ANNOUNCING THE RELEASE OF

BISMARCK GERMLAPM NARROW-LEAVED PURPLE CONEFLOWER
SELECTED CLASS OF NATURAL GERMLAPM

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.

<table>
<thead>
<tr>
<th>Collection Date</th>
<th>Accession</th>
<th>Clean bulk seed (g)</th>
<th>County</th>
<th>Location Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>9/20/95</td>
<td>9076687</td>
<td>590¹</td>
<td>McKenzie</td>
<td>sec. 36, T.152N., R.94W.</td>
</tr>
<tr>
<td>9/21/95</td>
<td>9076688</td>
<td>999¹</td>
<td>McKenzie</td>
<td>sec. 22, T.150N., R.92W.</td>
</tr>
<tr>
<td>9/18/95</td>
<td>9076691</td>
<td>454¹</td>
<td>Sioux</td>
<td>sec. 30, T.133N., R.79W.</td>
</tr>
<tr>
<td>9/21/95</td>
<td>9076703</td>
<td>185²</td>
<td>composite of 9076687, 9076688, 9076691</td>
<td></td>
</tr>
<tr>
<td>9/12/97</td>
<td>9076751</td>
<td>1702</td>
<td>Slope</td>
<td>NW1/4 sec. 21, T.135N., R.98W.</td>
</tr>
<tr>
<td>9/11/97</td>
<td>9076752</td>
<td>772</td>
<td>Billings</td>
<td>South Unit Theodore Roosevelt National Park</td>
</tr>
<tr>
<td>9/10/97</td>
<td>9076753</td>
<td>1339</td>
<td>Dunn</td>
<td>Killdeer Mountain WMA</td>
</tr>
<tr>
<td>9/3/97</td>
<td>9076754</td>
<td>2701</td>
<td>Burleigh</td>
<td>sec. 16, T.137N., R.78W. State School Land</td>
</tr>
<tr>
<td>9/24/97</td>
<td>9076755</td>
<td>425</td>
<td>Sheridan</td>
<td>sec. 21, T.149N., R.75W. Lonetree WMA</td>
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<tr>
<td>8/26/97</td>
<td>9076756</td>
<td>55</td>
<td>Morton</td>
<td>sec. 27, T.137N., R.81W. Morton Co. WMA</td>
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<tr>
<td>9/17/97</td>
<td>9076757</td>
<td>999</td>
<td>McHenry</td>
<td>sec. 21, T.149N., R.75W. J.Clark Salyer NWR</td>
</tr>
<tr>
<td>8/29/97</td>
<td>9076758</td>
<td>30</td>
<td>Sioux</td>
<td>sec. 23, T.132N., R.83W. John Erickson, operator</td>
</tr>
</tbody>
</table>

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 \( \frac{1}{2} \) 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:**


**Prepared By:**
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Approvals for Release of:

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

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Director, Ecological Sciences Division
United States Department of Agriculture
Natural Resources Conservation Service
Washington, DC

Date

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State Conservationist
United States Department of Agriculture
Natural Resources Conservation Service
St. Paul, MN

Date

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State Conservationist
United States Department of Agriculture
Natural Resources Conservation Service
Bismarck, ND

Date

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State Conservationist
United States Department of Agriculture
Natural Resources Conservation Service
Huron, SD

Date

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Director
University of Minnesota
Agricultural Experiment Station
St. Paul, MN

Date

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Director
North Dakota State University
Agricultural Experiment Station
Fargo, ND

Date

________________________________________________________________________________________________________________________________________________________

Director
South Dakota State University
Agricultural Experiment Station
Brookings, SD

Date