1. **Meadowlark Forsythia** – *Forsythia x ‘Meadowlark’* (1986)
   With extreme flower-bud hardiness, bright yellow flowers, quality foliage, ease of softwood cutting propagation, adaptability and vigor, *Forsythia x ‘Meadowlark’* has been widely planted as an ornamental shrub for northern landscapes. It was introduced by the agricultural experiment stations at NDSU and SDSU, in collaboration with the Arnold Arboretum and the North Central Regional Plant Introduction Station, Ames, IA. Flower buds have shown hardiness at temperatures of -30º to -35ºF, and the plant is recommended throughout the Northern Plains where Forsythias are rarely flower bud hardy. The plant originated via the breeding work of Dr. Karl Sax and Haig Derman at the Arnold Arboretum from a cross of *Forsythia ovata* (early forsythia) and *F. europaea* (Albanian forsythia). Dr. Harrison Flint observed a plant from this population in full bloom after the unusually cold 1966-67 winter, while a mass planting of *F. x intermedia ‘Spectabilis’* surrounding the new hybrid was nearly devoid of flowers. Flint propagated and distributed the plant, which was evaluated in North and South Dakota. It has bloomed consistently in North Dakota trials for over 30 years. No forsythia can be guaranteed to flower abundantly every year in hardiness zones 3 and 4. However, Meadowlark Forsythia comes close. It has outperformed other cultivars reputed to be of the same parentage, namely ‘Northern Sun’ (a University of MN release) and ‘Northern Gold’ (an Agriculture Canada release). The latter two have been less reliable in flowering and not as dense in growth form compared to ‘Meadowlark’ in NDSU evaluations. If flower buds of Meadowlark are damaged, it usually occurs from cold weather outbreaks from late February to late April, following warmer than average weather periods, which induce dehardening of the flower buds. Microclimatic conditions of a given planting site may also play a role. The shrub is fairly drought-tolerant and rapid growing, reaching a height of 7 to 10’. Its spreading form is dense and not leggy. Plant in sunny sites. The mature leaves are ivy green and maintain this color until late fall. A purple-bronze cast is the first indication of fall color, though the leaves often change to golden yellow with extended favorable fall conditions and in loamy, well-drained soils. The foliage is virtually pest free throughout the growing season. USDA hardiness zone 3. Readily available in nursery trade.

   Male, seedless fast-growing green ash cultivar with a growth rate of 2.4’ annually over a ten-year period. Produces an excursive, elliptical to pyramidal-shape, becoming wider and less formal in growth habit with age. It tends to maintain terminal dominance with uniform scaffold branch arrangement. If co-dominant leaders develop at a point lower than 12 to15’ in height, the competing leader of lesser quality should be properly pruned or removed soon after it forms. Bright, glossy green foliage becomes dark green and semi-glossy as it hardens. Fall color is a deep yellow. Shade and street tree. Propagated by bud grafting. USDA hardiness zone 3. Available in nursery trade.

   Male seedless green ash cultivar with an above average growth rate of 1.84’ annually over a ten-year period. Characterized by a striking, narrowly erect, excursive growth habit with terminal dominance and dense lateral branches, becoming narrowly pyramidal-elliptical with age. If co-dominant leaders develop at a point lower than 12 to 15’ in height, the competing leader of lesser quality should be properly pruned or removed soon after it forms. Bright, glossy green foliage becomes dark green and semi-glossy as it hardens, changing to an intense golden-yellow in autumn. Increasing in popularity, this tailored, dense excursive green ash is a preferred cultivar in the commercial nursery trade of the north-central U.S. and prairie provinces in Canada. Shade, shelter, boulevard, park and specimen tree. Propagated by bud grafting. USDA hardiness zone 2b-3. Available in nursery trade.

   Male, seedless green ash cultivar with a moderate growth rate of 1.44’ annually over a ten-year period. Characterized by a very dense, distinctly oval form gradually becoming globose with age. Terminal dominance is not as strong as for the cultivars described above. Thick, leathery, glossy green foliage becomes dark green and semi-glossy as it hardens. Leaves are retained six to nine days later in autumn than the above cultivars, becoming a deep yellow. A tailored, dense decurrent cultivar. Shade, shelter, park, boulevard and specimen tree. Propagated by bud grafting. USDA hardiness zone 3. Available in nursery trade.
5. **Prairie Gem® Flowering Pear** – *Pyrus ussuriensis* ‘MorDak’ (1990)

A seedling selection of the Ussurian pear native to northeast Asia. The superior qualities of this cultivar are very distinct when grafted plants are grown near seedling Ussurian pear rootstock. Prairie Gem® produces a more coarsely-twigged tree with very dense branching. It has a distinctly oval growth habit, becoming globose with age. Foliage is clean, bright emerald-green and semi-glossy. The thick, leathery-textured leaves are of excellent quality throughout the growing season, turning yellow in autumn. It has excellent fireblight resistance. White flowers blanket the tree in spring. Trees do not fruit unless a different pollinator pear is nearby. This is advantageous, since the 1 to 1¼" rounded yellow fruits are not of culinary value. The dense, tailored growth habit of Prairie Gem® results in an attractive, small tree to 25’ for shade and use as a residential and park landscape specimen. Propagated by budding and/or grafting. USDA hardiness zone 3. Available in nursery trade.


Superior clonal female selection made from native plant of this variety growing in the Badlands of western North Dakota. It has a densely spreading, naturalistic growth habit growing 15 to 22” in height. Foliage is a rich, dark green with contrasting silvery-blue hues on the upper leaf surface. Its summer color is retained well in winter, which is rare for this species of juniper. Heavy crops of showy blueberry-like cones are produced annually if male plants are nearby, which adds significantly to the plant’s attractiveness. Drought and alkaline tolerant, it grows well in full sun, as well as partially shaded sites. Effective in foundation plantings and as a ground cover. Propagated by hardwood cuttings. USDA hardiness zone 2b-3. Available in nursery trade.


A male cultivar selected in the North Dakota Badlands. It produces a very dense carpet, 6 to 12” high with excellent vigor. Its clear, bright, almost grass green foliage from April through October is a distinct landscape asset over other named cultivars in the nursery trade. Its foliage takes on a bronzy hue in winter. Best if grown in full sun. Good drought and alkalinity tolerance. Very attractive ground cover. USDA hardiness zone 2b-3. Propagated by hardwood cuttings.

8. **Dakota Goldcharm® Spirea** – *Spiraea japonica* ‘Mertynn’ (1992)

A dwarf, compact, mound-shaped summer blooming spirea selected from an open-pollinated seedling population of *S. japonica* ‘Little Princess’. Newly forming leaves are golden-bronze, changing to golden-yellow as they mature. The yellow color is retained well in summer. Plants grow 12 to 18” high and 2 to 2 ¼” wide. The bright pink flowers are produced in clusters 2 to 3” across. Abundant flowers are produced in early summer followed by scattered flowers the remainder of the growing season. Foundation, border and rock garden shrub. Color Choice® Award. Propagated by softwood cuttings. USDA hardiness zone 3. Readily available in nursery trade.


