ANNOUNCING THE RELEASE OF

SURVIVOR GERMPLASM FALSE INDIGO

TESTED CLASS OF NATURAL GERMPLASM

by the
UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE

and the
CENTRAL LAKES AGRICULTURAL CENTER

and the
MINNESOTA
AGRICULTURAL EXPERIMENT STATION

and the
NORTH DAKOTA
AGRICULTURAL EXPERIMENT STATION

and the
SOUTH DAKOTA
AGRICULTURAL EXPERIMENT STATION

The United States Department of Agriculture, Natural Resources Conservation Service; Central Lakes Agricultural Center; Minnesota Agricultural Experiment Station; North Dakota Agricultural Experiment Station; and South Dakota Agricultural Experiment Station announce the naming and release of a tested class of false indigo (*Amorpha fruticosa* L.).

As a tested class release this plant will be referred to as **Survivor Germplasm false indigo**. There has been no genetic manipulation and it is considered to be a “natural” track release. It has been assigned the NRCS Accession Number 9008041. This alternative release procedure is justified because there are no improved releases of this species commercially available and adapted to this region.

Survivor Germplasm false indigo is released to provide an adapted plant and seed source of this species for conservation use in the region. Its primary use will be as a native species in riparian area plantings for purposes such as streambank erosion control, lakeshore stabilization, and wildlife habitat. This selection should also be given high consideration in windbreak plantings. The name Survivor was chosen to reflect the ability of this plant selection to persist under adverse conditions such as drought, flooding, silt deposition, animal damage, and weed competition.

Collection Site Information: Accession 9008041 (AB-544) was received from the Aberdeen, Idaho Plant Materials Center in 1985 as seed collected from a natural site adjacent to Beckman’s Dam near Brownley, Idaho (USDA Plant Hardiness Zone 4b).

Description: False indigo is a native, late-season leguminous shrub infrequent to locally common on moist streambanks, in open woods, and along lake and pond shores. It requires well-drained soil and can grow in nutritionally rich soil as well as infertile, dry, and sandy soil. Mature plant height varies depending on site conditions from 3 to 10 feet in northern climates. Bareroot seedlings are fully dormant in the spring during the tree planting season. It is a warm-season species, so leaves do not appear until late spring, and they generally freeze on the plant at the end of the growing season. The scented flowers are purplish blue with orange anthers, and occur in 3-to-6-inch long, upright spikes in late summer. The fruits are short, glandular pods containing a single smooth brownish seed. The leaves are alternate, pinnately compound, four to eight inches long, with fifteen to twenty-five leaflets, ovate to oblong. This is a variable species and has been divided into a number of varieties (Stephens 1973). The bright green foliage is attractive and a noteworthy attribute (Dirr 1997). Wildlife utilize the foliage and seeds. It is consumed by livestock. False indigo is long-lived on adapted sites and regenerates from seed or layering. The fibrous root system is extensive and important in stabilizing sandy soils. It is a nitrogen-fixer and can help improve infertile soils. The Survivor Germplasm does not differ significantly from the botanical description for the species.

Evaluation and Plant Performance: Seedlings were grown by Lincoln-Oakes Nurseries using standard nursery methods. Off-center plantings were evaluated from 1987 to 2002 (Table 1). A central North Dakota source, accession 9047236, was evaluated as a standard of comparison at seven of the evaluation sites. Data indicates the Survivor accession to be more vigorous, generally larger, and equal in winter hardiness to the North Dakota accession. Partial winter die-back occurred occasionally for both sources of false indigo and is considered typical of the species. Superior initial performance was noted in off-center evaluations and the accession was moved into advanced testing. Thirteen field planting evaluations were established in Minnesota, North Dakota, and South Dakota from 1994 - 1996 (Table 2). The average survival was 70%. This is considered good as a majority of the plantings were non-traditional type evaluations such as streambank stabilization or critical area plantings with a high occurrence of washouts and heavy weed competition from smooth bromegrass sod. Plants had an average growth rate of 1.4 ft/yr in height and 0.6 ft/yr in canopy cover. A clipping/regrowth study at the Central Lakes Agricultural Center in 2002 showed that plants clipped near ground level grew back to within 84% of the height of the unclipped plants (5.5 ft) in one growing season. The Survivor Germplasm has proven to perform well even with perennial weed competition, and has the ability for recovery and regrowth following injury from drought related die-back, flooding, and animal damage such as girdling by voles.

Ecological Considerations: Survivor Germplasm is a tested genotype of naturally occurring false indigo and has had no intentional genetic manipulation. It does not differ significantly in rate of spread or seed production from naturally occurring false indigo. Regeneration from seed was observed at only one of the 24 evaluation sites. A field planting in southern Minnesota had numerous new plants starting from seed on both sides of the single-row planting. The intended use was wildlife habitat and the landowner was pleased with the natural increase of woody cover. Survivor Germplasm was documented as “OK to Release” when rated through the worksheet for “Environmental Evaluation of Plant Material Releases”.

Anticipated Conservation Use: The primary conservation use of Survivor Germplasm false indigo is in combination with other native riparian species for streambank erosion control, lake shore stabilization, and wildlife habitat. It also performs well in windbreaks and has potential for landscaping.

