

Fabaceae CPea family

Enterolobium cyclocarpum (Jacq.) Griseb.

guanacaste or earpod-tree

John K. Francis

Dr. Francis is a research forester at the USDA Forest Service's International Institute of Tropical Forestry, Río Piedras, Puerto Rico.

Growth habit, occurrence, and use. At maturity, the fast-growing guanacaste is a huge, spreading tree with feathery bipinnately compound leaves. The trunks of open-grown trees are short and thick, tipped with an inverse cone-shaped crown. Trees of the species have much longer boles when they develop in closed stands. Guanacaste grows in both acid and alkaline soils (Bauer 1982) in forests and savannas from central Mexico (23° N) through Central America to about the Equator in northern Brazil (Little and others 1974; Pennington and Sarukhan 1968). However, the species has been widely planted in tropical and subtropical areas, including Puerto Rico, the U.S. Virgin Islands, Florida, and Hawaii (Francis 1988). Guanacaste is recommended for planting in areas that receive from 750 to 2,000 mm of mean annual precipitation (Bauer 1982; Fournier and Herrera 1977). Dry seasons of 1 to 6 months are normal in the native range (Bauer 1982; Janzen 1983). Guanacaste is principally used as an ornamental and shade tree in parks, estates, and broad avenues. It is also valued as a pasture shade tree, especially in Central America. Cattle, horses, and goats feed heavily on its sweet legumes (pods). The heartwood has a rich brown color and is in demand for cabinetry, furniture, crafts, and construction (Chudnoff 1984; Guridi 1980).

Flowering and fruiting. Small white flowers are borne in clusters or heads at the base of leaves (Little and others 1974; Pennington and Sarukhan 1968). Flowering takes place in March and April during the regrowth of new leaves after the leafless dry season (Hughes and Styles 1984; Janzen 1983). There is no indication in the literature as to the age at which flowers first appear; however, trees in a 26-year-old plantation in Puerto Rico had not yet flowered. The fruits are shiny, dark brown legumes that curve around one edge, giving them a shape that resembles a human ear (figure 1). Legumes are 7 to 12 cm in diameter and contain 8 to 18 seeds (Holdridge and Poveda 1975; Janzen 1983; Pennington and Sarukhan 1968); they mature the year they are formed and fall in March and April.

Collection, cleaning, and storage. Seeds can be collected in quantity by picking up the legumes after they have fallen to the ground. They can be separated by macerating the legumes and then washing them to remove the sticky syrup or by picking the seeds from the tough pods with the point of a knife (Francis 1988). One thousand to a few thousand seeds are produced per tree. The 1.3- to 1.9-cm (2- to 2.5-in) seeds (figure 2) number 1,100/kg (500/lb) (Janzen 1983; Neal 1965). The seeds store well according to Bauer (1982).

Germination. Without scarification, a moderate percentage of the seeds germinate over a span of several months. Scarified seeds in most kinds of soil germinate in 3 to 7 days. Germination

values of 79 and 84% were observed in tests in Puerto Rico (Francis and Rodríguez 1993) and Costa Rica (Salazar 1985). A seed can be scarified by nicking it on a grindstone, by cracking it with a pair of pliers, or by immersing it briefly in boiling water. In nature, seeds are scarified and disseminated primarily when the pods are eaten by domestic and wild ungulates or when they are nicked by rodents (Janzen 1983). Germination is epigeal (figure 3) (Francis 1988).

Nursery practice. Seeds may be sown in nursery beds, germination trays, or directly in pots. They should be covered with about 1 cm (.4 in) of soil or potting mix. Seedlings develop rapidly in full sunlight, reaching plantable size of about 0.5 m (20 in) in about 6 months (Francis 1988), and they are very drought hardy. Generally, good survival at outplanting can be obtained with potted seedlings and stump plants (Bauer 1982). A test of container seedlings in southeastern Mexico yielded an average of 77% survival (Beroni and Juarez 1980).

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