

Twenty-five Years of Tree Planting Trials at the Highmore Field Evaluation Planting

1979



1987



1999



Plant Materials Center
Bismarck, North Dakota
September 2004

Acknowledgement

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Executive Summary

Objectives:

1. Assemble and evaluate the adaptation and performance of selected woody plant material for field and farmstead windbreaks, wildlife habitat, and streambank and lakeshore plantings in the Northern Great Plains.
2. Select and cooperatively release superior cultivars/germplasm for increase by commercial nurseries.

This field evaluation planting at Highmore, South Dakota, was established in 1978. Approximately 210 different accessions or seed sources of 123 different species of trees and shrubs have been planted and evaluated. Many of these accessions show promise for additional testing. Information from this planting has been used to document the cooperative release of the cultivars listed below. These cultivars are currently in large-scale production and are used in conservation plantings throughout the Northern Great Plains. Several more releases are anticipated in the near future. Information gathered concerning plant performance assists cooperating nurserymen and plant researchers in determining the range of adaptation of other accessions/cultivars included in the test planting.

Cooperative Releases:

Cultivar	Common Name	Year Released
Midwest	Manchurian crabapple	1973
Cardan	Green ash	1979
Oahe	Hackberry	1984
Sakakawea	Silver buffaloberry	1984
Scarlet	Mongolian cherry	1984
Centennial	Cotoneaster	1987
McDermid	Ussurian pear	1990
Canam	Hybrid poplar	1995
Regal	Russian almond	1997
Legacy	Late lilac	1999
Survivor germplasm	False indigo	2004
Silver Sands germplasm	Sandbar willow	2004

Twenty-five Years of Tree Planting Trials at the Highmore, South Dakota Field Evaluation Planting

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Introduction

Early settlers in South Dakota had a great appreciation for trees that provided both shade and shelter from the wind. The first residents used whatever seedlings were available locally to plant windbreaks around their homes. These were the proven plants that could best survive the extremes of heat, cold, and drought common to the plains.

In 1916, the USDA Northern Great Plains Field Station at Mandan, North Dakota, began shelterbelt demonstration projects in several states in the Northern Plains. In the 1930s, the Soil Conservation Service (SCS) Nurseries began providing trees and shrubs for windbreaks. At that time, the recommended species were Russian olive, eastern red cedar, pine, green ash, cottonwood, Siberian elm, caragana, and lilac.

In 1954, the Plant Materials Center (PMC) at Bismarck was established. John McDermid served as the first SCS employee with plant materials responsibility. A principal task of the PMC was tree improvement. This consisted of seed source studies, selection of superior plants, progeny testing, and establishment of seed orchards. Many of the new tree and shrub species that John McDermid began evaluating were grown from seed collected at the Agriculture and Agri-Food Canada Arboretum at Morden, Manitoba. One of the first plants he collected there was the Ussurian or Harbin pear, which the Arboretum had received from SDSU at Brookings. The PMC named this 1993 release of pear in honor of John McDermid.

In the spring of 1978, many of these promising selections were planted in the newly established Field Evaluation Planting (FEP) at the Central Crops and Soils Research Station at Highmore, South Dakota. Since that date, the PMC staff with the assistance of the Field Office and State Office staff has annually added new plants. A complete list of all species and seed sources (accessions) that were planted is recorded in Table 1. Both private nurseries and other USDA agencies provided plants for testing. Many of these did not survive more than a few years. Using information gained from the annual evaluations over the past 25 years, the PMC has released numerous adapted species and cultivars. A complete list of currently surviving plants is shown in Table 2.

Study Information

Cooperators

The USDA Natural Resources Conservation Service (NRCS), Plant Materials Center, Bismarck, North Dakota; the USDA NRCS Highmore Field Office and Hyde County

Conservation District, Highmore, South Dakota; and the South Dakota State University, Central Crops and Soils Research Station, Highmore, South Dakota.

Site Description

The FEP is located in central South Dakota, at the Central Crops and Soils Research Station near Highmore. The legal description is NW1/4 Sec. 11, T.112 N., R.72 W., Hyde County, South Dakota. The site is located in Major Land Resource Area 53C, Dark Brown Glaciated Plain. The elevation of the plots is slightly under 1,880 feet above sea level.

Soils

The soil type on this nearly level site is a Glenham loam. The Glenham series consists of deep, well-drained, moderately slow or slowly permeable soils formed in calcareous glacial till on uplands. These soils have a dark grayish-brown loam surface layer three inches thick. The subsoil is dark, grayish-brown clay loam. The substratum is light brownish-gray calcareous clay loam. The available water capacity and fertility are high. Organic matter content is moderate. Glenham loam is in South Dakota windbreak suitability group 3.

Climate

The mean annual precipitation at Highmore is 19.67 inches. Since the planting was established in 1978, the precipitation has varied between slightly over 16 inches to 33 inches. Seventy-five percent of this precipitation falls during the growing season. The mean annual temperature is 46 degrees F. This site is in Plant Hardiness Zone 4a, with an average annual minimum temperature of -25 to -30 degrees F.

Planting Plan

Since 1978, a total of 210 different accessions or seed sources of 123 different species of trees and shrubs have been planted (Table 1). There can be great differences in performance between different accessions within a species. Only by observing these plants over a number of years, at several locations, is it possible to find the best plants for conservation. Many of these accessions have come from other countries, often via the USDA ARS Plant Introduction Stations and the Arboretum at Morden Research Center, operated by Agriculture and Agri-Food Canada at Morden, Manitoba. One of the first plant explorers hired by USDA was Professor Niels E. Hansen of South Dakota State University, Brookings, SD, who is known for his introduction of such plants as the Hansen's hedge rose and the Ussurian pear. Morden Arboretum received some of these Ussurian pear plants from SDSU, Brookings, in 1940.

The plots of each accession are organized in a systematic design for ease of evaluation and demonstration purposes (Figure 1). The planting site is divided into four blocks. Block I, on the west side, contains the tall trees. Block II contains the medium trees; Block III contains the shrubs; while Block IV, on the east, contains the conifers. Five to ten trees of each accession are planted in a row, which are 50 to 100 feet long. The with-in-row spacing is 10 feet for tall and medium-tall trees. The shrubs are spaced five feet apart. The between-row spacing is 15 feet.

Plot Maintenance

A clean planting site was prepared annually by disking. All trees and shrubs were planted by hand in the spring. Replacements were planted the second year as needed. In some years, newly planted materials were watered by hand. Weed control and maintenance, performed by the station superintendent, have been consistently good. As a result of this care, many of the accessions have had good survival. Many of the conifers, including an accession of tamarack, have shown good growth. No herbicides or fertilizers have been used. The first year of planting, animal repellent was sprayed on the stems to discourage rodent damage. In the fall of 1979, the planting area was fenced to exclude rabbits and prevent further damage. This has been one of the PMC's best maintained FEPs and weed control has been excellent.

Dead trees have been removed and damaged branches have been pruned for sanitation. A major renovation effort in 2000 included removal of many broken branches resulting from snow damage. The numerous accessions of apricots were also removed at this time. After 20 years since establishment, many plants had some dieback on them. Due to tight spacing in the planting, some shading of the lower branches is occurring.

Evaluations and Results

Records of planting date, survival, vigor, canopy width, and plant height have been maintained since 1978. In the fall of each year since then, measurements have been taken on selected plants. An evaluation schedule, based on year of planting, is followed for each plot. See Table 2 for a record of trees and shrubs surviving.

One of the key measures of performance is the plant vigor, which is a combination of plant form and plant health. A number of accessions have done well. Future releases are planned based partly on their performance at the Highmore FEP. The plants listed in Table 3 have survived at the FEP, and have been released as cultivars by the Bismarck PMC. Six of these cultivars were developed from seed collected at the Arboretum in Morden, Manitoba.

Table 3: Tree and Shrub Releases

Cultivar	Common Name	Year Released
Midwest	Manchurian crabapple	1973
Cardan	Green ash	1979
Oahe	Hackberry	1984
Sakakawea	Silver buffaloberry	1984
Scarlet	Mongolian cherry	1984
Centennial	Cotoneaster	1987
McDermand	Ussurian pear	1990
Canam	Hybrid poplar	1995
Regal	Russian almond	1997
Legacy	Late lilac	1999
Survivor germplasm	False indigo	2004
Silver Sands germplasm	Sandbar willow	2004

Table 1: Woody Planting Record at Highmore FEP, Highmore, SD					
Woody Planting Records - 1978-2002			Year	Year	
<u>Scientific name</u>	<u>Common name</u>	<u>Accession</u>	<u>planted</u>	<u>removed</u>	<u>Origin/Source</u>
<i>Abies concolor</i>	white fir	ND-1749	1978	1979	SDSU, Brookings, SD
<i>Acer ginnala</i>	Amur maple	ND-629	1978		Asia/Morden, MB
	Amur maple	Flame	1978		Asia/PMC, Elsberry, MO
	Amur maple	ND-1873	1979		Asia/LON, Bismarck, ND
	Amur maple	ND-1752	1978		Asia/Gurney's Nursery, Yankton, SD
<i>Acer negundo</i>	boxelder	9069087	1993		Lincoln-Oakes Nursery (LON), Bismarck, ND
<i>Acer saccharinum</i>	silver maple	ND-3825	1986		Burleigh Co., ND
<i>Acer saccharum</i>	sugar maple	9063131	1993	2002	Sica Hollow, SD/Smith Nursery, Charles City, IA
<i>Aesculus glabra</i>	buckeye	ND-1432	1978		Morden, Manitoba
<i>Amelanchier alnifolia</i>	juneberry	Success	1978		ARS, Mandan, ND
	juneberry	Timm's	1978		Towner Co., ND
<i>Amorpha fruticosa</i>	false indigo	9047236	1987		Burleigh Co., ND/LON, Bismarck, ND
	false indigo	Survivor	1987		PMC, Aberdeen, ID
<i>Berberis koreana</i>	Korean barberry	ND-3744	1988		Asia/NDSU, Fargo, ND
<i>Betula davurica</i>	Asian black birch	9082666	2001		Asia/Lawyer Nursery, Plains, MT
<i>Betula nigra</i>	river birch	9063130	1993		MN Forestry Assn.
<i>Betula papyrifera</i>	paper birch	9063129	1993	1995	MN Forestry Assn.
<i>Caragana maximowicziana</i>	Maximowicz caragana	ND-2506	1988		Asia/LON Increase Block, Bismarck, ND
<i>Caragana microphylla</i>	little leaf peashrub	9082663	2000		Lawyer Nursery, Plains, MT

Woody Planting Records - 1978-2002					
<u>Scientific name</u>	<u>Common name</u>	<u>Accession</u>	<u>Year planted</u>	<u>Year removed</u>	<u>Origin/Source</u>
<i>Caragana pygmaea</i>	pygmy caragana	ND-2507	1988		Asia/Bottineau, ND
<i>Celtis occidentalis</i>	hackberry	Oahe	1980		SD/ARS, Mandan, ND
	hackberry	SD-75	1981		Potter Co., SD
	hackberry	SD-211	1981		Sanborn Co., SD
	hackberry	9057410	1988		Denbigh, ND/NDFS, Towner, ND
<i>Cornus alba 'sibirica'</i>	Siberian dogwood	9082664	2000	2002	Lawyer Nursery, Plains, MT
<i>Cornus amomum</i>	silky dogwood	Indigo	1983		PMC, Rose Lake, MI
<i>Cornus mas</i>	Cornelian dogwood	Redbird	1988	1992	PMC, Elsberry, MO
<i>Corylus x</i>	hybrid hazelnut	9076683	1995	1997	Badgersett Nursery, Preston, MN
	hybrid hazelnut	9076684	1995	1997	Badgersett Nursery, Preston, MN
<i>Corylus americana</i>	American hazel	9057409	1988		Bottineau Co., ND/NDFS, Towner, ND
<i>Cotoneaster integerrimus</i>	European cotoneaster	ND-170	1990		Asia/Kingsbury Co., SD
	European cotoneaster	Centennial	1978		Asia/ARS, Cheyenne, WY
<i>Crataegus</i>	hawthorn	ND-1567	1988		Wells Co., ND
<i>Crataegus x anomala</i>	Arnold hawthorn	ND-19	1984		Morden, Manitoba
<i>Elaeagnus angustifolia</i>	Russian olive	ND-364	1978	1991	Russia/Burleigh Co., ND
	Russian olive	ND-1735	1978	1991	Russia/LON, Bismarck, ND
	Russian olive	ND-541	1978	1991	Russia/Haakon Co., SD
	Russian olive	ND-1756	1978	1991	Russia/Gurney Nursery, Yankton, SD
	Russian olive	ND-363	1978	1991	Russia/Burleigh Co., ND
	Russian olive	ND-1843	1980	1991	Russia/Morden, Manitoba
	Russian olive	ND-1844	1980	1991	Russia/Morden, Manitoba
	Russian olive	9047231	1988		Russia/Chinle, AZ

Woody Planting Records - 1978-2002			Year	Year	
<u>Scientific name</u>	<u>Common name</u>	<u>Accession</u>	<u>planted</u>	<u>removed</u>	<u>Origin/Source</u>
<i>Elaeagnus umbellata</i>	autumn olive	Cardinal	1987	1992	China/PMC, Elsberry, MO
	autumn olive	Redwing	1988	1992	China/PMC, Rose Lake, MI
<i>Forsythia europea x ovata</i>	forsythia	Meadowlark	1988		Arnold Arboretum/NDSU, Fargo, ND
<i>Fraxinus americana</i>	white ash	9063127	1992	2000	WI/LON, Bismarck, ND
<i>Fraxinus nigra</i>	black ash	ND-647	1978		Morden, Manitoba
	black ash	9063116	1995		Itasca State Park, MN
<i>Fraxinus pennsylvanica</i>	green ash	SD-13	1978		Gettysburg, SD
	green ash	SD-156	1978		Deuel Co., SD
	green ash	ND-1759	1978		PMC, Bismarck, ND
	green ash	ND-1753	1978		Gurney's Nursery, Yankton, SD
	green ash	ND-1734	1978		LON, Bismarck, ND
	green ash	Cardan	1978		MT/ARS, Mandan, ND
	green ash	9063115	1995		Itasca State Park, MN
<i>Gleditsia triacanthos</i>	honeylocust	ND-1863	1982		Brown Co., SD
	honeylocust	ND-1879	1980		Woodward, OK
	honeylocust	9063124	1995	1996	Codington Co., SD/Big Sioux Nursery
<i>Hippophae rhamnoides</i>	seaberry	9047238	1987	1989	PFRA, Indianhead Nursery, Sask.
<i>Juglans cathayensis</i>	Cathay walnut	ND-573	1978	1991	China/Morden, Manitoba
<i>Juglans cinerea</i>	butternut	ND-547	1978	1991	Morden, Manitoba
<i>Juglans mandshurica</i>	Manchurian walnut	ND-548	1978	1991	China/Morden, Manitoba

