

RECOMMENDED URBAN TREES FOR USDA PLANT HARDINESS ZONE 6 AND COLDER

I. SMALL TREES (≤ 30') SUITABLE FOR CITY ENVIRONMENT PLANTINGS UNDER LOW OVERHEAD UTILITY WIRES OR IN RESTRICTED SPACES

Scientific Name: *Acer buergerianum*

Common Name: Trident Maple

Environmental Conditions:

Hardiness Zone: 6a

Soil Moisture:

VERY WET				VERY DRY							
occasionally saturated or very wet soil	consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil				
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: some observed tolerance

pH: ≤ 7.5

Insect/Disease Factors: none serious or limiting

Growth Characteristics:

Height: 20' - 25'

Width: 20' - 25'

Form/Habit: round, low branching tendency often creates short trunk, single leader typically absent

Rate: slow to medium, typically slow

Ornamental Characteristics:

Flower: not ornamentally important, inconspicuous, greenish-yellow clusters, spring

Fruit: 1" samara

Seasonal Foliage Color: new growth often bronze to purple maturing to glossy dark green, fall color late and variable (yellow/orange/red)

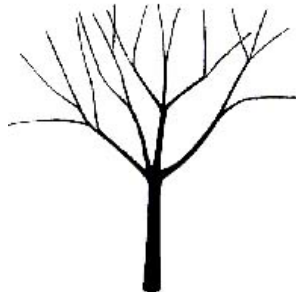
Bark: gray/brown/orange, platy, exfoliating

Transplant Issues: difficult to transplant B&B

Management Issues: low branching may require pruning for street tree use

Suggested Uses: wide street tree lawns/pits, narrow tree lawns/pits with pruning, parks

Cultivars: **Street Wise®** ('ABTIR') selected for ability to be easily trained into a single leader (oval habit, medium growth rate, new growth emerges reddish-purple, burgundy fall color)



Scientific Name: *Acer campestre*

Common Name: Hedge Maple

Environmental Conditions:

Hardiness Zone: 5b

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: relatively pest free

Growth Characteristics:

Height: 25'-35'

Width: 25'-35'

Form/Habit: round, low branching tendency often creates short trunk

Rate: slow to medium

Ornamental Characteristics:

Flower: not ornamentally important, inconspicuous, green clusters, spring

Fruit: 1 1/2" samara

Seasonal Foliage Color: dark green in summer, yellowish in fall

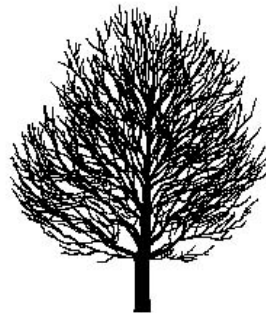
Bark: not ornamentally important, gray-black, lightly ridged and furrowed

Transplant Issues: easy to transplant B&B or ≤ 2 " caliper bare root

Management Issues: low branching may require pruning for street tree use, adapted to severe pruning

Suggested Uses: wide street tree lawns/pits, narrow street tree lawn/pits with pruning, parks, suitable for CU-Structural Soil™

Cultivars: **Queen Elizabeth™** ('Evelyn', 6b, more upright, oval habit, vigorous), **'Schichtel's Upright'** (narrower form resulting in an oval crown), **St. Gregory™** ('Stgrezam', smooth bark, uniform canopy, strong central leader)



Scientific Name: *Acer platanoides* ‘Globosum’ or ‘Globe’

Common Name: Globe Norway Maple

Environmental Conditions:

Hardiness Zone: 4a

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
2	3	4	5	6	7	8	9	10	11	12	

Sun/Shade: prefers full sun, tolerates full shade

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: none serious, tar spot is a common aesthetic problem with the species and may be a limiting factor for selection, *Verticillium* wilt, anthracnose, and leafhoppers are occasional problems for species

Growth Characteristics:

Height: 15’-18’

Width: 15’-20’

Form/Habit: dense, round, globose, top-grafted at 6’ or 7’

Rate: slow

Ornamental Characteristics:

Flower: yellow to greenish yellow, early spring before leaf emerge

Fruit: 1 ½”-2” samara

Seasonal Foliage Color: dark green in summer, yellow fall color

Bark: not ornamentally important, gray-black, ridged with shallow furrows

Transplant Issues: easy to transplant B&B or ≤ 2” caliper bare root

Management Issues: very likely to naturalize when planted next to open areas

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: above info is cultivar specific, readily available *Acer platanoides* cultivars are large trees except ‘Crimson Sentry’, an intermediate size (zone 4b, 25’-30’ high, 15’-20’ wide, broad-columnar form, same dark maroon foliage as ‘Crimson King’ but slower growing)

Scientific Name: *Acer tartaricum* ssp. *ginnala* (formerly *Acer ginnala*)

Common Name: Amur Maple

Environmental Conditions:

Hardiness Zone: 3a (2)

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
2	3	4	5	6	7	8	9	10	11	12	

Sun/Shade: prefers full sun, tolerates partial shade

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: none serious or limiting, occasionally injured by *Verticillium* wilt, bacterial blight, or other maple diseases and insects, **'Flame'** may be more susceptible to *Verticillium* wilt

Growth Characteristics:

Height: 15'-25'

Width: 15'-25'

Form/Habit: rounded, sometimes irregular outline, often shrub-like and available multi-stemmed, overtime could prune multi-stemmed form into low branching tree, should specify single-leader if desire tree form (although may still require pruning)

Rate: slow to medium

Ornamental Characteristics:

Flower: fragrant, yellowish-white clusters, spring as leaves emerge

Fruit: ¾"-1" samara, red or brown in summer, abundant

Seasonal Foliage Color: glossy dark green in summer, variably yellow, orange, or red in fall

Bark: not ornamentally important, gray-brown, smooth with darker striations on older bark

Transplant Issues: easy to transplant B&B or ≤ 2" caliper bare root

Management Issues: suckering at trunk base can be a problem, may require pruning to maintain single trunk tree form, may naturalize in spacious environments, abundant seed may be a litter problem in some areas

Suggested Uses: wide street tree lawns/pits, narrow street tree lawns/pits with pruning, parks

Cultivars: **Beethoven™** (**'Betzam'**, columnar habit, 10'-15' wide, more moderate growth rate, bright red samaras, deep hunter-green foliage in summer, gold and red in fall, possibly *Acer ginnala* x *tartaricum* hybrid), **'Embers'** (red fruit, excellent red fall color), **'Flame'** (zone 2, seed-grown selection and hence somewhat variable, form reportedly easily trained into excellent small low branching or multi-stemmed tree, orange-red to deep red fall color, fruit bright red in summer and darker red in fall), **Mozart™** (**'Mozzam'**, pyramidal and symmetrical habit, more moderate growth rate, stronger central leader, bright red samaras, bright green foliage in summer changing to red in fall)

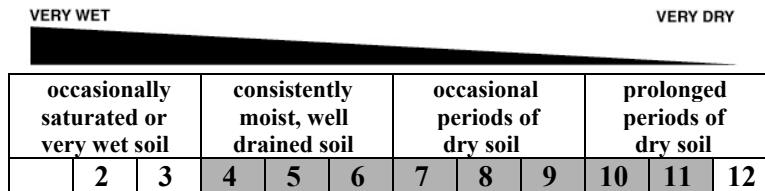
Scientific Name: *Acer tartaricum*

Common Name: Tartarian Maple

Environmental Conditions:

Hardiness Zone: 3 (not as hardy as *A. tartaricum* ssp. *ginnala*)

Soil Moisture:



Sun/Shade: prefers full sun, tolerates partial shade

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: none serious or limiting, susceptible to *Verticillium* wilt and cankers

