Thespesia grandiflora DC.

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MALVACEAE (MALLOW FAMILY)

Montezuma speciocissima Sessé and Moc., *M. grandiflora* DC., and
Maga grandiflora (DC.) Urban (Francis 1989d)

Maga, maga colorada, purple haiti-haiti, tulipán de Japón (Little and Wadsworth 1964)

Thespesia grandiflora is endemic to Puerto Rico. The original extent of the species on the Island before the advent of humans is unknown, but it was probably common only in the moist limestone region (Francis 1989d). Because of deforestation and disturbance, the species has become common throughout the moist and wet areas of Puerto Rico.

Thespesia grandiflora is an attractive, small to medium-sized tree with dark green foliage and large, dark pink or red flowers. In natural forests, boles of this tree are generally straight, round, and free of limbs for 3 m or more. However, few exceed 20 m in height and 50 cm d.b.h. Open-grown and ornamental trees tend to be short with rounded crowns. The species grows on soils ranging from mildly alkaline to strongly acid, with textures ranging from sandy loams to clays. Natural trees grow best on colluvial lower slopes of limestone hills and the alluvial bottoms between the hills. *Thespesia grandiflora* grows in areas of Puerto Rico with mean annual precipitations ranging from 1250 to 2500 mm and mean annual temperature from 20 to 27 °C.

Thespesia grandiflora is planted as an ornamental in Florida, Hawaii, Honduras, and on several of the Caribbean Islands (Francis 1989d, Little and Wadsworth 1964). The large, trumpet-shaped flowers, dark green, heart-shaped leaves, and moderate size make *T. grandiflora* a very desirable ornamental tree. The species also produces a valuable wood, somewhat similar in appearance and working quality to old growth mahogany (Little and Wadsworth 1964). The wood, which is durable and highly resistant to dry-wood termites (Wolcott 1940), is used for furniture, crafts, and musical instruments.

Open-grown *T. grandiflora* are reported to begin flowering between 5 and 10 years of age (Francis 1989d). Flowering and fruiting proceeds throughout the year except when limited by periods of low rainfall and drought stress. The flowers are 7.5 to 9.0 cm long and 9.0 to 13 cm broad with five overlapping petals. The flowers are borne singly on long petioles from leaf bases. The fruits develop and ripen within a few weeks. The fruit is smooth and green, subglobose, and 3 to 5 cm in diameter. From 1 to 12 brown seeds are embedded within a white, fleshy matrix. *Thespesia grandiflora* depends on fruit bats and birds for dispersal.

The fruits can be clipped from trees with pruning poles. Seeds can also be extracted from uneaten fruits that fall to the ground or picked up from the ground after being dropped by bats or birds, but they are usually scattered. Fruits are ripe when pliable to the touch, but ripening is not indicated by a color change and it is difficult to tell which fruits to pick at a distance. In addition, fruits ripen individually so that only a few fruits are ripe at any one time, and in Puerto Rico most are taken by foraging bats soon after ripening. However, fruits sufficiently developed will ripen a few days after picking. Good seeds have a cinnamon-brown color with a waxy luster and are free of fungal spots. Lighter or darker colors denote immaturity or overmaturity and loss of viability (Marrero 1949). Fresh seed weights of 2,500 per kg and air-dried weights of 3,900 seeds per kg have been reported (Francis 1989d).

Nursery workers normally clean the seeds by hand, a fairly rapid process. Cleaning with macerators may damage the fragile seeds. The seeds of *T. grandiflora* are highly recalcitrant. The folded cotyledons are active and turn green within the seed as germination begins. The seeds begin germinating 5 to 7 days after the fruit ripens (Francis 1989d). Because seeds picked up from the ground may already have the radicle exposed, moist paper towels or other moistened material should be placed in the collection container during transport and the seeds should be sowed as soon as possible. Viability of *T. grandiflora* seeds can be extended to almost 4 months by drying to

62.5-percent moisture and storing at 2 to 4 °C (Marrero 1942).

No pregermination treatments are necessary. Seeds may be sowed in germination trays, beds, or directly in the containers and lightly covered in ordinary potting mix. Marrero (1942) reports 70 to 80 percent of fresh seeds germinate, but that he obtained just 20-percent germination of seeds stored at room temperature for 2 weeks. Francis and Rodríguez (1993) reported 80-percent germination beginning 6 days after sowing. Germination is epigeal.

If seeds are germinated in germination trays or beds, they are transplanted to nursery bags or pots after the first true leaves emerge. *Thespesia grandiflora* seedlings develop rapidly in partial shade, reaching 20 cm in height in 3 months and 40 cm in height in 6 months (Francis 1989d). The seedlings should be moved into full sun a few weeks before outplanting. Seedling stock from 15 to 50 cm can be used to establish plantations. Plantations must be weeded for 1 to 2 years after outplanting and vines must be removed for an additional 1 or 2 years. Trees destined to become ornamentals are often grown in pots until they attain 1 to 2.5 m in height, when they should be planted in deep, well-aerated, and fertile soil. Planting in semicompacted construction fill will result in failure.


2cm