

Koelreuteria bipinnata: Chinese Flame-Tree¹

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Introduction

A yellow carpet of fallen petals, delicate leaflets which cast a mosaic of welcoming shade, and large clusters of persistent rose-colored, papery capsules all help to make Chinese flame-tree a very popular landscape tree over a wide area of the South. One of only a few yellow-flowering trees for the mid- and deep-south landscape. This broad-spreading, deciduous tree reaches a height of 40 to 60 feet and eventually takes on a flat-topped, somewhat irregular silhouette. It is often used as a patio, shade, street, or specimen tree. The small, fragrant, yellow flowers appear in very showy, dense, terminal panicles in early summer, and are followed in late summer or fall by large clusters of the two-inch-long “Chinese lanterns”. These papery husks are held above the foliage and retain their pink color after drying and are very popular for use in everlasting flower arrangements. The bark on Chinese flame-tree is smooth and light brown when young, becoming ridged and furrowed as the tree matures. It is easily distinguished from *Koelreuteria paniculata* since *Koelreuteria bipinnata* has more upright branches and has twice compound leaves, whereas *Koelreuteria paniculata* has single pinnate compound leaves.

General Information

Scientific name: *Koelreuteria bipinnata*

Pronunciation: kole-roo-TEER-ee-uh bye-pih-NAY-tuh

Common name(s): Chinese flame-tree, bougainvillea goldenrain tree

Family: *Sapindaceae*

USDA hardiness zones: 7A through 10A (Fig. 2)

Origin: not native to North America

Invasive potential: This one is not listed on the UF/IFAS Assessment of the Status of Non-Native Plants in Florida’s Natural Areas

Uses: reclamation; shade; street without sidewalk; specimen; parking lot island < 100 sq ft; parking lot island 100-200 sq ft; parking lot island > 200 sq ft; sidewalk cutout (tree pit); tree lawn 3-4 feet wide; tree lawn 4-6 feet wide; tree lawn > 6 ft wide; urban tolerant; highway median; container or planter

Availability: not native to North America



Figure 1. Young *Koelreuteria bipinnata*: Chinese flame-tree

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Figure 2. Range

Description

Height: 20 to 35 feet

Spread: 25 to 35 feet

Crown uniformity: irregular

Crown shape: round

Crown density: open

Growth rate: fast

Texture: medium

Foliage

Leaf arrangement: alternate (Fig. 3)

Leaf type: bipinnately compound

Leaf margin: incised, serrate

Leaf shape: ovate, oblong

Leaf venation: pinnate

Leaf type and persistence: deciduous

Leaf blade length: 2 to 4 inches

Leaf color: green

Fall color: yellow

Fall characteristic: showy



Figure 3. Foliage

Flower

Flower color: yellow

Flower characteristics: very showy

Fruit

Fruit shape: oval, elongated

Fruit length: 1 to 3 inches

Fruit covering: dry or hard

Fruit color: pink

Fruit characteristics: does not attract wildlife; showy; fruit/leaves not a litter problem

Trunk and Branches

Trunk/bark/branches: branches droop; not showy; typically one trunk; thorns

Pruning requirement: needed for strong structure

Breakage: susceptible to breakage

Current year twig color: brown

Current year twig thickness: very thick

Wood specific gravity: unknown

Culture

Light requirement: full sun

Soil tolerances: clay; sand; loam; alkaline; acidic; extended flooding; well-drained

Drought tolerance: high

Aerosol salt tolerance: moderate

Other

Roots: not a problem

Winter interest: no

Outstanding tree: yes

Ozone sensitivity: unknown

Verticillium wilt susceptibility: susceptible

Pest resistance: resistant to pests/diseases

Use and Management

Trees need to be trained when young to develop a strong branch structure. On weak-wooded trees such as Chinese flame-tree, spacing main branches apart along a central trunk is crucial to developing a durable tree. As soon as you see them, remove any double or multiple trunks which develop, especially if they have embedded or pinched bark in the branch crotch. Be sure to locate the first major branch high enough off the ground so that drooping leaves and branches will not get in the way of traffic below. Train major branches so they grow up and out, spreading from the trunk to create the clearance needed for street tree or parking lot planting.

The tree definitely has a place in many landscapes. Planted in a full sun location, Chinese flame-tree makes a moderately dense shade tree, but there is considerable variation among individuals of the species. Properly pruned and

trained trees can be planted as street or parking lot trees, but do not commit large areas to Chinese flame-tree due to the possibility of them breaking up as they reach about 30 years old. They will be the source of many compliments when they are in flower and fruit.

This is a tough tree which should be grown in full sun on any well-drained soil, in sand or heavy clay, and should receive moderate watering. The tree becomes leggy and thin in partial shade. When well-established, it tolerates wind, air pollution, salt, heat, and drought.

Propagation is by seed, which will germinate within six to eight days.

Some nurseries are mistakenly growing *Koelreuteria elegans* or *Koelreuteria formosana* which are only cold hardy to USDA hardiness zone 9 instead of *Koelreuteria bipinnata* which is cold hardy to USDA hardiness zone 7b. This problem has given Chinese flame-tree a bad name in some areas of the mid-south. Be sure to get northern seed source for propagation to ensure cold hardiness in the northern part of its range.

Pests and Diseases

No pests or diseases are of major concern. Root rot on old trees. A canker causes dead and sunken areas on the bark. Coral pink fruiting bodies develop on the diseased bark. Prune out infected branches and fertilize to maintain tree health.

Verticillium wilt attacks *Koelreuteria*. The disease causes wilting and death of leaves on infected branches. Eventually the entire tree may be killed. Fertilize to stimulate growth. There are no chemical controls.