

## Mango, manako

*Mangifera indica* L.

Cashew family (Anacardiaceae)

Post-Cook introduction

Mango is well known by its large elliptical or egg-shaped yellow or pinkish fruits with edible flesh and large seed in a mass of fibers. The tree is also a handsome ornamental and shade tree with very dense rounded crown of large narrow dark green leaves, drooping in showy red-brown clusters when first produced, and with large clusters of small yellow green to pink flowers. Also, the wood has many uses.

Medium-sized to large evergreen tree frequently attaining 20–65 ft (6–20 m) in height with stout trunk 2–3 ft (0.6–0.9 m) in diameter. Bark brown, smoothish, with many thin fissures, thick, becoming darker, rough, and scaly or furrowed. Inner bark light brown and bitter. Whitish sap exudes from cut twigs, and resin from cuts in the trunk. Twigs stout, pale green, and hairless.

Leaves alternate, hairless, with leafstalks  $\frac{1}{2}$ – $1\frac{1}{2}$  inches (1.3–4 cm) long, swollen at base. Blades lance-shaped or narrowly oblong, 6–12 inches (15–30 cm) long and  $1\frac{1}{2}$ –3 inches (4–7.5 cm) wide, long-pointed at both ends or short-pointed at base, curved upward from midvein with many straight side veins and sometimes with edges a little wavy, leathery, shiny dark green above, paler beneath.

Flower clusters (panicles) large showy terminal, 6–8 inches (15–20 cm) or more in length, with reddish hairy branches. Flowers numerous, five-parted, about  $\frac{1}{4}$  inch (6 mm) wide, short-stalked finely hairy fragrant, partly male and partly bisexual (polygamous). Calyx yellow green,  $\frac{1}{16}$  inch (1.5 mm) long, deeply five-lobed; corolla of five spreading petals more than  $\frac{1}{8}$  inch (3 mm) long, pink, turning reddish; five stamens, one fertile and four shorter and sterile, borne on a disk; and in some flowers a pistil with single-celled ovary and slender lateral style.

Fruits (drupes) hanging on long stalks, large, aromatic, mostly 3– $4\frac{1}{2}$  inches (7.5–11 cm) long, larger in improved varieties, slightly narrowed toward blunt apex and a little flattened, with smooth thin skin, soft at maturity, with thick juicy yellow or orange flesh. Seed case  $2\frac{1}{2}$ – $3\frac{1}{2}$  inches (6–9 cm), flattened, with long ridges and grooves, containing 1 seed. Flowering mainly in winter

and spring and maturing fruits about 6 months later from spring to fall. If rains are prolonged during flowering period, a fungus (*Colletotrichum gloeosporioides*) destroys the flowers, and a poor fruit crop results.

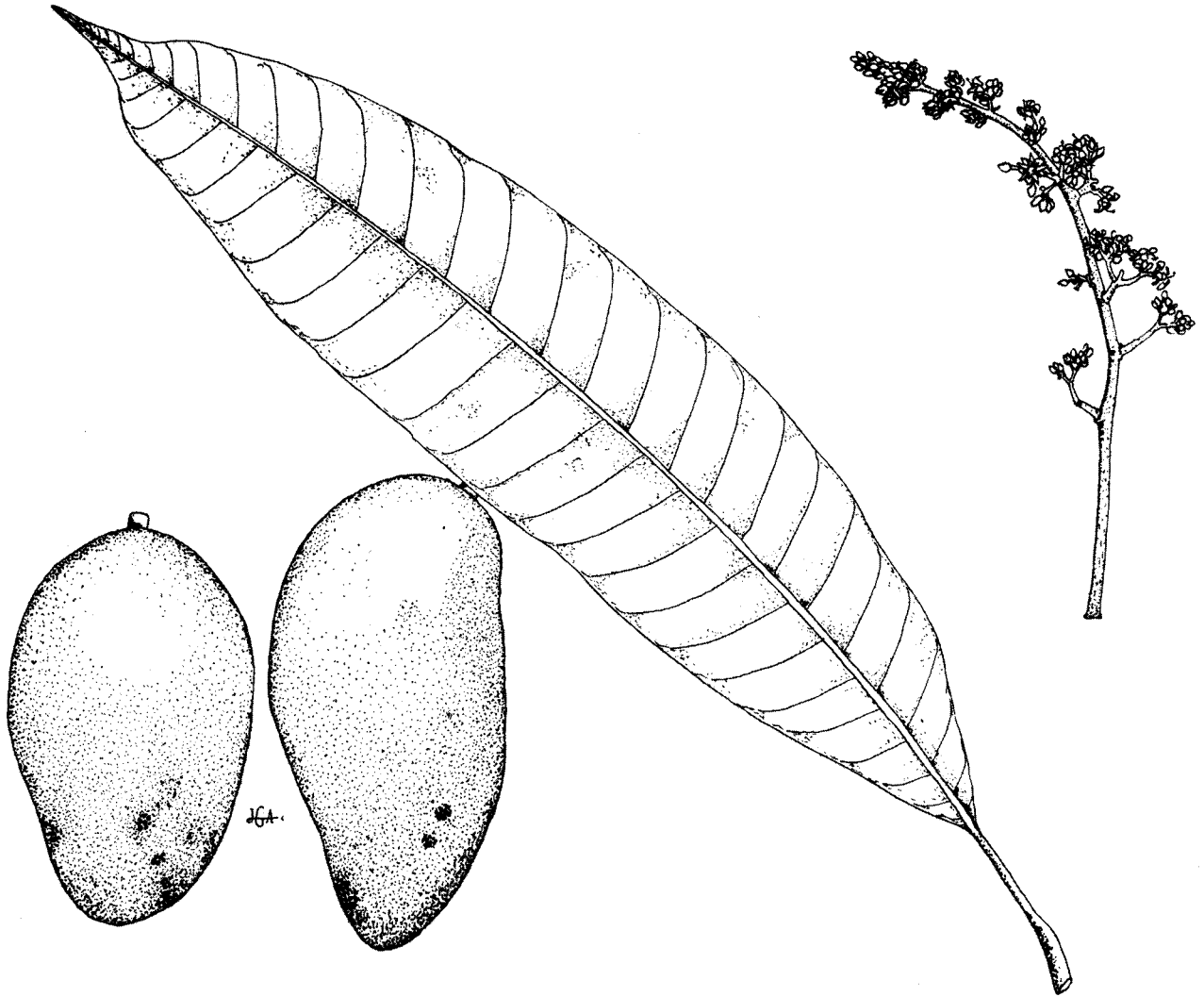
The wood is lustrous blond without distinct sapwood. It is however, frequently stained during drying and may be mottled with darker spots. The heartwood when it forms in very old trees is dark brown. Wood is hard, moderately heavy (sp. gr. 0.57), tough, strong, and medium-textured and has straight to wavy grain, often with a pronounced curly or fiddleback figure. It shrinks very little in drying, so seasons well and stays in place despite humidity changes. Machining characteristics of Puerto Rican wood are as follows: planing, shaping, and turning are fair; boring, mortising, and resistance to screw splitting are good; and sanding is poor. The wood works easily, but grain irregularities cause tearouts. It is susceptible to attack by dry-wood termites and is not resistant to decay.

