

CHOCOLATE LILY

Fritillaria affinis (Schultes)

Sealy

Plant Symbol = FRAF2

Contributed By: USDA NRCS National Plant Data Center



Brother Alfred Brousseau
© Brother Eric Vogel, St. Mary's College
@ CalPhotos

Alternative Names

checker lily, rice root fritillary, mission bells

Uses

Ethnobotanic: The bulbs of chocolate lily were eaten by most Coast and Interior Salish peoples, either boiled or steamed in pits. Chocolate lily, also called “rice root” by Indian people, has bulblets that look

like grains of rice. The bulbs grow relatively close to the surface and are easily extracted. Bulbs were dug in spring (before flowering) or in summer or fall (after flowering) using a digging stick, a wooden spade, or the fingers. Chocolate lily bulbs were cooked immediately, or could be partially dried, then stored in a cool place for winter use. They were cooked for about 30 minutes in a cedarwood box, by boiling for a short time then mashing to a paste, or occasionally, by baking in ashes. Chocolate lily bulbs were used as an item of trade. Even when cooked, they are slightly bitter, and some people used to soak them in water overnight to reduce the bitter flavor. In *Fritillaria* species, the major carbohydrate is reported to be starch (Yuanovsky and Kingsbury 1938).

Status

Please consult the PLANTS Web site and your State Department of Natural Resources for this plant's current status, such as, state noxious status and wetland indicator values.

Description

General: Lily Family (Liliaceae). Chocolate lily (*Fritillaria affinis*) is a tall herbaceous perennial growing from white bulblets consisting of a few fleshy scales and many rice-grain-like offsets; its bulbs are usually smaller than *Fritillaria camchatcensis*. The stems are 20-50 cm tall, sturdy and unbranched, bearing 1-3 whorls of 5-11 lance-shaped leaves. Chocolate lily has bowl-shaped, distinctly nodding flowers with six tepals which are brown-mottled with green or yellow. The capsules are broadly winged.

Distribution

Chocolate lily is found in open dry woods and meadows from southern coastal British Columbia eastward to the Okanagan in eastern Washington and south to California. In California, chocolate lily occurs commonly in oak or pine scrub and grasslands below 1800 m in the Klamath Ranges, north Coast Ranges, Cascade, northern Sierra Nevada Foothills, San Francisco Bay area (Hickman 1993). Chocolate lily grows on well-drained soils on open slopes. For current distribution, please consult the Plant Profile page for this species on the PLANTS Web site.

Establishment

Fritillaria species have become quite uncommon in the wild. *Fritillaria affinis* requires well-drained soil

Plant Materials <<http://plant-materials.nrcs.usda.gov/>>

Plant Fact Sheet/Guide Coordination Page <<http://plant-materials.nrcs.usda.gov/intranet/pfs.html>>

National Plant Data Center <<http://npdc.usda.gov>>

and moderate summer watering but is intolerant of frequent watering (such as a lawn might receive). This plant tolerates shade, but prefers sun. It may be difficult to get established.

Fritillaria species are frequently found in areas with soil moisture persisting throughout most of the growing season. *Fritillaria* propagates readily from seed, and the rice-like bulblets can be used for propagation. This species grows well in well-drained, loam soils that are neutral to slightly acid.

Live Plant (bulb) Cultivation

Fritillaria species have bulbs that do well in moist shade. Bulbs may be planted in pots or in a greenhouse bed or bulb frame. It is best to store *Fritillaria* bulbs in slightly moist bark, peat, shredded wood, or some other material. Buy the bulbs as early as possible before they begin to grow. Bulbs tend to deteriorate or rot if kept too long.

Plant bulbs in soil that is rich in nutrients and humus and also retains moisture. Incorporate plenty of leafy mold or some other organic matter, such as well-rotted manure or compost, before planting. Acid-loving woodland bulbs thrive in the peat garden where at least half the soil is leaf mold, peat, or compost.

Bulbs in containers should not be allowed to dry out when in growth and should be fed regularly with a high-potassium fertilizer to boost flower production. Wait until seeds have set and foliage begins to senesce before lifting bulbs out of soil, clean them, and store them in a cool, moist place. Watch bulbs to prevent them from rotting or being affected by a fungal disease.

Bulbs can increase naturally by forming bulblets around the bulb (the “rice” in “Indian rice”). Propagate the bulbs by separating these bulblets from the mother bulb and planting. Bulbs should be separated every year or two.

Seed Cultivation

This species grows readily from seed. Most bulbs take 3-5 years to reach mature flowering stage. *Fritillaria* species do not flower regularly even in nature, and so are described as shy-flowering. When seed capsules form, they begin to split when they are ripe. Collect immediately, as seeds may be shed quickly. Let the seeds dry without heat, and store them until sown in labeled paper packets in a cool, dry, airy place. Do not use plastic bags, as the seeds are likely to rot.

The best times to sow seeds are fall, but if seed is available earlier, sow immediately. Germination should follow in early spring.

The recommended potting soil for seed germination and emergence is a commercial sand-based mix; with one-quarter part coarse sand added if the mixture does not have a sandy appearance. Space large, flat seeds of *Fritillaria* one seed’s width apart. Sieve a light covering of the soil mix over the seeds so that they are no longer visible, and then cover with a generous layer of grit or aquarium gravel. Label the pots with the plant name, seed source, and date. Stand the pots in a shady place in the open garden, or plunge them in a sand frame, and keep them moist.

When the seedlings have germinated, bring the pots into full light in a cold frame or greenhouse. Keep them moist until they show definite signs of dying down, and then water them very sparingly.

