

ANNOUNCING THE RELEASE OF

BISMARCK GERMPLASM NARROW-LEAVED PURPLE CONEFLOWER

SELECTED CLASS OF NATURAL GERMPLASM

by

UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
BISMARCK PLANT MATERIALS CENTER
and

NORTH DAKOTA
AGRICULTURAL EXPERIMENT STATION

SOUTH DAKOTA
AGRICULTURAL EXPERIMENT STATION

MINNESOTA
AGRICULTURAL EXPERIMENT STATION

The United States Department of Agriculture, Natural Resources Conservation Service (NRCS); the North Dakota Agricultural Experiment Station; the South Dakota Agricultural Experiment Station; and the Minnesota Agricultural Experiment Station announce the release of a selected class of narrow-leaved purple coneflower (*Echinacea angustifolia* D.C.).

As a selected release, this plant will be referred to as **Bismarck Germplasm narrow-leaved purple coneflower**. It has been assigned the NRCS accession number 9076759. Bismarck Germplasm narrow-leaved purple coneflower is released as a selected class of certified seed (natural track).

There is no adapted, consistent, commercial seed source of this species in the Northern Great Plains. There are no known formal varieties or prevarietal releases. Seed of this species is needed for wildlife seedings, Conservation Reserve Program (CRP) plantings, prairie restoration and various other revegetation projects. Roots and other plant parts of this species are presently in great demand for medicinal purposes. Seed to establish fields for root harvest would ease pressure from digging in native rangeland. Digging often accelerates erosion and degrades natural plant diversity.

Collection Site Information: Seed was collected from 11 North Dakota locations. Collection information is found in Table 1. Sites varied in soils and other climatic conditions. Most sites, however, were dry native rangeland. This species grows abundantly on most upland soil types but prefers dry prairies and rocky sidehills with weakly developed soils (Sedivec and Barker 1997).

Table 1.

Collection Date	Accession	Clean bulk seed (g)	County	Location Description
9/20/95	9076687	590 ¹	McKenzie	sec. 36, T.152N., R.94W.
9/21/95	9076688	999 ¹	McKenzie	sec. 22, T.150N., R.92W.
9/18/95	9076691	454 ¹	Sioux	sec. 30, T.133N., R.79W.
9/21/95	9076703	185 ²		composite of 9076687, 9076688, 9076691
9/12/97	9076751	1702	Slope	NW1/4 sec. 21, T.135N., R.98W.
9/11/97	9076752	772	Billings	South Unit Theodore Roosevelt National Park
9/10/97	9076753	1339	Dunn	Killdeer Mountain WMA
9/3/97	9076754	2701	Burleigh	sec. 16, T.137N., R.78W. State School Land
9/24/97	9076755	425	Sheridan	sec. 21, T.149N., R.75W. Lonetree WMA
8/26/97	9076756	55	Morton	sec. 27, T.137N., R.81W. Morton Co. WMA
9/17/97	9076757	999	McHenry	sec. 21, T.149N., R.75W. J.Clark Salyer NWR
8/29/97	9076758	30	Sioux	sec. 23, T.132N., R.83W. John Erickson, operator

¹Amount of seed before final cleaning of each accession

²Accession 9076703 is a composite of 9076687, 9076688, 9076691. This composite was then added to the bulked accessions collected in 1997. The final composite accession is 9076759.

Description: Growth characteristics of this accession are typical of the species. Narrow-leaved purple coneflower is a perennial, with an average height of ½ to 2 feet. Roots are mostly a heavy taproot. The stems are single to branched, with hairs. The alternate, mostly basal leaves are hairy and long lance-shaped. The flower heads are mostly solitary on long stalks. The ray florets are rose to purple in color and drooping. They are present during July and August. Chaffy bracts of the disk flower are spiny and persistent (Van Bruggen 1976, Johnson and Nichols 1982). The seeds are achenes that require cold stratification to break dormancy. It is mostly cross-pollinated by insects.

Method of Selection: Seed of selected plants was harvested at each of the 11 collection locations. Seed from each location was blended together to form the accession 9076759. This was planted for seed increase to field E-11 at the Bismarck Plant Materials Center in 1997. Seed produced will be available to commercial growers. No deliberate or specific selection was made for this accession. Failure to harvest from all of the plants at a collection site, and blending of seed from various locations makes the accession different from any of the original source populations. Seed produced from field E-11 is further altered from the source populations due to cross-pollination.

Environmental Impact Assessment: Bismarck Germplasm narrow-leaved purple coneflower is a composite of seed collections from native rangeland in North Dakota. Bismarck Germplasm is native to the Great Plains, does not spread vegetatively, and does not appear to establish on its own except in areas that have specific major disturbance. This species is not invasive based on the assessment worksheet and guidelines set forth by the NRCS Plant Materials Program.

Conservation Use: This native species will add diversity as a component of seed mixes for Conservation Reserve Program seedings, prairie restoration, range seedings, prairie landscaping, and highway right-of-way plantings. It will ease pressure from root digging for medicinal purposes from native rangeland. It is commonly eaten by cattle and wildlife, and is considered

an indicator species of prairie health. When overgrazing or range misuse occurs, it decreases in abundance.

Potential Area of Adaptation: This species is found in the prairies of Saskatchewan and Manitoba, and south to Texas (Johnson and Nichols 1982). It is found as far west as Montana and Wyoming and east into Minnesota and Iowa. It prefers rocky sidehills and weakly developed soils that can range in texture from sandy to silty to clayey. The area of adaptation of Bismarck Germplasm has not been tested. The potential area of adaptation includes North Dakota, South Dakota, Minnesota, and portions of Montana, Wyoming, Wisconsin, Iowa, and Nebraska. Precipitation ranges from 10 to 30 inches, and soil pH from 6 to 8.

Availability of Plant Materials: Generation 1 (G1) seed will be maintained by the Bismarck Plant Materials Center and is available in limited quantities for commercial seed increase. Seed will be distributed through the North Dakota State University Foundation Seedstocks Program as a selected class (green tag) of natural germplasm. Certification is limited to four generations.

References:

Sedivec, K. K., and W.T. Barker. 1997. Selected North Dakota and Minnesota Range Plants. North Dakota State University Extension Service Publication Number EB-69, Fargo, ND. 270 pp.

Van Bruggen, T. 1976. The Vascular Plants of South Dakota. Iowa State University Press, Ames, IA. 476 pp.

Johnson, J. R. and J. T. Nichols. 1982. Plants of South Dakota Grasslands - A Photographic Study. Bulletin 566, Agric. Expt. Sta. SDSU, Brookings, SD. 166 pp.

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Approvals for Release of:

Bismarck Germplasm narrow-leaved purple coneflower (*Echinacea angustifolia* D.C.)

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Natural Resources Conservation Service
Washington, DC

Date

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Natural Resources Conservation Service
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