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PLANT MATERIALS TECHNICAL NOTE

NEW ENGLAND ASTER
Symphyotrichum novae-angliae (L.) Nelson

A Native Forb for Conservation Use in Montana and Wyoming

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New England aster (photo by Sharon Brown Sivertsen, used under CC BY-NC-SA 2.0)

General Description

New England aster, also called Michaelmas daisy, is a warm-season, long-lived perennial wildflower, which grows 20 to 40 inches tall from a stout base, with numerous fibrous roots and short rhizomes. The rigid, upright, reddish stems are covered in white hairs and become glandular toward the top. The alternately arranged leaves have stiff hairs on the upper surface and soft hairs below, are up to 4 inches long and 1-inch wide, clasp the stem at the base, are pointed at the tip, and become smaller as they ascend the flowering stem. Flowering begins in mid-September and ends in November making it one of only a few late-season blooming forbs for conservation plantings. Dozens of showy flower heads with leafy bracts are borne at the end of branched stems. The blue-violet to reddish-purple (occasionally pink to white) ray flowers are less than 1-inch long and surround the central yellow disk (turning purple with maturity) measuring up to ½-inch across. The small, achene-like fruit (cypsela) are longitudinally ribbed, covered in hair, and tipped with a tawny-colored plume (pappus), which functions much like a parachute during wind dispersal of the fruit very shortly after ripening. The number of chromosomes are 2*n* = 10. New England aster hybridizes with white heath aster *Symphyotrichum ericoides*, forming amethyst aster *Symphyotrichum* x *amethystinum*.

Adaptation or Range

New England aster is found growing on well-drained lowland prairies and open woodlands, moist bottomland along streams, shrubby swamps, and disturbed areas such as roadsides and railroad

rights-of-way. It prefers full sun and tolerates partial shade. New England aster grows best in silty clay to sandy loam soils with a pH of 5.1 to 6.8, at elevations up to 5,800 feet. In the true (tallgrass) prairie, it grows in association with big bluestem *Andropogon gerardii,* Indiangrass *Sorghastrum nutans*, switchgrass *Panicum virgatum*, prairie cordgrass *Spartina pectinata*, and goldenrod *Solidago*. New England aster ranges in distribution from Quebec to Alberta, south to Alabama, and west to Colorado and northern New Mexico. It escaped from agronomic cultivation and was introduced from the Midwest and eastern United States into Montana, Oregon, Utah, Washington, and Wyoming. New England aster has been reported as an ephemeral escape in British Columbia. In Montana, it has been reported in Custer and Dawson Counties. In Wyoming, it is present in Albany, Crook, and Weston Counties.

Conservation Uses

The potential uses of New England aster include landscaping and roadside plantings, and as a forb component in numerous conservation practices, such as cover, range and critical area plantings, restoration and management of rare and declining habitats, prairie restoration, and pollinator and wildlife habitat. It is an excellent late-season source of nectar and pollen for non-pollinating insects and butterflies, including the Monarch butterfly *Danaus plexippus*. New England aster is recommended for use in butterfly gardens. The flowers of New England aster are visited by a variety of pollinating insects such as bee flies, bumble bees, miner bees, and leaf-cutter bees. Butterfly caterpillars, moth caterpillars, and many types of plant and lace bugs feed on the leaves and stems. New England aster is an important food source for the caterpillar of the Pearl Crescent butterfly *Phyciodes tharos*. The seeds and plants are eaten by livestock, deer, turkeys, and rabbits. New England aster is used in seed mixes to restore the drier margins alongside wetlands. The species has not been widely tested in conservation plantings in Montana and Wyoming, and seed source performance is unknown at this time.

Monarch butterfly on New England aster (photo by Greg Thompson/USFWS, used under CC BY 2.0)

Cultural Uses

The flowers and leaves were burned and the smoke used in religious ceremonies, and to revive the unconscious, treat mental illness, nosebleeds, headaches, and congestion. Leaves and flowers were dried and combined with kinnikinnick *Arctostaphylos uva-ursi* in smoking mixtures. The tea is used to treat earache, relieve gas pains, stomach aches, and fevers. A poultice of the root has been used to treat the discomfort resulting from diarrhea.

Ease of Establishment

New England aster is moderately easy to establish by direct seeding and easy to propagate when container-grown in the greenhouse. Seedling vigor is moderate, growth is quick, and plants may produce a small amount of seed the first year.