Growth Characteristics:

Height: 15'-25'

Width: 15'-25'

Form/Habit: rounded, sometimes irregular outline, often shrub-like and available multi-stemmed, overtime could prune multi-stemmed form into low branching tree, should specify single-leader if desire tree form (although may still require pruning)

Rate: slow to medium

Ornamental Characteristics:

Flower: greenish-white clusters, spring as leaves emerge

Fruit: 1" samara, turning green to red in summer on most trees, can be very ornamental

Seasonal Foliage Color: larger leaves and softer green in summer than *A. tartaricum* ssp. *ginnala*, yellow fall color, sometimes red, leaves drop earlier than *A. tartaricum* ssp. *ginnala*

Bark: not ornamentally important, similar to *A. tartaricum* ssp. *ginnala*

Transplant Issues: easy to transplant B&B or ≤ 2" caliper bare root

Management Issues: suckering at trunk base can be a problem, may require pruning to maintain single trunk tree form, may naturalize in spacious environments, abundant seed may be a litter problem in some areas

Suggested Uses: wide street tree lawns/pits, narrow street tree lawns/pits with pruning, parks

Cultivars: 'Rubrum' (blood-red foliage color in fall)

Scientific Name: *Acer truncatum*

Common Name: Shantung Maple or Painted Maple

Environmental Conditions:

Hardiness Zone: 5a (species is variable, hybrid cultivars zone 5)

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
2	3	4	5	6	7	8	9	10	11	12	

Sun/Shade: full sun

Salt: unknown

pH: ≤ 8.2

Insect/Disease Factors: none serious or limiting, good resistance to leaf scorch

Growth Characteristics:

Height: 25'-35'

Width: 25'

Form/Habit: round (species variable), low branching tendency often creates short trunk

Rate: slow

Ornamental Characteristics:

Flower: greenish-yellow, spring, can be showy

Fruit: 1 ¼" samara

Seasonal Foliage Color: emerging leaf color purplish-red changing to green, fall color variable (yellow/orange/red)

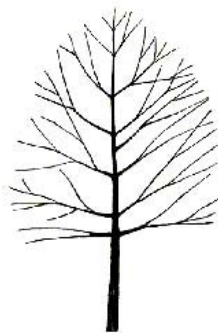
Bark: not ornamentally important, gray-brown, rough and fissured with age

Transplant Issues: easy to transplant B&B or ≤ 2" caliper bare root

Management Issues: currently available plant material typically branches low, may require pruning for street tree use

Suggested Uses: wide street tree lawns/pits, narrow tree lawns/pits with pruning, parks, suitable for CU-Structural Soil™

Cultivars: hybrids with *A. platanoides* - **Norwegian Sunset™** ('Keithsform', upright oval, good uniform branch structure, glossy dark green foliage, yellow-orange to red fall color, more heat and drought tolerant than *A. platanoides*) and **Pacific Sunset™** ('Warrenred', rounded, upright spreading, very glossy dark green foliage, finer branched, brighter yellow-orange to red fall color, turns fall color earlier than Norwegian Sunset™)



'Norwegian Sunset'

Scientific Name: *Amelanchier* spp. (*A. arborea*, *A. canadensis*, *A. laevis*, and *A. x grandiflora*)

Common Name: Serviceberry Species and Hybrids, Tree Forms

Environmental Conditions:

Hardiness Zone: 4 (3b)

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
2	3	4	5	6	7	8	9	10	11	12	

Sun/Shade: prefers full sun, tolerates partial shade

Salt: sensitive

pH: ≤ 7.5

Other: poor heat tolerance

Insect/Disease Factors: none limiting, foliage diseases can be a problem but are very rarely fatal, fireblight, mites, scales can be serious problems if site requirements not met, ‘**Autumn Brilliance**’ and ‘**Princess Diana**’ resistant to leaf spot, ‘**Autumn Brilliance**’ reportedly somewhat fireblight tolerant

Growth Characteristics:

Height: 20’-30’

Width: 15’-25’

Form/Habit: oval, multi-stem or single-stem forms available, must specify tree form as *Amelanchier* is also grown as a large shrub

Rate: medium

Ornamental Characteristics:

Flower: white erect or pendulous clusters (depending on species or hybrid), in spring as leaves emerge or after (depending on species or hybrid), almost always showy

Fruit: edible reddish-purple to black berries

Seasonal Foliage Color: varies with cultivar, gray-green to dark green in summer, yellow to red in fall, reliably good fall color regardless of cultivar

Bark: attractive, smooth gray streaked with darker longitudinal fissures, becoming ridged, furrowed and scaly with extreme age

Transplant Issues: easy to transplant B&B or ≤ 2” caliper bare root

Management Issues: rootstock suckering possible on some cultivars, typically *Sorbus* is used for rootstock, although **Tradition**® has *Crateagus* rootstock which could produce thorny suckers

Suggested Uses: narrow or wide street tree lawns/pits, parks

Cultivars (Tree forms only): ‘**Autumn Brilliance**’ (heavy flowering, lustrous dark green foliage, bright orange to red in fall, excellent heat and drought tolerance for species), ‘**Cole’s Select**’ (15’ wide, thicker and glossier small green foliage, orange-red to red in fall), ‘**Cumulus**’ (12’-18’ wide, faster growing, yellow to orange-scarlet fall color, may sucker at root collar), ‘**Majestic**’ (fast growing, difficult to find in tree form, open/airy and irregular form, large flower clusters, large foliage emerges with red tint then turns dark green, copper-orange to scarlet fall color), ‘**Princess Diana**’ (may be difficult to find in tree form, green foliage, bright red in fall, reportedly early and long lasting fall color), **Reflection**™ (‘**Refzam**’, 10’-15’ wide, heavy flowering, gray-green foliage, yellow-orange in fall, *Crateagus* rootstock), ‘**Robin Hill**’ (12’-15’ wide, pink buds, early bloomer, bronze-tinged green foliage, yellow to red in fall), ‘**Snowcloud**’ (15’ wide, open habit, foliage reportedly emerges with red tint, blue-green to dark green in summer, copper-orange to scarlet in fall), **Spring Glory**® (‘**Spirzam**’, 10’-15’ tall, 8-10’ wide, gray-green foliage, amber-orange fall color), **Tradition**® (‘**Trazam**’, strong central leader, good branching habit, heavy fruiting, gray-green foliage, orange and red fall color)



‘**Cumulus**’

Scientific Name: *Carpinus caroliniana*

Common Name: Ironwood, Musclewood, or American Hornbeam

Environmental Conditions:

Hardiness Zone: 3b

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: prefers partial shade, tolerates full shade

Salt: sensitive

pH: ≤ 7.5

Insect/Disease Factors: relatively pest free

Growth Characteristics:

Height: 30'

Width: 25'

Form/Habit: rounded, spreading, sometimes more flat-topped, often irregular, clump or single stem forms available

Rate: slow

Ornamental Characteristics:

Flower: 2"-4" long pendulous clusters of green leafy bracts

Fruit: small nutlets partly enclosed by green leafy flower bracts

Seasonal Foliage Color: dark green, often lustrous in summer, yellow to orange-red in fall

Bark: attractive, smooth gray, irregularly fluted "muscle" look

Transplant Issues: difficult to transplant B&B or bare root, somewhat slow to establish

Management Issues: none of significance

Suggested Uses: narrow or wide street tree lawns/pits, parks

Cultivars: none available commercially



Clump Form

Scientific Name: *Cercis canadensis*

Common Name: Eastern Redbud

Environmental Conditions:

Hardiness Zone: 5b (use in 4b and 5a is dependent on a cold hardy seed source)