Seedling selection from a population of open-pollinated seedlings. The seed was harvested from the potentilla collection at the NDSU Research Arboretum near Absaraka, North Dakota. Selections were made for long bloom period, dwarf growth habit and freedom from insects and disease. Dakota Sunspot® is a compact shrub that will mature at 2 ¼ to 2 ¾’ tall and have a spread of 3 to 3 ½’. Its leaves are bright green and fine-textured. The ½” wide leaves are distributed the full length of the branches. Dakota Sunspot® flowers very profusely from late spring until killing frosts in late fall. The flowers are nearly 1” across and are a brilliant gold color. This is possibly the most floriferous Potentilla cultivar introduced and is very popular in the landscape trade. Foundation, border and hedge shrub. Propagated by softwood cuttings. USDA hardiness zone 2b-3. Available in nursery trade.


Another superior seedling selected from a population of open-pollinated seedlings. Dakota Goldrush® is a compact shrub that will mature at 2 ¼ to 3¼’ tall with a spread of 4’. It has quality blue-green, one-inch leaves that retain good color throughout the growing season. The flowers are fairly profuse, yellow-gold and 1 to 1¼” across. Dakota Goldrush® continues to flower until killing frosts occur. It is similar to the cultivar ‘Jackmanii’, but is more dwarf and flowers more profusely at the end of the season. Foundation, border and hedge shrub. Propagated by softwood cuttings. USDA hardiness zone 2b-3. Available in nursery trade.


A female selection from the North Dakota Badlands with an attractive intermediate, clean green color. Blue-gray juvenile awl-shaped leaves to the inside create a bicolor effect to the plant. Plants have excellent vigor and density, growing 6 to 12” high. Plants develop a purplish-bronze hue in winter. Best if grown in full sun. Good drought and alkalinity tolerance. Attractive ground cover. Propagated by hardwood cuttings. USDA hardiness zone 2b-3. Availability pending.


A female selection from the Rocky Mountains which produces exceptionally rich, emerald green foliage. Bluish awl-shaped juvenile foliage is produced to the inside of the plants which creates a striking bicolor contrast when viewed from the south or sun exposed side of the plant. Plants have excellent density and vigor and grow 9 to 12” high. Grayish-blue to purplish-bronze hues develop in winter. Excellent attributes as a landscape groundcover. Best if grown in full sun. Good drought and alkalinity tolerance. Excellent ground cover. Propagated by hardwood cuttings. USDA hardiness zone 2b-3. Availability pending.
A female selection which produces attractive misty gray-blue foliage. Plants have good vigor and density, growing 8 to 12” high. Develops gray-blue to gray-bronze winter hues. Best if planted in full sun. Good drought and alkalinity tolerance. Good ground cover. Propagated by hardwood cuttings. USDA hardiness zone 2b-3. Availability pending.

14. **Copper Delight® Juniper** – *Juniperus communis* var. *depressa* ‘ReeDak’ (1993)
This male selection from the North Dakota Badlands produces a very dense, slightly mounded form growing 15 to 22” in height. It produces very attractive, lighter green foliage than Blueberry Delight® and in late fall the foliage changes to a coppery-bronze color, particularly the new tip growth, which adds interest to the plant in the dormant season. Drought and alkaline tolerant and grows well in full sun as well as in partially shaded sites. Effective in foundation plantings and as a ground cover. Serves as a pollinator to promote berry-like cone production of Blueberry Delight® Juniper in landscapes. Propagated by hardwood cuttings. USDA hardiness zone 2b-3. Available in nursery trade.

A selection made from an open-pollinated seedling population grown from seed harvested from the birch collection in the NDSU Arboretum, Absaraka, ND. The most striking feature is its columnar to narrowly pyramidal growth habit. It has a vigorous growth rate. The bark color goes through a transitional phase from grayish-orange on 3-year-old stems, orange-white on 6-year-old stems to yellow-white on mature trunks. The bark is slightly exfoliating when mature. The dark green quality foliage is retained until late autumn. Outstanding golden-yellow autumn color develops annually, even in falls after trees are exposed to severe 15 - 20º F freezing temperatures. ‘Fargo’ has been shown to be well adapted in Fargo, ND (USDA hardiness zone 4a), Mandan, ND (zone 3b), St. Paul, MN (zone 4a) and central Saskatchewan, Canada (zone 3a). It is tolerant to drought, heat and strong winds, as well as to heavy clay soil with fairly high pH. Evaluations indicate ‘Fargo’ has average tolerance to the bronze birch borer. It is recommended that trees be mulched, and supplementary water supplied in stressful sites. Very attractive specimen tree. Propagated by tissue culture and/or softwood cuttings. USDA hardiness zone 3. Available in nursery trade.

This selection was derived as a second-generation seedling from seed originally received from the Highland Park Herbarium, Rochester, NY. Many seedlings from the second generation were winterhardy in zone 3. Five additional sources of superior plants of this species were obtained for comparative evaluation from the Missouri Botanical Garden, St. Louis, MO, and also a Mount Arbor Nursery, Shenandoah, IA source, but none of these selections proved winter hardy in zone 3. Prairie Radiance® produces a small 10 to 15’ tree with a low branched trunk or multiple trunks. It has quality green foliage and produces reddish fall color in sandy-loam soils to an intense pink in Red River Valley clay soils. Excellent autumn coloration develops even after severe fall freezes. It produces a multitude of delicately pink-colored capsules, which begin coloring in mid-August. In mid- to late-September, the capsules split open, exposing bright reddish seeds. After the leaves drop, the gray-barked stems displaying the sequential color changes of the fruit are an attractive site over an extended period. This plant is effective as a small specimen tree in yards, informal groupings in parks and other areas. Propagated by softwood cuttings. USDA hardiness zone 3. Available in the nursery trade.

This seedling selection has superior emerald-green, semi-glossy foliage and a very dense form. It grows somewhat slower than the species, averaging 6” a year, under dry land conditions in North Dakota. It produces a distinctly mound-like to rounded growth habit, gradually reaching a height of 7 to 9’. Its profusely borne white flowers and drupes, as well as colorful ros-y pink pedicels contrasting with its silvery-gray stems, combine to produce an attractive landscape shrub. Use in dense hedge or shrub border, specimen, or groupings in parks. Propagated by semi-hardwood cuttings and sucker divisions. USDA hardiness zone 3. Available in nursery trade.

There is considerable interest in small trees for use in the landscape. Snow Mantle® Dogwood produces a 12 to 15’ small tree covered with white flowers followed by white fruits, both borne in profusion. The fruits (drupes) are usually retained on the plants late into the fall. It grows with a somewhat layered, umbrella-shaped crown. Its lingering pink fruit pedicels also add interest in the fall. The older and larger this selection becomes, the more attention it has aroused. It grows multi-trunked and is most effective if grown in clumps. Dense small specimen tree or groupings in parks. Propagated by semi-hardwood cuttings and sucker divisions. USDA hardiness zone 3. Available in the nursery trade.

A small tree selected for its very showy coppery-orange, peeling bark and large, attractive creamy-white flower panicles. Large tannish seed clusters remain on the tree and these capsules add interest on the winter scene. This cultivar is winterhardy in zones 3 - 4, which will extend the northern range of landscape use for this species. Trees may grow 20 to 28’ tall and are effective either single or multi-trunked. Copper Curls® is introduced in collaboration with Dr. Scott Redlin (Raleigh, NC). Choice landscape specimen tree. Propagated by piece root grafting, bark grafting, tissue culture or softwood cuttings. USDA hardiness zone 3. Available in nursery trade.
20. **Northern Acclaim® Thornless Honeylocust** – *Gleditsia triacanthos var. inermis 'Harve'* (2001)

A medium-large tree with greater winter hardiness than currently available cultivars in the nursery trade. It is thornless, seedless, fast-growing and fairly upright in form, similar to Skyline®. With age, the stumpy tree widens. It is quite drought tolerant and develops yellow fall color. Winter hardiness is definitely superior to Skyline® and ‘Imperial®’ in North Dakota sites. Shelter, boulevard and landscape tree. Propagated by chip budding. USDA hardness zone 3. Available in the nursery trade.