Potential Area of Adaptation: This selection has performed well in extensive test plantings on a variety of sites in North Dakota, South Dakota, and Minnesota. It is anticipated to be broadly adapted on soils/sites recommended for the species (Field Office Technical Guide) across the regions of the Upper Midwest and Northern Great Plains.

Availability of Plant Materials: Small quantities of Generation 2 (G2) seed will be made available from the Bismarck Plant Materials Center to establish seed orchards of the Survivor Germplasm. Various conservation nurseries in the region will sell seed and bareroot seedlings.

References:

Stephens, H. A. 1973. Woody Plants of the North Central Plains. The University Press of Kansas, Lawrence, Kansas. 530 p.

Dirr, M. A. 1997. Dirr's Hardy Trees and Shrubs. Timber Press, Inc., Portland, Oregon. 493 p.

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Approvals for the release of Survivor Germplasm false indigo (*Amorpha fruticosa* L.):

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Director, Ecological Sciences Division — Date
United States Department of Agriculture
Natural Resources Conservation Service
Washington, D.C.

_____ _____

State Conservationist — Date
United States Department of Agriculture
Natural Resources Conservation Service
St. Paul, Minnesota

_____ _____

State Conservationist — Date
United States Department of Agriculture
Natural Resources Conservation Service
Bismarck, North Dakota

_____ _____

State Conservationist — Date
United States Department of Agriculture
Natural Resources Conservation Service
Huron, South Dakota

_____ _____

Director — Date

Central Lakes Agricultural Center
Staples, Minnesota

_____ _____

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

Date

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Director
North Dakota State University
Agricultural Experiment Station
Fargo, North Dakota

Date

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Director
South Dakota State University
Agricultural Experiment Station
Brookings, South Dakota

Date

False Indigo Off-Center Evaluations (Table 1)

	Survival %	*Vigor 1 = best 9 = poorest*	*Height (ft) (years)*	*Canopy (ft) (years)*
McKenzie, ND 1987 - 1996				
Survivor Germplasm	100	2.6	6.1 (10)	10.5 (10)
North Dakota local	100	4.0	4.5 (10)	8.0 (10)
Bottineau, ND 1987 - 2001				
Survivor Germplasm	89	3.0	6.0 (15)	14.5 (15)
North Dakota local	100	3.4	6.0 (15)	14.5 (15)
Dickinson, ND 1987 - 2001				
Survivor Germplasm	97	4.0	5.0 (15)	11.0 (15)
North Dakota local	N/A	N/A	N/A	N/A
Highmore, SD 1987 - 2001				
Survivor Germplasm	100	2.7	7.8 (15)	12.0 (15)
North Dakota local	100	3.7	5.0 (15)	8.4 (15)
Lake Andes, SD 1987 - 1996				
Survivor Germplasm	93	4.2	7.1 (10)	8.8 (10)
North Dakota local	97	5.0	5.8 (10)	7.0 (10)
Morris, MN 1987 - 1996				
Survivor Germplasm	98	3.8	6.2 (10)	13.0 (10)
North Dakota local	95	4.2	5.3 (10)	8.9 (10)
Crookston, MN 1987 - 1996				
Survivor Germplasm	100	2.0	7.8 (10)	14.7 (10)
North Dakota local	98	3.2	6.5 (10)	8.5 (10)
Grand Rapids, MN 1996 - 2000				
Survivor Germplasm	98	2.8	4.7 (5)	9.0 (5)
North Dakota local	N/A	N/A	N/A	N/A
Becker, MN 1996 - 2000				
Survivor Germplasm	100	3.25	4.4 (5)	8.2 (5)
North Dakota local	N/A	N/A	N/A	N/A
Rochester, MN 1987 - 1996				
Survivor Germplasm	93	2.3	6.7 (10)	8.0 (10)
North Dakota local	100	3.8	5.8 (10)	6.3 (10)
Staples, MN 2001 - 2002				
Survivor Germplasm (unclipped)	100	N/A	5.5 (2)	5.4 (2)
Survivor Germplasm (clipped)	100	N/A	4.6 (1)	5.1 (1)

Survivor Germplasm False Indigo Field Planting Data Summary 1994 - 1996 (Table 2)

		Purpose	*Weed Competition 1 = lowest 9 = highest*	*Survival %*	*Height ft/yr*	*Crown ft/yr*
North Dakota						
	Mohall	Wildlife	1	39	1.0	0.5
	Park River	Streambank erosion control	3	73	0.8	0.3
	Park River	Streambank erosion control	3	85	0.7	0.5
	Rugby	Wildlife	4	100	0.8	0.6
	Turtle Lake	Wildlife	5	67	0.8	0.3
South Dakota						
	Salem	Streambank erosion control	3	55	1.5	0.1
	Salem	Critical area	3	40	2.0	0.5
	Salem	Streambank erosion control	6	30	1.5	1
	Huron	Critical area	5	52	1.0	0.5
	Huron	Critical area	5	100	2.0	1
	Miller	Critical area	5	80	2.0	0.3
Minnesota						
	Grand Rapids	Streambank erosion control	3	100	1.6	0.8
	Foley	Streambank erosion control	5	95	2.0	1
		AVERAGE	**4**	**70**	**1.4**	**0.6**