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

*western seed sources are thought to be more drought tolerant than eastern sources

Sun/Shade: prefers full sun, tolerates partial shade

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: none limiting, cankers can occasionally be a serious problem

Growth Characteristics:

Height: 20'-30'

Width: 25'-35'

Form/Habit: open, spreading and somewhat flat-topped, typically multi-stemmed or low branching tree, multi-stem and single-stem forms available

Rate: medium

Ornamental Characteristics:

Flower: very showy, purplish-pink, early spring before leaves emerge, edible

Fruit: 2"-3" pod, changes from light green to brown

Seasonal Foliage Color: new growth emerge glossy reddish-purple, medium to dark green in summer, greenish-yellow to golden yellow in fall

Bark: dark gray-brown in youth, attractive with age, trunk and branches become scaly and expose cinnamon colored inner bark

Other: attractive heart-shaped foliage

Transplant Issues: easy to transplant B&B, moderately difficult to transplant bare root, better success in transplanting bare root in fall, do not attempt to transplant > 2" caliper trees bare root

Management Issues: none of significance

Suggested Uses: wide street tree lawns/pits preferred if using multi-stemmed form, narrow street tree lawns/pits if using standard or with pruning, parks, suitable for CU-Structural Soil™

Cultivars: 'Forest Pansy' (zone 5b or 6, slightly smaller than species, slow growth rate, exceptionally glossy new growth, red-purple spring foliage, bronze summer foliage, yellow-orange fall color),

'Northern Strain' or 'Minnesota Strain' (more cold hardy seed produced variety, availability may be limited), *f. alba* (commonly called **Whitebud**, cold hardiness also depends on seed source, fast growth rate, foliage slightly lighter green than species, white flowers)

Scientific Name: *Cornus mas*

Common Name: Corneliancherry Dogwood

Environmental Conditions:

Hardiness Zone: 5a (4)

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: prefers full sun, tolerates partial shade

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: relatively pest free

Growth Characteristics:

Height: 20'

Width: 20'

Form/Habit: round to oval, often multi-stemmed, low branching tendency creates very short trunk, single leader typically absent although available, must specify single-stem form if desirable

Rate: slow to medium

Ornamental Characteristics:

Flower: very showy, small, yellow, early spring before leaves emerge

Fruit: bright red, resembling elongated cherries, edible

Seasonal Foliage Color: dark green in summer, often glossy, occasional purplish-red fall color

Bark: attractive, brown and gray, scaly/flaky exfoliation

Transplant Issues: easy to transplant B&B and ≤ 2 " caliper bare root

Management Issues: low branch attachments may require pruning for street tree use

Suggested Uses: wide street tree lawns/pits, narrow street tree lawns/pits with pruning or single-leader form, parks, suitable for CU-Structural Soil™

Cultivars: 'Golden Glory' (more narrow and upright form, abundant flowering, red-purple fall color, leaves and fruit larger than species)

Scientific Name: *Cotinus obovatus*

Common Name: American Smoketree

Environmental Conditions:

Hardiness Zone: 5a

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: unknown

pH: ≤ 8.2

Insect/Disease Factors: none serious or limiting

Growth Characteristics:

Height: 20'-30'

Width: 15'-30'

Form/Habit: oval to rounded, low branching tendency and absent central leader creates very short trunk, single-stem tree form is available (although rare), must specify single-stemmed tree form if desirable as it is most often available in multi-stemmed large upright shrub form

Rate: medium

Ornamental Characteristics:

Flower: greenish to pale purple, on 6"-10" long, light/airy pyramidal clusters, spring

Fruit: individually inconspicuous and not ornamentally important, often sparse fruit production, but tan clusters can be attractive when fruiting, 'smoky' appearance due to silky hairs on sterile flowers in cluster, although not as showy as *C. coggygia* – Smoke Bush

Seasonal Foliage Color: new growth emerges bright light green, blue-green to dark green in summer, fall color variable and mixed (yellow, orange, red or red-purple) but reliably bright and excellent

Bark: attractive, gray to gray-brown, becoming scaly with age

Other: stems often orangeish

Transplant Issues: difficult to transplant B&B or bare root

Management Issues: low branch attachments may require pruning for street tree use

Suggested Uses: wide street tree lawns/pits, narrow street tree lawns/pits with pruning, parks

Cultivars: none commercially available

Scientific Name: *Crataegus crus-galli* var. *inermis*

Common Name: Thornless Cockspur Hawthorn

Environmental Conditions:

Hardiness Zone: 4a

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: *Crataegus* species are susceptible to many foliage diseases and various insects (fireblight, leaf blight, mildews, and rusts are some of the more common problems), var. *inermis* reportedly resistant to cedar-hawthorn rust and leaf blight, lacebug tolerant, **Crusader®** is reportedly very disease resistant

Growth Characteristics:

Height: 20'-25'

Width: 20'-25'

Form/Habit: round, strongly horizontal branching structure, multi-stem forms available, must specify single-stem tree form

Rate: slow to medium

Ornamental Characteristics: none of significance

Flower: white clusters, unpleasant odor, spring

Fruit: showy clusters, bright red, berry-like, persist into late fall and sometimes winter

Seasonal Foliage Color: glossy dark green in summer, orange in fall

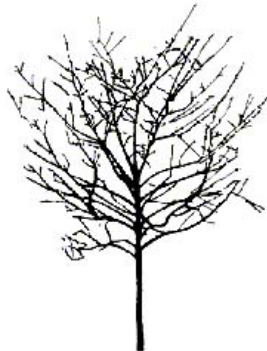
Bark: not ornamentally important, silvery-gray

Transplant Issues: difficult to transplant B&B, moderately difficult to transplant bare root, better success in transplanting bare root in fall, do not attempt to transplant > 2" caliper trees bare root, somewhat slow to establish

Management Issues:

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: **Crusader®** ('Cuzam') may be smaller (15' high x 12'-15' wide) than var. *inermis*



Scientific Name: *Crataegus phaenopyrum*

Common Name: Washington Hawthorn

Environmental Conditions:

Hardiness Zone: 4a

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
2	3	4	5	6	7	8	9	10	11	12	

Sun/Shade: full sun

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: *Crataegus* species are susceptible to many foliage diseases and various insects (fireblight, leaf blight, mildews, and rusts are some of the common problems), reportedly resistant to cedar-hawthorn rust and less susceptible than other *Crataegus* to disease, susceptible to lacebug

Growth Characteristics:

Height: 20'-30'

Width: 20'-25'

Form/Habit: round, densely branched, multi-stem forms available, must specify single-stem tree form

Rate: slow to medium

Ornamental Characteristics:

Flower: white clusters, early summer, a later flowering *Crataegus*

Fruit: showy clusters, bright and glossy red, berry-like, persist through winter

Seasonal Foliage Color: glossy dark green in summer, reddish-purple in fall

Bark: not ornamentally important, silver-gray, scaly with age

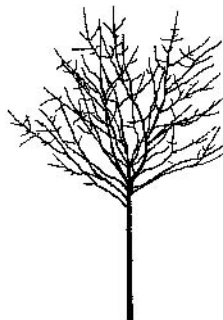
Other: thorny

Transplant Issues: difficult to transplant B&B or bare root, somewhat slow to establish

Management Issues: thorns should be considered in relation to clearance requirements

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: **Princeton Sentry™** (faster growing, almost thornless, more upright branching, relatively pest-free), **Manbeck Select** (selected for improved tree form), **Lustre** (faster growing, oval shape, fewer thorns), **Fastigiata** (glossy dark green in summer, orange to purplish fall color), **Vaughn** (*C. crugalli* x *C. phaenopyrum*, not recommended due to increased rust susceptibility and particularly thorny quality)