This cultivar is a very elegant, stately tree. Its lateral branches curve markedly upward and slightly inward, resulting in a narrowly-erect, strikingly-dense growth habit. Color of needles year-round is a rich emerald-green, with silvery-blue overtones. This singularly outstanding specimen tree for yards and parks. Trees reach 25 to 30' in 20 to 25 years. Propagated by side grafting. USDA hardness zone 2b-3. Available in the nursery trade.


A noteworthy stress tolerant selection from Killdeer Mountain seed source in western North Dakota. Snow white, exfoliating bark. Excellent grown single or multi-trunked. Resistant to bronze birch borer attack for 35 years in evaluation. Semi-pyramidal to upright-oval growth habit, becoming broadly-oval with age. Quality dark-green leaves and golden-yellow autumn color develops, even after severe autumn freezes. Superior adaptation and stress tolerance are valuable attributes of this cultivar. Specimen tree for yards and parks. Propagated by tissue culture and/or softwood cuttings. USDA hardness zone 2b-3. Available in the nursery trade.


A selection of Asian white birch native to western China. It has performed very well and resisted bronze birch borer attack for 35 years in evaluations. Bark is white with blackish markings. Its broad, triangular-deltoid shaped leaves color golden-yellow in fall, even after severe autumn freezes. Very winter hardy. Trees can be grown single or multi-trunked. This adaptable tree grows upright-oblong to semi-pyramidal in form, broadening somewhat with age. Specimen tree for yards and parks. Propagated by tissue culture and/or softwood cuttings. USDA hardness zone 3. Limited availability in nursery trade.


The most drought tolerant alder evaluated in NDSU trials. Rapid-growing, medium-sized tree with lush dark green leaves. Bark is gray and beech-like. Purple catkins and clusters of brown, cone-like strobiles add interest to the tree throughout winter. Tree mulching recommended. Prairie Horizon® will reach a height of 25' in 18 to 20 years. Shelter, park and specimen tree. Propagated by softwood cuttings, grafting possible. USDA hardness zone 3. Available in nursery trade.


A very winterhardy hybrid buckeye selected in northwestern Minnesota. Introduced by North Dakota State University in collaboration with Bergeson Nursery, Fertile, MN. In NDSU trials, it grew faster than most buckeye accessions for the first 10 - 15 years, producing a rather dense, globose form. With age it broadens, becoming more mushroom-shaped. Ultimate size of tree is small-medium, 20 to 28', which fits well in residential landscape sites. The foliage is of high quality, fairly coarse-textured, and typically composed of 7 leaflets, which incline downward in an umbrella-like fashion. These characteristics lend a tropical touch to the tree's appearance. Autumn coloration in medium to light-textured soils, is brilliant orange-red. This cultivar is far superior in quality to most seedlings of Ohio Buckeye - *Aesculus glabra*. Small shade and landscape specimen tree. Propagated by grafting, possible by budding and softwood cuttings. USDA hardness zone 3. Limited availability in nursery trade.


This selection is a lone survivor among American elm trees that died from Dutch elm disease along the Wild Rice River south of Fargo, ND. When inoculated with the Dutch elm disease fungus, this tree displayed high resistance. The original tree is still healthy and has continued to resist DED infection 15 years after the inoculation of clonal propagules was conducted. This selection produces dark-green foliage and develops the classic umbrella form, which typifies American elm. Clonally-propagated trees planted under clean cultivation in NDSU trials averaged over 3' of growth annually for 10 years. The American Elm is North Dakota's State Tree and this selection was released and named for its apparent Dutch elm disease resistance in honor of the 200th anniversary of the Lewis and Clark Expedition in 2004. Shelter, shade and boulevard tree. Propagated by grafting, chip budding or cuttings. USDA hardness zone 2b-3. Available in nursery trade.


This juniper selection is being introduced as a joint release by NDSU and Dr. Dale Lindgren, Department of Plant Sciences, University of Nebraska-Lincoln. This plant was collected from Pine Canyon, located northeast of Arnold, NE. It has been growing in NDSU trials for 35 years. Its striking foliage is brilliant green, with slightly tufted, mature scale foliage intermixed with contrasting grey-blue juvenile growth, creating a bicolor effect. The foliage takes on a purplish-bronze color in the dormant season. It is vigorous, producing a dense, attractive spreading growth habit, with plants reaching 1 to 1 3/4' in height. Silvery-blue, berry-like cones contrast markedly with the foliage. This plant makes a beautiful foundation plant and is excellent for mass ground cover use. It is believed to be a natural juniper hybrid between *J. virginiana* - Eastern Red-cedar and *J. horizontalis* -Creeping Juniper. Excellent in foundation and ground cover plantings. Propagated by hardwood cuttings. USDA hardness zone 2b-3. Availability pending.
A superior selection of Laurel Willow based upon 13 years of evaluating four accessions at four NDSU Research/Extension Centers across the state of North Dakota. This selection originated from a farm near Brinsmade, ND, where it flourished nearly a century. The site was somewhat alkaline in pH, but the tree never suffered from chlorosis due to iron deficiency, a common problem incurred by some trees in such sites. Survival rate after 13 years at four NDSU research sites averaged 90%. The other accessions averaged 79, 67, and 58% survival, respectively. Prairie Reflection® grows rapidly, produces a dense, rounded tree with very dark green, highly glossy foliage. It requires pruning, as do all Laurel Willows, to produce a single-trunked tree in nursery production. The glossiness of the leaves reflect sunlight much like a mirror, hence its name. Shelter, shade, park, and specimen tree. Propagated by softwood cuttings. USDA hardiness zone 3. Available in nursery trade.

29. **Prairie Stature® Oak – Quercus x bimundorum ‘Midwest’** (2005)
This oak was introduced in collaboration with Dr. Mark Widrlechner, retired horticulturist, USDA - ARS, North Central Regional Plant Introduction Station, Iowa State University, Ames, IA. Six seedling trees, labeled *Quercus robur* - English Oak were received for cooperative trial via the NC-7 program in 1972. One seedling was outstanding in landscape features, including quality emerald-green, semi-glossy, leathery foliage throughout the entire growing season, reddish coloration in autumn, retention of tannish leaves into winter, and a fairly dense, pyramidal form. Outstanding autumn color develops even after falls with severe 10 - 20º F freezes. It has averaged 14º of growth per year for 34 years. This tree merits attention for asexual propagation by commercial nursery propagators for its outstanding attributes. It is extremely difficult to propagate clonally by cuttings or in tissue culture. Limited propagation trials at NDSU have produced success rates of 21 to 53% utilizing various grafting/budding techniques. It is a hybrid oak with English Oak x White Oak (*Q. alba*) parentage. This hybrid holds considerable promise for northern landscapes. Shade, boulevard and specimen landscape tree. USDA hardiness zones 3-5. Available in the nursery trade.