Woody Planting Records - 1978-2002					
<u>Scientific name</u>	<u>Common name</u>	<u>Accession</u>	<u>Year planted</u>	<u>Year removed</u>	<u>Origin/Source</u>
<i>Juglans nigra</i>	black walnut	ND-465	1978		Morden, Manitoba
	black walnut	ND-428	1985		NDSU, Fargo, ND
	black walnut	9063098	1991		Big Sioux Nursery, Watertown, SD
	black walnut	ND-1755	1978		Gurney's Nursery, Yankton, SD
<i>Larix laricina</i>	tamarack	9058862	1990		Chippewa Farms, MN
<i>Larix sibirica</i>	Siberian larch	ND-1729	1978		Asia/NDFS, Towner, ND
	Siberian larch	ND-1765	1978		Asia/USFS, Bottineau, ND
	Siberian larch	SL-383-T	1978		Asia/USFS, Bottineau, ND
<i>Lonicera</i>	honeysuckle	ND-26	1979	1992	Asia/ARS, Mandan, ND
<i>Lonicera korolkowii</i>	blue leaf honeysuckle	Freedom	1989		Asia/U of Minnesota
	blue leaf honeysuckle	9005399	1991		Asia/PMC, Bridger, MT
<i>Lonicera maackii</i>	Amur honeysuckle	ND-11	1981		Asia/Morden, Manitoba
	Amur honeysuckle	Cling-Red	1987	1992	Asia/PMC, Elsberry, MO
	Amur honeysuckle	Rem-Red	1988	1992	Asia/PMC, Cape May, NJ
<i>Lonicera tatarica</i>	tatarian honeysuckle	9069080	1993		Asia/Lee Nursery, Fertile, MN
	tatarian honeysuckle	9063143	1993		Asia/Schumacher Berry Farm, MN
	tatarian honeysuckle	9069128	1995		Asia/Big Sioux Nursery, Watertown, SD
<i>Lonicera tatarica sibirica</i>	tatarian honeysuckle	ND-3892	1983	1992	Asia/Lawyer Nursery, Plains, MT
	tatarian honeysuckle	ND-313	1978	1992	Asia/ARS, Cheyenne, WY
	tatarian honeysuckle	ND-1750	1977	1992	Asia/Gurney's Nursery, Yankton, SD
	tatarian honeysuckle	ND-1730	1978	1992	Asia/LON Bismarck, ND
<i>Lonicera xylosteoides</i>	honeysuckle	Hedge King	1988		Asia/Wedge Nursery, Albert Lea, MN
<i>Lonicera xylosteum mollis</i>	fly honeysuckle	ND-452	1979	1992	Asia/ARS, Cheyenne, WY

Woody Planting Records - 1978-2002			Year	Year	
<u>Scientific name</u>	<u>Common name</u>	<u>Accession</u>	<u>planted</u>	<u>removed</u>	<u>Origin/Source</u>
<i>Malus baccata</i>	Siberian crabapple	ND-1731	1978		Asia/LON, Bismarck, ND
	Siberian crabapple	Red Splendor	1978		Asia/Lee Nursery, Fertile, MN
<i>Malus mandshurica</i>	Manchurian crabapple	Midwest	1978		Asia/Morden, Manitoba
<i>Malus sargentii</i>	Sargent's crabapple	Roselow	1983		PMC, Rose Lake, MI
<i>Morus alba</i>	mulberry	ND-1170	1978	1991	China/Burleigh Co., ND
<i>Phellodendron amurense</i>	Amur corktree	ND-3805	1982	1992	Asia/U of M, Chaska, MN
<i>Phellodendron sachalinense</i>	Sakhalin corktree	9063148	1995		Asia/Clay Co., MN (shelterbelt)
	Sakhalin corktree	ND-3806	1982	1991	Asia/U of M, Chaska, MN
<i>Photinia melanocarpa</i> (former <i>Aronia</i>)	chokeberry	323957	1988		Russia/ARS, Ames, IA
<i>Picea abies</i>	Norway spruce	ND-1724	1979	1980	Europe/USFS, Lincoln, NE
<i>Picea engelmannii</i>	Engelman spruce	ND-1760	1978	1980	Coeur d'Alene, ID/USFS, Bottineau, ND
<i>Picea meyeri</i>	Meyer's spruce	9082609	2001		Asia/Itasca Greenhouse, Cohasset, MN
<i>Pinus contorta</i>	lodgepole pine	9057411	1988		Canada/NDFS, Towner, ND
<i>Pinus densiflora</i>	Japanese red pine	ND-1720	1979	1980	Japan/USFS, Lincoln, NE
<i>Pinus nigra</i>	Austrian black pine	ND-1715	1979	1980	Spain/USFS, Lincoln, NE
<i>Pinus nigra x densiflora</i>	hybrid pine	ND-1716	1979	1980	USFS, Lincoln, NE
<i>Pinus nigra caramanica</i>	Crimean pine	ND-1714	1979	1980	Turkey/USFS, Lincoln, NE

Woody Planting Records - 1978-2002			Year	Year	
<u>Scientific name</u>	<u>Common name</u>	<u>Accession</u>	<u>planted</u>	<u>removed</u>	<u>Origin/Source</u>
<i>Pinus nigra pallasiana</i>	Crimean pine	ND-1710	1979	1980	Turkey/USFS, Lincoln, NE
	Crimean pine	ND-1712	1979	1980	Turkey/USFS, Lincoln, NE
<i>Pinus ponderosa</i>	ponderosa pine	9057413	1988		MT/NDFS, Towner, ND
	ponderosa pine	ND-1763	1978		Rosebud, SD/USFS, Bottineau, ND
<i>Pinus rigida</i>	pitch pine	ND-1721	1979	1980	ME/USFS, Lincoln, NE
<i>Pinus sylvestris</i>	Scots pine	ND-1718	1979	1980	Turkey/USFS, Lincoln, NE
	Scots pine	ND-1717	1979	1980	Greece/USFS, Lincoln, NE
	Scots pine	ND-1719	1979	1980	Czechoslovakia/USFS, Lincoln, NE
	Scots pine	ND-1762	1978	1979	Finland/USFS, Lincoln, NE
<i>Pinus sylvestris</i> var. <i>mongolica</i>	Mongolian Scots pine	9063156	1996		Bayan County, China
	Mongolian Scots pine	9063154	1996		Kedong County, China
<i>Platanus occidentalis</i>	sycamore	9069088	1993	1996	TEC, Osseo, MN
<i>Populus</i>	hybrid poplar	Canam	1990		Canada/ARS, Mandan, ND
	hybrid poplar	Manitou	1990	1999	ARS, Mandan, ND
	hybrid poplar	Theves	1993		Lee Nursery, Fertile, MN
	hybrid poplar	9063146	1993		PFRA, Indianhead, Saskatchewan
	hybrid poplar	Assiniboine	1993		PFRA, Indianhead, Saskatchewan
	hybrid poplar	Raverdeau	1993		Lee Nursery, Fertile, MN
<i>Populus acuminata</i>	laceleaf cottonwood	9057983	1991	1996	PMC, Bridger, MT
<i>Populus alba</i>	white poplar	ND-3796	1992		Turner County, SD
<i>Populus balsamifera</i>	balsam poplar	9057965	1991		PMC, Bridger, MT
<i>Populus deltoides</i>	cottonwood	9039340	1991		PMC, Bridger, MT
	cottonwood	9063141	1993		LON, Bismarck, ND

Woody Planting Records - 1978-2002					
<u>Scientific name</u>	<u>Common name</u>	<u>Accession</u>	<u>Year planted</u>	<u>Year removed</u>	<u>Origin/Source</u>
<i>Populus deltoides x nigra</i>	hybrid poplar	14271	1990		ARS, Mandan, ND
	poplar	Prairie Sky	1990		ARS, Mandan, ND
	hybrid poplar	14273	1990		ARS, Mandan, ND
	hybrid poplar	14274	1990		ARS, Mandan, ND
<i>Populus tremuloides</i>	quaking aspen	9069090	1993		Lee Nursery, Fertile, MN
<i>Potentilla fruticosa</i>	bush cinquefoil	Dakota Sunrise	1980	1994	ARS, Mandan, ND
<i>Prunus</i>	hardy almond	ND-2106	1990	1991	Carl Carlson, Bismarck, ND
	select plum	ND-1134	1985		Wilford Herman, Hand County, SD
	Japanese cherry	9063142	1993	1997	LON, Bismarck, ND
<i>Prunus americana</i>	plum	ND-288	1978		SD/LON, Bismarck, ND
	plum	ND-286	1978		LON, Bismarck, ND
	plum	ND-1733	1978		LON, Bismarck, ND
	plum	ND-1757	1978	1991	Gurney's Nursery, Yankton, SD
	plum	514677	1990		PMC, Manhattan, KS
<i>Prunus angustifolia</i>	Chickasaw plum	9049970	1990		PMC, Manhattan, KS
<i>Prunus armeniaca</i>	apricot	ND-1178	1978	2000	Asia/Walsh Co., ND
	apricot	ND-423	1978	2000	Asia/Slope Co., ND
	apricot	Mantoy	1978	2000	Asia/ARS, Mandan, ND
	apricot	SD-132	1978	2000	Asia/Brookings, SD
	apricot	SD-133	1978	2000	Asia/Brookings, SD
	apricot	SD-134	1978	2000	Asia/Brookings, SD
	apricot	ND-416	1978	2000	Asia/Burleigh Co., ND
	apricot	ND-2102	1986		Asia/Hand Co., SD
	apricot	Morden	1978	2000	Asia/Morden, Manitoba
<i>Prunus fruticosa</i>	Mongolian cherry	Scarlet	1978		Asia/Morden, Manitoba

Woody Planting Records - 1978-2002					
<u>Scientific name</u>	<u>Common name</u>	<u>Accession</u>	<u>Year planted</u>	<u>Year removed</u>	<u>Origin/Source</u>
<i>Prunus maackii</i>	Amur chokecherry	9069129	1995		Asia/Big Sioux Nursery, Watertown, SD
<i>Prunus padus</i>	mayday	SD-131	1985		Asia/Moody Co., SD
	mayday	9069121	1996		NLH, Aas, Norway
<i>Prunus persica</i>	hardy peach	ND-3925	1986	1992	China/Meade Co., SD
<i>Prunus serotina</i>	black cherry	ND-3895	1983	1992	Lawyer Nursery, Plains, MT
	black cherry	9076737	1997		MN, LON, Bismarck, ND
<i>Prunus spinosa</i>	sloe	ND-81	1978	1991	Asia/Morden, Manitoba
<i>Prunus tenella</i>	Russian almond	Regal	1980		Asia/ND Game & Fish/LON, Bismarck, ND
<i>Prunus virginiana</i>	chokecherry	Schubert	1978		ARS, Mandan, ND
	chokecherry	ND-1336	1978	1991	Mercer Co., ND
	chokecherry	ND-1349	1978	1991	Burleigh Co., ND
	chokecherry	ND-1751	1978		Plumfield Nursery Inc., Fremont, NE
	chokecherry	ND-1732	1978		LON, Bismarck, ND
<i>Pseudotsuga menziesii</i>	Douglas fir	ND-1722	1979	1980	Douglas Co., CO/USFS, Lincoln, NE
<i>Ptelea trifoliata</i>	common hop tree	ND-624	1982		Ramsey Co., ND
<i>Pyrus communis</i>	common pear	ND-3897	1983	1992	Asia/Lawyer Nursery, MT
<i>Pyrus ussuriensis</i>	Ussurian pear	McDermant	1978		Manchuria/Morden, Manitoba
<i>Quercus alba</i>	white oak	9069084	1993	1995	Lee Nursery, Fertile, MN
<i>Quercus bicolor</i>	swamp white oak	ND-1842	1981	1982	Morden, Manitoba

Woody Planting Records - 1978-2002					
<u>Scientific name</u>	<u>Common name</u>	<u>Accession</u>	<u>Year planted</u>	<u>Year removed</u>	<u>Origin/Source</u>
<i>Quercus ellipsoidalis</i>	pin oak	9069082	1993	1999	Lee Nursery, Fertile, MN
<i>Quercus macrocarpa</i>	bur oak	9057412	1988		Foster Co., ND
	bur oak	ND-1737	1978		LON, Bismarck, ND
	bur oak	Lippert	1990		PMC, Manhattan, KS
<i>Quercus robur</i>	English oak	9069089	1993		Europe/TEC, Osseo, MN
<i>Quercus rubra</i>	red oak	9069083	1993	1995	Lee Nursey, Fertile, MN
<i>Rhus aromatica</i>	aromatic sumac	Konza	1987		PMC, Manhattan, KS
<i>Rhus trilobata</i>	skunkbush sumac	Bighorn	1979	1994	Bighorn Co., WY
<i>Ribes americanum</i>	black currant	9082687	2001		Big Sioux Nursery, Watertown, SD
<i>Robinia pseudoacacia</i>	black locust	ND-2510	1987	1991	Cass Co., ND
	black locust	ND-3804	1982	1986	NDFS, Towner, ND
<i>Rosa rubifolia</i>	red leaf rose	9082685	2001		Europe/LON, Bismarck, ND
<i>Rosa rugosa x</i>	rugosa rose	Hansen	2001		Asia/LON, Bismarck, ND
<i>Salix</i>	willow	ND-3773	1982		Norman Co., MN
<i>Salix fragilis</i>	crack willow	370126	1982	1996	Russia/ARS, Glenn Dale, MD
<i>Salix humilis</i>	prairie willow	ND-995	1982	1996	ARS, Ames, IA
<i>Salix interior</i>	sandbar willow	Silver Sands	1990		Smith Nursery, Charles City, IA/NDSU, Fargo, ND

