

Fabaceae—Pea family

Sophora L.

sophora

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Growth habit, occurrence and use. There are 50 to 70 woody and herbaceous species of the sophora genus found in the warm temperate and tropical regions of the world (Little 1979). Of the species found in the United States, 2 are discussed in detail here.

Mescalbean—*Sophora secundiflora* (Ortega) Lag. ex DC.—is a small tree of western Texas, New Mexico, and northern Mexico (Little 1976; Ruter and Ingram 1990).

Mamane—*Sophora chrysophylla* (Salisb.) Seem.—is found in the forests of Hawaii. Mescalbean is a favored tree for landscaping in areas with alkaline soils and moderate drought (Ruter and Ingram 1990). Its seeds reportedly have hallucinogenic properties (Murakoshi and others 1986) and contain many alkaloids (Hatfield and others 1977; Izaddoost 1975; Keller 1975; Keller and others 1976). Vines (1960) lists 2 other southwestern species: *Sophora tomentosa* L., an evergreen shrub, and *Sophora affinis* Torr. & Gray, a small tree.

Flowering and fruiting. The fragrant violet flowers of mescalbean appear in terminal clusters 5 to 12 cm in length during March and April. Fruits mature in September as brown pubescent legumes (pods) 2.5 to 13 cm long, usually containing 3 or 4 red globose seeds that are about 12 mm long (Vines 1960). Mamane racemes are 5 cm in length and golden yellow in color. The pods are 10 to 15 cm long, and contain 4 to 8 flattened, yellow seeds that are about 8 mm long (Little and Skolmen 1989). Wagner and others (1989) describes the seeds as brown to grayish black.

Storage and germination. There are no long-term storage data on sophora seeds, but they are probably orthodox in storage behavior. Fresh mescalbeans and seeds stored for 1 year at 20 EC successfully germinated when given an acid pretreatment (Ruter and Ingram 1990). Germination rate was best in seeds soaked for 120 minutes in concentrated sulfuric acid. Pretreatment in hot water was unsuccessful. Wang (1991) reported that germination of red, untreated fresh and untreated 1-year-stored seeds was 50 and 8%, respectively. Treating fresh seeds with undiluted (93%) sulfuric acid for 10 minutes and stored seeds for 60 minutes increased germination to 80 and 70%, respectively, and reduced germination time to within 14 days. Highest germination values were obtained by drilling a small hole in the seedcoat (>83%). There were also differences in germination between the red seeds and those with a light yellow seedcoat which were harvested 10 days earlier. Untreated red seeds reached maximum germination (99%) within 24 days of sowing, whereas untreated yellow seeds reached maximum germination (93%) within 14 days.

Nursery practice. Field tests of mamane seeds showed that seeds that were pretreated either by sanding or by soaking in sulfuric acid and then were sown in the spring at a depth of 3.8 or 6.4 cm (1½ to 2½ in) had the highest percentage emergence and 1-year survival rates (Scowcroft 1981). Of the 2 treatments, spring survival was significantly lower for acid pretreated

seeds than for untreated seeds, but sowing depth had no effect. However, mortality was thought to be due to low rainfall and extreme soil surface temperatures.

References

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Figure 1—*Sophora secundifolia*,, mescalbean: seeds, H 0.7.