Spring Welcome® is an outstanding pest-free winter hardy selection of Loebner Magnolia. It has proven to be quite winter hardy in USDA hardiness zone 4 for the past 20 years, even after winter temperatures of -40º F. Spring Welcome® has outperformed other Loebner Magnolia hybrids tested in zone 4. Flowers are pink in bud, gradually opening to clean white with 11-13+ tepals and 3 to 4 1/2” in diameter and blooms reliably even after early spring frosts. Foliage is dark green, narrowly obovate, leathery and of high quality. Plants are densely ovate in form and can be grown single or multi-trunked. This selection is quite vigorous and will reach a mature height of 15 to 18’. Currently under propagation and testing by commercial nurseries. Propagated by softwood cuttings and grafting. USDA hardiness zone 3b-4. Limited availability in nursery trade.

The River Birch has become a fairly popular landscape tree because it is resistant to injury and death by the bronze birch borer. In 1989, a seed-propagated tree growing in Dickinson, ND was tissue-culture propagated. This 40-year old tree was planted in 1966 and is the largest tree of this species observed in the upper Northern Plains. It has performed very well under rather compacted, dry and alkaline soil conditions in USDA zone 3. Many seed sources of River Birch suffer winter injury in zone 3 and also may die from iron chlorosis in alkaline pH soils. The bark on this cultivar is ivory colored with striking coppery-bronze exfoliating bark which contrasts to add landscape interest. Trees may be grown single or multi-trunked. As trees reach 20 to 25 years of age, the shaggy bark becomes more uniformly tannish-brown. Foliage quality has been good with yellow autumn color. This introduction may potentially prove to be superior in adaptation to stressful environmental conditions in the upper Midwest and northern plains. Propagated by tissue culture and/or softwood cuttings. A landscape specimen tree. USDA hardiness zone 3. Availability pending.

Superior seedling selection of Norway Spruce growing in the NDSU Research Arboretum since 1981. It is characterized by a narrower, upsweeping branch angle than typical for the species. This results in a denser, more compact growth habit. It also has a richer, brighter, emerald-green needle color. Most importantly, Royal Splendor® is essentially devoid of drooping, pendulous tertiary branchlets which typify this species when trees reach a height of 25 to 30’. As this occurs, most Norway Spruce decline substantially in aesthetic value in the landscape. Royal Splendor® grew to 40’ tall at 30 years of age with striking, nearly perfect, narrowly-pyramidal Christmas tree form. Nursery and research personnel touring the arboretum from other states recommended that this tree be introduced. Four Oregon nurseries requested scionwood for propagation. A quality specimen tree for landscapes. Propagated by side grafting, possible by semi-hardwood cuttings. USDA hardiness zone 3. Availability pending.

33. **Prairie Sun™ Honeysuckle – Lonicera x ‘Denseglobe’** (2007)
*L. tatarica* - Tatarian Honeysuckle cross with unknown species. Very dense form with distinct rounded growth habit for over 12 years reaching a height of 7 to 9’ tall. Clean, attractive, bright green foliage with bluish tinge in early to mid-summer, becomes duller in late summer, but superior in foliage to Tatarian Honeysuckle. Light pink-tinged flowers, red berries. Resistant to Russian aphid, witches’ broom. Recommended for general landscape use, shelterbelts, farmstead windbreaks, wildlife plantings, living snow fences and other conservation purposes. Propagated by softwood and/or hardwood cuttings. USDA hardiness zone 2b-3. Availability pending.
34. **Prairie Moon™ Honeysuckle – Lonicera x ‘Densemound’** (2007)

*L. korolkowii* - Blueleaf Honeysuckle cross with unknown species. Very dense, mound-shaped plant superior in form to Freedom Honeysuckle reaching a height if 7 to 9’ tall. Foliage is distinctly bluish in early to mid-summer, dulling slightly in late summer. Produces a second growth flush annually, which contrasts colorfully with the earlier produced darker mature foliage. Rarely produces erratic shoots common to Blueleaf and Freedom Honeysuckles. White pink-tinged flowers, dark red berries. Resistant to Russian aphid and witches’ brooming. Recommended for general landscape use, shelterbelts, farmstead windbreaks, wildlife plantings, living snow fences and other conservation purposes. Propagated by softwood and/or hardwood cuttings. USDA hardiness zone 3. Availability pending.

35. **Prairie Star™ Honeysuckle – Lonicera x ‘Denserect’** (2007)

*L. Tatarica* - Tatarian Honeysuckle cross with unknown species. Very dense, quite upright oval form for over 10 years reaching 10 to 12’ tall. Attractive bright-green, tinged gray-blue foliage in early summer dulls somewhat in late summer. Light pink-tinged flowers, red berries. Resistant to Russian aphid, witches’ brooming. Recommended for general landscape use, shelterbelts, farmstead windbreaks, wildlife plantings, living snow fences and other conservation purposes. Propagated by softwood and/or hardwood cuttings. USDA hardiness zone 2b-3. Availability pending.

36. **Northern Flare® Sugar Maple – Acer saccharum ‘Sisseton’** (2008)

This sugar maple is a selection made from a seedling population grown from seed collected at the northern extremity of the Prairie Coteau, west of Sisseton, SD. This is the farthest west sugar maples grow native in the northern U.S. This cultivar produces quality, leathery, green foliage, an oval-ovate dense form, and has good vigor, averaging 2’ of new growth annually for 10 years. Excellent orange-red autumn color is produced annually at North Dakota trial sites. This cultivar was introduced because it is superior in adaptation and performance to other named commercial cultivars evaluated in the Northern Plains. Excellent for shade or specimen tree for yards and public grounds. Propagated by budding on Sugar or Black Maple seedling rootstocks. USDA hardiness zone 3. Limited availability in nursery trade.

37. **Firegl™ Amur Maple – Acer tataricum ssp. ginnala ‘Superglobe’** (2008)

A selection made from a seedling population grown from seed originally received from the Morden Research Center, Morden, Manitoba. After 30 years, plants are only 9½’ tall, averaging only 3 to 4” of new growth per year. Foliage quality is very good and plant form is a near perfect, rounded mound, self-facing to ground level. The plant is extremely dense, and fall color is a blazing scarlet red annually. This cultivar is superior in NDSU evaluations to commercial cultivars currently in the nursery trade. The schizocarps (seeds) are also reddish for several weeks, another ornamental attribute. This dwarf, tailored cultivar would be a welcome addition in a wide variety of landscape settings and is very hardy and adaptable to stressful conditions. Propagated by softwood cuttings. USDA hardiness zone 3. Availability pending.


Boston Ivy is one of the best vines, which cling tenaciously on stone, brick and other wall surfaces. Unfortunately, most sources and cultivars are very borderline in hardiness in Zone 3 and 4a. This selection was named because it was growing for many years to the top of a seven-story building and rarely froze back during winters in eastern North Dakota. Due to its greater winter hardiness, quality foliage and excellent vigor, NDSU has released Northland™ Boston Ivy for commercial nursery production and landscape planting. Although new plantings are established, the original plants were removed, and long-term fall coloration observations are still pending. Propagated by softwood cuttings. USDA hardiness zone 3b-4. Availability pending.