Woody Planting Records - 1978-2002					
<u>Scientific name</u>	<u>Common name</u>	<u>Accession</u>	<u>Year planted</u>	<u>Year removed</u>	<u>Origin/Source</u>
<i>Salix matsudana x alba</i>	Austree	9058897 (E)	1990		Australia/CA
	Austree	9058896 (C)	1990		Australia/CA
	Austree	9058899	1991		Australia/Worthington, MN
	Austree	9063100	1991		Australia/CA
<i>Salix pentandra</i>	laurel willow	Mich-433	1982		Europe/PMC, Rose Lake, MI
<i>Salix purpurea</i>	purple osier willow	Streamco	1990		Europe/PMC, Big Flats, NY
<i>Shepherdia argentea</i>	buffaloberry	Sakakawea	1978		Morden, Manitoba
<i>Sorbus aucuparia</i>	mountain ash	ND-673	1987		Europe/Morden, Manitoba
<i>Syringa meyeri</i>	Meyer lilac	ND-451	1984	1984	Asia/Interstate Nursery, Hamburg, IA
<i>Syringa pekinensis</i>	Pekin lilac	ND-686	1979		Asia/LON, Bismarck, ND
<i>Syringa villosa</i>	late lilac	Legacy	1988		China/Morden, Manitoba
<i>Thuja occidentalis</i>	white cedar	ND-1723	1979	1981	Canada/USFS, Lincoln, NE
	white cedar	Mich-1841	1983		PMC, Rose Lake, MI
	white cedar	Affinity	1983		PMC, Rose Lake, MI
<i>Tilia cordata</i>	little leaf linden	9069081	1993		Europe/Lee Nursery, Fertile, MN
<i>Ulmus japonica</i>	Japanese elm	9063126	1992		Asia/PFRA, Indianhead, Saskatchewan
<i>Ulmus parvifolia</i>	Chinese lacebark elm	Elsmo	1990	1990	China/PMC, Elsberry, MO
<i>Ulmus pumila</i>	Siberian elm	9016318	1995		Asia/PMC, Bridger, MT
	Siberian elm	9054820	1995		Asia/PMC, Bridger, MT

Woody Planting Records - 1978-2002					
<u>Scientific name</u>	<u>Common name</u>	<u>Accession</u>	<u>Year planted</u>	<u>Year removed</u>	<u>Origin/Source</u>
<i>Viburnum lentago</i>	nannyberry	ND-21	1986		ARS, Mandan, ND
	nannyberry	ND-276	1988	1988	Morden, Manitoba
<i>Viburnum opulus</i>	European cranberry	399414	1988		Yugoslavia/ARS, Ames, IA
<i>Vitis riparia</i>	wild grape	ND-1020	1978		Morden, Manitoba
<i>Yucca glauca</i>	yucca	ND-1480	1978		Haakon Co., SD
Update: May 2003					

Figure 1. Highmore Woody Field Evaluation Planting Plan

Row	BLOCK 1 TALL TREES		BLOCK 2 MEDIUM TREES	
1	SD-13 green ash	SD-156 green ash	Midwest Manchurian crabapple	
2	ND-1753 green ash	ND-1734 green ash	Red Splendor crabapple	ND-1731 Siberian crabapple
3	Cardan green ash		McDermand Ussurian pear	
4	ND-1759 green ash			
5	ND-647 black ash	ND-1432 Ohio buckeye		
6	9063098 black walnut	ND-3796 white poplar		
7	9063126 Japanese elm			
8	ND-465 black walnut	ND-1755 black walnut		
9	9063127 white ash		ND-1751 chokecherry	ND-1732 chokecherry
10	9069087 boxelder		Schubert chokecherry	ND-1733 American plum
11	Raverdeau poplar	Walker poplar	ND-286 manet plum	ND-288 plum
12	Assiniboine poplar	Theves poplar	open	open
13	ND-1737 bur oak		ND-629 Amur maple	Flame Amur maple
14	9069090 quaking aspen	9009082 pin oak	ND-1752 Amur maple	
15	ND-1879 honeylocust		ND-1873 Amur maple	ND-686 Pekin lilac
16	Oahe hackberry		9063131 sugar maple	9049970 chickasaw plum
17	SD-75 hackberry	SD-211 hackberry	ND-624 common hoptree	514677 American plum
18	ND-1863 honeylocust	9047231 Russian olive	Roselow Sargent crabapple	
19	ND-3773 willow	Mich-433 laurel willow	9069081 littleleaf linden	
20	ND-428 black walnut	ND-3825 silver maple	Homestead Arnold hawthorn	
21	14271 poplar	Prairie Sky poplar	ND-1134 select plum	
22	14273 poplar	14274 poplar	SD-131 mayday	
23	Walker poplar	Walker poplar	ND-2102 apricot	
24	9058896 Austree	9058897 Austree	9069129 amur chokecherry	9063130 river birch
25	9058899 Austree	9063100 Austree	ND-21 nannyberry	
26	9057983 l. cottonwood	9039340 cottonwood	9069121 mayday	ND-673 mountain ash
27	9057965 balsam poplar	9063141 n. cottonwood	ND-1567 hawthorn	
				revised 11/01



Row	BLOCK 3 SHRUBS		BLOCK 4 CONIFERS & MISCELLANEOUS	
1	ND-1020 riverbank grape		ND-1480 yucca	
2	Timm's juneberry		ND-1729 Siberian larch	
3	Success juneberry		SL-383-T Siberian larch	
4	Centennial cotoneaster		ND-1765 Siberian larch	
5	9069128 honeysuckle		ND-1763 ponderosa pine	
6		9076737 black cherry	Mich-1841 n. white cedar	Mich-1468 n. white cedar
7	Scarlet Mongolian cherry		9067413 ponderosa pine	
8	Sakakawea silver buffaloberry		9057411 lodgepole pine	
9	9057406 rugosa rose	9082685 redleaf rose	9058862 tamarack	
10	Bighorn skunkbush sumac		Pete eastern gammagrass	
11	Regal Russian almond	Dakota Sunrise potentilla	9063156 Scotch pine	
12	ND-11 Amur honeysuckle		9063154 Scotch pine	
13	ND-995 prairie willow	370126 crack willow	9057412 bur oak	
14	Indigo silky dogwood		9057410 hackberry	
15	9082664 Siberian dogwood	Freedom honeysuckle	9082609 Meyer's spruce	
16	9047238 seaberry		PMK-1407 bur oak	
17	Survivor false indigo	9047236 false indigo	9069089 English oak	
18	Arnold's Red honeysuckle		9063116 black ash	
19	9063143 tatarian honeysuckle		9063148 corktree	
20	open	ND-2507 pigmy caragana	9082666 black birch	
21	323957 chokeberry		9063115 green ash	
22	ND-3744 Korean barberry		9016318 Siberian elm	
23	ND-2103 highbush cranberry	9057409 American hazel	9054820 Siberian elm	
24	Meadowlark forsythia		Streamco purpleosier willow	
25	Hedge King honeysuckle		ND-170 cotoneaster	
26	ND-2506 Maxim. caragana	Legacy late lilac	9005399 blueleaf honeysuckle	
27	open	open	Silver Sands sandbar willow	

Key to Table 2. Plant data.

PLOT LOCATION = plot location of the plant material within the evaluation

ACCESSION NUMBER = any accession number, PI number or cultivar name assigned to the plant material

PLANT SYMBOL = plant symbol of the genus and species

GENUS/SPECIES = common name and scientific name of the plant material

ORIGIN/SOURCE = origin and/or source of the plant material

TRANS DATE = month and day the plant material was transplanted at the evaluation site

YR PLT = year the plant materials were transplanted at the evaluation site

YR REC = year of record

MATL PLTD = type of material planted, PLBR = bareroot, CONT = containerized

NO PLTS = number of plants planted in the plot

NO SRV = number of plants surviving

PCT SRV = percent of plants surviving

VI = plant vigor (1=excellent, 3=good, 5=fair, 7=poor, 9=very poor)

CAN COV (ft) = canopy cover measured in feet

PLT HT (ft) = plant height measured in feet

Table 2. Plant data.

Project No.: 38I315K Field Evaluation of Woody Plant Materials, Highmore, South Dakota

Year of Record: 2002

<u>PLOT</u>	<u>ACCESSION</u>	<u>PLANT</u>	<u>GENUS/SPECIES</u>	<u>TRANS</u>	<u>YR</u>	<u>YR</u>	<u>MATL</u>	<u>NO</u>	<u>NO</u>	<u>PCT</u>	<u>CAN</u>	<u>PLT</u>		
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
												(ft)	(ft)	
I/01/1-5	SD-13	FRPE	green ash	11-Apr	78	78	PLBR	5	5	100	2	0.6	2.1	
	9005888		<i>Fraxinus pennsylvanica</i>			79			5	100		0.8	2.6	
			Potter Co., Gettysburg, ND			80			5	100		1.6	3.3	
						82			5	100		5.7	6.9	
						83			5	100		7.6	8.3	
						84			5	100		6.5	9.4	
						87			5	100		13.1	14.8	
						92			5	100		15.4	19.1	
						97			5	100	2	15.7	23.3	
						02			5	100	3	1.0	28.5	
I/01/6-10	SD-156	FRPE	green ash	11-Apr	78	78	PLBR	5	5	100	1	0.1	2.0	
	9005890		<i>Fraxinus pennsylvanica</i>			79			5	100		0.9	2.6	
			Deuel Co., Clear Lake, SD			80			5	100		2.1	3.3	
						82			5	100		6.0	8.1	
						83			5	100		8.9	9.5	
						84			5	100		8.1	11.2	
						87			5	100		14.0	16.2	
						92			5	100		17.5	19.6	
						97			5	100	2	17.2	25.6	
						02			5	100	3	15.0	28.5	
I/02/1-5	ND-1753	FRPE	green ash	21-Apr	78	78	PLBR	5	5	100	1	0.4	1.7	standard
	9005892		<i>Fraxinus pennsylvanica</i>			79			5	100		1.2	2.8	
			Gurney Seed & Nursery Co.,			80			5	100		2.3	3.7	
			Yankton, SD			82			5	100		6.5	8.2	
						83			5	100		8.9	8.8	
						84			5	100		7.7	10.1	
						87			5	100		12.7	15.3	
						92			5	100		15.8	19.2	
						97			5	100	2	19.5	24.4	
						02			5	100	4	18.0	28.5	

Project No.: 38I315K Field Evaluation of Woody Plant Materials, Highmore, South Dakota
Year of Record: 2002

<u>PLOT</u>	<u>ACCESSION</u>	<u>PLANT</u>	<u>GENUS/SPECIES</u>	<u>TRANS</u>	<u>YR</u>	<u>YR</u>	<u>MATL</u>	<u>NO</u>	<u>NO</u>	<u>PCT</u>	<u>CAN</u>	<u>PLT</u>		
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
I/02/6-10	ND-1734	FRPE	green ash	21-Apr	78	78	PLBR	5	5	100	2	0.2	1.9	standard
	9005891		<i>Fraxinus pennsylvanica</i>			79			5	100		0.6	3.2	
			Lincoln-Oakes Nursery,			80			5	100		1.7	4.5	
			Bismarck, ND			82			5	100		5.7	9.1	
						83			5	100		7.2	10.6	
						84			5	100		7.8	11.4	
						87			5	100		11.8	16.9	
						92			5	100		14.0	20.2	
						97			5	100	2	19.7	25.9	
						02			5	100	4	12.0	28.5	
I/03/1-10	Cardan	FRPE	green ash	11-Apr	78	78	PLBR	10	9	90	2	0.1	1.9	
	MDN-12002		<i>Fraxinus pennsylvanica</i>			79			10	100		0.6	2.1	
	9005895		Carlyle, MT			80			10	100		1.5	3.4	
	PI-469226		USDA, ARS, Mandan, ND			82			10	100		5.7	7.7	
						83			10	100		8.1	9.2	
						84			10	100		7.9	10.5	
						87			10	100		12.5	15.5	
						92			10	100		13.8	18.7	
						97			10	100	2	19.7	25.9	
						02			10	100	4	15.0	28.0	
I/04/1-10	ND-1759	FRPE	green ash	11-Apr	78	78	PLBR	10	10	100	1	0.2	2.0	
	9005893		<i>Fraxinus pennsylvanica</i>			79			10	100		1.0	3.0	
			PM-SD-156 X MDN-12002			80			10	100		2.0	4.4	
			USDA, SCS, PMC, Bismarck, ND			82			10	100		6.0	8.3	
						83			10	100		8.2	10.0	
						84			10	100		8.8	11.5	
						87			10	100		14.2	16.7	
						92			10	100	3	18.1	19.4	
						97			10	100	3	20.5	26.2	
						02			10	100	4	19.0	28.0	

Project No.: 38I315K Field Evaluation of Woody Plant Materials, Highmore, South Dakota
Year of Record: 2002

PLOT	ACCESSION	PLANT	GENUS/SPECIES	TRANS	YR	YR	MATL	NO	NO	PCT	CAN	PLT	REMARKS	
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u> (ft)		<u>HT</u> (ft)
I/05/1-5	ND-647 9005887	FRNI	black ash <i>Fraxinus nigra</i> Res. Sta., Morden MB, Canada	11-Apr	78	78	PLBR	5	5	100	3	0.1	0.7	
												0.3	0.8	
												0.6	1.4	
												0.6	3.0	
												2.0	5.2	
												2.5	6.3	
												7.6	11.6	
												9.0	19.6	
												12.6	22.3	
												15.0	25.2	
I/05/6-10	ND-1432 9005658	AEGL	Ohio buckeye <i>Aesculus glabra</i> Res. Sta., Morden, MB, Canada	11-Apr	78	78	PLBR	5	3	60	6	0.0	0.3	
												0.2	0.3	
												0.3	0.6	
												1.0	1.1	
												1.3	2.0	
												2.1	4.1	
												7.1	8.2	
												9.8	13.4	
												12.0	15.8	
												I/06/1-5	9063098	
1.1	2.0													
1.4	2.4													
4.2	3.8													
10.4	8.9													
11.8	13.8													
I/06/6-10	9030611	POAL	white poplar <i>Populus alba</i> Turner Co., SD	15-Apr	92	92	CONT(P)	5	0	0				excellent growth, good form, minor suckering, no disease
												2.0	2.0	
												5.7	5.0	
												12.3	15.7	
												16.3	22.8	
												24.0	31.8	