Planting Rates (all recommended amounts based on pure-live-seed [PLS])

Direct Seeding. As a guideline, full stand drill seeding rates are based on 12-inch wide row spacing as shown in Table 1. Forbs are seldom seeded in a pure stand. In native seed mixtures, rates are adjusted as a percentage of the mix and in general are 0.04 to 0.20 pound PLS per acre. Seeding rate varies by planting method (drill versus broadcast) and site condition (non-critical versus critical area)--see Plant Materials Technical Note, MT-46 (Revision 4) for more information. Critical areas are highly disturbed, highly erodible, and/or have physical, chemical, or biological conditions that prevent establishment with normal practices. Seeding rates as determined by planting method and site condition are shown in Table 2. Wildland collected and field-produced seed is commercially available and the cost is consistently high (greater than $300 per PLS pound) due to supply and demand.

Table 1. Seeding specifications for conservation plantings of New England aster.

Seeds/lb[†]	Seeding Date	Seeds/ft[‡]	Full Stand Rate[§]	
		1 lb PLS/ac	***PLS/ft²***	***lb PLS/ac***
1,056,000	spring/fall dormant	24.2	34	1.4

[†] number of pure live seeds (PLS) per pound; [‡] number of PLS per linear or square foot at 1 pound PLS/acre; [§] full stand drill seeding rate in PLS pounds per acre at 12-inch between rows.

Table 2. Seeding rates for New England aster as determined by planting method and site condition.

Non-Critical Drilled	Non-Critical Broadcast[¶]	Critical Area Drilled[¶]	Critical Area Broadcast[‡]
lb PLS/ac	***lb PLS/ac***	***lb PLS/ac***	***lb PLS/ac***
1.4	2.8	2.8	5.6

[¶] multiply the non-critical drill rate times 2; [‡] multiply the non-critical drill rate times 4.

Container Production. New England aster readily establishes when seed is sown in containers in a controlled environment (greenhouse). For best results, fill a small cone-shaped container with soil-less potting media, place the seed on the surface and cover with a light coating of media, and then firmly press down to ensure good seed-to-soil contact. Thoroughly wet the growing media so the seed can imbibe water overnight and re-wet if necessary before placing in refrigerated conditions at temperatures of 34° to 40° Fahrenheit for a cold stratification period of 30 to 60 days. Remove containers from refrigeration after the dormancy-breaking treatment and place in the greenhouse at temperatures of 68° to 72° Fahrenheit. Germination and seedling emergence may begin within several days. Plants will develop faster when supplied with an adequate level of light, regular irrigation with good quality water, and an application of a time-release granular fertilizer. Under optimal growing conditions in a controlled environment, plants should be ready for out-planting in 3 to 4 months. Carefully remove seedlings from the container, place in properly prepared soil to a depth where the elongated roots are not cramped and cover with soil, lightly tamp to firm soil around the seedling, and periodically apply supplemental irrigation for the remainder of the growing season.

Stand Establishment

For best results, seed should be planted into a firm, weed-free seedbed in early spring after the soil has warmed up to at least 34° to 40° Fahrenheit or as a dormant seeding in late fall (see Table 2).

It is recommended seeding be done with a drill that will ensure a uniform seeding depth. The seeding depth of New England aster is ⅛- to ¼-inch. Seeding a forb component in alternate rows or cross-planting (forb in one direction and grass in the other) may ensure better forb establishment.

Seed Production

Seed production specifications for New England aster are shown in Table 3. Direct combine before more than 10% of the seedheads have turned brown and fluffy. Harvested material must be dried to prevent mold and decay.

Table 3. Seed production specifications for New England aster.

Row Spacing	Seeding Rate		Irrigated Seed Yield
inches	***PLS/ft²***	***lb PLS/ac***	***bulk lb/ac***
12 to 36	40	1.4 to 0.5	20 to 40 (estimated)

New England aster seedhead (photo by Dean Gugler, used under CC BY-NC 2.0)

Limitations

New England aster is affected by fungal stem rot, rust disease, and powdery mildew, but seldom cause serious problems. Plants may become infested with spider mites and lace bugs, but damage is primarily cosmetic.

Releases

There are no known selections that have been tested in, and are specifically recommended for use in Montana and Wyoming.

Additional Information

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