UNITED STATES DEPARTMENT OF AGRICULTURE
NATURAL RESOURCES CONSERVATION SERVICE
Manhattan, Kansas

# NOTICE OF RELEASE OF Chisholm Germplasm Chickasaw plum

The Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture (USDA) announces the naming and release of Chisholm Germplasm Chickasaw plum (*Prunus angustifolia* Marsh.); a seed propagated selected class conservation plant material. Chisholm Germplasm Chickasaw plum has been assigned accession number 9049970.

**Collection Site Information:** Chisholm Germplasm Chickasaw plum is comprised of 8 accessions whose origin is 75% from Oklahoma and 25% from Kansas. Seeds were collected from sites listed in Table 1, along or near the Chisholm Trail in Major Land Resource Areas 72, 78, and 80A, where elevations ranged from 1002 to 2664 feet above sea level with a precipitation range of 19 to 29 inches, in USDA Hardiness Zones 5b to 7a.

Table 1. Collection sites for plant germplasm used to comprise Accession 9049970, Chisholm Germplasm Chickasaw plum.

| Accession | MLRA | County | State | Elevation (ft) | Precipitation (in) |
|---|---|---|---|---|---|
| 9013486 | 72 | Gove | Kansas | 2664 | 19 |
| 9013519 | 80A | Kingfisher | Oklahoma | 1174 | 29 |
| 9013524 | 78 | Roger Mills | Oklahoma | N/A | 23 |
| 9013527 | 78 | Woods | Oklahoma | 1750 | 19 |
| 9013528 | 78 | Woods | Oklahoma | 1750 | 23 |
| 9013543 | 72 | Gray | Kansas | 2550 | 21 |
| 9013547 | 80A | Garfield | Oklahoma | 1200 | 29 |
| 9013548 | 80A | Kingfisher | Oklahoma | 1002 | 29 |

N/A = Not Available

**Description:** A short, thickly branched shrub less than 10 ft (3 m) tall often forms extensive thickets or colonies. Due to extensive suckering an entire colony will often be on the same root system with all red or all yellow anthers; sepals green, no glands on the calyx lobes. The numerous zigzag twigs are smooth, reddish brown and slender. Younger branches have smooth reddish brown bark with large, horizontal lenticels. Older specimens have rough, scaly trunk bark. There are short, side twigs that bear flowers and end in sharp points. Leaves lanceolate to oblong lanceolate, 0.8-2.4 in long (2-6 cm), 0.4-0.8 in (1-2 cm) wide, acute or short acuminate, cuneate or rounded at the base, slender, lustrous and glabrous above, strongly trough shaped with stalks that bear 2 red glands near the apex. Leaf teeth finely serrate, tipped with glands or scars of these. The numerous off-white or yellowish white flowers with little fragrance appear before the leaves and are less than ½ in (13 mm) across; open-pollinated; blooms early, March-May. Thin-skinned, small fruits, yellow, orange-red or red, not glaucous but with

a slight bloom, stone small, rough, yellowish, and turgid, almost spherical; fruiting in June-July. Some individuals bear edible fruits; others have very bitter fruits. Fruits are eaten by wildlife. It is found growing naturally on sandy prairies, often along fence rows, open areas or thickets, woodlands, and often near houses (Bailey, 1939; Barkley, 1986; Gleason, 1952).

**Method of Breeding and Selection:** The eight accessions were selected from a field of 34 entries in an Initial Evaluation Planting (IEP) at Manhattan, Kansas, following 6 years of evaluation. All collections were evaluated for survival, vigor, overall growth and spread, potential seed and fruit production, resistance to disease and insects; and fruit retention, stem abundance, and foliage abundance. Refer to Table 2 for selected data elements. Fifteen mother plants meeting selection criteria were lifted with a tree spade from the IEP and moved to a polycross nursery or breeder's block where seed of Accession 9049970 was produced. Field Plantings were established in Kansas and Nebraska; and Field Evaluation Plantings (FEP), two sites each, were established in Kansas, Minnesota, and South Dakota. Data were available from Nebraska, Table 3, Minnesota, Table 4, and South Dakota, Table 5. An Advanced Evaluation Planting (AEP) was established at Manhattan on a Belvue silt loam soil with Rainbow Germplasm, PI 434240, as a "standard for comparison". Evaluated under Study No. 20A125J, this replicated AEP was evaluated for 5 years where Chisholm rivaled Rainbow, Table 6. Chisholm is a true Chickasaw plum of know origin that complements and adds diversity to known sources of plant material for conservation use.