Project No.: 381315K Field Evaluation of Woody Plant Materials, Highmore, South Dakota
Year of Record: 2002

PLOT	ACCESSION	PLANT	GENUS/SPECIES	TRANS	YR	YR	MATL	NO	NO	PCT	CAN	PLT						
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>				
I/07/1-10	9063126	ULJA	Japanese elm	15-Apr	92	92	CONT(P)	10	7	70		1.3	1.7					
			<i>Ulmus japonica</i>									93	7		70	3	2.0	1.8
			Manchuria									94	7		70	4	3.0	2.9
			PFRA, Indianhead, Saskatchewan									96	7		70	4	3.2	3.8
												98	6		60	7	3.5	4.5
												01	3		60	6	7.5	13.8
I/08/1-5	ND-465 9005971	JUNI	black walnut	11-Apr	78	78	PLBR	5	3	60	4	0.1	0.6					
			<i>Juglans nigra</i>									79	2		40		0.3	0.6
			Res. Sta., Morden, MB, Canada									80	5		100		0.3	0.7
												82	5		100		2.8	2.7
												83	5		100		4.1	4.1
												84	5		100		5.9	6.3
												87	5		100		12.4	11.8
												92	5		100		16.9	16.0
												97	5		100	2	20.5	22.0
	02	5	100	4	24.0	21.5												
I/08/6-10	ND-1755 9005972	JUNI	black walnut	21-Apr	78	78	PLBR	5	4	80	6	0.3	3.1	standard				
			<i>Juglans nigra</i>									79	1		20		0.2	1.5
			Gurney Seed & Nursery Co.,									80	1		20		1.5	1.6
												82	1		20		5.9	6.4
												83	1		20		10.2	6.9
												84	1		20		11.8	9.5
												87	1		20		17.9	16.2
												92	1		20		23.0	24.0
												97	2		40	2	33.5	26.2
	02	2	40	2	36.0	30.0												
I/09/1-10	9063127	FRAM	white ash		92	92	PLBR	10	10	100		0.9	1.7					
			<i>Fraxinus americana</i>									93	10		100	5	0.9	1.6
			Wisconsin									94	10		100	6	1.3	2.0
			Lincoln-Oakes Nursery, Bismarck, ND									96	4		40	7	0.8	2.4
												98	3		30		2.4	3.7
												01	0		0			

Project No.: 381315K Field Evaluation of Woody Plant Materials, Highmore, South Dakota
Year of Record: 2002

<u>PLOT</u>	<u>ACCESSION</u>	<u>PLANT</u>	<u>GENUS/SPECIES</u>	<u>TRANS</u>	<u>YR</u>	<u>YR</u>	<u>MATL</u>	<u>NO</u>	<u>NO</u>	<u>PCT</u>	<u>CAN</u>	<u>PLT</u>	<u>REMARKS</u>	
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>		<u>HT</u>
I/10/1-10	9069087	ACNE	boxelder <i>Acer negundo</i> Lincoln-Oakes Nursery, Bismarck, ND	19-Apr	93	93	PLBR	10	10	100	4	0.5	1.5	
						94		10	100	7	0.8	1.7		
						95		10	100	5	1.0	2.0		
						97		9	90	4	2.9	3.7		
						99		9	90		5.2	5.4		
						02		8	80	7	5.4	6.1		
I/11/1-5	Raverdeau 9069085	POPUL	hybrid poplar <i>Populus</i> Lee Nursery, Fertile, MN	19-Apr	93	93	PLBR	5	4	80	4	1.0	2.3	
						94		4	80	4	7.3	8.9		
						95		4	80	4	11.5	17.4		
						97		5	100	2	15.4	28.3		
						99		4	80	3	23.4	35.4		
I/11/6-10	Walker 9063146	POPUL	hybrid poplar <i>Populus</i> PFRA, Indianhead, Saskatchewan	19-Apr	93	93	PLBR	5	5	100	5	0.7	1.0	
						94		8	80	6	5.0	7.4		
						95		5	100	4	7.0	10.6		
						97		5	100	6	7.4	14.8		
						99		5	100	5	11.9	22.2		
I/12/1-5	Assiniboine 9063147	POPUL	hybrid poplar <i>Populus</i> PFRA, Indianhead, Saskatchewan	19-Apr	93	93	PLBR	5	3	60	6	0.7	1.5	deer rub and girdled on 2
						94		4	80	6	3.9	4.9		
						95		5	100	4	5.1	9.1		
						97		5	100	5	8.0	14.0		
						99		4	80	3	9.1	20.2		
I/12/6-10	Theves 9069086	POPUL	hybrid poplar <i>Populus</i> Lee Nursery, Fertile, MN	19-Apr	93	93	PLBR	5	5	100	2	1.8	4.7	
						94		5	100	2	5.2	11.4		
						95		5	100	3	7.6	18.7		
						97		5	100	2	10.2	27.8		
						99		5	100	3	7.7	31.2		
02		4	80	7	4.9									

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<u>PLOT</u>	<u>ACCESSION</u>	<u>PLANT</u>	<u>GENUS/SPECIES</u>	<u>TRANS</u>	<u>YR</u>	<u>YR</u>	<u>MATL</u>	<u>NO</u>	<u>NO</u>	<u>PCT</u>		<u>CAN</u>	<u>PLT</u>	
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
I/13/1-10	ND-1737 9006099	QUMA2	bur oak <i>Quercus macrocarpa</i> Lincoln-Oakes Nursery, Bismarck, ND	21-Apr	78	78	CONT	10	10	100	4	0.1	0.9	
						79			9	90		0.1	0.5	
						80			5	50		0.2	0.3	
						82			9	90		1.0	1.7	
						83			9	90		2.2	2.8	
						84			9	90		2.8	4.4	
						86			9	90	3	4.9	6.5	
						88			9	90	3	6.7	8.8	
						93			9	90	3	9.8	14.4	
						97			9	90	2	14.8	19.0	
I/14/1-5	9069090	POTR	quaking aspen <i>Populus tremuloides</i> Lee Nursery, Fertile, MN	19-Apr	93	93	PLBR	5	5	100	3	1.0	2.1	
						94			5	100	3	2.2	3.3	
						95			5	100	4	3.1	5.7	
						97			5	100	4	3.6	4.1	
						99			3	60	7	2.6	2.6	
						02								
I/15/1-10	ND-1879 9011850 PI-503531	GLTR	honeylocust <i>Gleditsia triacanthos</i> Great Plains Field Sta. Woodward, OK USDA, ARS, Mandan, ND	16-Apr	80	80	PLBR CONT	10	9	90		1.2	2.3	
						81			10	100		2.3	3.4	
						82			10	100		5.2	6.7	
						83			10	100		6.9	10.3	
						84			10	100		8.5	13.8	
						86			10	100		12.2	16.7	
						87			10	100		13.8	18.2	
						89			10	100		14.6	20.8	
						94			10	100	3	19.4	24.6	
						99			10	100	2	23.5	28.7	

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<u>PLOT</u>	<u>ACCESSION</u>	<u>PLANT</u>	<u>GENUS/SPECIES</u>	<u>TRANS</u>	<u>YR</u>	<u>YR</u>	<u>MATL</u>	<u>NO</u>	<u>NO</u>	<u>PCT</u>	<u>CAN</u>	<u>PLT</u>	<u>REMARKS</u>	
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>		<u>HT</u>
I/16/1-10	Oahe	CEOC	hackberry	16-Apr	80	80	PLBR	10	10	100		0.5	2.1	
	MDN-12003		<i>Celtis occidentalis</i>			81			10	100		2.8	2.9	
	9005725		USDA, ARS, Mandan, ND			82			10	100		4.8	5.2	
	PI-476982					83			10	100		8.3	7.7	
						84			10	100		8.2	9.9	
						86			10	100	4	11.9	14.0	
						89			10	100	1	14.9	16.8	
						94			10	100	3	15.0	20.2	
						99			10	100	2	16.0	28.2	
I/17/1-5	SD-75	CEOC	hackberry	14-Apr	81	81	PLBR	5	4	80		1.2	1.6	
	9005713		<i>Celtis occidentalis</i>			82			5	100		4.2	3.7	
			Potter Co., SD			83			5	100		7.4	7.3	
						84			5	100		7.1	8.4	
						85			5	100	2	9.6	9.9	
						87			5	100		13.6	14.0	
						90			5	100	3	14.4	20.6	
						95			5	100	1	16.4	23.8	
						01			5	100	2	18.0	28.0	
I/17/6-10	SD-211	CEOC	hackberry	14-Apr	81	81	PLBR	5	5	100		1.6	1.2	
	9005714		<i>Celtis occidentalis</i>			82			5	100		4.7	3.3	
			Sanborn Co., SD			83			5	100		8.4	7.1	
						84			5	100		7.7	9.1	
						85			5	100		11.9	10.4	
						87			5	100		16.6	16.2	
						90			5	100		16.6	21.6	
						95			5	100	3	20.0	22.3	
						01			5	100		12.6	28.5	

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<u>PLOT</u>	<u>ACCESSION</u>	<u>PLANT</u>	<u>GENUS/SPECIES</u>	<u>TRANS</u>	<u>YR</u>	<u>YR</u>	<u>MATL</u>	<u>NO</u>	<u>NO</u>	<u>PCT</u>	<u>CAN</u>	<u>PLT</u>	<u>REMARKS</u>	
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>		<u>HT</u>
I/18/1-5	ND-1863 9005909	GLTR	honeylocust <i>Gleditsia triacanthos</i> Brown Co., SD USDA, SCS, PMC, Bismarck, ND	23-Apr	82	82	PLBR	5	5	100		2.3	2.3	
						83			5	100		6.5	7.0	
						84			3	60		4.8	5.9	
						86			3	60	5	9.4	7.5	
						87			3	60		12.9	13.9	
						88			3	60	2	13.1	16.2	
						91			3	60	2	15.8	21.0	
						96			3	60	4	16.0	28.2	
						01			3	60	4	15.0	34.0	
I/18/6-10	9047231	ELAN	Russian olive <i>Elaeagnus angustifolia</i> Chinle, AZ USDA, SCS, PMC, Bismarck, ND	26-Apr	88	88	CONT	5	2	40	8	0.3	0.8	
						90			3	60	2	2.0	2.0	
						92			2	40	2	4.8	5.2	
						94			2	40	5	9.7	9.8	
						97			2	40	6	15.2	12.6	canker on 5
I/19/1-5	ND-3773 9021576	SALIX	willow <i>Salix</i> Norman Co., MN USDA, SCS, PMC, Bismarck, ND	23-Apr	82	82	PLBR	5	5	100		2.6	3.9	
						83			5	100		7.2	7.3	
						84			5	100		9.5	10.6	
						86			5	100	2	15.0	15.2	
						88			5	100	2	18.5	18.4	
						91			5	100	1	20.7	18.2	
						96			5	100	3	25.6	25.6	
						01			4	80	8	31.8	20.0	
I/19/6-10	Mich-433 9005049	SAPE4	laurel willow <i>Salix pentandra</i> USDA, SCS, PMC, Rose Lake, MI	23-Apr	82	82	PLBR	5	4	80		3.1	3.9	
						83			5	100		6.8	6.6	
						84			5	100		8.8	10.4	
						86			5	100	3	15.6	15.1	
						88			3	60	4	19.6	19.8	
						91			2	40	2	24.3	20.5	
						96			2	40	2	27.2	26.6	
						01			1	20	6	15.0	3.5	

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PLOT	ACCESSION	PLANT	GENUS/SPECIES	TRANS	YR	YR	MATL	NO	NO	PCT	CAN	PLT		
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
I/20/1-5	ND-428 9005970	JUNI	black walnut <i>Juglans nigra</i> USDA, SCS, PMC, Bismarck, ND	23-Apr	85	85	PLBR	5	5	100	4	0.3	0.7	
									4	80	3	1.3	1.2	
									4	80		2.8	2.2	
									4	80	2	3.7	3.3	
									4	80	3	4.5	4.6	
									3	60	5	9.4	11.3	
I/20/6-10	ND-3825 9034904	ACSA2	silver maple <i>Acer saccharinum</i> Bismarck, ND	22-Apr	86	86	PLBR	5	5	100	2	1.9	3.3	
									5	100		4.0	4.5	
									5	100	3	5.6	5.8	
									5	100	4	9.8	9.6	
									5	100	4	13.5	15.4	
									5	100	5	24.9	22.4	all double leaders, poor form
	5	100	3	21.6	28.5									
I/21/1-5	9058869 14271	PDXP8	poplar <i>Populus deltoides x P. nigra</i> USDA, ARS, Mandan, ND	19-Apr	90	90	PLBR	5	5	100	4	2.3	3.9	
									5	100	2	5.0	8.4	
									5	100	2	7.6	13.0	
									5	100	2	10.2	21.9	
									5	100	3	12.9	27.8	
									5	100	3	14.3	39.3	
I/21/6-10	Prairie Sky 9058870 14272	PDXP8	poplar <i>Populus deltoides x P. nigra</i> USDA, ARS, Mandan, ND	19-Apr	90	90	PLBR	5	5	100	3	3.1	5.2	
									5	100	1	5.6	11.9	
									5	100	2	8.6	16.7	
									5	100	1	10.5	27.5	
									5	100	1	12.9	34.1	
									5	100	3	17.3	45.9	
I/22/1-5	9058871 14273	PDXP8	poplar <i>Populus deltoides x P. nigra</i> USDA, ARS, Mandan, ND	19-Apr	90	90	PLBR	5	5	100	5	2.2	3.3	
									5	100	3	5.2	7.8	
									5	100	3	8.6	11.6	
									5	100	4	12.0	22.0	
									5	100	3	13.8	28.0	canker on all
									5	100	3	17.8	36.2	

