

# *Acacia farnesiana* (L.) Willd.

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## FABACEAE (BEAN FAMILY)

*Acacia cavenia* Bert., *A. leptophylla* DC., *Vachellia farnesiana* (L.) Wight & Arn.

**Acacia odorant, amarilla, aroma, aramo, biorama, cachito de aroma, cachito do aroma, cambrón, casha, cashaw, cassia, cassie, cimarróespinal, cují casha, cuntich, espinillo, espino blanco, espino ruco, esponjeira, huisache, palú, paují, pelquisache, subín, subinche, sweet acacia, uña de cabra (Little and Wadsworth 1964)**

*Acacia farnesiana* is probably native only to southern France and Italy (Parrotta 1992a). However, today it can be found naturalized throughout the tropics and the warmer subtropics.

*Acacia farnesiana* is a multiple-stemmed shrub or small tree with short to long spines, feathery foliage, and fragrant flowers that rarely exceeds 5 m in height and 15 cm d.b.h. It has smooth, gray bark with many lenticels. The species grows and reproduces aggressively in areas annually receiving about 500 to 1000 mm of rainfall where mean annual temperatures vary from 15 to 28 °C. *Acacia farnesiana* grows on a wide variety of soils including sands and clays; disturbed, nutrient depleted, and saline soils; very rocky sites; and in a wide range of pH levels (Parrotta 1992a).

The species is systematically complex. It has been described as an assemblage of microspecies (Parrotta 1992a). Three species have been split out of the parent taxa: *A. smallii*, *A. pinetorum*, and *A. caven* (Clarke and others 1989, Seigler and others 1979). *Acacia farnesiana* is a tetraploid species with  $2n=52$  chromosomes (Seigler and others 1979).

*Acacia farnesiana* has many minor uses. It is one of the most important forage plants in vast areas of degraded pasture. The foliage and pods are browsed heavily by goats, sheep, and wild ungulates (Little and Wadsworth 1964). The wood is used primarily for fuel. Air-dried wood has a fuel value of 4,600 kcal per kg (Webb and others 1980). The heartwood is hard and heavy with a specific gravity of 0.79 to 0.84 (Joshi 1983, Little and Wadsworth 1964). The sapwood is yellowish and the heartwood is red-brown. The trunks may occasionally get big enough to fashion into tool handles and small implements. The flowers, leaves, fruits, bark, and roots are used in herbal medicine (Little and Wadsworth 1964). The

species is also planted to rehabilitate degraded soils and shifting sands (Parrotta 1992a).

Flowering begins when the tree is 2 or 3 years of age (Parrotta 1992a). Although flowering of *A. farnesiana* occurs annually, it is timed to coincide with the moist seasons: November through February in Puerto Rico, December through March in Central America, January through April in northeastern India, and September through February in eastern India (Parrotta 1992a). Round flower heads are borne singly on stalks, one to three of which arise from leaf axils. The tiny yellow flowers, with both male and female parts (Little and Wadsworth 1964), are pollinated by honey bees and other insects. The rounded or slightly flattened, small (3.6 to 7.6 cm) seed pods are dark brown to almost black when ripe. They contain a sweetish pulp that makes them attractive to animals, particularly ungulates, which are the principal dispersers. The pods ripen in 4 to 6 months and remain attached to the shrub or tree. Seeds fall to the ground after the pods decay or are destroyed by insects. A sample of pods collected in Puerto Rico contained an average of  $14.4 \pm 1.2$  seeds per pod (Parrotta 1992a).

The pods can usually be collected by hand from the trees or shrubs. A pruning pole is used on the occasional tall tree. After air drying, the pods can be crushed and the seeds separated by screening and blowing. Another method of cleaning (and scarifying) is to feed the pods to cattle and separate the seeds from the manure. A sample of *A. farnesiana* seeds collected in Puerto Rico averaged 7,600 per kg (Francis and Rodriguez 1993). Others report seed averages of 11,000 to 13,000 per kg (Joshi 1983, Webb and others 1980). Dry seeds stored at ambient temperatures in sealed containers retain their viability for 30 or more years (Joshi 1983).

Some form of pretreatment is required for good germination. Fresh seeds commonly give 10- to 40-percent germination (Gill and others 1986, Marrero 1949). Methods reported to increase germination include soaking in cold water for 48 hours (Joshi 1983), soaking in hot water for 10 to 20 minutes (Kumar and Purkayastha 1972), and incubation at temperatures between 60 and 70 °C for 6 to 12 hours (Gill and others 1986). Scarification in concentrated sulfuric acid for 20 to 60 minutes or in concentrated nitric acid resulted in 65- to 70-percent germination (Gill and others 1986, Scifres 1974). Abrasion with sandpaper enabled germination as high as 98 percent (Gill and others 1986).

Seeds should be sowed in well-drained media. Optimal sowing depth is 2 to 4 cm (Gill and others 1986). Germination begins in about 6 days (Francis and Rodríguez 1993). Plantations may be established by direct seeding or by planting bare-

root or containerized seedlings (Joshi 1983). Broadcasting seed in a Texas pasture resulted in the establishment of seedlings for only 1 to 2 percent of the seeds (Mayer and Bovey 1982). Using prepared seed spots can improve the results of direct seeding. For nursery-grown seedlings, the seed is sowed in germination trays or beds, and the seedlings are transplanted to growing beds, nursery bags, or pots when they reach about 5 to 8 cm in height. Seedlings reach plantable height of 30 to 50 cm in 6 to 12 months. Outplanting should begin after the first rains of the wet season have soaked the soil. *Acacia farnesiana* is very shade-intolerant. Newly established seedlings can withstand competition at or below their height, but do not tolerate shading by taller vegetation. Spoiled and eroded areas may not require weeding, but grassy and brushy areas will. Once established, *A. farnesiana* are not harmed by cattle grazing, but may be severely browsed by goats and sheep.