This linden seedling selection has been under observation since 1972 in central North Dakota. It was reportedly planted before 1940, and is the oldest, largest, and stateliest Littleleaf Linden observed to date in the Northern Plains. Bud propagated trees under evaluation grow in a very dense, ovate-pyramidal form, and display good vigor, averaging 2½’ annually under clean cultivation for 10 years. After trees reach approximately 35 years of age, the ovate-pyramidal growth habit slowly broadens to a more informal, round-spreading form, making a desirable shade tree for residential properties, public grounds and other landscape sites. Long-term reliable performance in the Northern Plains certainly lends support that this cultivar has superior adaptation qualities growing under stressful conditions. Autumn color is golden yellow. Propagated by budding or softwood cuttings. USDA hardiness zone 3. Availability pending.
40. Emerald Charm™ Cherry – *Prunus* x ‘Morgenson’ (2008)
In the mid-1980's, Greg Morgenson (Bismarck, ND) collected seed from a planting of Mongolian cherry (*Prunus fruticosa*) in the Northern Plains. Some authors list the common name as European dwarf cherry or European Ground cherry bush. This species is native in Central and Eastern Europe to Siberia and typically grows as a multi-stemmed suckering, dense shrub 4 - 6' tall. Emerald Charm™, a unique seedling selection, grows into an attractive small tree reaching 20 to 25' by 15 to 18' wide. It grows upright, multi-branched, and vase-shaped in form with a uniformly spreading crown. It may be grown as a single or multi-stemmed specimen similar to Japanese tree lilac. A collaborative release by NDSU, Emerald Charm™ is a putative hybrid between *P. fruticosa* and an unknown cherry species. It has good vigor under clean cultivation, averaging 1½' of growth annually over a 16-year period. Growth is most rapid in earlier years. Emerald Charm™ produces masses of small, white flowers in spring, followed by dark green, very lustrous leaves, which are smaller than other cherry species. The thick-textured foliage holds up well during summer heat stress, becoming attractive yellow in autumn color. Emerald Charm™ is apparently sterile, having produced no fruit after 16 years, even though planted in proximity to five other cherry species. It has been very hardy in zone 3, one to two zones colder than the hardiness of many cherry species and cultivars. Bark color is dark brown with a reddish tinge. Unlike Amur chokecherry (*P. maackii*), no winter bark splitting has been observed. Propagation by mid-August budding on *P. maackii* and *P. cerasus* ‘Meteor’ (Meteor Sour Cherry) seedling rootstocks was very successful and eliminates suckering. Budding on *P. avium* (Sweet or Mazzard Cherry), a somewhat less hardy rootstock, was not as successful. This small tree offers an attractive landscape alternative with superior foliage to most crabapple and other smaller tree species. USDA hardiness zone 3. Availability pending.

41. Prairie Pioneer® Dwarf Chinkapin Oak – *Quercus prinoides* ‘Fort Lincoln’ (2008)
Dwarf Chinkapin oak grows typically as a multi-stemmed, suckering, large shrub or small tree, 6 to 16' in height. It is native in the eastern U.S. as far west as southeastern Minnesota, eastern Nebraska and Texas. Prairie Pioneer® is a seedling selection grown from seed collected from a native stand in southeast Nebraska by Greg Morgenson (Bismarck, ND). This novel, small-statured, tree-like cultivar is collaboratively released by NDSU and may reach 24 to 28' in height at maturity. It has withstood -35 to -40°F numerous times in Bismarck, ND, and therefore is hardy in zone 4, and potentially zone 3b as well. Prairie Pioneer™ was selected for its dark green, very lustrous foliage and upright growth habit easily trained to a single stem. The leaves vary from 2 - 4½’ long, ovate-oblong to obovate, acute tipped and wedge-shaped at base, with 4 to 6 shallow undulate to dentate teeth on each side. The lustrous foliage is somewhat reminiscent of the leaf quality on broadleaf evergreen holly species. The underside of the leaves is finely tomentose and lighter colored. In spring, trees are covered with yellow male catkins before leaves emerge, and sessile acorns are produced if a suitable white oak member species is in the area for pollination. Fall color is typically yellow to tannish-brown. Propagation is by side grafting on containerized seedlings of chinkapin oak (*Q. muehlenbergii*), swamp white oak (*Q. bicolor*) or preferably, bur oak, if proven to be compatible. Prairie Pioneer™ merits attention as a dense, quality-foliaged small tree for residential landscapes and various sites where large trees are unsuitable. USDA hardiness zone 3b-4. Availability pending.

42. Sea Foam™ Savin Juniper – *Juniperus sabina* ‘Greenscape’ (2009)
This seedling selection of Savin Juniper (*J. sabina*) has been evaluated in NDSU trial plots since 1974. ‘Greenscape’ has outperformed all other named Savin Juniper cultivars in overall adaptation and hardiness. It has excellent vigor, with an average increase in width of 1.44’ annually over an 18-year period at the Carrington Research/Extension Center. It is an outstanding, sun-loving ground cover, with excellent density, reaching a height of 1½ to 2½’. Foliage is primarily scalelike, soft, and is attractive mellow green in color, with a tinge of grey-blue. This color is retained year-round. Thus, it does not develop a purplish-brown hue common to several other juniper species in winter. As it grows, it develops many semi-arching branches, creating a wavy sea of green; hence, its name. ‘Greenscape’ is most similar to ‘Skandia’, but the latter cultivar is finer-textured, a bit lighter green in color and not nearly as vigorous. Foliage color of ‘Greenscape’ in the dormant season is superior to ‘Monna’ - Calgary Carpet® Juniper. It is readily propagated by rooting hardwood cuttings. USDA hardiness zone 3b-4. Limited availability in nursery trade.

A clonal selection was collaboratively released by NDSU and Greg Morgenson (Bismarck, ND) of a mature Eastern Redbud growing in central South Dakota. This dense, round-headed tree has proven to be winterhardy at this Northern Plains site for at least 40 years. Northern Herald® is characterized by quality pink flowers, including prolificous production of flowers. Propagules of the tree are flowering well in Nebraska and two North Dakota test sites. The quality of its green, leathery-textured, cordate-shaped leaves is also above average for this species. Fruit (pod) set is markedly reduced from the species norm. Other northern seed sources and named cultivars of Redbud evaluated at North Dakota research sites have not performed satisfactorily due to insufficient winter hardiness. The introduction of Northern Herald® has potential to extend the range of this small, 20' ornamental landscape tree further north. Tip dieback may occur after very harsh winters, primarily on new growth of juvenile plants. However, as trees age and produce less vigorous, more hardened growth, they tend to outgrow this problem. Avoid overwatering, and especially, fertilizing trees in summer and fall. Selection of more favorable, protected planting sites, including snow cover and/or providing additional mulch depth the first 3 to 4 winters may also reduce possible winter injury. Propagated by side grafting, T-budding or tissue culture. USDA hardiness zone 3b-4. Availability pending.
44. **Northern Advance® American Sycamore – Platanus occidentalis 'Bismarck' (2009)**

Evaluation of seedling populations and clonal propagated selections for many years at NDSU resulted in the release of this cultivar in 2009. Northern Advance® is capable of attaining a tree of large stature. It has been winterhardy in USDA Zone 3 in Bismarck, ND for over 35 years, and in eastern North Dakota trials for over 20 years. The American Planetree (Sycamore) is a fairly rapid growing species and transplants of ‘Bismarck’ should not be fertilized when young to allow proper acclimation or hardening-off of new seasonal growth. Based on NDSU evaluations, this cultivar may extend the success range of this species a minimum of 100 to 200 miles further north; hence its trademark name. Due to lower humidity levels in the Northern Plains region, anthracnose, a fungal disease, is not anticipated to be problematic. Foliage characteristics and flaky, exfoliating bark features are similar to the species. It may best be utilized along stream corridors, or in open areas such as parks, sports facilities and campuses. It is a harder cultivar to help diversify tree plantings. It is not generally recommended as a street tree or for sites affected by drought. Propagation by softwood cuttings. USDA hardiness zone 3. Availability pending.