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
I/22/6-10	9058872	PDXP8	poplar	19-Apr	90	90	PLBR	5	5	100	3	3.2	4.2	
	14274		<i>Populus deltoides x P. nigra</i>			91			5	100	3	5.3	9.1	leaf spot on all
			USDA, ARS, Mandan, ND			92			5	100	1	9.5	13.8	
						94			5	100	3	13.2	23.6	
						96			5	100	3	14.4	31.0	
						99			5	100	3	16.7	34.4	
I/23/1-5	CanAm	POPUL	poplar	19-Apr	90	90	PLBR	5	5	100	3	4.4	5.3	
	9058873		<i>Populus</i>			91			5	100	2	8.1	11.7	
	14390		USDA, ARS, Mandan, ND			92			5	100	2	10.6	15.6	
						94			5	100	4	13.8	21.0	
						96			5	100	4	15.1	24.7	
						99			3	60	3	19.9	41.7	1 blown down, 2 trunk split
I/24/1-5	9058896		Austree	19-Apr	90	90	PLBR	5	4	80	2	5.0	6.6	
	Clone C		<i>Salix matsudana x alba</i>			91			5	100	2	8.0	10.9	
			Austree Inc., Pescadero, CA			92			4	80	6	9.5	8.9	
						94			4	80	3	18.2	18.0	
						96			4	80	6	18.8	24.1	severe dieback on 1,2
						99			4	80	4	29.5	29.5	multi-stemmed
I/24/6-10	9058897		Austree	19-Apr	90	90	PLBR	5	4	80	5	3.6	5.1	
	Clone E		<i>Salix matsudana x alba</i>			91			4	80	2	7.5	11.2	
			Austree, Inc., Pescadero, CA			92			4	80	6	9.9	10.4	
						94			4	80	3	17.9	19.7	
						96			4	80	3	20.3	26.2	
						99			4	80	4	29.5	29.5	
I/25/1-5	9058899		Austree	18-Apr	91	91	PLBR	5	5	100	3	6.4	7.1	
			<i>Salix matsudana x alba</i>			92			4	80	4	6.6	7.5	
			Austree Inc., Pescadero, CA			94			4	80	3	15.7	18.3	
						96			4	80	6	19.8	22.3	dieback on 2,3,5
						00			4	80	6	16.0	35.3	dieback multi-stems

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<u>PLOT</u>	<u>ACCESSION</u>	<u>PLANT</u>	<u>GENUS/SPECIES</u>	<u>TRANS</u>	<u>YR</u>	<u>YR</u>	<u>MATL</u>	<u>NO</u>	<u>NO</u>	<u>PCT</u>	<u>CAN</u>	<u>PLT</u>		
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
I/25/6-10	9063100 Clone #3		Austree	23-May	91	91	PLBR	5	5	100		5.7	7.2	
			<i>Salix matsudana x alba</i>		92			4	80	3	8.2	9.5		
			Austree Inc., Pescadero, CA		94			4	80	3	16.7	20.9		
					96			4	80	4	17.7	26.5		
					97			4	80	1	19.4	32.2		
					00			4	80	6	17.5	39.5		
I/26/6-10	9039340	PODE	plains cottonwood	23-May	91	91	PLBR	5	3	60	3	1.6	4.5	all are multi-stemmed
			<i>Populus deltoides</i>		92			4	80	4	3.7	4.2		
			USDA, SCS, PMC, Bridger, MT		93			3	60	5	7.8	9.4		
					95			3	60	3	14.3	20.1		
					97			3	60		16.7	29.0		
					00			3	60	4	13.0	38.0		
I/27/1-5	9057965	POBA	balsam poplar	23-May	91	91	PLBR	5	5	100	4	3.1	3.9	plts 2-4 have poor form
			<i>Populus balsamifera</i>		92			5	100	3	5.9	5.5		
			USDA, SCS, PMC, Bridger, MT		93			5	100	4	8.5	8.9		
					95			2	40	5	9.8	12.3		
					97			2	40	5	11.2	12.9		
					00			1	20	8	4.6	8.1		
I/27/6-10	9063141	PODE	native cottonwood	19-Apr	93	93	PLBR	5	5	100	5	2.9	3.5	
			<i>Populus deltoides</i>		94			4	80	4	6.7	7.0		
			Lincoln-Oakes Nursery, Bismarck, ND		95			4	80	4	8.7	11.4		
					97			4	80	4	11.1	15.7		
					99			4	80	4	14.8	18.8		
					02			4	80	4	11.2	25.5		

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II/01/1-10	Midwest	MAMA37	Manchurian crabapple	11-Apr	78	78	PLBR	10	10	100	4	0.7	1.4	
	9006003		<i>Malus mandshurica</i>			79			9	90		1.8	2.6	
	PI-478000		Echo, Manchuria/Res. Sta., Morden, MB, Canada			80			10	100		3.2	3.1	
			USDA, SCS, PMC, Bismarck, ND			82			10	100		8.3	7.4	
						83			10	100		10.6	8.9	
						84			10	100		11.5	9.9	
						87			10	100		16.5	12.2	
						92			10	100	3	18.6	13.8	
						97			10	100	2	19.0	19.0	fireblight on 2
						02			10	100	3	24.0	20.0	
II/2/02/1-5	Red Splendor	MABA	flowering crabapple	21-Apr	78	78	PLBR	5	5	100	2	1.1	2.0	standard
	9006004		<i>Malus X</i>			79			5	100		2.5	3.2	
			Lee Nursery, Fertile, MN			80			5	100		3.4	4.2	
						82			5	100		8.2	8.5	
						83			5	100		11.2	10.3	
						84			5	100		11.0	11.5	
						87			5	100		15.2	12.7	
						92			5	100	3	16.4	15.0	
						97			5	100	2	17.4	19.9	
						02								
II/02/6-10	ND-1731	MABA	Siberian crabapple	21-Apr	78	78	PLBR	5	5	100	3	0.8	1.9	
	9006001		<i>Malus baccata</i>			79			5	100		2.0	3.1	
			Lincoln-Oakes Nursery, Bismarck, ND			80			5	100		3.1	4.2	
						82			5	100		7.1	8.5	
						83			5	100		9.4	10.6	
						84			5	100		9.8	11.5	
						87			5	100		16.3	13.5	
						92			5	100	2	16.4	15.7	
						97			5	100	2	17.4	18.8	
						02			5	100	5	15.0	24.2	

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
												(ft)	(ft)	
II/03/1-10	McDermand	PYUS*	Ussurian pear	11-Apr	78	78	PLBR	10	10	100	3	0.5	1.8	
	ND-14		<i>Pyrus ussuriensis</i>			79			10	100		1.4	3.2	
	9006095		Harbin, Manchuria/Res. Sta.			80			10	100		2.5	3.8	
	PI-478004		Morden, MB, Canada			82			10	100		5.6	8.3	
			USDA, SCS, PMC, Bismarck, ND			83			10	100		7.8	10.4	
						84			10	100		9.1	11.6	
						87			10	100		11.7	14.2	
						88			10	100	3	12.0	16.3	
						92			10	100	3	15.1	16.9	
						97			10	100	2	15.1	21.4	snow damage on all
						02			10	100	3	19.0	25.5	
II/04/1-5	SD-132	PRAR3	apricot	11-Apr	78	78	PLBR	5	5	100	1	1.4	2.7	
	9006064		<i>Prunus armeniaca</i>			79			5	100		3.9	4.8	
			Brookings Co., Brookings, SD			80			5	100		4.8	5.8	
			USDA, SCS, PMC, Bismarck, ND			82			5	100		11.4	11.2	
						83			4	80		13.7	12.9	
						84			5	100		13.9	11.9	
						87			5	100		16.4	13.5	
						92			5	100	4	18.6	17.3	
						97			5	100	3	5.7	19.4	severe snow damage removed 2000
						02								
II/04/6-10	SD-133	PRAR3	apricot	11-Apr	78	78	PLBR	5	4	80	2	1.8	3.3	
	9006065		<i>Prunus armeniaca</i>			79			5	100		4.3	4.9	
			Brookings Co., Brookings, SD			80			5	100		5.1	5.8	
			USDA, SCS, PMC, Bismarck, ND			82			5	100		12.5	10.9	
						83			5	100		15.2	12.6	
						84			5	100		16.4	13.6	
						87			4	80		19.5	15.0	
						92			5	100	4	21.1	17.7	
						97			5	100	3	23.0	21.3	severe snow damage removed 2000
						02								

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
												(ft)	(ft)	
II/05/1-5	SD-134	PRAR3	apricot	11-Apr	78	78	PLBR	5	5	100	3	1.5	2.4	
	9006066		<i>Prunus armeniaca</i>			79			5	100		3.3	4.3	
			Brookings Co., Brookings, SD			80			5	100		4.4	5.3	
			USDA, SCS, PMC, Bismarck, ND			82			5	100		10.3	10.0	
						83			5	100		14.5	12.0	
						84			5	100		14.1	13.0	
						87			5	100		17.1	14.6	
						92			5	100	3	19.1	18.8	
						97			5	100	2	0.0	21.7	severe snow damage
						02								removed 2000
II/05/6-10	Mantoy	PRAR3	apricot	11-Apr	78	78	PLBR	5	3	60	2	2.2	3.4	
	9006069		<i>Prunus armeniaca</i>			79			5	100		3.6	4.7	
			Brookings Co., Brookings, SD			80			5	100		4.7	5.7	
			USDA, SCS, PMC, Bismarck, ND			82			5	100		10.4	10.2	
						83			5	100		12.4	12.4	
						84			4	80		12.4	12.7	
						87			4	80		16.9	14.0	
						92			5	100	4	15.4	16.9	
						97			5	100	3	11.5	21.1	
						02								removed 2000
II/06/1-5	Morden	PRAR3	apricot	11-Apr	78	78	PLBR	5	3	60	3	1.0	2.4	
	9006063		<i>Prunus armeniaca</i>			79			4	80		3.4	3.7	
			Brookings Co., Brookings, SD			80			4	80		4.4	5.1	
			USDA, SCS, PMC, Bismarck, ND			82			4	80		9.1	10.8	
						83			4	80		11.9	12.2	
						84			4	80		13.6	13.2	
						87			4	80		15.2	14.2	
						92			4	80	4	15.2	18.8	
						97			4	80	2	10.2	23.6	snow damage on 1,3
						02								removed 2000

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>			
II/06/6-10	ND-1178 9006070	PRAR3	apricot	11-Apr	78	78	PLBR	5	3	60	3	1.3	2.4				
			<i>Prunus armeniaca</i>									79	4	80	3.5	4.2	
			Walsh Co., Park River, ND									80	4	80	3.7	5.7	
												82	4	80	9.9	9.8	
												83	4	80	9.5	12.6	
												84	3	60	12.7	11.3	
												87	3	60	17.3	14.4	
												92	3	60	3	17.6	17.5
												97	3	60	3	17.0	19.6
												02					
II/07/1-5	ND-416 9006067	PRAR3	apricot	11-Apr	78	78	PLBR	5	5	100	2	1.9	3.1				
			<i>Prunus armeniaca</i>									79	5	100	3.9	4.5	
			Burleigh Co., Bismarck, ND									80	5	100	4.8	5.6	
			USDA, SCS, PMC, Bismarck, ND									82	5	100	11.5	10.2	
												83	5	100	15.1	11.8	
												84	5	100	16.0	12.5	
												87	5	100	17.7	13.8	
												92	5	100	4	19.7	17.5
												97	5	100	3	17.0	21.3
												02					
II/07/6-10	ND-423 9006068	PRAR3	apricot	11-Apr	78	78	PLBR	5	5	100	2	1.7	3.0				
			<i>Prunus armeniaca</i>									79	5	100	3.4	4.6	
			Stark Co., ND									80	5	100	4.3	5.5	
			USDA, SCS, PMC, Bismarck, ND									82	5	100	8.9	11.1	
												83	5	100	12.0	12.8	
												84	5	100	13.8	13.6	
												87	5	100	16.7	14.9	
												92	5	100	4	20.4	18.2
												97	5	100	1	29.5	22.6
												02					

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
II/09/1-5	ND-1751 9006091	PRVI	chokecherry	21-Apr	78	78	PLBR	5	5	100	5	0.3	1.0	standard
			<i>Prunus virginiana</i>			79	5			100		1.1	2.2	
			Plumfield Nursery Inc., Fremont, NE			80	5			100		3.2	3.5	
			82			5	100			5.7		6.8		
			83			5	100			8.6		9.2		
			84			5	100			9.4		10.3		
			87			5	100			13.9		12.1		
			92			5	100			3		17.3	15.9	
			97			5	100			4		19.7	18.7	
			02			3	60			3		27.0	22.2	
II/09/6-10	ND-1732 9006090	PRVI	chokecherry	21-Apr	78	78	PLBR	5	5	100	2	0.4	1.8	standard
			<i>Prunus virginiana</i>			79	5			100		1.8	2.9	
			Lincoln-Oakes Nursery, Bismarck, ND			80	5			100		3.0	4.6	
			82			5	100			6.7		8.2		
			83			5	100			9.7		10.4		
			84			5	100			9.9		11.3		
			87			5	100			13.9		13.1		
			92			5	100			2		19.3	18.6	
			97			5	100			2		20.3	19.5	
			02			5	100			3		27.0	21.5	
II/10/1-5	Schubert 9012608	PRVI	chokecherry	11-Apr	78	78	PLBR	5	5	100	3	0.5	1.4	
			<i>Prunus virginiana</i>			79	5			100		1.0	2.1	
			USDA, ARS, Mandan, ND			80	4			80		2.6	3.2	
			USDA, SCS, PMC, Bismarck, ND			82	4			80		5.1	6.5	
			83			4	80			7.2		8.6		
			84			5	100			1		6.8	8.1	
			87			4	80			13.3		11.6		
			92			5	100			3		14.4	14.3	
			97			5	100			2		15.7	19.0	
			02			5	100			3		21.0	20.0	