**Ecological Considerations and Evaluation**: NRCS and State Rangeland Management Specialists were queried and field observations were compared to local observations regarding the behavior of Chickasaw plum in the landscape. While management decisions for wildlife and livestock are at opposite ends of the spectrum, the value of Chickasaw plum in its ability to control blowing sand is recognized by land managers as a natural and important component of the environment. On Oklahoma, Texas, and Kansas rangelands, Chickasaw plum provides important wildlife habitat for 43 species of birds, of which 23 species use the shrub for nesting, foraging, or cover. Species of concern include two passerines, painted bunting (*Passerina ciris* L.) and Bell's vireo (*Vireo bellii* Audubon) (Dunkin et al., 2008); and lesser prairie-chicken, (*Tympanuchus pallidicinctus* Ridgway), an upland game bird species uses plum for resting, roosting, and escape cover (Donaldson 1969). The plum is extremely important to bobwhite and other upland game birds (Guthery, 2010). Fruits of the plant are consumed by numerous birds and other animals. The plant's flowers and fruits are visited and used by various pollinator species (Row, 2010).

**Conservation Use:** The potential uses for Chisholm Germplasm Chickasaw plum includes wildlife habitat improvement on sandy soils, critical area treatment for erosion control, and recreation area beautification. Chickasaw plum is very effective in stabilizing blowing soil. It also is used to stabilize stream banks and gullies. It is often included as a shrub row in multi-row windbreaks (Kansas Forest Service, 2010).

**Area of Adaptation:** Chickasaw plum is native to much of Kansas and Oklahoma. This species has a wide geographic area of distribution ranging from Maryland to Florida and

westward to Kansas, Oklahoma, and Texas. It is found most commonly on sandy soils in pastures or open woods, along fence rows, and other disturbed sites. It frequently colonizes disturbed prairie sites and edges. Target areas for Chisholm Germplasm would include western Oklahoma, western Kansas, and the Texas Panhandle in MLRA 72, 78, and 80A. It has performed well in MLRA 76 and expected to perform well in adjacent MLRAs.

**Availability of Plant Materials:** Generation 1 seed will be maintained by the Manhattan Plant Materials Center. Seed of the plant release can be obtained from the Manhattan Plant Materials Center, Manhattan, Kansas.

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Signatures for release of:

Chisholm Germplasm Chickasaw plum (*Prunus angustifolia* Marsh.)

Eric B. Banks — 9/8/10
Date

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Date

Ronald L. Hilliard
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for — 9-22-2010
Date

for Michael D. Hubbs
Director, Ecological Sciences Division
United State Department of Agriculture
Natural Resources Conservation Service
Washington, D.C.

Table 2. Data Summary: Initial Evaluation of *Prunus angustifolia*, Chickasaw Plum at Manhattan, Kansa