Scientific Name: *Crataegus punctata* var. *inermis* ‘Ohio Pioneer’

Common Name: Ohio Pioneer Dotted Hawthorn

Environmental Conditions:

Hardiness Zone: 5a (4)

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: *Crataegus* species are susceptible to many foliage diseases and various insects (fireblight, leaf blight, mildews, and rusts are some of the common problems), resistant to fireblight, susceptible to cedar-hawthorn rust and mildew

Growth Characteristics:

Height: 20’-25’

Width: 30’-35’

Form/Habit: round, strongly horizontal branching structure, multi-stem forms may be available, should specify single-stem tree form

Rate: medium, possibly fast

Ornamental Characteristics:

Flower: abundant, large white clusters, spring

Fruit: showy, dark red, often dotted white, drop in fall

Seasonal Foliage Color: gray-green in summer, purplish-red in fall

Bark: not ornamentally important, silver-gray

Other: essentially thornless

Transplant Issues: difficult to transplant B&B, somewhat slow to establish

Management Issues: none of significance

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: above info is cultivar specific, **f. aurea** (sometimes listed as ‘Aurea’, yellow fruiting form of *Crataegus punctata*) is very difficult to find



Scientific Name: *Crataegus viridis* 'Winter King'

Common Name: Winter King Hawthorn

Environmental Conditions:

Hardiness Zone: 5a (4)

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
2	3	4	5	6	7	8	9	10	11	12	

Sun/Shade: full sun

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: *Crataegus* species are susceptible to many foliage diseases and various insects (fireblight, leaf blight, mildews, and rusts are some of the common problems), species is very susceptible to cedar-hawthorn rust, 'Winter King' cultivar resistant to cedar-hawthorn rust (leaves only, fruits may still be susceptible), reportedly less susceptible than most other *Crataegus* to disease and insects

Growth Characteristics:

Height: 20' - 25'

Width: 25'

Form/Habit: rounded to broad-vase shaped, multi-stem forms may be available, should specify single-stem tree form

Rate: slow to medium

Ornamental Characteristics:

Flower: white clusters, spring

Fruit: very showy, bright red, larger than species, persist through winter

Seasonal Foliage Color: glossy green in summer, color variable in fall (often purple to scarlet, sometimes gold to bronze)

Bark: silver-gray in youth, exfoliates with age exposing orange-brown inner bark

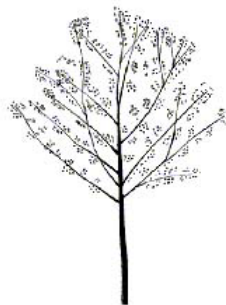
Other: thorny

Transplant Issues: difficult to transplant B&B, moderately difficult to transplant bare root, better success in transplanting bare root in fall, do not attempt to transplant > 2" caliper trees bare root, somewhat slow to establish

Management Issues: thorns should be considered in relation to clearance requirements, suckering of *C. phaenopyrum* – the common rootstock

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: above info is cultivar specific, 'Winter King' is only *C. viridis* cultivar available



Scientific Name: *Fraxinus excelsior* 'Aureafolia'

Common Name: Golden Desert™ European Ash

Environmental Conditions:

Hardiness Zone: 5a (4b)

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: Ashes are susceptible to a number of insect and disease problems, borer problems can be serious and limiting for the species in some areas (hot dry environments), borer resistance for 'Aureafolia' unknown

Growth Characteristics:

Height: 20'-30'

Width: 15'-20'

Form/Habit: rounded

Rate: slow

Ornamental Characteristics:

Flower: not ornamentally important

Fruit: not ornamentally important, samara

Seasonal Foliage Color: emerges yellow, becomes yellow-green in early summer, turns a more golden yellow in late summer and fall

Bark: not ornamentally important

Other: twigs and young stems are bright golden yellow

Transplant Issues: easy to transplant B&B or ≤ 2" caliper bare root

Management Issues: none of significance

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: above info is cultivar specific, 'Aureafolia' sometimes called 'Handles,' other *F. excelsior* cultivars are large trees

Scientific Name: *Fraxinus pennsylvanica* 'Johnson'

Common Name: Leprechaun™ Green Ash

Environmental Conditions:

Hardiness Zone: 3

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: Ashes are susceptible to a number of insect and disease problems, borers can be a problem in hot, dry environments for the species, resistant to anthracnose

Growth Characteristics:

Height: 15'-20'

Width: 15'-20'

Form/Habit: dense, round, top-grafted on 4' or 6' stems

Rate: medium

Ornamental Characteristics:

Flower: not ornamentally important

Fruit: seedless

Seasonal Foliage Color: yellow in fall

Bark: not ornamentally important, gray to gray-brown, narrow interlacing ridges create diamond shaped furrows

Other: leaves smaller than straight species

Transplant Issues: easy to transplant B&B or ≤ 2" caliper bare root

Management Issues: none of significance

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: above info is cultivar specific, other *F. pennsylvanica* cultivars are large trees

Scientific Name: *Koelreuteria paniculata*

Common Name: Goldenraintree

Environmental Conditions:

Hardiness Zone: 5b

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: some observed tolerance

pH: ≤ 8.2

Other: tolerates heat

Insect/Disease Factors: relatively pest free

Growth Characteristics:

Height: 30' (can reach 40')

Width: 30'

Form/Habit: irregular rounded, open, spreading and ascending branching

Rate: medium to fast

Ornamental Characteristics:

Flower: yellow, 12" long pyramidal clusters, mid-summer

Fruit: papery, 1"-2", 3-valved capsules, green changing to yellow then to brown, persistent throughout winter

Seasonal Foliage Color: purple-red when emerging, bright green to blue-green in summer, yellow in fall

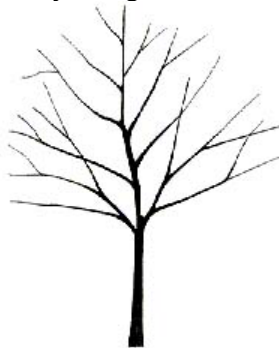
Bark: light gray-brown, ridged and furrowed

Transplant Issues: easy to transplant B&B or ≤ 2" caliper bare root

Management Issues: none of significance

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: 'September' (zone 6 (5b), late summer to fall flowering), 'Rose Lantern' (zone 6 (5b), pinkish fruit capsules), selections are currently being made to develop reliably cold hardy (5a) cultivars



Scientific Name: *Liquidambar styraciflua* 'Clydesform'

Common Name: Emerald Sentinel® Sweetgum

Environmental Conditions:

Hardiness Zone: 5

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: unknown

pH: ≤ 7.5

Insect/Disease Factors: relatively pest free

Growth Characteristics:

Height: 30'

Width: 10'-15'

Form/Habit: narrowly pyramidal to columnar

Rate: slower than straight species (medium to fast)

Ornamental Characteristics:

Flower: not ornamentally important, present as leaves are emerging and expanding

Fruit: 1"-1 1/2" ball of dehiscent capsules, persist into winter

Seasonal Foliage Color: dark green in summer, yellow-orange in fall

Bark: not ornamentally important, grayish-brown, somewhat rounded ridges and deep furrows

Transplant Issues: transplant B&B, not bare root

Management Issues: fruit litter may be objectionable in some situations

Suggested Uses: narrow or wide street tree lawns/pits, parks

Cultivars: above info is cultivar specific, other *L. styraciflua* cultivars are large trees

Scientific Name: *Malus* spp.

