

Macadamia integrifolia

Proteaceae

Eastern Australia (Queensland)

COMMON NAMES: **English:** Macadamia nut, Queensland nut;
Kikuyu: Mukandamia.

DESCRIPTION: A low-branching evergreen tree to 15 m.
BARK: Grey, smooth. **LEAVES:** In whorls of 3, dull to olive-green, wavy, young leaves edged with sharp forward-pointing spines, old leaves 25 cm x 4 cm, entire with a tough texture. **FLOWERS:** In slender drooping spikes, 25 cm, creamy white, the stalks persist on the tree like stiff threads. **FRUIT:** A hard round nut, to 3 cm across, husk black, containing the exceptionally hard shiny brown nutshell. These fall to the ground and are collected for the white seed within.

ECOLOGY: The macadamia is the only commercial food crop indigenous to Australia, originating in the Australian rainforests. The crop was first developed in Hawaii with trees imported in the 1880s, but not until the 1950s did the Hawaiian success encourage other countries to grow macadamia on a commercial scale. The tree was introduced to the Kenya highlands in the coffee growing areas, especially Central Province, for its valuable nuts. The minimum rainfall for macadamia to do well is about 1,000 mm, and the rainfall should be well distributed throughout the year. Macadamia can be grown in a wide range of soils but not on heavy, impermeable clays and saline or calcareous soils. Best is a deep, well-drained soil with good organic matter content and pH 5–6. The presence of pollinator bees is important for good fruit set. Agroclimatic Zones II–III.

USES: Charcoal (fruit shells), timber, food (nuts), bee forage, shade, ornamental, windbreak, oil (used in cosmetics and animal feeds).

PROPAGATION: Seedlings are slow to commence bearing and will vary in yield and fruit quality. Seeds germinate readily and 9–12-month-old seedlings can be used as rootstock. Grafting with scion material of 1–1.3 cm diameter. Grafted material will bear after about 3 years, ungrafted seedlings after 7 years or more.

SEED:
treatment: Crack hard seed coat before sowing.

MANAGEMENT: Mulching is recommended for young trees. The need for pruning depends on cultivars, but some pruning is often needed to avoid later breakage of branches. Weeding is also important when the tree is young. Fertilizer application may



give a positive response if the soil is lacking in any of N, P, K, Zn, B, S, Mg, Fe or Cu.

REMARKS: The original species grown around Thika was *M. ternifolia*, which is rarely grown today. Nowadays grafted material of *M. tetraphylla* and *M. integrifolia* is grown commercially. Old, unproductive trees can be crown grafted with improved varieties. Can be intercropped with coffee and other shade-tolerant crops without affecting the yield. This is a good cash crop with a ready market. The fruit of *M. tetraphylla* split while still on the tree. *Macadamia* is a genus of South East Asia, the Western Pacific Islands and Australia with about a dozen species, but the 2 most important ones *M. tetraphylla* and *M. integrifolia* are both from eastern Australia.

FURTHER READING: <http://www.worldagroforestrycentre.org/Sites/TreDBS/AFT/AFT.htm>; Dharani, 2002; Jensen, 1999; Mbuya et al., 1994; Noad and Birnie, 1989; Verheij and Coronel, 1991.

M. tetraphylla