Swietenia mahogani C. DC.

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MELIACEAE (MAHOGANY FAMILY)

No synonyms

Acajou, acajou de Saint Domigo, caoba, caoba de Santo Domingo, caobilla, madeira, mahogany, mahogany du pays, mahogany petites feuilles, mahok, mahoni, small-leaf mahogany, Spanish mahogany, West Indian mahogany, West Indies mahogany (Little and Wadsworth 1964)

The native range of *Swietenia mahogani* includes the southern tip of Florida, the Florida Keys, the Bahamas, Cuba, Jamaica, and the island of Hispaniola. The species is planted as an ornamental outside its native range in Florida, several Caribbean islands, Hawaii, India, Sri Lanka, and Fiji. It has naturalized or escaped in a number of sites in Puerto Rico and the U.S. Virgin Islands (Francis 1991).

Swietenia mahogani is a medium to large tree with a straight to crooked bole and a limby crown. Although most trees commonly seen are medium-sized, this long-lived species can grow to very large sizes. A planted tree more than 200 years old in St. Croix, U.S. Virgin Islands, has reached 2 m d.b.h. and 25 m in height (Weaver and Francis 1988). Diameter growth may vary from 0.3 to 1.4 cm per year, depending on climate, soils, competition, and age (Francis 1991). The species grows on a wide variety of sites. Areas that receive mean annual rainfalls of 760 to 1780 mm are best. *Swietenia mahogani* colonize areas that receive salt spray; soils that have developed from marl, porous limestone, coastal sands, or serpentine rocks; and soils with pH between about 5.0 and 8.5. However, *S. mahogani* plantations on soils with pH of 5.0 or below and rainfall above about 2250 mm per year died out completely in Puerto Rico (Francis 1991). Ornamentals in parts of Florida tolerate infrequent light frosts.

Geographic races have not been reported, but hybrids occur whenever it is planted near *S. macrophylla* and *S. humilis* trees (Whitmore and Hinojosa 1977).

Before 400 years of exploitation of the natural stands, *S. mahogani* wood was the best known and most prized tropical wood in the world for cabinet making. Small quantities of logs are still harvested from plantations, roadside plantings, and depleted natural stands (Francis 1991). The heartwood has a deep, rich, red or brown color (Longwood 1962) and an oven-dried specific gravity that is typically about 0.6 (Heck 1937, Kyoch and Norton 1938). The wood dries without warping and checking and can be worked easily with hand and power tools. It is used to make and repair fine furniture, for balustrades, trim, carving, and crafts. Small trees and limbs are used for making fenceposts, charcoal, and firewood. The tree is grown as a shade tree and ornamental in the West Indies and elsewhere in the tropics (Francis 1991).

Flowering and fruiting of plantation trees starts at 12 to 13 years of age (Lamb 1966). Only dominant and codominant trees flower. Flowering occurs in spring and early summer (Little and Wadsworth 1964). The flowers are unisexual and the trees are monoecious, with male and female flowers present in each inflorescence (Lee 1967, Styles 1972). The flowers are apparently pollinated by bees and moths (Styles and Khosla 1976). The fruit is a brown, egg- to pear-shaped capsule about 6 to 10 cm long (Schubert and Zambrana 1978). Large trees may produce over 100 capsules, but seed production is irregular from year to year. The fruits ripen during the winter (Little and Wadsworth 1964). When fully ripe, the woody shell splits into five sections from the base upward and falls off to release the seeds. The winged seeds (samaras) are 5 to 6 cm long and tan to reddish brown in color (Bisse 1981). A capsule may contain up to 60 seeds. Fifty capsules sampled in Puerto Rico averaged 39 ± 1.3 seeds and ranged from 19 to 56 seeds (Francis 1991).

Seeds are collected when a few of the capsules on a tree have opened. At ripening, the color of the capsule changes from greenish gray to gray-brown, red-brown, or brown; during collection, capsules with a discernible green shade should be avoided. Pruning poles, ladders, or high-lift buckets are

used to collect capsules from the trees. The capsules are sun-dried until partially open; they are then broken open and the seeds are removed and further dried over screens in a shaded, well-ventilated area. Air-dried seeds average about 7,000 per kg (Marrero 1949). The seeds are placed in sealed containers and may be stored at room temperature for about 2 months. If longer storage is needed, the seed should be refrigerated. Evidence from *S. macrophylla* indicates that storage for longer than 1 year should not be attempted (Marrero 1943). *Swietenia mahogani* appears to have similar seed characteristics.

No pregermination treatments are necessary. Germination is hypogeal. The seeds will germinate in almost any moist media. An average of 70-percent germination was noted in tests in Puerto Rico, and an average of 18 days passed before the first seeds germinated (Marrero 1949).

A sound approach to nursery germination is to scatter fresh seeds on moist, sterile potting mix in trays or beds and cover with about 1 cm of potting mix. New seedlings are transplanted from the germination trays or beds to pots, nursery bags, or nursery beds after they develop two or three leaves. Nursery seedlings reach about 20 cm in 6 months and about 60 m in 1 year. Outplanting of seedlings from 30 to 50 cm in height is recommended for large, solid-block plantings. Seedlings from 50 to 100 cm in height are recommended for line planting. Seedlings to be used as ornamentals should be 1 to 1.5 m or more in height before outplanting. Bare-root seedlings and stump plants are suitable for sites if soils are moist at the time of planting and will remain so for several months. Seedlings must not dry out or heat up before planting. For dry sites, bagged or potted seedlings are recommended. Seedlings must be protected from weeds and grass for 2 to 3 years after planting and from vines and invading tree species for as long as necessary.


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2cm