Styracaceae—Storax family

Styrax L.

snowbell

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Growth habit, occurrence and use. The genus *Styrax*—the snowbells—comprises about 100 species of trees and shrubs in the warm temperate and tropical regions of the Northern Hemisphere (LHBH 1976). The snowbells in the United States are shrubs or small trees planted for their showy flowers (table 1). Southeastern Asian species are the source of the balsamic resin benzoin (LHBH 1976).

American snowbell grows to 5 m and 9 cm dbh, with 9-cm-long pubescent leaves. Even though American snowbell is common, it rarely grows large enough to be considered a tree. It grows under 200 m elevation in moist to wet places, such as bottomland woods, floodplains, swamps, and stream banks (Duncan and Duncan 1988; LHBH 1976).

Bigleaf snowbell reaches 8 m and 10 cm dbh, with 18-cm-long gray pubescent leaves. It grows to 1,000 m elevation in deciduous or mixed woods, usually in well-drained areas. Bigleaf snowbell rarely reaches tree size (Duncan and Duncan 1988; LHBH 1976).

Japanese snowbell grows to 9.2 m with 8-cm-long glabrous leaves. Fragrant snowbell also reaches 9.2 m but has 25-cm-long tomentose or densely pubescent leaves. Drug snowbell grows to 6.2 m with 8-cm-long leaves (LHBH 1976). Benzointree grows to be a large tree. The USDI Fish and Wildlife Service has designated Texas snowbell as an endangered species.

Flowering and fruiting. Snowbells have bell-shaped, showy white flowers that are deeply lobed (5 to 8 lobes), with 10 to 16 stamens and a superior ovary 3-celled below and 1-celled above (LHBH 1976). The fruit—though often referred to as a drupe—is a berry (or a capsule in dehiscent species such as drug snowbell) because the stony layer is really seedcoat instead of endocarp (Ng 1976). The American snowbell berry is about 7 mm across, grayish, with dense, short hairs (Dirr and Heuser 1987; Duncan and Duncan 1988). It matures in August and drops by November (Dirr and Heuser 1987).

Collection of fruit, extraction, and storage. The single, hard, shiny brown seed separates from the fruit at maturity (Dirr and Heuser 1987) and is easily collected.

The fruits may also be collected while they are still green in September (in Louisiana) and air-dred in a well-ventilated place until the drupe walls turn brown and seeds become loose. The dried seeds can be separated from the fruit fragments by running them through a de-bearder or macerator (Delaney (2002). Small amounts may be separated by rubbing between the hands. Seed weight data are listed in table 2.

There have been no storage data reported for the snowbells, but the nature of the seeds suggests that they are orthodox in storage behavior and should store well in cold, dry conditions.

Pregermination treatments and germination tests. American snowbell germinates successfully after 3 months of cold stratification. Fall-sowing of fresh, cleaned seeds in Alabama

also yielded excellent spring germination (Dirr and Heuser 1987). Japanese snowbell needs 3 to 5 months of warm stratification followed by 3 months of cold stratification to germinate. Seedlots in one study germinated at 64% after 3 months of warm and 3 months of cold stratification and at 76% after 3 months of warm and 4 months of cold stratification. Seeds with 3 or 4 months of cold stratification did not germinate (Dirr and Heuser 1987).

Fragrant snowbell germinated 88% after 3 months of warm stratification and 3 months of cold stratification (Dirr and Heuser 1987). Benzointree is one of the few trees in Malaysia with dormant seeds. They germinate when the stony layer cracks open about 7 months after fruit-fall. Fresh seeds will germinate if the stony layer is removed (Kiew 1982).

Nursery practice and seedling care. American snowbell seeds should be planted in the fall or stratified planted in the spring. Fragrant and Japanese snowbell seeds should be planted in summer or given warm stratification before cold stratification.

References

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Table 1—*Styrax,* snowbell: nomenclature and occurrence

Scientific name & synonyms	Common name	Occurrence
***S. americanus* Lam.** *S. americanus* var. *pulverulentur* (Michx.) Perkins ex Rehd. *S. pulverulentus* Michx.	**American snowbell**, mock-orange*	Virginia to Florida & Louisiana
***S. benzoin* Dryander**	benzoin tree, styraxtree, keminyan	SE Asia
***S. grandifolius* Ait.**	**bigleaf snowbell**	Virginia to Florida & Louisiana
***S. japonicus* Sieb. & Zucc.**	**Japanese snowbell** Japanese snowdrop tree, snowbell tree	Japan & China
***S. obassia* Sieb. & Zucc.**	**fragrant snowbell**	China, Japan, & Korea
***S. officinalis* L.**	**drug snowbell,** storax	Balkans to Israel; introduced to California
***S. redivivus* (Torr.) Wheeler** *S. californicus* Torr. *S. californicus* var. *fulvescens* Eastw. *S. officinalis* var. *californicus* (Torr.) Rehd. *S. officinalis* var. *fulvescens* (Eastw.) Munz & Johnson *S. officinalis* ssp. *fulvescens* (Eastw.) Beauchamp *Darlingtonia rediviva* Torr.	**drug snowbell**, snowdrop bush	N & S California
***S. texanus* Cory**	**Texas snowbell**	Texas

Sources: Duncan and Duncan (1988), LHBH (1976).

* Although this common name is in use, it is more correctly applied to members of the genus *Philadelphus.*

Table 2—*Styrax,* snowbell: average cleaned seeds per weight

Species	Seeds/kg	Seeds/lb	Samples
S. americanus	11,200	5,090	1
S. japonicus	8,000	3,630	2
S. obassi	2,950	1,340	2