| ACCN NO. | FLW SIZE | BLM DAT | LEAF FALL | SPR REC | STM ABN | DIS RES | INS RES | FRU AMT |
|---|---|---|---|---|---|---|---|---|
| 421528 | 8.7 | 12-Apr | 8-Nov | 26-Mar | 3 | 3.3 | 3.3 | 5 |
| 434240 | 10 | 30-Mar | 18-Nov | 1-Apr | 3 | 2 | 1.7 | 2 |
| 9013473 | 10 | 11-Apr | 5-Nov | 26-Mar | 1 | 2.7 | 2.7 | 3 |
| 9013475 | 10 | 11-Apr | 9-Nov | 26-Mar | 2.5 | 4 | 3.3 | 8 |
| 9013479 | 18 | 13-Apr | 24-Oct | 26-Mar | 5 | 3.7 | 3.3 | 1 |
| 9013486 | 10.7 | 12-Apr | 24-Oct | 26-Mar | 4 | 5.3 | 4.3 | 6 |
| 9013487 | 12.7 | 12-Apr | 25-Oct | 27-Mar | 4.5 | 5 | 3.7 | 4 |
| 9013519 | 10 | 12-Apr | 5-Nov | 26-Mar | 2 | 4 | 3.7 | 4 |
| 9013522 | 12 | 4-Apr | 12-Nov | 29-Mar | 3.5 | 2.3 | 2 | 2 |
| 9013523 | 9 | 13-Apr | 22-Oct | 26-Mar | 2.5 | 4 | 3 | 6 |
| 9013524 | 10 | 11-Apr | 8-Nov | 26-Mar | 1.5 | 3.3 | 3.3 | 4 |
| 9013525 | 10 | 11-Apr | 8-Nov | 26-Mar | 2 | 2.7 | 2.7 | 5 |
| 9013526 | 11 | 11-Apr | 8-Nov | 26-Mar | 2 | 1.7 | 3 | 2 |
| 9013527 | 9 | 13-Apr | 8-Nov | 27-Mar | 1.5 | 4.3 | 2.7 | 6 |
| 9013528 | 9.3 | 12-Apr | 8-Nov | 26-Mar | 2.5 | 2.7 | 2.7 | 3 |
| 9013529 | 10 | 12-Apr | 24-Oct | 26-Mar | 2.5 | 3 | 2.7 | 5 |
| 9013530 | 9 | 13-Apr | 5-Nov | 26-Mar | 2.5 | 3.3 | 3 | 6 |
| 9013531 | 10 | 4-Apr | 18-Nov | 1-Apr | 4 | 2.3 | 2 | 2 |
| 9013533 | 9.7 | 12-Apr | 6-Nov | 27-Mar | 3 | 2.7 | 2.7 | 2 |
| 9013534 | 11 | 12-Apr | 30-Oct | 27-Mar | 2.5 | 3 | 2.7 | 4 |
| 9013535 | 9.3 | 12-Apr | 9-Nov | 26-Mar | 1.5 | 2.7 | 2.7 | 4 |
| 9013536 | 10 | 12-Apr | 12-Nov | 27-Mar | 2 | 4 | 3 | 6 |
| 9013537 | 9.7 | 12-Apr | 7-Nov | 26-Mar | 2 | 3.3 | 3 | 2 |
| 9013538 | 11.7 | 13-Apr | 6-Nov | 27-Mar | 2 | 3 | 2.7 | 5 |
| 9013540 | 10 | 30-Mar | 12-Nov | 28-Mar | 3 | 2.3 | 1.7 | 2 |
| 9013541 | 10 | 12-Apr | 10-Nov | 25-Mar | 1 | 3.3 | 3 | 4 |
| 9013542 | 10.7 | 15-Apr | 2-Nov | 27-Mar | 2 | 3 | 2.7 | 3 |
| 9013543 | 9.3 | 12-Apr | 9-Nov | 26-Mar | 2.5 | 3.3 | 3.7 | 4 |
| 9013545 | 10 | 12-Apr | 11-Nov | 25-Mar | 2.5 | 3.3 | 3.3 | 3 |
| 9013546 | 10 | 11-Apr | 13-Nov | 28-Mar | 1.5 | 2.3 | 3.3 | 2 |
| 9013547 | 11 | 12-Apr | 12-Nov | 27-Mar | 2 | 3 | 3.3 | 2 |
| 9013548 | 10 | 11-Apr | 12-Nov | 26-Mar | 2.5 | 3 | 3 | 4 |
| 9013549 | 10.7 | 12-Apr | 15-Nov | 25-Mar | 2 | 2.7 | 2.7 | 2 |
| 9013550 | 10.5 | 4-Apr | 12-Nov | 24-Mar | 3 | 3.3 | 2.7 | 2 |

Legend:

ACCN NO. = Accession Number
BLM DAT = Bloom Date
CRN WID = Crown Width (cm)
DIS RES = Disease Resistance (1-9*)
FLW SIZE = Flower Size (mm)
FRU AMT = Fruit Amount (1-9)
INS RES = Insect Resistance (1-9)
LEAF FALL = Leaf Fall Date
PCT SUR = Percent Survival
PLT HGT = Plant Height (cm)
PLT VIG = Plant Vigor (1-9)
SPR REC = Spring Recovery Date
STM ABN = Stem Abundance (1-9)
SUK AMT = Suckering Amount (1-9)
*Rating 1-9 = Best-Worst