In Hawaii the wood has been employed for furniture, paneling, carved and turned bowls and trays, and gunstocks. Elsewhere, it has been used for flooring, construction, boxes and crates, carts, plywood, dry cooperage, and meat chopping-blocks. In French Oceania and the Cook Islands, most canoes are made from mango. Beautiful furniture has been made from a variety grown near Hilo that invariably has pronounced curly grain. The First Methodist Church in Hilo has a spectacular display of mango paneling on the wall behind the altar.

Mango is one of the most popular fruits through the tropics. Though usually eaten raw, mangos are also cooked or made into preserves, jelly, juice, or chutney. Numerous improved varieties with larger and less fibrous fruits have been developed. Many of these have several embryos (polyembryonic) and breed true from seed. Others with a single embryo (monoembryonic) must be propagated vegetatively by budding or grafting. The most popular mango cultivars in Hawaii are 'Hayden', 'Pirie', and 'Shibata'. 'Pirie' was introduced in 1899 and 'Hayden' in 1930. Green mango fruit is quite popular and is often pickled.

Mango is an excellent hardy shade tree. It is also among the important honey plants, secreting quantities of nectar, and the flowers reportedly are edible. Livestock eat the fruits. The seeds, flowers, bark, leaves, and resin have been employed medicinally, and the bark and leaves yield a yellow dye.

Some people have skin sensitive to the resinous sap of the fruit peel and foliage, developing a rash similar to



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Leaf, fruits, flowers, 2/3 X (P.R. v. 1).

the rash from poison-ivy, which is in the same plant family. Climbing trees to gather fruits is hazardous because of the brittle branches.

Mango has been cultivated for more than 4000 years in India, where more than 500 cultivars are known. It was introduced into Hawaii probably prior to 1825 by Don Francisco Paula y Marin (1774–1837). Don Marin, Spanish-born friend and advisor of the Hawaiian king, imported fruits such as the pineapple and other plants from many parts of the world. The first introductions were from three different countries—Chile, the Philippines, and China—and more than 40 improved selections followed later. The Mediterranean fruit fly and mango flies, which damage the developing fruits, came too!

In Hawaii, mango is planted and naturalized mainly in the lowlands through the islands. Huge old common mango trees are found occupying overgrown home sites in all the wetter valleys. There are estimated to be about 4 million board feet of mango sawtimber in Hawaii.

#### ***Special areas***

Keahua, Waimea Arboretum, Foster, Tantalus

#### ***Champion***

Height 71 ft (21.6 m), c.b.h. 24.7 ft (7.5 m), spread 70 ft (21.3 m). Rainbow Falls State Park, Hilo, Hawaii (1968).

#### ***Range***

Native to tropical India, probably from India east to Vietnam. Widely planted as a fruit tree and naturalized in tropical regions. Cultivated in southern Florida, where it is naturalized locally, and in southern California. Common in Puerto Rico and Virgin Islands.

#### ***Other common names***

iedel (Palau); manga (Yap); kangit (Truk and Pohnpei)