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
												(ft)	(ft)	
II/10/6-10	ND-1733 9006060	PRAM	American plum <i>Prunus americana</i> Lincoln-Oakes Nursery, Bismarck, ND	21-Apr	78	78	PLBR	5	4	80	3	0.5	1.7	standard
						79			5	100		2.0	3.1	
						80			5	100		4.3	4.2	
						82			5	100		8.8	6.9	
						83			5	100		12.3	8.9	
						84			5	100		12.7	9.5	
						87			5	100		15.7	9.3	
						92			5	100	3	16.9	11.4	
						97			5	100	2	21.3	17.4	
						02			5	100	3	14.5	19.5	
II/11/1-5	Manet ND-286 9006057	PRAM	American plum <i>Prunus americana</i> Lincoln-Oakes Nursery, Bismarck, ND USDA, SCS, PMC, Bismarck, ND	11-Apr	78	78	PLBR	5	5	100	5	0.6	1.7	
						79			5	100		1.7	3.5	
						80			5	100		3.3	4.4	
						82			5	100		8.3	8.1	
						83			5	100		11.5	8.4	
						84			5	100		11.3	9.2	
						87			5	100		14.8	9.7	
						92			5	100	5	15.0	10.6	
						97			5	100	3	16.5	13.6	
						02			4	80	5	18.0	12.5	
II/11/6-10	ND-288 9006059	PRAM	American plum <i>Prunus americana</i> SD Selection/Ft. Lincoln Nursery, Bismarck, ND USDA, SCS, PMC, Bismarck, ND	11-Apr	78	78	PLBR	5	5	100	4	0.8	1.8	
						79			5	100		1.9	3.4	
						80			5	100		3.7	4.5	
						82			5	100		8.0	7.7	
						83			5	100		11.5	8.8	
						84			5	100		12.0	9.6	
						87			5	100		15.2	9.9	
						92			5	100	3	15.6	11.0	
						97			5	100	2	19.7	14.8	

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u> (ft)		<u>HT</u> (ft)
II/13/1-5	ND-629 9005645 477992	ACGI	amur maple <i>Acer ginnala</i> Res. Sta., Morden, MB, Canada USDA, SCS, PMC, Bismarck, ND	11-Apr	78	78	PLBR	5	5	100	2	1.8	2.6	
												4.2	3.4	
												6.5	5.3	
												11.4	9.5	
												11.4	11.7	
												16.0	13.3	
												21.7	16.7	
												23.9	19.5	
												29.5	25.2	
												35.0	25.0	
II/13/6-10	Flame 9005157 PI-483442	ACGI	amur maple <i>Acer ginnala</i> USDA, SCS, PMC, Elsberry, MO	11-Apr	78	78	PLBR	5	5	100	5	0.6	1.5	
												1.9	2.5	
												3.3	3.2	
												7.3	7.6	
												10.7	9.7	
												12.6	10.6	
												17.5	13.5	
												19.0	15.8	
												21.6	21.9	
												27.0	24.0	
II/14/1-10	ND-1752 9005646	ACGI	amur maple <i>Acer ginnala</i> Gurney Seed & Nursery Co., Yankton, SD	21-Apr	78	78	PLBR	10	10	100	4	0.8	1.5	standard
												2.1	2.4	
												3.6	3.4	
												7.0	6.8	
												10.0	8.4	
												11.1	9.2	
												14.3	13.4	
												15.9	13.6	
												16.3	20.6	
												18.0	21.0	

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u> (ft)		<u>HT</u> (ft)
II/15/1-5	ND-1873 9005648	ACGI	amur maple	17-Apr	79	79	PLBR	5	5	100		1.0	1.6	
			<i>Acer ginnala</i>			80		5	100		2.1	2.3		
			Lincoln-Oakes Nursery, Bismarck, ND			81		5	100		3.9	3.6		
						83		5	100		8.9	7.2		
						84		5	100		10.6	8.6		
						85		5	100	2	11.7	9.4		
						87		5	100		15.8	12.6		
						93		5	100	3	19.1	14.6		
	98		5	100	3	22.3	18.3							
II/15/6-10	ND-686 9006225 PI-478008	SYPE*	Pekin lilac	17-Apr	79	79	PLBR	5	2	40		0.1	1.0	
			<i>Syringa pekinensis</i>			80		1	20		0.3	0.7		
			USDA, SCS, PMC, Bismarck, ND			81		2	40		1.7	2.0		
						83		2	40		5.8	3.9		
						84		3	60	3	3.5	3.1		
						85		3	60		6.4	5.5		
						88		3	60	2	9.1	7.9		
						93		3	60	3	11.1	11.2		
	98		3	60		15.2	15.2							
II/16/1-5	9063131	ACSA	sugar maple	19-Apr	93	93	CONT(P)	5	5	100	5	0.4	1.0	
			<i>Acer saccharum</i>			94		5	100	7	0.4	1.1		
			Sieche Hollow, SD			95		3	60	7	0.3	1.4		
			Smith Nursery, Charles City, IA			97		2	40	6	1.1	2.5		
						99		1	20	8	1.1	2.8		
						02							gone	
II/16/6-10	9049970	PRAN	chickasaw plum	19-Apr	90	90	PLBR	5	4	80	4	1.0	1.3	
			<i>Prunus angustifolia</i>			91		2	80	2	2.8	3.1		
			USDA, SCS, PMC, Manhattan, KS			92		2	80	2	5.1	4.8		
						94		4	80	6	5.6	4.7		
						96		1	20	9	5.1	4.8		
						99		1	20		6.7	3.8		

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>		<u>HT</u>
II/17/1-5	ND-624 9006094	PTTR	common hoptree	23-Apr	82	82	PLBR	5	5	100		0.9	1.9	
			<i>Ptelea trifoliata</i>		83			5	100		2.7	3.3		
			Ramsey Co., ND		84			5	100		5.0	5.1		
			USDA, SCS, PMC, Bismarck, ND		86			5	100	4	10.2	7.4		
					88			5	100	3	10.4	9.6		
					96			5	100	2	20.4	14.8		
					01			5	100	3	21.0	20.0		
II/17/6-10	514677		American plum	19-Apr	90	90	PLBR	5	5	100	2	2.1	3.1	
			<i>Prunus americana</i>		91			5	100	2	4.9	5.6		
			USDA, SCS, PMC, Manhattan, KS		92			5	100	2	7.8	7.5		
					94			5	100	1	14.6	9.2		
					96			5	100	3	15.4	10.8	1 shaded, some dieback on 2, hvy suckering between rows	
	99			5	100	4	19.7	10.7						
II/18/1-10	Roselow Mich-1339 9005026	MASA*	Sargent crabapple	27-Apr	83	83	PLBR	10	10	100		0.6	1.2	
			<i>Malus sargentii</i>		84			10	100		1.5	1.7		
			USDA, SCS, PMC, Roselake, MI		85			10	100	4	2.6	1.9		
					87			10	100		4.1	3.7		
					89			10	100		6.3	4.6		
					92			10	100	6	8.6	5.9		
					97			10	100	4	10.5	7.7		
	02			10	100	4	319.0	236.0						
II/19/1-10	9069081	TICO	littleleaf linden	19-Apr	93	93	PLBR	10	10	100	3	1.4	1.7	
			<i>Tilia cordata</i>		94			10	100	4	3.5	3.6		
			Lee Nursery, Fertile, MN		95			10	100	3	4.1	5.9		
					97			10	100	2	8.2	10.4		
					99			10	100	2	12.1	13.8		
					02			9	90	4	14.0	15.5		

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II/20/1-10	Homestead ND-19 9005731	CRAN6	arnold hawthorn <i>Crataegus X anomala</i> Morden, MB, Canada	23-Apr	84	84	CONT	10	10	100		0.3	0.8	
						85		10	100	2	0.9	1.4		
						86		10	100	3	2.0	3.0		
						87		10	100		3.1	4.3		
						88		10	100	2	4.3	5.2		
						90		10	100	3	6.9	7.9	aphid damage	
						93		10	100	1	10.1	10.7		
98		10	100	3	13.5	13.5	severe leaf rust							
II/21/1-10	ND-1134 9047203	PRUNU	hybrid plum <i>Prunus</i> Miller, SD USDA, SCS, PMC, Bismarck, ND	23-Apr	85	85	PLBR	10	6	60	6	1.0	2.1	
						86		7	70	4	3.1	3.9		
						87		7	70		5.3	5.8		
						89		7	70	3	8.8	7.7		
						91		7	70	1	12.0	9.2	dieback on #3	
						94		6	60	3	14.2	10.1		
99		6	60		11.3	11.0								
II/22/1-10	SD-131 9006073 PI-536048	PRPA	mayday <i>Prunus padus</i> Brookings, SD USDA, SCS, PMC, Bismarck, ND	23-Apr	85	85	PLBR	10	10	100	2	0.8	2.1	
						86		10	100	3	2.1	3.3		
						87		10	100		3.5	5.2		
						89		10	100	2	6.1	7.5		
						91		10	100	2	9.0	9.1	no black knot	
						94		10	100	3	13.8	12.5		
99		10	100	4	21.0	16.6	black knot							
II/23/1-10	ND-2102 9036029	PRAR3	apricot <i>Prunus armeniaca</i> Hand Co., SD USDA, SCS, PMC, Bismarck, ND	22-Apr	86	86	PLBR	10	10	100		2.1	3.7	
						87		10	100		3.9	5.9		
						88		10	100	3	6.1	8.0		
						90		10	100	3	9.7	10.7		
						92		10	100	3	11.6	13.6		
						96		10	100	3	16.8	15.6	herbicide damage 2, canker 4	
00		10	100	4	20.5	18.1								

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PLOT	ACCESSION	PLANT	GENUS/SPECIES	TRANS	YR	YR	MATL	NO	NO	PCT	CAN	PLT		
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
II/24/1-5	9069129	PRMA	amur chokecherry	31-May	95	95	CONT(P)	5	5	100	3	1.0	2.2	all weak, stunted leaves
			<i>Prunus maackii</i>		96				3	60	6	2.4	3.4	
			Big Sioux Nursery, Watertown, SD		97				5	100	3	1.0	2.2	
					01				1	20	5	4.5	11.0	
II/24/6-10	9063130	BENI	river birch	19-Apr	93	93	CONT(P)	5	5	100	2	2.1	3.0	
			<i>Betula nigra</i>		94				5	100	2	5.2	5.7	
			MN Forestry Association		95				5	100	3	9.2	9.8	
					97				5	100	2	12.8	14.1	
					99				5	100	2	16.0	17.1	
	02				5	100	3	14.0	18.5					
II/25/1-10	ND-21 9034900	VILE	nannyberry	22-Apr	86	86	PLBR	10	10	100	3	0.5	1.1	
			<i>Viburnum lentago</i>		87				9	90		1.2	2.2	
			USDA, ARS, Mandan, ND		88				8	80	3	1.9	3.1	
			USDA, SCS, PMC, Bismarck, ND		90				8	80	4	3.1	4.0	
					92				8	80	3	4.3	5.0	
					95				7	70	2	6.7	6.8	
	00				7	70	2	9.8	9.2					
II/26/1-5	9069121		mayday	15-Apr	96	96	CONT(P)	5	4	80	6	0.4	1.0	
			<i>Prunus padus</i>		97				4	80	6	1.1	2.0	
			Norway		98				4	80		1.2	2.9	
			USDA, NRCS, PMC, Bismarck, ND		00				3	60	4	3.3	6.6	
					02				3	60		2.2	2.9	
II/26/6-10	ND-673 9006214	SOAU*	yellowberry mountain ash	23-Apr	87	87	PLBR	5	5	100		1.1	1.4	good fruit amount multi-stemmed
			<i>Sorbus aucuparia</i>		88				5	100	3	1.6	2.0	
			USDA, SCS, PMC, Bismarck, ND		89				5	100	5	2.2	3.8	
					91				5	100	3	4.4	6.3	
					93				5	100	2	6.2	7.3	
					96				5	100	4	9.4	9.3	
	01				5	100	3	7.0	11.2					

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>	
II/27/1-10	ND-1567 9005751	CRATA	hawthorn	26-Apr	88	88	CONT	10	9	90		0.6	1.3		
			<i>Crataegus</i>		89			4	40	5	0.8	1.3			
			Wells Co., ND		90			7	70	4	1.0	1.2			
			USDA, SCS, PMC, Bismarck, ND		92			6	60	6	1.2	1.0			
					94			4	40	6	2.3	1.8			
					97			4	40	6	3.8	3.2	leaf rust on 2,8		
					02					2	20		5.0	6.8	
III/01/1-10	ND-1020 9006238	VIRI	river bank grape	11-Apr	78	78	PLBR	10	10	100	4	0.8	0.9		
			<i>Vitis riparia</i>		79				10	100		1.2	1.1		
			Res. Sta., Morden, MB, Canada		80				10	100		1.8	1.1		
					82				10	100		3.1	1.8		
					83				10	100		4.8	2.3		
					84				10	100		5.9	2.5		
					87				10	100		14.3	5.1		
					92					10	100		9.0	5.4	
					97					10	100	3	9.2	4.6	
					02					10	100	3	21.0	3.2	
III/02/1-10	Timm's ND-46	AMAL2	juneberry	11-Apr	78	78	PLBR	10	10	100	3	1.2	1.1		
			<i>Amelanchier alnifolia</i>		79				10	100		1.5	1.1		
			Towner Co., Cando, ND		80				10	100		1.9	1.5		
			USDA, SCS, PMC, Bismarck, ND		82				10	100		2.7	2.3		
					83				10	100		4.5	2.8		
					84				10	100		5.0	3.4		
					87				10	100		7.7	4.8		
					92					10	100		8.8	6.1	
					97					8	80	3	12.0	8.2	snow breakage on all
					02					8	80	3	11.0	9.8	