| ACCN NO. | CRN WID | PLT HGT | PCT SUR | PLT VIG | SUK AMT |
|---|---|---|---|---|---|
| 421528 | 260 | 235 | 83 | 5.5 | 6 |
| 434240 | 355 | 355 | 100 | 1 | 3 |
| 9013473 | 290 | 260 | 100 | 2.8 | 5.7 |
| 9013475 | 230 | 230 | 100 | 4.3 | 4 |
| 9013479 | 300 | 269 | 100 | 3.8 | 4 |
| 9013486 | 243 | 192 | 100 | 5.8 | 4.3 |
| 9013487 | 215 | 236 | 100 | 5 | 5 |
| 9013519 | 340 | 308 | 100 | 2.5 | 3.7 |
| 9013522 | 300 | 278 | 100 | 2.8 | 2.3 |
| 9013523 | 290 | 210 | 100 | 4.8 | 5.3 |
| 9013524 | 400 | 260 | 100 | 2.5 | 5 |
| 9013525 | 270 | 218 | 100 | 4 | 3.7 |
| 9013526 | 350 | 273 | 100 | 2.3 | 5.7 |
| 9013527 | 330 | 270 | 100 | 3.8 | 6 |
| 9013528 | 340 | 230 | 100 | 3.8 | 4.7 |
| 9013529 | 280 | 202 | 100 | 4.3 | 6.3 |
| 9013530 | 310 | 160 | 100 | 5.5 | 6.7 |
| 9013531 | 300 | 320 | 50 | 4 | 3 |
| 9013533 | 280 | 210 | 100 | 4.8 | 4.3 |
| 9013534 | 300 | 243 | 100 | 4 | 5.3 |
| 9013535 | 320 | 274 | 100 | 2.3 | 4.3 |
| 9013536 | 275 | 240 | 100 | 4 | 5.3 |
| 9013537 | 330 | 220 | 100 | 4 | 4.3 |
| 9013538 | 270 | 270 | 100 | 3 | 4 |
| 9013540 | 330 | 280 | 100 | 2.3 | 2.3 |
| 9013541 | 300 | 270 | 100 | 2.8 | 4.3 |
| 9013542 | 310 | 250 | 100 | 3.3 | 5 |
| 9013543 | 280 | 240 | 100 | 3.5 | 6 |
| 9013545 | 230 | 245 | 100 | 4.5 | 4.3 |
| 9013546 | 330 | 240 | 100 | 3.8 | 5.7 |
| 9013547 | 290 | 250 | 100 | 3.5 | 4.7 |
| 9013548 | 310 | 280 | 100 | 2.8 | 5 |
| 9013549 | 300 | 310 | 100 | 1.5 | 5.7 |
| 9013550 | 290 | 232 | 100 | 3 | 4.7 |

Table 3. Field Evaluation Data for Accession 9049970, Chickasaw plum, Prunus angustifolia, in Nebraska Field Plantings (FP).

| Location | FP No. | Year Rated | Survival (%) | Plant Height (cm) | Plant Canopy (cm) | Insect Injury (%) | Adaptation* | Weed Competition† |
|---|---|---|---|---|---|---|---|---|
| Cheyenne Co. | NE90001 | 1991 | 15 | 30.5 | 24.4 | 0 | 9 | 1 |
| | | 1992 | 15 | 61 | 67.1 | 0 | 9 | 1 |
| | | 1993 | 0 | | | | | |
| Dixon Co. | NE90002 | 1991 | 90 | 85.3 | 76.2 | NR | 1 | 3 |
| Pierce Co. | NE90002 | 1991 | 76 | 54.9 | 18.3 | 90 | 7 | 5 |
| | | 1992 | 60 | 61 | 30.5 | 0 | 9 | 5 |
| | | 1994 | 25 | 91.4 | 61 | 5 | 3 | 7 |
| Butler Co. | NE90005 | 1991 | 34 | 54.9 | 24.4 | NR | 5 | 5 |
| | | 1992 | 80 | 45.7 | NA | NR | 5 | 5 |
| | | 1993 | 75 | 79.2 | 45.7 | NR | 5 | 5 |
| | | 1994 | NA | 106.7 | 79.2 | 0 | 5 | 5 |
| Lancaster Co. | NE90006 | 1991 | 80 | 45.7 | 21.3 | 100 | 1 | 3 |

