



## Plumeria

*Plumeria rubra* L., *P. obtusa* L., and hybrids. Apocynaceae (dogbane) family. The names *acuminata*, *acutifolia*, and *lutea* are botanical variety names that have been incorrectly used to represent species names.

Common names: plumeria, frangipani, melia (Hawaiian), temple tree, and many named cultivars.

Plumeria is native to tropical America. In Hawaii, it is grown as an ornamental and is not found in the wild. It has widespread use in tropical landscapes around the world and is frequently associated with temples and graveyards.

### Characteristics

Plumeria is generally a small tree growing to about 30 ft high. Its broad, usually round-headed canopy is often about as wide as the tree is tall. The species and hybrids vary somewhat in tree size, compactness, and branching character, leaf and flower size and color, and deciduousness. The leaves are usually glossy green but may be dull green; they are generally ovate, may be blunt-tipped (*P. obtusa*) or pointed (*P. rubra* var. *acuminata* or var. *acutifolia*), and range from 2 to 4 inches wide and 8 to 12 inches long. In deciduous types, the leaves fall during wintertime, and new leaves emerge during or following the spring flowering period. *P. obtusa* and its hybrids tend to retain their foliage year-round. The flowers are tubular, expanding into a “pinwheel” of five petals that averages 2–3 inches diameter and may be white, red, yellow, pink, or multiple colors. Flowers of most cultivars are highly fragrant and bloom from March to October. The hybrids differ in their profusion of blooms, with some producing more than 200 flowers per cluster and others only 50–60 flowers.

Plumerias only occasionally produce seed. When pollinated, the flower produces two hard, narrow, pointed pods up to 7 inches long containing 20–60 winged seeds. Maturation of the seed pods is usually in early spring from a previous season’s pollination.

### Location and landscape uses

Plumeria is a common ornamental in yards and other planned landscapes. It is easy to grow in hot, dry areas and is found in Hawaii from sea level to 2000 ft elevation. It



requires full sun and grows best in well drained, slightly acidic soil. It has moderate wind resistance and salt tolerance. For best growth and flowering in the landscape, irrigation is needed during dry periods. The trees reach maturity (full size) in about five years. Plumeria can be grown to a relatively large size in large tubs.

### Propagation

The usual way to propagate plumeria is by cuttings, because this method maintains the selected cultivar. Tip cuttings 1–2 ft long should be allowed to “cure” in a dry place for at least two weeks before planting. Plant them in well drained soil in the landscape or in a pot. Do not water too

much or too often while rooting is occurring. Treatment of the base of the cutting with a rooting compound (0.3% indolebutyric acid) enhances rooting but is not a requirement for rooting. The young root systems are brittle, and transplanting, if necessary, must be done carefully. Do not leave plants in small containers too long, or the circling roots will cause problems of weak establishment when the plant is transplanted into the landscape.

Plumeria can be propagated from seed collected from a tree, but seed is not commercially available. Seed from plants with white flowers produces mostly white-flowered seedlings. Similarly, dark red will produce red, and yellow will produce yellow, but pinks and multicolored plants are more likely to produce a range of colors in the seedlings. Flower quality is unpredictable, although it will tend to reflect the parent plant.

Collect seeds when the pod splits open and sow them shallowly in pots or trays. Dry seeds will keep for about three months in a plastic bag before beginning to lose viability. Seeds germinate in about two weeks. Transplant seedlings to individual pots when 1 or 2 pairs of true leaves have developed, and move the plant up to a larger container until it is large enough to plant out.

With plants started from cuttings, flowers can be expected within the first year, depending on the original cutting size and the time of year that it was taken, although only limited production will occur. Seedlings take three years or more to produce flowers.

## Culture

When plumeria is grown for commercial flower production, it is planted 10 ft apart within rows 12–15 ft apart and pruned to keep the canopy low, encourage branching, and make harvesting the flowers more convenient. Branched cuttings are selected for propagating, and the branch axil is set low to the ground to result in a shorter-statured plant. Once established in the ground, a plumeria can reach 10–12 feet in 6 years, given adequate fertilizer and moisture.

