



PROPAGATION
PROTOCOL FOR

Meadow Beauty

Rhexia virginica L. (Melastomataceae)

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KEY WORDS

wetland, Brooklyn Botanic Garden

NOMENCLATURE

USDA NRCS (2004)

*R**hexia virginica* L. belongs to the Melastomataceae, a group of about 200 genera primarily distributed in tropical and subtropical regions. The genus *Rhexia* includes 11 species of perennial herbs mostly found on wet acidic soils in the southeastern US; *Rhexia mariana* L. and *R. virginica* are the only 2 species found in the northeastern US with *R. virginica* reaching southeastern Canada (Wurdack and Kral 1982).

Commonly called meadow beauty, *R. virginica* is considered an obligate wetland plant in the northeastern US and a facultative wetland plant in the southeastern US, and it has

Meadow beauty, *Rhexia virginica* L. (Melastomataceae)

Photo by Joseph G. Strauch Jr.

reached the status of threatened species in Iowa and Vermont (USDA 2004). The species can be found on wet sand, peat, and gravel along shores and ditches in full sun or partial shade. It grows 40 to 50 cm (15.6 to 19.5 in) tall and produces showy flowers each with 4 pink-purple petals and 8 bright yellow stamens. Flowers appear in July to September, measure 3 to 4 cm (1 to 1.5 in) across, and are arranged in simple or compound dichasia. Flowers last only a day and are buzz-pollinated. The anthers open through minute pores, and pollen extraction can be achieved only with high frequency vibrations such as those produced by buzzing insects such as bees and bumblebees (Larson and Barrett 1999). In a study conducted on populations of *R. virginica* in Ontario, Canada, they concluded that low plant fertility was a consequence of low rate of pollen removal. Furthermore, the low level of pollen removal was found to be caused by the particular morphology of the anther and the low frequency of pollinator visits per flower.

The fruit of meadow beauty is a capsule that ripens in late summer. Seeds are very small. *Rhexia virginica* can reproduce vegetatively through tuberous roots produced early in the spring. Posluszny and others (1984) studied populations of *R. virginica* in Ontario and observed that the tuberous roots cannot survive in the soil for more than a season. The authors concluded that this might be a reason for the rarity of this species in Ontario.

Meadow beauty, although still rare in American gardens, has successfully been put into cultivation, primarily in bog gardens and occasionally in perennial borders where it can reseed and be propagated by separation of the tuberous roots (Cullina 2000). The native flora garden at Brooklyn Botanic Garden features a collection of native plants displayed in natural groupings that reflect the plant communities found within 160 km (100 m) of New York City. What I report here is how *R. virginica* was propagated from seeds and grown in the nursery for its introduction into Brooklyn Botanic Garden living plant collections.

SEED COLLECTION

The fruit of *Rhexia virginica* is a capsule that remains enclosed within an urn-shaped hypanthium, limiting seed dispersal. This facilitates seed collection because most of the seeds will not be shed when the capsule ripens. Capsules can be collected in mid- to late September. Seeds can be extracted as follows: turn the capsule upside down, with its opening facing downward, gently squeeze the capsule, and roll it between the fingers; this action will tear the thin hypanthium and allow the seeds to fall. Seeds are very small and light brown in color.

PROPAGATION

Meadow beauty can be grown successfully in containers provided the medium is kept moist. If a warm greenhouse is available, seeds can be sown in late winter into seed pans or small containers using an ordinary germination mix with fine textures. Do not cover the small seeds. It's important to keep the medium evenly moist during the germination period. Seeds can also be surface sown in winter in a cold frame following the standard procedures for cold moist stratified seeds. After the pre-treatment, seeds will germinate in 2 to 3 wk at 21 °C (70 °F). Seedlings can be pricked out into 5-cm (2-in) containers with a medium made of 1 part coarse sand and 3 parts Sunshine 910 (Sun Gro Horticulture, Canada Ltd), a medium that contains 40% to 50% composted pine bark and a starter dose of fertilizer. When plants outgrow the small pots, they are repotted into a 1-l (0.25-gal) container filled with the same mix. The medium should always be moist. Plants can be grown outside under a 40% shade covering. This will prevent the soil from drying out too quickly but will still provide enough sunlight for plant growth. One summer application of 20N:10P₂O₅:20K₂O fertilizer at 240 ppm N is enough to support plant growth. If the medium doesn't contain a starter dose

of fertilizer, 2 applications might be necessary. Under these conditions plants will flower in their first year of growth, about 22 to 24 wk after sowing.

SUMMARY

Meadow beauty has very interesting ornamental features: its delicate showy flowers in the summer and its vibrant red fall color make this plant a perfect candidate for the moist, sunny locations in the American garden. It's easy to propagate and grow in a nursery provided adequate moisture levels are maintained in growing medium.

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