NA=Not Available; NR=Not Rated; *Rating (1=Excellent, 3=Good, 5=Average, 7=Fair, 9=Poor, 0=None); †Rating (1=None, 3=Slight, 5=Moderate, 7=Severe, 9=Very Severe)

Table 4. Evaluation of Accession 9049970, Chickasaw plum, *Prunus angustifolia*, at Minnesota FEP sites.

| Plot Location | MLRA | Soil Type | Canopy Cover (cm) | Height (cm) | Percent Survival | Vigor (1-9)* | Evaluation Date |
|---|---|---|---|---|---|---|---|
| Crookston | 56 | SICL | 65 | 16 | 80 | 5.5 | 9/04/1990 |
| | | | 65 | 68 | 40 | 3.0 | 9/10/1991 |
| | | | 110 | 88 | 40 | 3.0 | 9/23/1992 |
| | | | 112 | 120 | 40 | 6.0 | 9/14/1994 |
| | ------ All Dead ------ | | | | | | 9/05/1996 |
| Rochester | 105 | SIL | 28 | 52 | 80 | 5.0 | 9/27/1990 |
| | | | 46 | 55 | 40 | 3.0 | 10/10/1991 |
| | | | 82 | 68 | 40 | 4.0 | 10/06/1992 |
| | | | 89 | 120 | 40 | 4.0 | 10/12/1994 |
| | | | 99 | 139 | 50 | 5.0 | 1996 |
| | | | 150 | 160 | 50 | | 9/29/1999 |

Legend: *Rating (1-9 = Best-Worst); SIL = silt loam; SICL = silty clay loam

Table 5. Evaluation of Accession 9049970, Chickasaw plum, *Prunus angustifolia*, South Dakota FEP sites.

| Plot Location | MLRA | Soil Type | Canopy Cover (cm) | Height (cm) | Percent Survival | Vigor (1-9)* | Evaluation Date |
|---|---|---|---|---|---|---|---|
| Highmore | 53C | SIL | 30 | 41 | 80 | 4.5 | 9/17/1990 |
| | | | 85 | 96 | 80 | 2.0 | 10/01/1991 |
| | | | 156 | 146 | 80 | 4.0 | 9/29/1992 |
| | | | 172 | 142 | 80 | 6.0 | 9/27/1994 |
| | | | 155 | 145 | 20 | 9.0 | 9/23/1996 |
| | | | 205 | 115 | 20 | | 9/24/1999 |
| Lake Andes | 55C | SIL | 18 | 30 | 60 | 4.7 | 9/18/1990 |
| | | | 88 | 88 | 60 | 3.0 | 10/01/1991 |
| | | | 129 | 146 | 60 | 2.0 | 10/01/1992 |
| | | | 134 | 130 | 40 | 4.0 | 9/24/1994 |
| | ------ Planting Discontinued ------ | | | | | | 1996 |

Legend: *Rating (1-9 = Best-Worst); SIL = silt loam

Table 6. Advanced Evaluation Data Summary for Accession 9049970, Chickasaw plum, *Prunus angustifolia*, and *Prunus americana*, in comparison with PI 434240, Rainbow Germplasm wild plum, *Prunus* sp. at Manhattan Plant Materials Center.

| Accession or PI No. | Plant Symbol | Release Name | Year Record | Plant Height (cm) | Plant Canopy (cm) | Basal Area (mm) | Bloom Date | Fruit Amount (1-9)* | Trees Fruiting (%) | Fruit Maturity (1-9)* 7/26/95 |
|---|---|---|---|---|---|---|---|---|---|---|
| 9049970 | PRAN3 | | 1993 | 175.9 | 175.0 | 37.0 | 3/30/93 | | | |
| | | | 1994 | 195.3 | | | | | | |
| | | | 1995 | 256.3 | 327.4 | | | 2.7 | 83 | 2.2 |
| | | | 1997 | | | | 4/03/97 | 5.0 | | |
| | | | | | | | | | | |
| 434240 | PRUNU | Rainbow | 1993 | 195.4 | 177.6 | 44.5 | 4/02/93 | | | |
| | | | 1994 | 280.5 | | | | | | |
| | | | 1995 | 214.9 | 383.1 | | | 2.8 | 100 | 2.2 |
| | | | 1997 | | | | 3/29/97 | 5.2 | | |

*Rating (1-9 = Best-Worst)