

Fagraea berteriana

A. Gray ex Benth.

Loganiaceae

LOCAL NAMES

English (perfume flower tree); Fijian (kandisa, mbua ni veikua, mbua ni Viti, mbua ndina, mbua); Hawaiian (pua kenikeni); Samoan (pualulu); Tongan (pua)

BOTANIC DESCRIPTION

Fagraea berteriana is a small spreading tree or a large shrub up to 15 m; trunk often many-branched at the base, with a spreading crown.

Leaves simple, opposite, blade fleshy, mostly elliptic to obovate, 8–22 cm long, acute to cuneate at the base, shortly acuminate at the tip; surfaces glabrous and glossy, veins indistinct, upper side darker; margins entire; petiole 1.5–5 cm long; stipules forming a fleshy, notched structure (ocrea) in the leaf axil.

Inflorescence terminal, many flowers, tubular shaped, creamy white, turning yellow to golden orange. Cyme usually branched at the base, on a rachis up to 11 cm long, with small, paired ovate bracts at the nodes; calyx urn-shaped, 9–16 mm long

Fruits orange, ellipsoid berry 3.5–5 cm long borne on a thickened stalk; and containing many, tiny, black, irregularly angled seeds.

BIOLOGY

Seeds are spread by birds and bats. Flowering for a vegetatively propagated plant usually begins within months of outplanting. New vegetative growth and flowering may occur anytime during the year, and sometimes continuously, but often with peaks in summer (May–September).



Habit at Keanae Arboretum, Maui, Hawaii (Forest & Kim Starr)



Leaves and fruit at County Nursery Kahului, Maui, Hawaii. (Forest & Kim Starr (USGS))



Fruit and sky at Kahului Airport, Maui, Hawaii. (Forest & Kim Starr (USGS))

ECOLOGY

Fagraea berteriana grows in the humid and sub-humid tropics and subtropics; and can be found in lowland to montane forests, particularly on lowland lava flows, on narrow ridges, and in cloud forests. Associated species may include *Glochidion ramiflorum*, *Rhus taitensis*, and *Wikstroemia foetida*. It is moderately tolerant to drought, partial shade, salt spray and wind; too little water deters growth, however water stress stimulates flowering.

BIOPHYSICAL LIMITS

Altitude: 0-1060 m

Temperature: 15-31°C

Rainfall: 1500-6200 mm

Soil type: Can grow in a wide variety of soils, such as calcareous, fresh lava, in shallow and infertile soils, weathered clay, and as an epiphyte without soil. It tolerates medium to heavy texture soils with free drainage and pH 5.5-6.5.

DOCUMENTED SPECIES DISTRIBUTION

Native: Australia, Northern Mariana Islands, Papua New Guinea, Samoa

Exotic:



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS

Timber: The durable, light brown, finegrained wood is of good quality and can be smoothed into a high polish. The wood was much valued for making tool handles, tools, house posts, furniture, drums, and canoe parts and in modern times, handicrafts.

Medicine: The inner bark is used to treat asthma and diabetes. An infusion of the bark is used to treat internal injuries, usually in a potion comprising several species. The boiled leaves are used for treating rashes and skin irritations.

Food: The flowers are highly favored for making scented coconut oil.

Fodder: The fruits are eaten by birds and bats.

Fuel: It can be used for firewood, especially where it is common.

SERVICES

Ornamental: The tree is mainly cultivated as a garden ornamental and lei flower tree. Its relatively compact size, showy and fragrant flowers makes it ideal for use in both public and private urban areas. The long-tubed fragrant blossoms are widely worn, singly over the ear or strung into fragrant leis (personal adornment).

Intercropping: Grows well in mixed gardens. On a farm where the main crop is coffee, the perfume flower tree can be grown for family use, together with dwarf bananas, kava, mountain apple, and citrus.

Boundary or barrier: Though the tree is not often used for these purposes, it is possible that if planted about 2 m apart, it could form a hedge by pruning to size to encourage vegetative growth on lower branches.

Other services: The tree was considered sacred in the Cook Islands, where its branches were regarded as paths for spirits of the dead descending to the underworld. In Tahiti, it was sacred to the god Tane, whose images were always made with its wood.

TREE MANAGEMENT

Regular pruning should be done to control the size of the tree, stimulate new growth, encourage flowering, and keep the flowers within picking height. Moderate fertilizer use helps encourage new growth without suppressing flowering. Since *F. berteriana* requires full sun, other species planted with it should not grow taller than the ideal height for picking the flowers. In drier environments irrigation can be done to keep the soil moist, but should be stopped during periods of low rainfall to stimulate flowering. Flowers are best harvested 2–3 times per week.

Spacing of 4.6 x 4.6 m is recommended for flower production in monocultures, but can be variable in mixed plantings depending on the intercrops included.

GERMPLASM MANAGEMENT

The fruits can be collected throughout the year, and the seeds are mature when the fruit turns orange.

PESTS AND DISEASES

Common diseases and pests include leaf spots, fungal root rot, root-knot nematode, mealybugs, scales and thrips.

FURTHER READING

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SUGGESTED CITATION

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