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
III/03/1-10	Success 9005662	AMAL2	juneberry	11-Apr	78	78	PLBR	10	10	100	4	1.0	1.1	
			<i>Amelanchier alnifolia</i>			79			10	100	1.2	1.0		
			USDA, ARS, Mandan, ND			80			10	100	1.6	1.2		
			USDA, SCS, PMC, Bismarck, ND			82			10	100	3.5	2.6		
						83			10	100	4.8	3.2		
						84			10	100	5.1	4.0		
						87			10	100	6.2	5.2		
						92			10	100	3	8.9	6.6	
						97			10	100	5	10.5	7.7	snow breakage on all
III/04/1-10	Centennial ND-177 9005729 PI-113095	COIN16	cotoneaster	11-Apr	78	78	PLBR	10	6	60	8	0.7	1.0	
			<i>Cotoneaster intergerrimus</i>			79			5	50	3.4	2.9		
			USDA, ARS, Cheyenne, WY			80			5	50	4.8	3.2		
			USDA, SCS, PMC, Bismarck, ND			82			5	50	10.1	6.3		
						83			5	50	11.9	7.3		
						84			5	50	10.9	7.6		
						87			5	50	14.3	9.6		
						92			5	50	2	14.9	10.5	
						97			5	50	7	17.1	10.7	
						02			5	100	3	14.0	9.8	severe fireblight
III/05/1-10	9069128	LONIC	honeysuckle	31-May	95	95	CONT(P)	10	8	80	4	1.3	1.4	
			<i>Lonicera</i>			96			10	100	4	2.5	3.0	
			Big Sioux Nursery, Watertown, SD			97			10	100	3	4.3	5.3	
						99			10	100	4	7.8	8.4	
						01			9	90	4	6.0	7.4	
III/06/1-5	9082687	RIAM	black currant		01	01	PLBR	5	0	0				
			<i>Ribes americanum</i>											
			Big Sioux Nursery, Watertown, SD											
III/06/6-10	9076737	PRSE	black cherry	5-May	97	97	PLBR	5	4	80	1	1.9	3.1	
			<i>Prunus serotina</i>			98			3	60	2	5.2	4.9	
			Apple Valley FEP			99			3	60	4	8.5	8.1	
			Lincoln-Oakes Nursery, Bismarck, ND			01			3	60	4	7.6	11.0	

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
III/07/1-10	Scarlet ND-3 9006072 PI-478003	PRFR2	Mongolian cherry <i>Prunus fruticosa</i> Res. Sta., Morden, MB, Canada USDA, SCS, PMC, Bismarck, ND	11-Apr	78	78	PLBR	10	10	100	4	0.8	1.5	
						79		10	100	1.5	2.0			
						80		10	100	2.6	2.3			
						82		10	100	5.5	4.1			
						83		10	100	7.9	4.7			
						84		10	100	8.0	5.2			
						87		10	100	10.1	6.3			
						92		10	100	2	11.0	6.7		
						97		9	90	2	13.1	7.9	some leaf spot	
						02		7	70	3	18.0	6.2		
III/08/1-10	Sakakawea ND-10 9006158 PI-478005	SHAR	silver buffaloberry <i>Shepherdia argentea</i> Res. Sta., Morden, MB, Canada USDA, SCS, PMC, Bismarck, ND	11-Apr	78	78	PLBR	10	10	100		0.7	1.3	
						79		10	100	1.6	2.3			
						80		10	100	3.3	3.3			
						82		10	100	8.6	7.2			
						83		10	100	10.1	7.9			
						84		10	100	11.0	8.6			
						87		10	100	14.3	11.5			
						92		10	100	4	15.1	11.6		
						97		4	40	6	22.5	12.5	wind damaged, laying down	
						02		9	90	3	25.0	13.0		
III/9/1-5	9082685	RORU	redleaf rose <i>Rosa rubrifolia</i> Lincoln-Oakes Nursery, Bismarck, ND		01	01	PLBR	5	5	100	4	1.0	1.2	
						02		5	100	6	0.5	0.9		
III/11/1-5	Regal ND-283 9006079 PI-540442	PRTE80	Russian almond <i>Prunus tenella</i> ND Game & Fish Dept. Bismarck, ND USDA, SCS, PMC, Bismarck, ND Inc. Block	16-Apr	80	80	PLBR	5	4	80		0.5	1.6	
						81		5	100	1.4	2.4			
						82		5	100	3.5	3.4			
						83		5	100	5.8	4.3			
						84		5	100	6.8	4.7			
						86		5	100	8.0	7.1			
						87		5	100	10.3	6.6			
						89		5	100	1	10.2	6.8		
						94		4	80	2	14.6	8.2		
						99		5	100	2	18.5	9.8		

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PLOT	ACCESSION	PLANT	GENUS/SPECIES	TRANS	YR	YR	MATL	NO	NO	PCT	CAN	PLT	REMARKS	
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u> (ft)		<u>HT</u> (ft)
III/9/6-10	9057406		rugosa rose		01	01	PLBR	5	5	100	5	1.2	1.8	
			<i>Rosa rugosa</i>		02			5	100	4	1.0			
			Lincoln-Oakes Nursery, Bismarck, ND											
III/12/1-10	ND-11 9005993 PI-477998	LOMA6	amur honeysuckle	14-Apr	81	81	CONT	10	10	100	4	1.7	1.3	drought stress and leaf blight
			<i>Lonicera maackii</i>		82			10	100		3.0	2.5		
			Res. Sta., Morden, MB, Canada		83			10	100		4.4	3.6		
					84			10	100		5.1	4.4		
					85			10	100		5.9	4.8		
					87			10	100		8.1	7.0		
					88			10	100	3	7.4	7.1		
					90			10	100	7	8.1	7.8		
					95			10	100	4	10.2	9.1		
					01			10	100		11.5	11.3		
III/14/1-10	Indigo Mich-765 PI-468117	COAM2	silky dogwood	27-Apr	83	83	PLBR	10	10	100		1.1	1.5	
			<i>Cornus amomum</i>		84			10	100		3.2	2.7		
			USDA, SCS, PMC, Roselake, MI		85			10	100	3	4.3	3.1		
					87			10	100		7.1	5.1		
					89			9	90	3	7.3	5.5		
					92			9	90	5	8.6	6.1		
					97			9	90	1	5.9	9.2		
					02			5	50	5	10.0	9.2		
III/15/1-5	9082664		Siberian dogwood	17-Apr	00	00	PLBR	5	4	80	3	0.3	1.6	all dead
			<i>Cornus alba 'sibirica'</i>		01			1	20	6	0.5	2.0		
			Lawyer Nursery, Plains, MT		02									
III/16/6-10	Freedom 9057424	LOKO	honeysuckle	17-Apr	89	89	CONT	5	5	100	1	2.3	1.8	
			<i>Lonicera korolkowii</i>		90			5	100	1	4.9	3.5		
			U of MN, WC Exp. Sta.,		91			5	100	2	7.6	4.9		
			Morris, MN		93			5	100	1	11.3	8.0		
					95			5	100	1	15.1	10.1		
					98			5	100	1	17.4	12.8		

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III/17/1-5	Survivor 9008041	AMFR	false indigo	23-Apr	87	87	PLBR	5	5	100		3.5	2.5			
			<i>Amorpha fruticosa</i>							88	5	100	3	7.0	4.1	
			USDA, SCS, PMC, Aberdeen, ID							89	5	100	1	9.5	4.7	
			USDA, SCS, PMC, Bismarck, ND							91	5	100	1	9.6	6.8	good seed crop
										93	5	100	2	12.3	6.1	
										96	5	100	7	10.6	6.2	dieback on all, drought, cold
	01	5	100	2	12.0	7.8	contaminants									
III/17/6-10	9047236	AMFR	false indigo	23-Apr	87	87	PLBR	5	5	100		2.4	2.5			
			<i>Amorpha fruticosa</i>							88	5	100	3	5.3	3.4	
			Lincoln-Oakes Nursery,							89	5	100	1	7.3	3.9	
			Bismarck, ND							91	5	100	1	8.5	5.9	good seed crop
										93	5	100	4	9.4	5.6	
										96	5	100	9	10.5	5.2	severe dieback
	01	5	100	4	8.4	5.0	contaminants									
III/18/1-10	9069080 Arnolds Red	LOTA	red tatarian honeysuckle	19-Apr	93	93	PLBR	10	10	100	2	2.0	2.1			
			<i>Lonicera tatarica</i>							94	10	100	3	4.1	3.8	
			Lee Nursery, Fertile, MN							95	10	100	3	5.2	5.1	
										97	10	100	2	7.9	7.3	
										99	10	100	4	8.7	9.0	
										02	10	100	2	14.0	9.0	
III/19/1-10	9063143	LOTA	red tatarian honeysuckle	19-Apr	93	93	PLBR	10	10	100	3	1.9	2.5			
			<i>Lonicera tatarica</i>							94	10	100	4	3.1	3.3	
			Iowa							95	10	100	5	4.3	4.6	
			Lincoln-Oakes Nursery, Bismarck, ND							97	10	100	3	7.2	6.2	
										99	10	100	4	8.5	7.6	
										02	10	100	2	12.0	7.8	
III/20/1-5	9082663	CAMI	littleleaf pea shrub	17-Apr	00	00		5	5	100	4		1.5			
			<i>Caragana microphylla</i>							01	3	60	5	1.2	2.2	
			Lawyer Nursery, Plains, MT							02	2	40	5	2.0	2.0	

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
III/20/6-10	ND-2507 9047228	CAPY	pigmy caragana <i>Caragana pygmaea</i> NDFS Bottineau, ND USDA, SCS, PMC, Bismarck, ND	26-Apr	88	88	CONT	5	4	80	3	0.7	1.4	
					89				4	80	3	1.2	1.2	
					90				4	80	2	2.0	2.0	
					92				4	80	3	4.1	3.1	
					94				4	80	1	6.5	4.1	
					97				4	80	1	8.2	4.8	
				02				3	60	4	11.2	4.5		
III/21/1-10	PI-323957	PHME13	chokeberry <i>Photinia melanocarpa</i> P.I. Sta., Ames, IA McKenzie FEP, ND	26-Apr	88	88	CONT	10	9	90	2	1.1	1.1	
					89				10	100	2	2.3	2.1	
					90				10	100	1	4.1	3.2	
					92				10	100	2	6.2	4.5	
					94				10	100	1	7.8	5.4	
					97				10	100	1	9.7	7.5	
				02				10	100	1	14.0	9.2	heavy fruit on all	
III/22/1-10	ND-3744 9019577	BEKO	Korean barberry <i>Berberis koreana</i> NDSU McKenzie FEP, ND	26-Apr	88	88	CONT	10	5	50	2	0.7	0.8	
					89				10	100	3	0.7	1.3	
					90				10	100	3	1.4	2.4	
					92				10	100	4	3.5	3.7	
					94				10	100	3	5.2	4.4	
					97				9	90	2	8.3	6.4	
				02				10	100	2	13.5	8.2		
III/23/1-5	ND-2103 PI-399414	VIOP	highbush cranberry <i>Viburnum opulus</i> P.I. Sta., Ames, IA USDA, SCS, PMC, Bismarck, ND	26-Apr	88	88	CONT	5	5	100	2	0.6	0.9	
					89				4	80	5	1.1	0.9	
					90				4	80	3	1.8	1.5	
					92				4	80	3	3.5	3.4	
					94				4	80	1	6.8	6.2	
					97				5	100	1	12.1	9.2	
				02				5	100	1	14.0	9.8		

Project No.: 38I315K Field Evaluation of Woody Plant Materials, Highmore, South Dakota
Year of Record: 2002

PLOT	ACCESSION	PLANT	GENUS/SPECIES	TRANS	YR	YR	MATL	NO	NO	PCT	CAN	PLT		
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
III/23/6-10	9057409	COAM	american hazel	26-Apr	88	88	PLBR	5	5	100	2	0.9	1.7	
			<i>Corylus americana</i>		89			5	100	5	1.0	1.6		
			NDFS		90			4	80	6	1.2	1.7	drought stress	
			Turtle Mtns., Bottineau Co., ND		92			4	80	4	2.9	2.5		
					94			4	80	2	5.3	4.5		
					97			4	80	3	10.0	7.6		
					02			4	80	3	16.0	10.1		
III/24/1-10	Meadowlark 9005886	FOOV	forsythia	26-Apr	88	88	CONT	10	10	100	2	2.2	1.6	
			<i>Forsythia ovata x F. europaea</i>		89			9	90	3	2.8	2.4		
			P.I. Sta., Ames, IA		90			10	100	2	4.1	3.5		
			Lincoln-Oakes Nursery, Bismarck, ND		92			10	100	2	5.9	5.6		
					94			10	100	1	8.3	6.8		
					97			10	100	1	9.8	7.9		
	02			10	100	1	16.5	10.0						
III/25/1-10	Hedge King 9057407	LOXY	honeysuckle	26-Apr	88	88	PLBR	10	8	80	6	1.0	1.6	
			<i>Lonicera xylosteoides</i>		89			10	100	5	1.0	1.6		
			Wedge Nursery, Albert Lea, MN		90			10	100	5	1.6	1.9	mildew on leaves	
					92			10	100	3	2.1	2.1	powdery mildew	
					94			10	100	4	2.4	2.5		
					97			10	100	3	2.9	3.1	leaf blight	
	02			10	100	4	3.0	4.1						
III/26/1-5	ND-2506 9047227	CAMA	maximowicz caragana	26-Apr	88	88	CONT	5	3	60	4	0.7	0.7	
			<i>Caragana maximowicziana</i>		89			3	60	3	2.0	1.4		
			USDA, SCS, PMC, Bismarck, ND		90			5	100	3	2.2	1.8		
			Increase Block		92			4	80	4	4.3	2.8		
					94			4	80	2	6.9	4.0		
					97			3	60	5	9.4	4.8		
	02			4	80	3	10.0	3.4						

Project No.: 38I315K Field Evaluation of Woody Plant Materials, Highmore, South Dakota
Year of Record: 2002

