 5-15 cm x 2-7 cm arranged along the branches and are borne on leaf stems about 1 cm long, shiny on the upper surface.

Flowers dioecious, pale yellow, waxy, fleshy and bell-shaped. Male flowers 5-7 mm long and in groups of 1-10; female flowers up to 1 cm long and in groups of 1-3 occasionally both sexes are found on the same tree.

Fruit oval or pyriform, drooping, yellow, smooth, 6-9 cm long with a longitudinal ridge and a fleshy husk. When ripe, husk splits into 2 halves revealing a purplish-brown, shiny seed surrounded by a leathery red or crimson network of tissue. The shiny, brown seed inside, and the kernel of the seed is the Nutmeg. The brown seed has a red cover that makes another spice called Mace.

Bark contains watery pink or red sap.

BIOLOGY

There are both male and female type trees, both required for pollination and fruit set. The seedlings reveal their sex at first flowering.

The tree does not flower until around 7-9 years old, when it fruits; it may produce until the 90th year. In other areas it produces fruit 15-20 years after planting and bears fruit throughout the year, but peak harvest season is from December to May. The nuts split open when the fruits are fully ripe.

ECOLOGY

Grows wild on rich volcanic soils in lowland tropical rain forests.
Nutmeg needs a warm and humid tropical climate.

BIOPHYSICAL LIMITS

Altitude: up to 4,500 m. In the tropics, it can be grown below 700 m

Temperature: 25-30°C

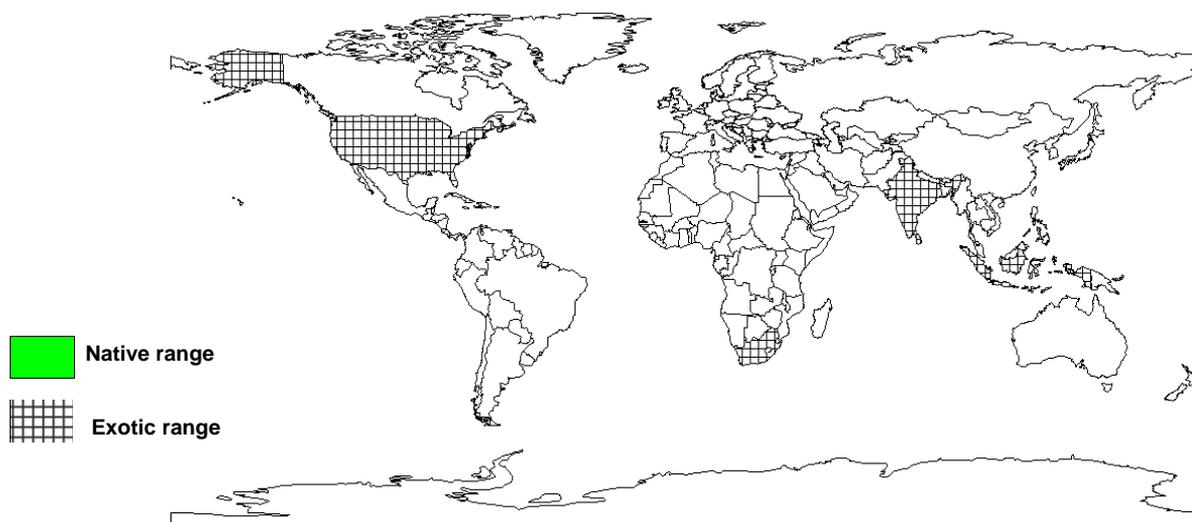
Rainfall: 2000-3500 mm

Soil type: Nutmeg can grow on any kind of soil provided there is sufficient water but without any risk of waterlogging. It prefers soils of volcanic origin and those with high contents of organic matter with pH 6.5-7.5.

DOCUMENTED SPECIES DISTRIBUTION

Native:

Exotic: Grenada, India, Indonesia, Mauritius, Singapore, South Africa, Sri Lanka, US



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS

Food: Nutmeg is a mild, delicious baking spice with a sweet smell commonly added to sausages, meats, fish, soups, fruit pies, eggnog, puddings, vegetables and cakes, biscuits, custards, buns etc. It tastes very good in drinks like tea and soft drinks or mixed in milk and alcohol. Nutmeg is more pungent and sweeter than mace. The distinctive flavors are due to volatile oils, present in both tissues.

Essential oils: Grenada is the world's second largest producer of essential oils derived from the seeds of the nutmeg tree, *Myristica fragrans*. It also contains a valuable, thick, yellow, fat called Nutmeg butter used to make candles and is important in certain salves and medicines. The oil is used in soap, candle making, dental products and hair lotions.

Medicine: It is widely used as a traditional medicine in the Middle East and Asia. In Western medicine nutmeg is used as a stomachic, stimulant, carminative as well as for intestinal catarrh and colic, headaches, diarrhea, vomiting, nausea, fever, bad breath, to stimulate appetites and to control flatulence. It is also valuable for its aphrodisiac and anti-inflammatory properties.

Abuse: Nutmeg has been known for its hallucinogenic properties for a long time. Adults may abuse the hallucinogenic properties of nutmeg. Children may be at high risk at home, since nutmeg may be widely available as a cooking additive. In the course of its use in traditional medicine, overdose may occur.

TREE MANAGEMENT

Young nutmeg plants should be planted under 50% shade, but can be reduced progressively and after 6-7 years they can grow without shade at all. Trees should be well spaced so that branches don't touch and not to hamper flowering. Lower branches should be pruned to facilitate collection of dropped seeds.

After de-husking, the red feathery aril (mace) should be removed, flattened out and dried in the sun for 10-15 days. The nuts are dried separately for 4-8 weeks till the kernels rattle within the shells.

PESTS AND DISEASES

The most serious pest is the scolytid beetle *Phloeosinus ribatus* which bores through bark causing dieback and death. Other damaging borers are *Xyleborus fornicatus* and *X. myristicae*. The coffee bean weevil *Ataecerus fasciculatus* is a serious pest of stored nutmeg and mace.

The only fungal disease of major importance is *Stigmina myristicae*, a dry rot that causes the fruits to open when still young. Consequently the arils and seeds remain underdeveloped and are worthless. Soft rot of fruits caused by *Colletotrichum gloeosporioides* also causes young unripe fruits to open prematurely. Root rots caused by *Fomes noxius* and *Fomes lamaoensis* may cause considerable damage.

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