KEY WORDS
Malvaceae, marsh mallow, propagation

NOMENCLATURE
USDA NRCS (2005)

Photos by Joanie McLean

Propagation protocol for

Virginia Saltmarsh Mallow

Kosteletzkya virginica

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Kosteletzkya virginica (L.) K. Presl ex Gray is an obligate wetland species native to the southeastern US. It is generally considered to be a coastal plain species but also occurs randomly in the Piedmont of North Carolina. It is found as far north as Long Island, New York, south into Florida, and along the coastal plain into east Texas (Godfrey and Wooten 1981). While *K. virginica* grows mainly in fresh, brackish, and tidal marshes, it can also be found in wet ditches, sloughs, and along edges of wetlands. It tolerates salty marshes and salt spray but grows well in freshwater in the nursery.

Kosteletzkya virginica is a member of the Malvaceae or mallow family. The genus name, *Kosteletzkya,* honors bohemian botanist Vincenz Franz Kosteletzky. A European relative of *K. virginica, Althaea officinalis*, also called marsh mallow, has become somewhat naturalized in parts of the US (Gould and others 2000). Its roots were the original source of marshmallow candy and are still eaten in parts of the world, but they are no longer used to make marshmallows. The genus *Kosteletzkya* has about 30 species worldwide, but only *K. virginica* and *K. depressa* (L.) O.J. Blanchard, Fryxell & Bates are native to the US; the latter occurs only in Florida and Texas and is state listed as endangered in Florida (CGO 2004). Synonyms for *K. virginica* include *K. althaeifolia* (Chapman) Rusby, *K. smilacifolia* Gray, *K. virginica* (L.) K. Presl ex Gray var. *althaeifolia* Chapman, and *K. virginica* (L.) K. Presl ex Gray var. *aquilonia* Fern.

NATURAL HISTORY

Kosteletzkya virginica is a stout perennial with one to several stems arising from the base. Great variation in leaf shape and size, flower size and color, and density of pubescence occurs among plants in this species. Several varieties have been identified, but because of hybridizing in the wild and variation in individual plants, the varieties have not been widely accepted.

Kosteletzkya virginica grows as a single plant, not spreading vegetatively to form colonies (Gould and others 2000). This mallow grows to a height of 0.5 to 2.5 m (20 to 100 in) in a growing season (Godfrey and Wooten 1981). Aboveground stems die back but persist throughout winter. All parts of the plant are covered with tiny stellate hairs that can make the plant painfully scratchy or soft and velvety. Commonly, leaves are larger and three-lobed below the midstem, and much smaller linear or lanceolate above the midstem, though leaf shape and size can be quite variable. Leaf length varies from 2 to 15 cm (0.8 to 6 in); margins are irregularly toothed. Some leaves have short petioles while others are sessile.

Flowers are from 4 to 8 cm (1.6 to 3.2 in) wide, and are either solitary, borne in leaf axils, or borne in panicles. Petals are usually pink but rarely are purplish or even white with bright yellow stamens and pistil. Blooms are nearly constant from July to October in central North Carolina. Self-pollination is likely because of close proximity of anthers and pistil and a short bloom time of just 1 d per flower. Seeds form in pubescent, five-chambered capsules 1 to 2 cm (0.4 to 0.8 in) wide that dehisce at maturity in early to late fall. Each chamber of the capsule contains a single smooth, brown seed, rounded on one side and angled on the other.

CURRENT USES

Kosteletzkya virginica is a somewhat salt tolerant (up to 10 ppt; Thunhorst 1993), hardy perennial herb that performs well in salt marsh and freshwater restoration and mitigation projects as

well as in storm water treatment ponds. The species' niche in salt marshes and above mean high tide zones foretells its tolerance for hot dry conditions alternating with saturated conditions. Its tolerance for stressful conditions led us to experiment with *K. virginica* in a gravel bed wastewater treatment system, where it is proving to be both vigorous and attractive. Abundant, showy pink flowers with yellow centers and a natural pest resistance make it a good landscaping choice. Although listed as an obligate wetland plant, it grows and thrives in rich moist garden soils.

PROPAGATION

At Mellow Marsh Farm, we propagate native wetland plants for use in environmental projects such as wetland mitigation, stream restoration, and storm water management systems. In addition to being our namesake plant, *Kosteletzkya virginica* is one of the principal shrubs in our stock. We have developed propagation techniques through several years of trial and error.

Kosteletzkya virginica grows readily from seeds, consequently, we propagate all of our plants using seeds collected either from our nursery stock or wild populations. The seed capsules are five-sectioned, hairy, and contain a single seed in each section. Timing is important for collecting viable seeds. We collect seeds throughout fall when the sectioned seed capsule begins to turn from green to black, and the capsule begins to hang down on its peduncle. Seeds are ready when capsules are easily pulled from stems. It is best to collect before capsules open and expose the seeds to insect pests, something that we have unfortunately experienced.

At our location in central North Carolina, seed harvest begins in late September and continues through November. We store dry seeds in refrigerators to prevent insect damage and temperature extremes, but cold moist stratification is not necessary. We generally seed 128-plug trays 4.4 x 4.5 cm (1.75 x 1.80 in) (Dillen Products, Middlefield, Ohio) in February and March. We fill plug trays with Metro Mix 360 (Sungro Horticulture, Bellevue, Washington) and irrigate as needed to keep medium evenly moist during germination. We place seeded trays in a cold frame. Seeds can be expected to germinate once the medium has become constantly warm—April to May for us. Germination rate is good; we plant two seeds per cell. After seed-lings are well established and have true leaves, we fertigate plug trays with Peters® Peat Lite Special® fertilizer (20N:10P_2O_5:20K_2O) at the approximate rate of 100 ppm. Seedlings grown in plug trays can be transplanted to gallons or outplanted when 15 to 17 cm (6 to 8 in) tall. Plugs usually reach this height by June and can grow 60 to 75 cm (2 to 2.5 ft) by the end of the season. Plugs as well as transplants often bloom the first year. Because this is a rapidly growing species, we transplant any remaining plugs to 1 gal containers filled with a medium of 9:1 (v:v) composted pine bark and sand amended with Nutricote® control release fertilizer (16N:6 P_2O_5:8K_2O; 6 mo release rate; Florikan, Sarasota, Florida) at the rate of 15 g (0.53 oz) per 4.5 l (1 gal) container. We irrigate containers 6 times per day in plastic-lined beds in the outdoor nursery. Plants will die back to the ground in winter and emerge in late spring when the soil is consistently warm.

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