Common Name: Flowering Crabapple

Environmental Conditions:

Hardiness Zone: 4, some cultivars hardy to zone 3

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
2	3	4	5	6	7	8	9	10	11	12	

Sun/Shade: full sun

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: many crabapples cultivars are highly disease susceptible, limiting their usefulness in the landscape, all cultivars selected here have ‘good’ to ‘excellent’ resistance to cedar-apple rust, mildew, and scab, as well as at least ‘fair’ resistance to fireblight (‘fair’ resistance is tolerated as it is not as serious a problem in Northern areas as it is in the Southern areas)

Growth Characteristics: varies with cultivar, see chart on following page for cultivar characteristics, along with cultivar silhouettes on page 34

Ornamental Characteristics: varies with cultivar, see chart on following page for cultivar characteristics

Transplant Issues: easy to transplant B&B or ≤ 2 ” caliper bare root

Management Issues: fruit litter on streets may be objectionable in some situations

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

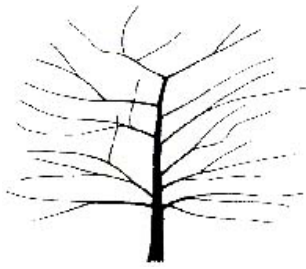
Cultivars: see chart on following page



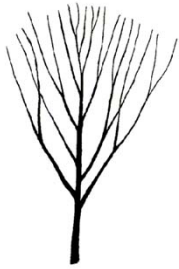
ORNAMENTAL CHARACTERISTICS OF SELECTED DISEASE RESISTANT CRABAPPLES								
Species and/or Cultivar	Zone	Ht	Wd	Form/Habit	Bud	Flower	Fruit	Foliage
'Adams'	4a	20'	20'	round	deep pink	deep pink, profuse	red, persistent, 5/8"	green with red tint
'Adirondack'	4	18'	12'	vase	carmine	white, textured	bright red, 1/2"	dark green, leathery
American Spirit™ ('Amerspirzam')	4	18'	18'	round	white-pink	deep rose	persistent, red, 1/2"	green
<i>baccata</i> 'Jackii'	3a	20'	20'	round	white-pink	white, fragrant, early	deep red-purple, 3/8"	glossy green
'Cardinal'	4	16'	22'	broad spreading	pink	bright pink to red	deep red, 1/2", often sparse	dark purple-red, glossy
Centurion® ('Centsam')	4	20'	15'	narrow oval	dark red	rose red	bright red, persistent, 5/8"	reddish changing to green
'Dolgo'	3b	30'	25'	oval	white	white	bright red, edible, 1 1/2"	glossy green
'Donald Wyman'	4	20'	22'	round	pink	white, abundant	bright red, persistent, 3/8"	dark green
'Dobloons'	4	18'	16'	dense oval	carmine	white, double	yellow, persistent, 3/8"	deep green
<i>floribunda</i>	4b	20'	25'	round	carmine	pink-white, large	yellow/red, 3/8"	green, small
'Henry Kohankie'	4	20'	20'	round	pink	pink-white	red, persistent, 1 1/4"	dark green, large, lobed
'Liset'	4a	15'	15'	columnar	crimson	pink-red, large	dark red, 1/2"	reddish aging to bronze green
'Ormiston Roy'	4a	20'	25'	oval, round with age	rose to pink	white	yellow, persistent, 3/8"	green
'Prairiefire'	4	20'	18'	oval, round with age	crimson	pink-red	orange-red, persistent, 1/2"	reddish aging to red-green
'Professor Sprenger'	4	20'	20'	oval, round with age	pink	white, fragrant	orange-red, persistent, 1/2"	green
'Purple Prince'	4	20'	20'	round	carmine	rose red	maroon, persistent, 3/8"	purple aging to bronze-green
Red Jewel™ ('Jewelcole')	4	15'	12'	oval	pink to white	white	bright red, persistent, 1/2"	green
'Robinson'	4	25'	25'	oval	crimson	deep pink	dark glossy red, 3/8"	reddish aging to bronze green
Royal Raindrops™ ('JFS-KW5')	4	20'	15'	upright spreading	pink	bright pinkish-red	persistent, red, 1/4"	purple, cut-leaf, orange-red in fall
'Sentinel'	4	18'	12'	narrow oval	red	pink to white	bright red, persistent, 1/2"	dark glossy green
'Strawberry Parfait'	4	18'	22'	vase	red	pink, large	yellow, 3/8"	reddish aging to green
Sugartyme® ('Sutyzam')	4	18'	15'	oval	pink	white, fragrant	red, persistent, 1/2"	green
x <i>zumi</i> 'Calocarpa'	4a	20'	22'	round	deep red	white	bright red, persistent, 3/8"	green

* This list does not include recent selections that have reportedly shown good disease resistance, yet have not been around long enough to reliably prove their disease resistance. This list is a work in progress and will be updated periodically as information regarding disease resistance becomes available. ©Urban Horticulture Institute, 2003

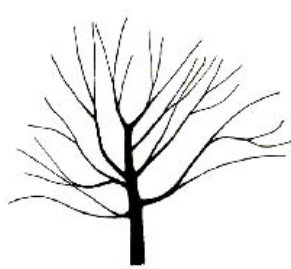
Malus Cultivar Silhouettes



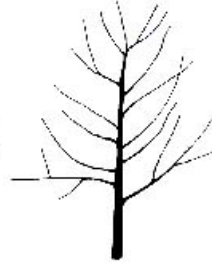
'Adams'



'Adirondack'



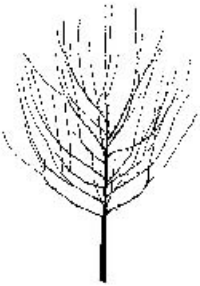
baccata **'Jackii'**



'Centurion'



'Dolgo'



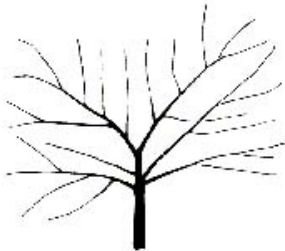
'Donald Wyman'



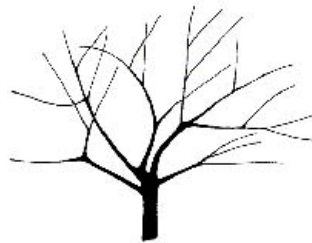
'Doubloons'



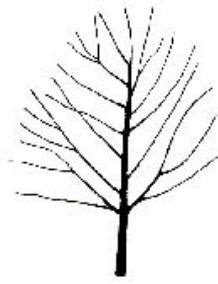
floribunda



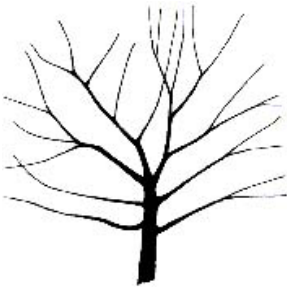
'Henry Kohankie'



'Ormiston Roy'



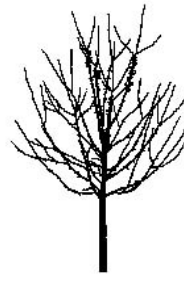
'Prairiefire'



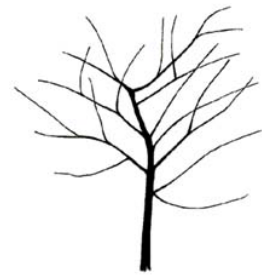
'Professor Sprenger'



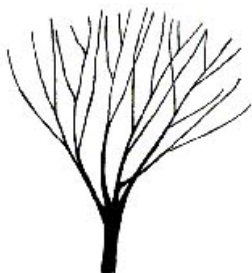
'Purple Prince'