45. **Sun Beam® American Hophornbeam – Ostrya virginiana 'Camdale' (2011)**

Ironwood (American Hop-hornbeam) is an over-looked native small tree (member of the Birch family) in eastern North America, including the Northern Plains. This northern selection grows in an oblong-pyramidal form, slowly widening with age. Its branch habit is more upright than typical for the species. Its dark-green summer leaves change to golden-yellow in autumn, and approximately 50% cling on the tree into the winter, adding coppery-brown hues to the landscape when trees are dormant. Sun Beam® Ironwood grows 30 to 38' in height in 35 to 40 years, depending on site conditions. Mulching may speed growth rate somewhat, due to better growing conditions. Increasing interest is being shown in this native, smaller tree for landscape uses, including yards, parks, golf courses, boulevards and naturalized areas. Male catkins and hop-like fruits add additional winter interest plus its strippy bark tends to exfoliate. This cultivar performs well in northern areas where sites are not too droughty. It is probably best planted balled and burlapped or container-grown. Good success has been achieved on the NDSU campus using bare-root plants that have been sweat out. Vegetative propagation is not easy, but softwood cuttings can be rooted in late June to mid-July. Grafting and/or budding methods have also been successful. USDA hardiness zone 3. Availability pending.

46. **Northern Spotlight® Korean Maple – Acer pseudoaerialum 'KorDak' (2011)**

A very winterhardy Korean maple selection. It has tolerated in excess of -40°F winter temperatures multiple times in a 125 to 140 day growing season in the Northern Plains. Its palmate simple leaves are typically 7 to 9 lobed. The popularly planted palmate-lobed maple species, namely, *A. palmatum* – Japanese Maple and *A. japonicum* – Fullmoon Maple, are Zone 5 to 8 species, and thus, not winterhardy in the Northern Plains. Northern Spotlight® has great potential to fill this void in Zones 3 and 4, suffering no winter stem or tip damage over a 20-year evaluation period. Many seedling propagated Korean Maple seed sources are highly variable in cold hardness or have hybridized with the lesser hardy palmate-lobed species resulting in winter damage or plant failure in northern areas. Planted as a small seedling in 1991, the original plant of Northern Spotlight® is now 13’ tall and 10’ wide growing in a multi-stemmed manner. Plant form is open with layered branching. New foliage emerges later than other hardy maple species and is initially covered with a fine silky pubescence creating an interesting early visual effect. Summer foliage is medium green and has been resistant to summer leaf scorch and tip burn generally caused by winds, high temperatures, and low humidity. Outstanding orange to orange-red fall colors develop unless interrupted by severe premature fall frost. Foliage is retained throughout the winter months, dropping as budbreak occurs in spring. In northern climates, leaf retention, as well as proper site selection, aid in protecting plant stems from winter sunscald. However, sunscald has not occurred on Northern Spotlight® to date. The landscape assets of this superior, hardy cultivar make it an exciting small tree for northern plantings, including residential landscapes. A collaborative introduction by NDSU and Greg Morgenson (Bismarck, ND). Propagated by softwood cuttings (late June to late July). USDA hardiness zone 3. Limited availability in nursery trade.

47. **Green Canyon™ Rocky Mountain Douglas-fir – Pseudotsuga menziesii var. glauca ‘Winterscape’ (2011)**

Douglas-fir is sub-divided into two major botanical varieties, namely var. *menziesii*, restricted to forests of the Pacific Northwest – especially the Sierra and Cascade Mountain ranges. This variety is rarely sufficiently winter hardy in the interior northern U.S., often suffering severe winter burn dieback. The variety *glauca*, native to the vast Rocky Mountain region, is significantly more winter hardy and quite drought tolerant. In the Northern Plains, only the variety *glauca* should be planted. Green Canyon™ is a selection that has performed very well in eastern ND for over 50 years. It is very winter hardy and merits planting to expand the palette of coniferous species in the Northern Plains. Green Canyon™ was named for its significantly greener foliage color, compared to most Rocky Mountain Douglas-firs. It is attractive year-round, including the winter landscape. It is very densely-pyramidal in form. Growth rate is similar to common spruce and pine species. Tannish-brown cones average 2 1/4 to 2 3/4” long with extended 3-pronged bracts protruding between the scales. Needles average ¼ to 1” long. Landscape uses include residential landscape specimen, parks and other public grounds and shelter. Propagated by rooting hardwood cuttings, by side grafts or top-cleft grafts, but scion-stock incompatibility sometimes complicates graft success. USDA hardiness zone 3. Availability pending.
48. **Canyon Treasure™ Bigtooth Maple – Acer saccharum ssp. grandidentatum ‘Orbit’ (2011)**

Bigtooth Maple is considered a western subspecies of the sugar maple native in eastern North America. It grows in drier locations and provides an extravaganza of autumn color in the canyons of the Rocky Mountains, particularly in southern Idaho and Utah. Trees are smaller in stature compared to sugar maple. In the 1970's -80's, NDSU obtained numerous seed sources of Bigtooth Maple largely from Utah. Of the hundreds of seedlings grown, only one plant survived in USDA hardiness zone 3 winters. This plant grew in a dense, broadly-oval to globose form with quality foliage and attractive golden-orange to orange-red autumn color, depending on soil site variation and particular climatic conditions of a given fall. Specifically, the leaves have 3-prominent, major blocky lobes. Leaves are somewhat smaller and more bluntly-toothed than leaves of sugar maple. This tree has performed well at several North Dakota sites, including an evaluation plot in Bismarck, ND from 1994 to present. Over a 15-year period, annual growth rate averaged 1.3', the last eight years growing in sod. Height and width in 2011 was approximately 24' by 15 ¼', respectively. Since other seed sources and a commercially introduced cultivar have not proven to be winter hardy in the Northern Plains, NDSU researchers decided to name and introduce this harder seedling ‘Orbit’ - Canyon Treasure™. Tree for shade, specimen, residential landscape, parks and other public grounds. Propagation by softwood cuttings or budding. USDA hardiness zone 3b-4. Availability pending.

49. **Fall Grandeur™ Red Maple – Acer rubrum ‘Minnkota’ (2011)**

Red Maple is an eastern North American maple species, native as far west as Minnesota and Oklahoma. Since it prefers slightly acid, moist soils, many introduced cultivars in the commercial nursery trade are poorly adapted in the Northern Great Plains. Furthermore, many cultivars are deficient in winter hardiness in USDA hardiness zones 3-4, often suffering severe trunk sunscald injury. Fall Grandeur™ originated as a seedling from a Minnesota seed source and has performed exceptionally well in NDSU arboretum evaluations for over 30 years. It has good foliage qualities, typically with three major leaf lobes. Fall color is a showy red. Tree form is upright, and densely ovate-elliptical. Currently, this select cultivar is 31' tall and 14' in width and has averaged 1' of growth per year growing in sod. There has been no evidence of iron chlorosis in moderately alkaline pH soils. Propagated by softwood cuttings. Excellent shade, park and specimen tree because of its aesthetic qualities and superior adaptation. USDA hardiness zone 3. Availability pending.


