

TheaceaeCTea family

Franklinia alatamaha Bartr. ex Marsh.

Franklin tree

Jason J. Griffin and Frank A. Blazich

Mr. Griffin is a graduate research assistant and Dr. Blazich is professor of plant propagation and tissue culture at the North Carolina State University's Department of Horticultural Science, Raleigh, North Carolina.

Synonyms. *Gordonia alatamaha* (Bartr. ex Marsh.) Sarg.; *Gordonia pubescens* L'Hér.

Other common names. franklinia, lost camellia, lost gordonia.

Growth habit, occurrence, and uses. Franklin tree (*Franklinia alatamaha* Bartr. ex Marsh.) was discovered by Bartram in 1765 on 0.8 to 1.2 ha of sandhill bogs near the mouth of the Altamaha River in Georgia, but the species has not been found in a native setting since 1803 [please note that the original spelling of the specific epithet does not match the current spelling of the river]. Currently, it exists only in cultivation in USDA Hardiness Zones 5B9 (Everett 1981; Jacobson 1996; Wildman 1996). Franklin tree is a deciduous small tree or large multi-stemmed shrub reaching a height of 9 m (LHBH 1976). Upright spreading branches with leaves clustered at the tips give the plant a tightly rounded exterior appearance and its open interior reveals striated bark that adds year-round interest (Elias 1989; Wildman 1996).

Valued for ornamental characteristics, Franklin tree produces large, showy white flowers appearing from July to the first frost of autumn (Elias 1989; Schneider 1988; Wildman 1996). Lustrous dark green leaves turn a blazing red in fall before abscising to reveal an attractive smooth gray bark that is broken by lighter colored fissures (Wildman 1996). These attributes clearly make the species a superb specimen tree or for use in a mixed planting where a small flowering tree is desired.

Flowering and fruiting. Perfect flowers, 7 to 9 cm in diameter, appear in July and are borne solitary in the axils of the leaves. Each flower consists of a 1.3-cm-diameter center, filled with golden yellow stamens, surrounded by 5 white petals (1 remains cupped). Flowering persists until the first frost (Elias 1989). Seeds are produced in 1.3- to 2.0-cm-diameter, 5-valved, subglobose, dehiscent, woody capsules that split alternately from above and below (figure 1) (LHBH 1976). Capsules persist through the winter, providing an excellent feature for identification (Wildman 1996). Each cell of a capsule contains 6 to 8 wingless seeds, 12- to 14-mm-long, that are angled due to mutual pressure during development (figures 2 and 3) (Sargent 1949; Small 1933).

Collection of fruits, seed extraction, cleaning, and storage. Capsules should be collected in October to November before they split and allowed to dry and open indoors. Seeds can then be shaken from the capsules and sown immediately (Dirr and Heuser 1987). Currently, no information regarding long-term storage of seeds of Franklin tree has been published.

Pregermination treatments. Seeds that are collected when the capsules split and sown immediately will germinate without any pretreatment (Dirr and Heuser 1987). Best germination,

however, occurs after stratification for 1 to 2 months (Dirr and Heuser 1987; Farmer and Chase 1977). If seeds are stored and allowed to dry, stratification becomes necessary (Hartmann and others 1997).

Germination tests. Farmer and Chase (1977) studied the influence of stratification, temperature, and light on seed germination of Franklin tree. Seeds were stratified at 3 °C for 0, 4, 8, or 12 weeks followed by germination at 14-hour day/10-hour night thermoperiods of 16/7 °C, 24/16 °C, or 29/24 °C. At each thermoperiod, seeds were maintained in darkness or subjected daily, during the high temperature portion of the cycle, to a 14-hour photoperiod of 2.2 klx provided by incandescent and fluorescent light sources. Results indicated the seeds have an obligate light requirement. Regardless of temperature, germination in the dark was negligible for nonstratified seeds. However, in the presence of light, cumulative germination at 16/7 °C, 24/16 °C, or 29/24 °C was 2, 75, and 61%, respectively. Stratification enhanced germination by accelerating the rate of germination and reducing sensitivity of the seeds to light. After 4 weeks of stratification, total germination in the presence of light at 16/7 °C, 24/16 °C, and 29/24 °C was 5, 87, and 91%, respectively, in comparison to 2, 31, and 85%, respectively, for seeds in darkness. Germination following stratification for 8 weeks was similar to that of 4 weeks of stratification. Additional stratification for 12 weeks resulted in an increase in dark germination at 24/16 °C to 53% and a large increase in germination at 16/7 °C with dark and light germination of 32 and 52%, respectively.

Nursery practice. For field production, seeds sown in late winter to early spring will result in seedlings that grow quite vigorously, attaining heights of approximately 30 cm (12 in) by fall (Judd 1930). If container production is desired, Farmer and Chase (1977) recommend 8 to 16 weeks of stratification, after which seeds are sown to a 5-mm (0.2-in) depth in flats containing a medium of peat and perlite. Shoot emergence occurs in approximately 2 weeks at day/night germination temperatures of 27/21 °C. Seedlings should remain in flats until they reach a height of 3 to 5 cm (1 to 2 in), when they should be transplanted to 10-cm (4-in) pots containing a medium of finely ground peat moss. Plants are maintained in these pots under natural photoperiods for a period of 4 to 8 weeks and fertilized monthly with a complete soluble fertilizer. At this point, seedlings will have attained a height of 15 to 20 cm (6 to 8 in) and are ready for sale. Like many native ornamentals, Franklin tree prefers a moist, acidic soil (pH 5.5 to 6.5) that must be well drained (Schneider 1988). Although Franklin tree is relatively pest free, seedlings will often suffer from a root rot caused by *Phytophthora cinnamomi* Rands if soil conditions are too wet (Wildman 1996).

The species can also be propagated easily from stem cuttings taken from June to August. Treatment of cuttings with a solution of 1000 ppm (0.1%) indolebutyric acid (IBA) will result in 90% rooting (Dirr and Heuser 1987). Although sexual propagation is possible as mentioned previously, seed is usually quite expensive, making propagation by cuttings more economical (Schneider 1988).

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