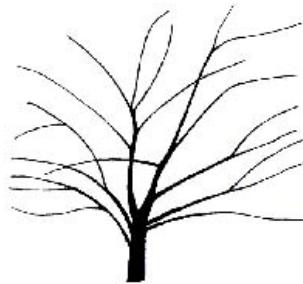
'Red Jewel'



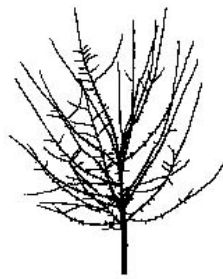
'Robinson'



'Sentinel'



'Strawberry Parfait'



'Sugartyme'



x zumi **'Calocarpa'**

Scientific Name: *Parrotia persica*

Common Name: Persian Parrotia

Environmental Conditions:

Hardiness Zone: 5

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: prefers full sun, tolerates partial shade, fall color best in full sun

Salt: unknown

pH: ≤ 8.2

Insect/Disease Factors: relatively pest free

Growth Characteristics:

Height: 20'-30'

Width: 15'-25'

Form/Habit: broadly pyramidal to rounded, irregular, low branching, branching ranges from horizontal (sometimes semi-pendent) to upright-ascending, occasionally specifying for upright or horizontal branching is possible

Rate: slow to medium

Ornamental Characteristics:

Flower: showy red stamens, late winter/early spring before leaves emerge

Fruit: not ornamentally important, 2-valved brown capsule

Seasonal Foliage Color: reddish-purple when unfolding changing to green in summer, often a mix of yellow, orange, and red in fall

Bark: very ornamental, exfoliating to expose gray/green/white/brown mottled pattern on trunk as well as on older branches

Transplant Issues: easy to transplant B&B or ≤ 2" caliper bare root

Management Issues: prune in spring

Suggested Uses: wide street tree lawns/pits, narrow tree lawns/pits with pruning, parks, suitable for CU-Structural Soil™

Cultivars: 'Ruby Vase' (listed as zone 4, narrower than species, 20' high by 10' wide, upright to vase shaped, foliage emerges ruby red in spring and color persists into fall)

Scientific Name: *Prunus* 'Accolade' (*P. sargentii* x *P. subhirtella*)

Common Name: Accolade Flowering Cherry

Environmental Conditions:

Hardiness Zone: 5a

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: some observed tolerance

pH: ≤ 7.5

Insect/Disease Factors: *Prunus* have many potential problems, 'Accolade' is reportedly more resistant than most

Growth Characteristics:

Height: 20'-25'

Width: 15'- 25'

Form/Habit: rounded to vase shaped, spreading

Rate: fast for *Prunus*

Ornamental Characteristics:

Flower: deep rose-pink buds, semi-double pink pendulous clusters, early spring

Fruit: not showy, small purple-black drupe

Seasonal Foliage Color: green in spring through fall

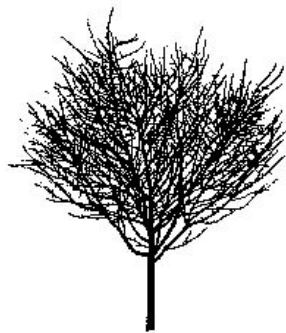
Bark: attractive, smooth reddish-brown, marked with horizontal lenticels

Transplant Issues: easy to transplant B&B or ≤ 2" caliper bare root

Management Issues: cherries are short-lived trees (only 50 years in a good site)

Suggested Uses: narrow or wide street tree lawns/pits, parks

Cultivars: above info is cultivar specific



Scientific Name: *Prunus* ‘Snow Goose’

Common Name: Snow Goose Cherry

Environmental Conditions:

Hardiness Zone: 5

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: unknown

pH: ≤ 7.5

Insect/Disease Factors: *Prunus* have many potential problems, ‘Snow Goose’ is reportedly more resistant than most

Growth Characteristics:

Height: 20’-25’

Width: 20’-25’

Form/Habit: upright in youth becoming much wider with age, top grafted, typically good central leader and well spaced branches

Rate: medium

Ornamental Characteristics:

Flower: white, single, early spring before leaves unfold

Fruit: not showy, 1/4” blue-black cherries, inconspicuous

Seasonal Foliage Color: bright green in summer, yellow to red in fall

Bark: attractive, smooth gray-brown to reddish brown, marked with horizontal lenticels

Transplant Issues: probably easy to transplant B&B

Management Issues: cherries are short-lived trees (only 50 years in a good site)

Suggested Uses: narrow or wide street tree lawns/pits, parks

Cultivars: above info is cultivar specific

Scientific Name: *Prunus virginiana* 'Canada Red Select'

Common Name: Canada Red Chokecherry

Environmental Conditions:

Hardiness Zone: 2b

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: unknown

pH: ≤ 7.5

Insect/Disease Factors: *Prunus* have many potential problems, 'Canada Red Select' is reportedly more resistant than most and resistant to Japanese Beetle, Black knot may be a problem but can be pruned out

Growth Characteristics:

Height: 25'

Width: 20'

Form/Habit: oval to upright spreading, good branching habit

Rate: fast

Ornamental Characteristics:

Flower: showy, white 3"-6" long clusters in spring

Fruit: round, red-dark purple drupe, edible

Seasonal Foliage Color: emerges green, matures to dark maroon in summer

Bark: more red-brown than the typical gray of *P. virginiana*, obvious lenticels do not extend very far horizontally like many other *Prunus* species, remains fairly smooth with age

Transplant Issues: easy to transplant B&B or ≤ 2 " caliper bare root, quick to establish

Management Issues: suckering can be a problem, cherries are short-lived trees (only 50 years in a good site)

Suggested Uses: narrow or wide street tree lawns/pits, parks

Cultivars: 'Canada Red Select' was selected from *P. virginiana* 'Schubert' for its faster growth rate, straighter trunk, well distributed branches, fuller/rounder crown and brighter red leaves



'Canada Red Select' in youth

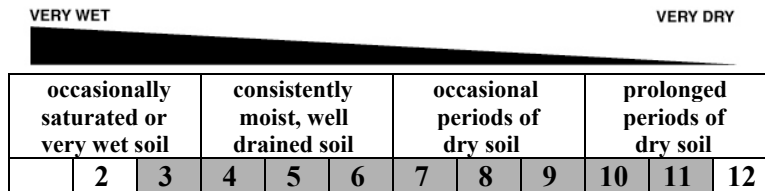
Scientific Name: *Pyrus betulaefolia* ‘Southworth’ and *P. calleryana* x *P. betulaefolia* ‘Edgedell’

Common Name: Dancer™ Ornamental Birchleaf Pear and Edgewood™ Callery Pear

Environmental Conditions:

Hardiness Zone: Dancer™ 4, Edgewood™ 5

Soil Moisture:



Sun/Shade: full sun

Salt: unknown

pH: ≤ 8.2

Insect/Disease Factors: fireblight is a common and potentially serious problem for *Pyrus*, reportedly no fireblight observed on Dancer™

Growth Characteristics:

Height: 30’

Width: 20’-25’

Form/Habit: wider branching angles than *P. calleryana*, Dancer™ is oval to rounded, Edgewood™ is rounded

Rate: medium to fast

Ornamental Characteristics:

Flower: showy, white clusters, spring, Dancer™ flowers heavier and 3 weeks later (so after leaves emerge) than most *P. calleryana* cultivars, Edgewood™ flowering time unknown

Fruit: 1/3”- 1/4”, tan, clustered

Seasonal Foliage Color: Dancer™ emerges silvery-gray in spring, turns glossy light green in summer (fall color unknown), Edgewood™ emerges with purple tint in spring, turns silvery-green in summer and reddish-purple in fall