Fritillaria seedlings should be kept slightly moist during this senescent period. Start watering again in early fall, or as soon as there is new growth, and keep the pots watered until the growth dies down. Leave most bulbs for two growing seasons before repotting, unless they grow vigorously. Larger bulbs are formed if these seedlings are fed the second year. Use a commercial liquid feed as used for tomatoes, but at half the manufacturer’s recommended strength. After two years, remove the bulbs from the pots after they have died back. Separate out the bulblets, clean them gently, and repot them in clean, moist soil. For *Fritillaria* species, use a soil mix of one part sterilized leaf mold, one part peat or compost, and one part sterilized soil, with a further 1.5 parts of coarse horticultural sand or seed-grown perlite. It is better to grow seedlings in pots for 3-4 years before planting them outside.

Management

Traditional resource management of chocolate lily includes the following (Turner and Deur 1999):

- Ownership of individual patches and their output by chiefs, ensuring long-term care and enhancement of plant production.
- Root feasts as a means of redistributing plant wealth and meeting ceremonial obligations.
- Specialized digging sticks as a harvesting tool to cultivate and turn over the soil.
- Harvesting at a set time of year, before or after plants have set seed .
- Regular use of same sites over time/generations.
- Care and assiduity in harvest.
- Turning of the soil or sod.
- Extending periods of harvest time.

- Replanting and leaving behind portions of bulblets, to re-grow the following year.
- Weeding root patches.
- Individual patches and landscapes were burned regularly.

Cultivars, Improved and Selected Materials (and area of origin)

FRAF2 is available from selected native plant nurseries within its range. Contact your local Natural Resources Conservation Service (formerly Soil Conservation Service) office for more information. Look in the phone book under "United States Government." The Natural Resources Conservation Service will be listed under the subheading "Department of Agriculture."

References

- Brickell, C. & E. McDonald (eds.) 1993. *The American Horticultural Society encyclopedia of gardening. The definitive practical guide to gardening techniques, planning, and maintenance.* Darling Kindersten.
- Gunther, E. 1945 rev. 1973. *Ethnobotany of western Washington.* University of Washington Publications in Anthropology, 10(1). University of Washington Press, Seattle, Washington.
- Hickman, J.C. (ed.). *The Jepson manual. Higher plants of California.* University of California Press. 1400 PP,
- Hitchcock, C. L. & A. Cronquist (eds.) 1973. *Flora of the Pacific Northwest. An illustrated manual.* University of Washington Press, Seattle and London. 730 pp.
- Kunlein, H.V. & N. J. Turner 1991. *Traditional plant foods of Canadian indigenous peoples.* Nutrition, Botany, and Use. Food and Nutrition in History and Anthropology Volume 8. Gordon and Breach Science Publishers. Pgs. 239-242.
- Turner, N.J. 1975. *Food plants of British Columbia Indians. Part I. Coastal peoples.* B.C. Provincial Museum Handbook No. 34. Victoria, B.C., Canada.
- Turner, N.J. 1978. *Food plants of British Columbia Indians. Part II. Interior peoples.* B.C. Provincial Museum Handbook No. 36, Victoria, B.C., Canada.
- Turner, N.J. & M.A.M. Bell 1983. *The ethnobotany of the Southern Kwakiutl Indians of British Columbia.* Econ. Bot. 27:257-310.

Turner, N.J. & D.E. Deur 1999. "*Cultivating the clover*": *Managing plant resources on the northwest coast.* Presentation at Society of Ethnobiology meetings, Oaxaca, Mexico.

Turner, N.J. & B.S. Efrat 1982. *The ethnobotany of the Hesquiat Indians of Vancouver Island.* British Columbia Provincial Museum, Cultural Recovery Paper No. 2, Queen's Printer, Victoria, B.C., Canada. 99pp.

Turner, N.J. & H.V. Kuhnlein 1983. *Camas (Camassia spp.) and riceroot (Fritillaria spp.): Two liliaceous "root" foods of the northwest coast Indians.* Ecology of Food and Nutrition 13:199-219.

Turner, N.J., J. Thomas, B.F. Carlson & R.T. Ogilvie 1983. *Ethnobotany of the Nitinaht Indians of Vancouver Island.* B.C. Provincial Museum Occasional Paper No. 24, 165 pp.

Turner, N.J., L.C. Thompson, M.T. Thompson & A.Z. York 1990. *Thompson ethnobotany: Knowledge and usage of plants by the Thompson Indians of British Columbia.* Royal British Columbia Museum Memoirs No. 3, Victoria, B.C., Canada.

USDA, NRCS 2000. *The PLANTS database.* Version: 000329. <<http://plants.usda.gov>>. National Plant Data Center, Baton Rouge, Louisiana.

Prepared By

Michelle Stevens
Formerly USDA, NRCS, National Plant Data Center

Species Coordinator

M. Kat Anderson
USDA, NRCS, National Plant Data Center, c/o Plant Science Department, University of California, Davis, California

Edited 05dec00 jsp; 19may03 ahv; 07jun06 jsp

For more information about this and other plants, please contact your local NRCS field office or Conservation District, and visit the PLANTS Web site <<http://plants.usda.gov>> or the Plant Materials Program Web site <<http://Plant-Materials.nrcs.usda.gov>>

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, and marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at 202-720-2600 (voice and TDD).

To file a complaint of discrimination write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 14th and

Independence Avenue, SW, Washington, DC 20250-9410 or call 202-720-5964 (voice or TDD). USDA is an equal opportunity provider and employer.

Read about [Civil Rights at the Natural Resources Conservation Service](#).