

**A Conservation Plant Released by The Natural Resources Conservation Service
Cape May Plant Materials Center, Cape May Court House, New Jersey**

MONARCH GERMLASM

seaside goldenrod

Solidago sempervirens L.

Monarch Germplasm seaside goldenrod (*Solidago sempervirens*) is a source identified composite germplasm released in 2010 by the Cape May Plant Materials Center (PMC), Cape May, NJ.

Description

Monarch Germplasm seaside goldenrod is a perennial forb native to the Mid-Atlantic region. This late-flowering goldenrod may grow up to six feet tall at maturity, blooming August through October. The terminal flowering heads are dense, clustered spikes of bright yellow flowers that are larger than those of other goldenrod species.

Stems arise from short, stocky rhizomes. It grows in coarse to medium soils with a pH range from 5.5–7.5 and has a low soil fertility requirement. The root length is a minimum of 14 inches and provides excellent erosion control.

Flowering is initiated by shortened photoperiods in the fall. Cross-pollination is required for viable seed. The species can readily hybridize with *Solidago juncea*, *S. stricta*, and rough-stemmed goldenrod (*S. rugosa*), producing *S. ×asperula*. Desf.

Source

Monarch Germplasm seaside goldenrod is a composite germplasm constituted of six accessions collected from natural stands among the dunes of several Mid-Atlantic States: along the Delaware Bay, DE (Kent County); Fenwick Island, DE (Sussex County); Cape May, NJ (Cape May County); Stone Harbor, NJ (Cape May County); Sea Isle City, NJ (Cape May County); and Chincoteague Island National Wildlife Refuge, VA (Accomack County). The six accessions were planted in a Latin Square crossing block at the Cape May PMC in 1993. The seed harvested from this planting was the source of Monarch Germplasm. No selection was made on the six accessions to maximize the genetic adaptability of the release.

Conservation Uses

Monarch Germplasm seaside goldenrod has been successfully used in dune stabilization and erosion control projects. It helps to initiate dune formation by trapping sand and debris. Sites with seaside goldenrod assist the secondary establishment of native annual forbs such as seaside sandmat (*Chamaesyce polygonifolia*), and American searocket (*Cakile edentula*).

Monarch Germplasm seaside goldenrod can be included in dune restoration projects to broaden biodiversity. It serves as an important resource for over-wintering gall-producing insects including predatory wasps that are beneficial to nearby crops. Gall larvae provide an excellent source of nutrition in the winter for birds such as the Chickadee and Woodpecker. It improves the value of wildlife habitat by providing food and shelter for butterflies, birds, and small mammals. Along with American beachgrass (*Ammophila breviligulata*), seaside goldenrod plays an important role in providing nesting habitat between primary and secondary dunes for birds such as Willets, Killdeer, Piping Plovers, and Black Skimmers (Safina & Burger, 1983). The migrating monarch butterfly uses seaside goldenrod as one of its primary food sources in the fall.

Area of Adaptation and Use

Monarch Germplasm seaside goldenrod is recommended for use along the coastal regions of Mid-Atlantic states with environmental and climatic conditions (Plant Hardiness Zones 6a-8a) similar to the six collection sites of the accessions included in the germplasm.



Figure 1: Monarch Germplasm seaside goldenrod inflorescences in a seed production field at the Cape May Plant Materials Center.

Establishment and Management for Conservation Plantings

Establish dune restoration plantings using containerized stock. Direct seeding trials in coastal dune environments resulted in poor seedling emergence (less than 1%). Direct seeding is not recommended as a reliable means of establishment for conservation plantings. Prolific seed production will lead to natural recruitment and an increase in population numbers. Plant in late winter to early spring. Once the stand is established, little to no maintenance is needed.

Ecological Considerations

Rust disease has been observed in Monarch Germplasm seaside goldenrod. Monarch Germplasm seaside goldenrod is a composite of naturally occurring germplasm and has undergone no purposeful selection. It does not differ significantly in rate of spread, seed production, vigor, or susceptibility to insects or disease from naturally occurring seaside goldenrod.

Seed and Plant Production

Propagate Monarch Germplasm seaside goldenrod by seed or division. Establish seed production plots using containerized stock. Direct seeding trials to establish a seed production field required a high seeding rate (44.4 lbs PLS/acre) to achieve an acceptable establishment rate (0.44 seedlings/ft²). Due to the high seeding rate required and costly seed, direct seeding establishment of seed production plots is not recommended. Plant in late winter to early spring into a weed free field. Once established, seed production fields require minimal irrigation due to the plant's adaptations to hot and dry conditions. Irrigation may be needed if an extended dry period occurs. Fertilization will increase vigor but is not necessary for survival.



Figure 2. The collection locations of Monarch Germplasm seaside goldenrod.

Monarch Germplasm seaside goldenrod produced 75 lbs/acre (establishment year), 220 lbs/acre (second year), and an average annual production of 88 lbs/acre of seed over 12 years of production at the Cape May PMC in Cape May, NJ. Germination can be assisted by cold stratification and dormancy broken with use of a light source. Seed germinates best at or near the surface at high temperatures. Seed was sown in a greenhouse in March, transferred to 2 in deep, 32-cell flats in May, and field planted in August. Plants were spaced 1.5 ft apart in rows with 3.5 ft between centers. The germination rate was 72% after one year and 64% after two years of storage at 4 °C. The plant bed was prepared with a pre-emergent herbicide and the weeds in the inter-rows were cultivated as needed during the growing season. Rust infestations can be minimized by preventing overcrowding of plants to maintain good air flow through the stand.

Availability

For conservation use: Monarch Germplasm seaside goldenrod is available from a limited number of commercial growers.

For seed or plant increase: Seed production of Monarch Germplasm seaside goldenrod will be maintained by the USDA-NRCS Cape May Plant Materials Center. Seed is available to seed producers for increase and to other interested parties, as available.

For More Information

Cape May Plant Materials Center, 1536 Route 9 North, Cape May Court House, NJ, 609-465-5901, <https://www.nrcs.usda.gov/plant-materials/njpmc>.



Citation

Release Brochure for Monarch Germplasm seaside goldenrod (*Solidago sempervirens*). 2012. USDA-Natural Resources Conservation Service, Cape May Plant Materials Center. Cape May Court House, NJ.

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

References

Safina, C., and J. Burger. 1983. Effects of human disturbance on reproductive success in the black skimmer. Condor. 85, No. 2, March-April.

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