PLOT	ACCESSION	PLANT	GENUS/SPECIES	TRANS	YR	YR	MATL	NO	NO	PCT	CAN	PLT			
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>	
III/26/6-10	Legacy	SYVI	late lilac	26-Apr	88	88	CONT	5	4	80	3	1.0	1.5		
	ND-83		<i>Syringa villosa</i>			89			5	100	3	1.5	1.9		
	9006228		Res. Sta., Morden, CA			90			5	100	3	2.5	2.5	mildew on leaves	
	PI-540443			Lincoln-Oakes Nursery,			92			5	100	3	4.1	3.9	
				Bismarck, ND			94			5	100	1	6.5	6.2	
							97			5	100	3	9.7	8.1	
					02			5	100	2	12.5	9.8			
IV/01/1-10	ND-1480	YUGL	yucca	11-Apr	78	78	PLBR	10	10	100	1	1.4	0.9		
	9012001		<i>Yucca glauca</i>			79			10	100	4	1.5	1.1		
				Haakon Co., Phillip, SD			80			10	100		1.5	1.5	
							82			10	100		3.8	2.6	
							83			10	100		4.2	2.7	
IV/02/1-10	ND-1729	LASI*	Siberian larch	11-Apr	78	78	CONT	10	8	80	7	0.2	1.3		
	9005979		<i>Larix sibirica</i>			79				9	90		0.2	0.6	
				NDFS State Nursery, Towner, ND			80			2	20		0.6	1.6	
							82			2	20		2.0	2.6	
							83			1	10		3.6	5.1	
							84			1	10		4.3	6.2	
							87			1	10		6.9	12.3	
							92			2	20	3	11.2	16.0	
							97			2	40	3	9.7	20.6	
							02			2	20	2	19.0	22.8	
IV/03/1-10	SL-383-T.	LASI*	Siberian larch	11-Apr	78	78	CONT	10	9	90	7	0.2	1.9		
	Pallet No. 2382 9005976		<i>Larix sibirica</i>			79				8	80		0.3	0.7	
				Denbigh Experimental Forest			80			8	80		0.6	1.1	
				USDA, FS, Shelterbelt Laboratory,			82			6	60		1.8	2.8	
				Bottineau, ND			83			6	60		3.0	5.3	
							84			6	60		3.7	6.7	
							87			6	60		7.7	11.5	
							92			4	40		12.3	14.8	
							97			4	40	5	17.7	23.8	
							02			4	40	2	19.6	24.9	

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PLOT	ACCESSION	PLANT	GENUS/SPECIES	TRANS	YR	YR	MATL	NO	NO	PCT		CAN	PLT	
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
												(ft)	(ft)	
IV/04/1-10	ND-1765	LASI*	Siberian larch	11-Apr	78	78	CONT	10	10	100	6	0.4	1.4	
	Pallet No. 1889		<i>Larix sibirica</i>			79			10	100		0.5	0.8	
	9005980		USDA, FS, Shelterbelt Laboratory, Bottineau, ND			80			10	100		0.8	1.4	
						82			9	90		2.7	3.9	
						83			9	90		4.3	6.4	
						84			9	90		5.3	8.3	
						87			9	90		8.5	14.1	
						92			7	70	3	12.5	17.6	
						97			5	50	4	16.7	24.3	
						02			5	50	4	17.4	27.8	
IV/05/1-5	ND-1763	PIPO	ponderosa pine	11-Apr	78	78	CONT	5	5	100	1	0.5	1.5	
	Pallet No.		<i>Pinus ponderosa</i> var. <i>Ponderosa</i>			79			4	80		0.7	1.8	
	1261		757-5 Rosebud, SD			80			5	100		1.2	2.3	
	9006043		USDA, FS, Shelterbelt Laboratory, Bottineau, ND			82			5	100		3.6	4.4	
						83			5	100		5.1	5.9	
						84			5	100		6.1	7.4	
						87			5	100		11.2	13.0	
						92			5	100	2	16.8	18.3	
						97			5	100	1	24.0	21.0	
						02			5	100	4	24.0	27.8	
IV/06/1-5	Mich-1841	THOC	northern white cedar	27-Apr	83	83	PLBR	5	2	40		0.2	0.2	
	9005060		<i>Thuja occidentalis</i>			84			4	80	4	0.4	0.5	
			USDA, SCS, PMC, Rose Lake, MI			85			4	80		0.8	0.7	
						87			4	80		1.6	1.9	
						89			4	80	5	2.4	2.2	
						92			4	80	3	4.1	4.3	
						97			5	100	1	8.5	8.2	
						02			4	80	2	11.0	11.0	

Project No.: 381315K Field Evaluation of Woody Plant Materials, Highmore, South Dakota
Year of Record: 2002

<u>PLOT</u>	<u>ACCESSION</u>	<u>PLANT</u>	<u>GENUS/SPECIES</u>	<u>TRANS</u>	<u>YR</u>	<u>YR</u>	<u>MATL</u>	<u>NO</u>	<u>NO</u>	<u>PCT</u>	<u>CAN</u>	<u>PLT</u>	<u>REMARKS</u>
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	
IV/06/6-10	Mich-1468 9005059	THOC	northern white cedar	27-Apr	83	83	PLBR	5	3	60			0.6
			<i>Thuja occidentalis</i>		84			5	100	3	0.6	1.0	
			USDA, SCS, PMC, Rose Lake, MI		85			4	80		1.2	0.9	
			East Lansing, MI		87			3	60		1.7	1.3	
					89			3	60	5	2.4	2.0	
					92			3	60	3	3.3	4.2	
					02			3	60	5	12.3	10.8	
IV/07/1-10	9057413	PIPO	ponderosa pine	26-Apr	88	88	CONT	10	9	90	3	0.6	0.9
			<i>Pinus ponderosa</i>		89			9	90	3	1.4	1.8	
			Glendive, MT		90			9	90	2	1.4	2.1	
			NDFS		92			9	90	4	3.4	4.0	
					94			9	90	2	5.5	6.5	
					97			9	90	3	8.9	11.2	
	02			9	90	4	14.3	19.4					
IV/08/1-10	9057411	PICO	lodgepole pine	26-Apr	88	88	CONT	10	5	50		0.6	0.8
			<i>Pinus contorta</i>		89			5	50	5	1.1	1.0	
			Edmonton, Alberta, Canada		90			5	50	5	1.1	1.2	
			NDFS		92			5	50	4	2.3	2.3	
					94			5	50	3	3.6	4.4	
					97			5	50	2	6.8	8.4	
	02			5	50	3	10.6	16.0					
IV/09/1-5	9058862	LALA	tamarack	20-Apr	90	90	CONT	5	5	100	3	1.1	1.7
			<i>Larix laricina</i>		91			5	100	1	2.2	4.3	
			Chippewa Farms Nursery		92			5	100	2	3.5	6.2	
			Grand Rapids, MN		94			5	100	2	7.0	8.9	
					96			5	100	1	11.0	12.9	
					99			5	100	2	15.8	18.1	
IV/11/1-5	9063156 14608	PISY	Scotch pine	15-Apr	96	96	CONT(P)	3	3	100	2	0.7	1.0
			<i>Pinus sylvestris</i> var. <i>mongolica</i>		97			3	100	1	1.4	1.7	
			China		98			3	100	2	2.2	2.9	
			USDA, ARS, Mandan, ND		00			3	100	1	5.6	5.6	
					02			3	100	1	8.5	9.8	

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<u>PLOT</u>	<u>ACCESSION</u>	<u>PLANT</u>	<u>GENUS/SPECIES</u>	<u>TRANS</u>	<u>YR</u>	<u>YR</u>	<u>MATL</u>	<u>NO</u>	<u>NO</u>	<u>PCT</u>	<u>CAN</u>	<u>PLT</u>		
<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
IV/12/1-5	9063154 14607	PISY	Scotch pine <i>Pinus sylvestris</i> var. <i>mongolica</i> China USDA, ARS, Mandan, ND	15-Apr	96	96	CONT(P)	3	3	100	2	0.7	1.2	
						97			3	100	1	1.6	1.6	
						98			3	100	2	2.5	2.5	
						00			3	100	3	5.1	5.5	
						02			3	100	1	8.3	8.8	
IV/13/1-5	9057412	QUMA	bur oak <i>Quercus macrocarpa</i> NDFS Foster Co., ND	26-Apr	88	88	CONT	5	4	80	3	0.5	1.1	
						89			5	100	5	0.8	1.5	
						90			5	100	3	1.1	1.6	
						92			5	100	3	3.2	5.2	
						94			5	100	1	5.0	8.7	
						97			5	100	1	8.0	10.9	
02			5	100	2	14.2	15.4							
IV/14/1-5	9057410	CEOC	hackberry <i>Celtis occidentalis</i> NDFS Bottineau Co., ND	26-Apr	88	88	CONT	5	5	100	3	0.7	1.0	
						89			5	100	7	1.0	1.0	
						90			5	100	3	2.0	1.6	
						92			5	100	3	2.2	3.0	twig/bud gall
						94			5	100	2	5.0	6.3	
						97			5	100	2	8.4	10.2	
02			5	100	2	11.9	18.0							
IV/15/1-5	9082609	PIME	Meyer's spruce <i>Picea meyeri</i> Itasca Greenhouse, Inc.		01	01	CONT	5	3	60	6	0.5	0.5	
						02			2	40	3	0.6	0.8	
IV/16/1-5	PMK-1407 9004392	QUMA	bur oak <i>Quercus macrocarpa</i> USDA, SCS, PMC, Manhattan, KS	19-Apr	90	90	PLBR	5	3	60	2	1.0	1.2	
						91			3	60	3	1.9	2.4	
						92			3	60	3	3.5	3.2	
						94			3	60	2	6.3	5.7	
						96			3	60	2	9.1	7.0	no leader on 2, poor form on 4
99			3	60	4	13.2	10.7							

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
IV/17/1-5	9069089	QURO	English oak <i>Quercus robur</i> TEC, Osseo, MN	28-Apr	93	93	PLBR	5	5	100	3	0.8	1.6	
						94		5	100	1	2.0	2.0		
						95		5	100	3	0.8	1.6		
						97		5	100	6	4.3	5.4	severe dieback 2, mildew on 5	
						99		5	100	5	7.5	6.4		
						02		5	100	6	8.2	8.0		
IV/18/1-5	9063116	FRNI	black ash <i>Fraxinus nigra</i> Itasca State Park, MN	31-May	95	95	CONT(P)	5	5	100	3	0.2	1.3	
						96		5	100	3	0.3	1.7		
						97		5	100	3	1.8	3.1		
						99		5	100	3	3.3	6.6		
						01		5	100	5	5.0	10.6		
IV/19/1-5	9063148	PHSA	corktree <i>Phellodendron sachalinense</i> Clay Co., MN	31-May	95	95	CONT(P)	5	2	40	2	0.3	1.6	
						96		5	100	3	1.1	2.6		
						97		5	100	3	3.6	4.3		
						99		5	100	3	10.1	9.6		
						01		5	100	4	12.8	12.1		
IV/20/1-5	9082666	BEDI	black birch <i>Betula davurica</i> Lawyer Nursery, Plains, MT		01	01	CONT	5	3	60	6	1.0	1.0	
						02		4	80	6	0.7	1.3		
IV/21/1-5	9063115	FRPE	green ash <i>Fraxinus pennsylvanica</i> Itasca State Park, MN	31-May	95	95	CONT(P)	5	5	100	3	0.2	1.7	
						96		5	100	3	0.8	2.2		
						97		5	100	3	2.7	3.3	herbicide damage on 1	
						99		5	100	3	3.7	6.0		
						01		5	100	4	4.9	10.2	herbicide damage	
IV/22/1-5	9016318	ULPU	Siberian elm <i>Ulmus pumila</i> USDA, NRCS, PMC, Bridger, MT	31-May	95	95	PLBR	5	5	100	2	2.4	2.5	
						96		5	100	3	7.5	5.3		
						97		5	100	1	10.6	8.3		
						99		5	100	3	16.9	16.4		
						01		3	60	4	12.3	17.3		

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<u>LOCATION</u>	<u>NUMBER</u>	<u>SYMBOL</u>	<u>ORIGIN/SOURCE</u>	<u>DATE</u>	<u>PLT</u>	<u>REC</u>	<u>PLTD</u>	<u>PLTS</u>	<u>SRV</u>	<u>SRV</u>	<u>VI</u>	<u>COV</u>	<u>HT</u>	<u>REMARKS</u>
IV/23/1-5	9054820	ULPU	Siberian elm <i>Ulmus pumila</i> USDA, NRCS, PMC, Bridger, MT	31-May	95	95	PLBR	5	5	100	4	1.5	2.1	
						96		5	100	2	5.0	6.4		
						97		5	100	2	6.7	7.8		
						99		5	100	3	11.3	15.8		
						01		5	100	4	12.0	14.6	herbicide damage	
IV/24/1-10	Streamco PI-434309	SAPU	purpleosier willow <i>Salix purpurea</i> USDA, SCS, PMC, Big Flats, NY	19-Apr	90	90	PLBR	10	10	100	1	7.1	2.2	
						91		10	100	1	10.7	6.5		
						92		10	100	1	14.4	7.6	excellent growth, vigor	
						94		10	100	1	20.3	11.2		
						96		10	100	1	23.1	13.3		
99		10	100	2	27.2	16.1								
IV/25/1-10	ND-170 9005728	COIN16	cotoneaster <i>Cotoneaster integerrimus</i> USDA, SCS, PMC, Bismarck, ND	20-Apr	90	90	CONT	9	9	100	3	1.1	1.4	
						91		10	100	2	3.0	2.8		
						92		10	100	2	6.3	3.4	excellent, some fruit	
						94		10	100	1	9.8	4.9		
						96		10	100	1	9.3	5.6		
99		10	100	3	10.8	6.9	sandbar willow moving in							
IV/26/1-5	9005399	LOKO	blueleaf honeysuckle <i>Lonicera korolkowii</i> USDA, SCS, PMC, Bridger, MT	23-May	91	91	PLBR	5	5	100	3	2.6	2.6	
						92		5	100	3	5.2	3.8		
						93		5	100	4	5.3	4.4		
						95		5	100	6	7.8	6.8	shade, sbr. willow competition	
						97		5	100	4	9.4	8.5		
00		5	100		11.3	10.9								
IV/27/1-10	Silver Sands ND-3902 9035212	SAIN	sandbar willow <i>Salix interior</i> USDA, SCS, PMC, Bismarck, ND	19-Apr	90	90	CONT	10	10	100	2	5.8	2.5	
						91		10	100	1	9.3	5.7	looks excellent	
						92		10	100	1	12.9	8.0	excellent, no dieback,	
						94		10	100	1	20.3	11.8	spreading to adjacent areas	
						96		10	100	3	21.3	13.1	have become quite leggy,	
99		10	100	2	26.7	13.6	suckering over 2 rows north							