Bark: similar to *P. calleryana*, brown to gray, lightly ridged and furrowed with age

Transplant Issues: easy to transplant B&B or ≤ 2” caliper bare root

Management Issues: none of significance

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: above info is specific to cultivars

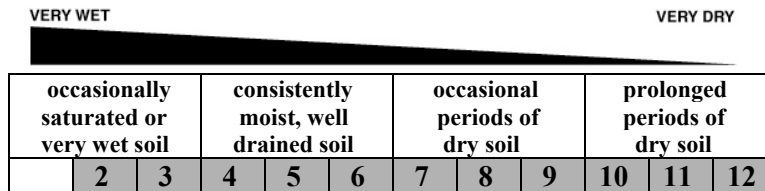
Scientific Name: *Pyrus calleryana* ‘Jaczam’, ‘Jilzam’, ‘Valzam’, and ‘Cleprizam’

Common Name: Jack™, Jill™, Valiant®, and Cleveland Pride® Callery Pears

Environmental Conditions:

Hardiness Zone: 4

Soil Moisture:



Sun/Shade: full sun

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: Jack™ and Jill™ are fireblight resistant (fireblight is a common and potentially serious problem for *Pyrus*), Valiant® and Cleveland Pride® have unknown fireblight resistance

Growth Characteristics:

Height: Jack™ and Jill™ 15’-20’, Valiant® and Cleveland Pride® 25’-30’

Width: Jack™ 10’-12’, Jill™ 15-20’, Valiant® and Cleveland Pride® 15’-20’

Form/Habit: Jack™ oval and denser than Jill™, Jill™ round, Valiant® and Cleveland Pride® pyramidal, Valiant® is more upright pyramidal than Cleveland Pride®

Rate: medium to fast

Ornamental Characteristics:

Flower: showy, white clusters, spring before or as leaves emerge

Fruit: Jack™ and Jill™ ½”, yellow-green and clustered, Valiant® and Cleveland Pride® ¼”, tan and clustered

Seasonal Foliage Color: Jack™ is glossy dark green in summer and turns gold (possibly red) in fall, Jill™ is olive green in summer and turns gold in fall, Valiant® is glossy hunter-green in summer and turns crimson red in fall, Cleveland Pride® is olive green in summer and turns burgundy in fall with salmon-pink juvenile foliage

Bark: not ornamentally important, brown to gray, lightly ridged and furrowed with age, sometimes grayish and blocky with age as well

Other: Jill™ foliage is smaller in size and more rounded than Jack™ foliage

Transplant Issues: easy to transplant B&B or ≤ 2” caliper bare root

Management Issues: branching angles and branch density combined with late holding leaves may make *P. calleryana* prone to early winter ice/snow storm damage

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: above info is specific to cultivars, other *P. calleryana* cultivars are larger trees

Scientific Name: *Pyrus fauriei* ‘Westwood’

Common Name: Korean Sun™ Pear

Environmental Conditions:

Hardiness Zone: 4

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: unknown

pH: < 8.2

Insect/Disease Factors: fireblight tolerant (a common and potentially serious problem for *Pyrus*)

Growth Characteristics:

Height: 15’-20’

Width: 15’-20’

Form/Habit: rounded

Rate: unknown

Ornamental Characteristics:

Flower: showy, white clusters, spring during or after leaves emerge, smaller and fewer per cluster than *P. calleryana*

Fruit: small and clustered

Seasonal Foliage Color: excellent reddish-orange in fall

Bark: not ornamentally important, similar to *P. calleryana*, brown to gray, lightly ridged and furrowed with age

Other: drops leaves sooner than *P. calleryana*

Transplant Issues: easy to transplant B&B or ≤ 2” caliper bare root

Management Issues: none of significance

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: above info is cultivar specific

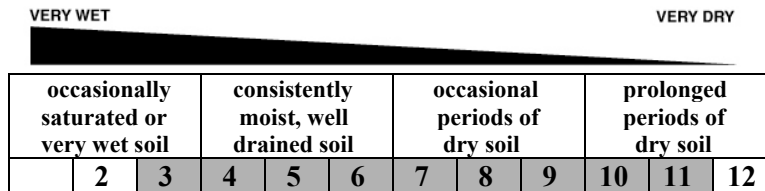
Scientific Name: *Pyrus ussuriensis* ‘Mountain Frost’ and ‘MorDak’

Common Name: ‘Mountain Frost’ and Prairie Gem™ Ussurian Pears

Environmental Conditions:

Hardiness Zone: 3

Soil Moisture:



Sun/Shade: full sun

Salt: unknown

pH: ≤ 8.2

Insect/Disease Factors: *P. ussuriensis* shows good fireblight tolerance (a common and potentially serious problem for *Pryus*)

Growth Characteristics:

Height: 20’-25’

Width: 20’-25’

Form/Habit: upright-oval when young, rounded with age

Rate: unknown

Ornamental Characteristics:

Flower: showy, white clusters, spring before or as leaves emerge, individual flowers larger than *P. calleryana*

Fruit: 1”-1 ½”, greenish-yellow, in clusters, Prairie Gem™ (and likely ‘Mountain Frost’) will only fruit if cross pollinated

Seasonal Foliage Color: leathery, dark green in summer, yellow in fall

Bark: similar to *P. calleryana*, brown to gray, lightly ridged and furrowed with age

Transplant Issues: easy to transplant B&B or ≤ 2” caliper bare root

Management Issues: none of significance

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: above info is specific to cultivars

Scientific Name: *Robinia pseudoacacia* ‘Globe’ (or ‘Inermis’) and ‘Bessoniana’

Common Name: Globe and Bessoniana Black Locust

Environmental Conditions:

Hardiness Zone: 4

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: prefers full sun, tolerates full shade

Salt: some observed tolerance

pH: ≤ 8.2

Other: species appropriate for very difficult reclamation sites, fixes own nitrogen

Insect/Disease Factors: borers can be a serious problem for species, leaf miners can be problematic for species, ‘Globe’ appears to be less borer susceptible

Growth Characteristics:

Height: ‘Globe’ 20’, ‘Bessoniana’ 30’

Width: 20’

Form/Habit: ‘Globe’ very dense and round, ‘Bessoniana’ oval with typically good central leader and good branching habit

Rate: species is fast

Ornamental Characteristics:

Flower: white, fragrant, late spring, both cultivars flower less than straight species, ‘Globe’ is sometimes completely non-flowering

Fruit: flat 2”-4” long pod, both cultivars produce less fruit than straight species, ‘Globe’ is sometimes completely non-fruiting

Seasonal Foliage Color: medium green to blue-green, yellowish in fall

Bark: dark gray, with interlacing ridges, ropy appearance

Other: ‘Globe’ is spineless, ‘Bessoniana’ is essentially spineless

Transplant Issues: easy to transplant B&B or ≤ 2 ” caliper bare root

Management Issues: best to prune in late summer or fall due to “bleeding” in spring

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: above info is specific to cultivars, other *R. pseudoacacia* cultivars are larger trees or smaller unique trees not suited for urban use

Scientific Name: *Sorbus intermedia*

Common Name: Swedish Mountainash

Environmental Conditions:

Hardiness Zone: 5b or 6a

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: full sun

Salt: unknown

pH: ≤ 8.2

Insect/Disease Factors: reportedly less susceptible to pests than European Mountainash (*Sorbus aucuparia*), which has many pest problems

Growth Characteristics:

Height: 25'-35'

Width: 30'

Form/Habit: round

Rate: medium

Ornamental Characteristics:

Flower: showy, white clusters, spring

Fruit: showy, orange-red clusters, berry-like, late summer/early fall

Seasonal Foliage Color: green on upper surface with a gray-white pubescence on undersides in summer, color varies from pale green to golden brown to orange-reddish in fall