In 1995 NDSU obtained nursery seedlings of this small maple species native to northeast China and Korea. The original seed source is unknown. The five trees planted in the NDSU arboretum have performed very well and have suffered no winter injury over a 16-year evaluation period. One tree was selected and named ‘Jack-O-Lantern'- Orange Aglo™. It has several horticulturally aesthetic, landscape features. First, this maple cultivar produces quality, trifoliate compound leaves, which average 5.2" long (including petiole) and 3.75" in width. Leaflets are irregularly serrate and semi-pubescent. Autumn coloration has been exceptional with leaves turning pumpkin-orange almost annually. Variation in soils and annual autumn climatic conditions may alter fall color certain years, in fact, orange-red autumn color was displayed a few times. Eventually leaves dry, turn tannish and cling on the tree throughout the winter months adding interest and texture in the landscape. No iron chlorosis symptoms have occurred in moderately alkaline pH soils. Lastly, the bark of Orange Aglo™ is very attractive and characterized by ash-brown to golden-orange vertical striations. Growing in sod, Orange Aglo™ has grown approximately 1' annually over a 15-year period in the NDSU arboretum. Uses for this outstanding small to medium size tree are many, including specimen, residential landscape, parks and public grounds. Propagation is not easy, but softwood cuttings or grafting recommended. USDA hardiness zone 3-4. Availability pending.

51. **Northern Esteem™ Black Poplar – Populus nigra ‘Schreiner’ (2011)**

In 1978, NDSU obtained five hybrid poplar cultivars from a Pennsylvania nursery. One of these poplars has out-performed a large percentage of Populus accessions under evaluation for over 30 years in the NDSU arboretum. It was purchased under the “cumbersome” name Populus charkowiensis x P. cv. incassata. In 2011, contacts were made with three U.S. Forest Service professionals, including Drs. K.T. Smith, Durham, NH; K.W. Gottschalk, Morgantown, WV; and R.S. Zalesny, Jr., Rhinelander, WI concerning the breeding and origin of this poplar. Based particularly on information provided by Dr. Smith, the hybrid parentage was designated as P. nigra var. charkowiensis x P. nigra var. incassata and originally developed by the late E. J. Schreiner at the former Northeastern Forest Experiment Station, Radnor, PA under the code NE308. Some authorities no longer recognize the two botanical varieties listed above as being authentic varieties. With careful review of this information and the above researchers and nursery offering general support, NDSU decided to rename this apparent intraspecific hybrid poplar with a more “consumer friendly” name. The cultivar name ‘Schreiner’ was chosen to honor the original breeder and the trademark name Northern Esteem™ to further pay tribute to the original developer. Most poplars propagated and planted in conservation and wildlife plantings in the Northern Plains have one or more major problems, including deficient winter hardiness, disease and/or insect susceptibility. Northern Esteem™ is a rapidly growing, large tree. It has glossy, emerald green deltoid-shaped leaves and has exhibited high disease and insect resistance. The intent of this rename is solely to promote future planting of this superior, hardy poplar. Uses include shelterbelt, farmstead windbreak, wildlife and other shelter/conservation plantings. USDA hardiness zone 3. Availability pending.

Single plant selection originating from within a Harbin, China seed source grown for over 30 years at the NDSU Dale E. Herman Research Arboretum. This selection has been fully hardy in USDA hardiness zone 4. Based on regional experience with the species and seed origin should be fully hardy throughout zone 3 and possibly into zone 2b of the Agriculture Canada hardiness zone map. Growing in a full sod condition for its length of evaluation, Northern Empress® has reached a height of approximately 26 feet with a 20-foot canopy spread making it ideal for limited space landscapes and possibly for use under power lines and near other overhead structures. Mature height may exceed this in other areas of the country but overall it is a smaller, more compact elm selection. Based on grafting trials, Northern Empress® has reproduced reduced growth with shorter internodes than the species. Structural branching is open and widely spaced which eliminates the narrow branch angle problems associated with several of the recently selected and available hybrid elm cultivars. Branch terminals are not excessively twiggy and are not prone to twig drop. Mature plant form is a rounded crown. Foliage is an excellent medium green color throughout the summer showing no signs of chlorosis on a soil pH exceeding 8. Black leaf spot of elm is present in the NDSU elm collection and only minimally affects Northern Empress® if at all while other cultivars may be severely affected. Japanese elm has an inherent resistance to elm leaf beetles and Dutch Elm Disease (DED). Seed production has been very light and is not considered to be a negative maintenance issue. Autumn coloration on Northern Empress® occurs later than other Japanese elms in the collection by one to two weeks and highlights one of its standout attributes. Rather than the standard yellow fall coloration of most elm species including Japanese elm, Northern Empress® gradually progresses from an apricot-orange color to an attractive burgundy-red, which is quite striking at its peak. This is only the second elm cultivar that has fall coloration other than yellow. Frontier Elm (*Ulmus* (carpinifolia x parvifolia) ‘Frontier’) has similar fall color to Northern Empress® but is not reliably hardy in zone 4 and has more of an upright-pyramidal form. Propagation is by tissue culture, side grafting or chip budding onto *Ulmus pumila* rootstocks, and possibly by semi-hardwood cuttings. Availability Pending.


Cinnamon Curls® is a unique seedling selection of Korean birch (*Betula costata*) that is dwarfing and compact in form and habit. The height of Cinnamon Curls® at 28 years of age is approximately 9 feet with a crown width of 8 to 9 feet. Mature growth parameters typically listed for the species are 65 to 90 feet in height with a 25 to 40-foot spread. It is also winter hardy in USDA hardiness zone 4, possible zone 3b with further trialing. Foliage is a high-quality bright green during the summer months and has exhibited no symptoms of chlorosis growing on a soil pH in excess of 8. Fall coloration is bright yellow. The outstanding feature of this selection is its creamy white exfoliating bark on the main trunk and structural branches, which curls in longitudinal strips to reveal the cinnamon colored undersides of the curls. This feature is evident at all times of the year but is especially noticeable and pleasing during the winter months when the entire structure of the plant is viewable. The compact appearance of the rounded crown of the plant is a result of the short annual terminal growth, which produce multiple closely spaced buds. Bronze birch borer has not affected Cinnamon Curls® even though it is present and well established at the NDSU Dale E. Herman Research Arboretum. Cinnamon Curls® is an ideal focal point plant for small landscapes, patios, and office entryways. Comparable commercial cultivars are found within related species of river birch (*B. nigra*). The two dwarf river birch cultivars are Little King® and Tecumseh Compact® and are not reliably hardy as tested by NDSU in zones 3b to 4a. Both of these cultivars suffer from chlorosis on high pH soils and branch dieback as a result of marginal hardiness. Cinnamon Curls® adapts well to these harsher growing conditions and should also perform well into zones 5 and 6. Propagation trials were successful with side grafts onto potted paper birch (*B. papyrifera*) rootstocks and maintain the selected dwarf growth trait. Availability Pending.