Fertilize plumeria with 10-30-10 every three to four months at about 1 lb per inch of trunk diameter, distributing the fertilizer around the plant to 2 feet beyond the foliage line.

Pruning is easiest in winter, following leaf drop, but heavy pruning sacrifices the spring bloom. Many old trees in home landscapes have responded well to the pruning practice known as pollarding<sup>y</sup>. Stems that are shriveled and bent have been infested with the plumeria stem borer and should be removed back to their juncture with a main branch (or lower if there is internal discoloration) and destroyed.

## Pests and diseases

Plumeria has few disease problems. The plumeria rust (*Coleosporium plumeria* Pat.) is of fairly recent occurrence in Hawaii. It consists of orange blistering or powder on the underside of leaves, and it develops after prolonged wet periods. The leaves may fall if the rust is severe. Both *P. rubra* and *P. obtusa* are susceptible, but some of the uncommon species appear to be resistant. While fungicides specific for rust control are effective, they are not normally used, as the disease rarely is severe enough to damage the plant.

A black sooty mold develops on stems and leaves when scale insects, whiteflies, or mealybugs are present. These insects exude a sweet, sticky honeydew upon which the fungus flourishes. Although unsightly, the fungus does not harm the tree (although the insects weaken it). Ants nourish the insects and carry them up into the trees. The control for the sooty mold problem lies with control of the insects.

Plumeria may be attacked by the long-horned beetle (plumeria stem borer), thrips, a blossom midge, greenhouse and spiraling whiteflies, and mites. Normally, existing predatory insects keep populations of most of these in

bounds. The borer is especially destructive, as its damage is done inside the stems where insecticides are ineffective. Immediate removal of affected branches and their destruction is the only present recommendation, because spraying with insecticide would need to be carried out too frequently to prevent egg-laying by the adult beetle. Plumeria is most susceptible to this insect when under stress.

## Special notes

Plumeria flowers are excellent lei flowers and are especially common and traditional for home-made leis. To harvest the flowers, grasp individual blossoms at the base and remove from the plant with a gentle tug. Blooms may be strung lengthwise on strings about 38–40 inches long, or the lei may be formed by stringing the flowers crosswise through the lower part of the flower tube. Flowers can be kept for several days in a plastic bag in 48–55°F temperatures.

All parts of the plant exude a milky sap when damaged. The sap may irritate eyes and skin.

## Selecting plumerias<sup>z</sup>

Many criteria can be used to select plumerias for a residence or a landscape. Lei flower producers are mostly concerned with productivity.

*Use* may be as an accent or specimen plant or for flower production (leis, hair adornments, or simply for their fragrance). *P. obtusa* (Singapore plumeria) is frequently used in mass plantings. Availability of named plumerias is sometimes limited.

**Growth character.** Some cultivars are upright and compact, while others are lanky and open and others sprawl. Dwarf types are becoming available with good evergreen foliage, but the flower qualities are poor. The *P. rubra* types are deciduous, while *P. obtusa* and other white-flowered *Plumeria* species are evergreen. Ease of rooting is also a consideration in selection.

**Flower qualities** include color, size, petal fullness and overlap, fragrance, keeping quality, and tendency to fade.

**Flower productivity.** On some cultivars, up to 60 percent of the branch tips will set a flower cluster, while others set flowers only on 10 percent of their branches. Some cultivars have only a spring peak of bloom, while others will produce a second or even a third set of blooms in a long growing season. In general, compact plants with short branches bloom more heavily, while lanky plants produce more sparingly. A single inflorescence may bear flowers for five months, although the last flowers are small and infrequent.

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<sup>y</sup>Pollarding is a pruning practice in which a framework of branches is established with yearly pruning back on each to a point called the pollard head. This head develops a number of growing points as a result of the pruning, and each year a new group of shoots is produced. In plumeria, the new shoots may develop flowers late in the year if pollarding is done during the dormant season. Pollarding during the summer growing season will produce a series of short branches that will not set a flower head but will go dormant in fall and grow out as longer branches the next year, many of which will flower in late summer.

<sup>z</sup>Plumeria cultivar names are registered with the Plumeria Society of America (PO Box 22791, Houston, TX 77227-2791).