Bark: not ornamentally important, gray-brown, often smooth, becoming slightly rough with age

Transplant Issues: easy to transplant B&B or ≤ 2 " caliper bare root

Management Issues: none of significance

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: none available commercially



S. intermedia with age

Scientific Name: *Sorbus x hybrida* and *Sorbus x thuringiaca*, these hybrids (*S. aria* x *S. aucuparia*) are virtually the same plant and therefore readily confused in the trade

Common Name: Oak-Leaf Mountainash

Environmental Conditions:

Hardiness Zone: 3b

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: prefers full sun, tolerates partial shade

Salt: unknown

pH: ≤ 8.2

Insect/Disease Factors: reportedly less susceptible to pests than European Mountainash (*Sorbus aucuparia*), which has many pest problems

Growth Characteristics:

Height: 25'-35'

Width: 30'

Form/Habit: upright oval to pyramidal (true *S. x thuringiaca* is sometimes more dense and rounded with age)

Rate: medium

Ornamental Characteristics:

Flower: white clusters, spring

Fruit: showy reddish-orange clusters, berry-like

Seasonal Foliage Color: dark green on upper surface with a white pubescence on undersides in summer, rusty orange-yellow in fall

Bark: not ornamentally important, gray-brown, often smooth, becoming slightly rough with age

Other: true *S. x thuringiaca* has longer leaves than *S. x hybrida*

Transplant Issues: easy to transplant B&B or ≤ 2" caliper bare root

Management Issues: none of significance

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: 'Fastigiata' (narrowly pyramidal form, 10'-20' wide, usually twice as tall as wide at maturity)



Scientific Name: *Syringa reticulata*
Common Name: Japanese Tree Lilac
Environmental Conditions:

Hardiness Zone: 3a
Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: prefers full sun, tolerates partial shade, flowers best in full sun

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: resistant to powdery mildew (the most common Lilac problem), susceptible to a number of lilac problems that are rarely serious or limiting in Northern regions, although in warmer regions borers and scale may be serious problems

Growth Characteristics:

Height: 20'-25'

Width: 15'-20'

Form/Habit: oval

Rate: slow

Ornamental Characteristics:

Flower: showy, cream colored, 6"-12" long pyramidal-shaped cluster, summer (late June in central NY)

Fruit: 3/4" long capsules, persistent clusters, obvious but not necessarily attractive

Seasonal Foliage Color: dark green in summer, fall color often nonexistent, occasionally turns dull yellow in fall

Bark: attractive, cherry-like, smooth reddish-brown with horizontal lenticels

Transplant Issues: easy to transplant B&B or ≤ 2" caliper bare root

Management Issues: none of significance

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: 'Ivory Silk' (upright habit, dense, compact, heavy flowering, flowers at young age, grows faster than 'Summer Snow'), 'Summer Snow' (round, compact, 16'-20', glossy leaves, heavy flowering),

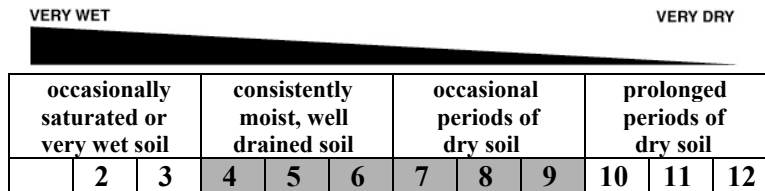
Regent™ ('PNI 5723', upright form, pure white flowers, glossy foliage)

* var. *mandshurica* not recommended due to shrubby tendencies and extremely slow growth rate (also may not be as hardy as the species)



Scientific Name: *Tilia cordata* ‘Halka’
Common Name: Summer Sprite® Littleleaf Linden
Environmental Conditions:

Hardiness Zone: 4
Soil Moisture:



*prolonged drought will lead to leaf scorch

Sun/Shade: full sun

Salt: sensitive

pH: ≤ 8.2

Insect/Disease Factors: species is highly susceptible to aphids and Japanese Beetles, cultivar’s resistance unknown

Growth Characteristics:

Height: 15’-20’

Width: 8’-10’

Form/Habit: narrow pyramidal, dense

Rate: species is medium, cultivar may be slower

Ornamental Characteristics:

Flower: yellowish, drooping clusters attached to pale greenish-yellow leaf-like bracts, mid-summer, very fragrant, attracts bees, flowers after *T. americana* but before *T. tomentosa*

Fruit: not ornamentally important, small nutlets, globose, attached to bracts, late summer

Seasonal Foliage Color: yellow in fall

Bark: not ornamentally important, gray-brown, ridged and furrowed on older trunks

Transplant Issues: easy to transplant B&B or ≤ 2” caliper bare root

Management Issues: none of significance

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: above info is cultivar specific, other *T. cordata* cultivars are large trees

Scientific Name: *Viburnum sieboldii*

Common Name: Siebold Viburnum

Environmental Conditions:

Hardiness Zone: 5 (4)

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
	2	3	4	5	6	7	8	9	10	11	12

Sun/Shade: prefers full sun, tolerates partial shade

Salt: unknown

pH: ≤ 8.2

Insect/Disease Factors: none serious or limiting

Growth Characteristics:

Height: 15'-20'

Width: 10'-15'

Form/Habit: open, multi-stemmed, often considered large shrub, can easily be small tree with pruning

Rate: medium to fast

Ornamental Characteristics:

Flower: creamy white, 3"-6" flat-topped clusters, late spring

Fruit: showy, red drupes in clusters, turn blue-black in late summer, fruit display typically short as birds eat fruit quickly, red stalks persist into fall

Seasonal Foliage Color: lustrous, leathery, dark green in summer, fall color usually nonexistent, although red-purple potential observed

Bark: not ornamentally important, gray-brown

Other: holds leaves late into fall

Transplant Issues: easy to transplant B&B or ≤ 2" caliper bare root

Management Issues: low branches may require pruning for street tree use

Suggested Uses: wide street tree lawns/pits, narrow tree lawns/pits with pruning, parks

Cultivars: 'Seneca' (heavy flowering/fruited form, fruits have long-lasting red color stage – up to 3 months, very firm fruit not preferred by birds, reportedly good red fall color)

Scientific Name: *Zelkova serrata* ‘Schmidtlow’

Common Name: Wireless® Japanese Zelkova

Environmental Conditions:

Hardiness Zone: 5

Soil Moisture:

VERY WET			VERY DRY								
occasionally saturated or very wet soil			consistently moist, well drained soil			occasional periods of dry soil			prolonged periods of dry soil		
2	3	4	5	6	7	8	9	10	11	12	

Sun/Shade: full sun

Salt: some observed tolerance

pH: ≤ 8.2

Insect/Disease Factors: none serious or limiting

Growth Characteristics:

Height: 25’

Width: 35’

Form/Habit: broadly spreading vase, flattened top at maturity

Rate: species is medium, possibly fast in youth

Ornamental Characteristics:

Flower: not ornamentally important, usually present as leaves are emerging

Fruit: not ornamentally important, ripens in fall

Seasonal Foliage Color: medium green in summer, red in fall

Bark: exfoliates and mottles with oranges, grays and browns with age

Transplant Issues: easy to transplant B&B or ≤ 2” caliper bare root

Management Issues: species has narrow crotch angles and poor branch attachments which may give rise to splitting and form damage when older, this problem may be less likely to develop in this smaller cultivar

Suggested Uses: narrow or wide street tree lawns/pits, parks, suitable for CU-Structural Soil™

Cultivars: above info is cultivar specific, other *Z. serrata* cultivars are large trees