Single plant selection originated from a northwest Minnesota native population seed lot and was noted for its early intense fall coloration as a two-year old seedling. This selection has been fully hardy in USDA hardness zone 3b. September Flare® is a very hardy sugar maple seedling selection exhibiting heavy textured tatter resistant foliage, consistent mid-September into early October showy red-orange fall coloration, and excellent winter hardiness in the Northern Plains to -40°F. This selection is notable for its early annual display of excellent reliable fall color, which is photoperiod initiated and not frost dependent in this northern climate setting. September Flare® begins fall coloring before other trees in the landscape which extends the fall color season significantly. Early fall coloring is also indicative of increased winter hardiness because of earlier winter acclimation. Growing in a full sod boulevard condition for its length of evaluation, September Flare® will reach a height of 40 feet with a 30-foot canopy spread. Recommended for use as a landscape, public grounds, boulevard (larger), parks, schools, and golf course tree, wherever tree diversity and adaptability to northern conditions are important. September Flare® prefers a deep, well-drained, non-droughty soil and will tolerate higher pH levels than the species. Foliage exhibits a heavy textured tatter resistant foliage with excellent medium green color throughout the summer showing no signs of chlorosis on a soil pH exceeding 8. Grafting studies have shown that early fall coloring is a consistent trait and grafted plants reliably color at the same time each ear, mid-September, independently from seasonal temperatures and fall frost events like other fall coloring trees.

Availability Pending.
55. **Lavaburst® Ohio Buckeye – Aesculus glabra ‘LavaDak’ (2015)**

Single plant selection originating from an unknown seed source. This selection has been fully hardy in USDA hardiness zone 3b. Growing in full sod condition for its length of evaluation, Lavaburst® has reached a height of approximately 25 feet with a 14-foot canopy spread making it ideal for limited space landscaping including street boulevards and possibly for use under power lines and near other overhead structures. Mature height may exceed this in other areas of the country but overall it is a smaller, more compact upright Ohio buckeye selection. Lavaburst® is a narrow upright northern hardy Ohio buckeye selection with shorter internode stem growth than typical for the species and other Aesculus cultivars. This shorter internode stem growth gives Lavaburst® the superior compact foliage. Based on grafting trials, Lavaburst® has reproduced the atypical shorter stem nodal lengths setting it apart from other cultivar selections. Foliage shows greater resistance to leaf scorch than non-selected buckeys and maintains a bright green summer color changing to lave orange-red in autumn. Compact growth habit makes this selection ideal for limited space planting sites where a full-sized buckeye is not suitable. Seed production is light as compared to the species and other selected cultivars which is highly desirable as buckeye fruit (seed) are considered to be poisonous and can be messy in a formal landscape. Lavaburst® is soil adaptable but prefers a well-drained, non-droughty soil and tolerates higher pH levels. Propagation is by side or cleft graft onto seedling Aesculus rootstocks and will perform best on A. glabra in northern climates to insure root hardiness.

56. **Emerald Flare™ Tianshan Birch – Betula tianshanica ‘EmerDak’ (2016)**

Single plant selection originating of B. tianshanica, Tianshan birch from an unknown seed source and designated as TS95115-2 with the NDSU Woody Plant Improvement Program. The selection TS95115-2 has darker green foliage during the summer months than the other sibling trees from original seed source. This selection has been fully hardy in USDA hardiness zone 3b. Growing in full sod condition for 17 years and 4 years mulched for its length of evaluation. Emerald Flare™ has reached a height of approximately 23 ft with a 12 ft canopy spread growing as a double leader. If trained in the nursery as a single leader, size would be approximately 23 ft tall with an 8 ft canopy spread, making it ideal for limited space or group planting within the landscape. Mature height may exceed this in other areas of the country but overall it is a more narrowly pyramidal, formal birch selection. Emerald Flare™ had exhibited outstanding drought tolerance with higher than average resistance to bronze birch borer which is essential for birch species. Foliage is an excellent medium emerald-green color throughout the summer showing no signs of chlorosis on a soil pH exceeding 8. Summer foliage is of high quality without blemishes resulting from birch leafminer or leaf spot. During summer drought conditions, Emerald Flare™ exhibits no foliar stress symptoms such as leaf scorch or early leaf drop which is seen on many other birch species. Autumn coloration is an outstanding golden-yellow. Flowers consist of male catkins and female strobiles which do not have significant ornamental value and are not considered messy within the landscape. The bark is slightly exfoliating with darker grey peeling to white with faint orange undertones. Young branches are a reddish brown prior to exfoliating to the white bark and have an ornamental contrast with the exfoliating white bark of the main supporting trunk. Propagation is by side grafting or chip budding onto B. tianshanica seedlings or by softwood or semi-hardwood cuttings.

57. **Summer Aspire™ Japanese Tree Lilac – Syringa reticulata ‘SumDak’ (2017)**

A tall, upright Japanese tree lilac growing in a non-traditional form for the species. The stiffly ascending branches above a substantial trunk combine to create a tree lilac much narrower in form and greater in height than cultivars or seedling grown plants generally found in the landscape. Large terminal, borne panicles, creamy white in color and consisting of many small perfect, fragrant flowers. Flowering occurs in late June after foliage formation and persists for several weeks. Good foliage quality, and prominent bark lenticels add to its ornamental features. Moderately drought tolerant, prefers moist well-drained soil. Soil adaptable even to alkaline soils. Will tolerate dry soils once established. Intolerant of wet and flooded soils. The desirable upright growth form, showy flowers, summer foliage quality, and bronze gray bark create an attractive large Japanese tree lilac for urban planting. Recommended for use as a boulevard, landscape, public grounds, parks, schools, and golf course tree where a large tree form is desired to diversify tree species use.

58. **Fireflare Orange™ Mollis Azalea – Rhododendron xkosteranum ‘FireDak’ (2018)**

Single plant selection originating from a hybrid Mollis azalea seedling population. This selection was grown and outplanted in Fargo, ND in the early 1970’s. It has performed admirably for over 40 years of evaluation. This NDSU deciduous hybrid azalea cultivar has proven to be as adaptable and winterhardy as the deciduous azalea ‘Lights’ cultivar series introduced by the University of Minnesota in USDA hardiness zone 3b – 4. The shrub is a dense, compact semi-dwarf with height of 4 ft and width of 5 ft after 40 years. Fireflare Orange™ is smaller in size than any of the ‘Lights’ cultivar series with orange flower color. Leaves are alternate, simple with an entire margin, are variably oblanceolate in shape. Leaf size vary from 0.5 to 4.5 inches in length and 0.5 to 1.5 inches in width. Leaf margins are pubescent becoming glabrous to setaceously pubescent on veins beneath. Annual flower bud set is reliable, but abundance of flowers varies considerably with previous year’s growth as affected by moisture levels, soil fertility, percent sun/shade and other environmental conditions. Flowers are very showy, being a brilliant fire-orange. Plants in bloom are truly an eye-stopper. Flower clusters average 3 – 7 florets per bud with each flower being on average 2.5 inches in width. Plants grow well under part shade (25 – 50%). This selection is pH tolerant with no exhibition of chlorosis symptoms. Fall leaf coloration is usually quite good. Typically occurring in October (Fargo, ND; USDA hardiness zone 4), including yellow-orange to reddish-purple fall foliage color.