

Tree Selection, Planting & Maintenance Guide

Garden City Parks & Tree Board

Selecting the “Right Tree for the Right Place”

Tree selection is one of the most important investment decisions a homeowner makes when landscaping a new home, replacing a tree lost to damage or disease, or just adding a tree to their existing landscape. Matching the tree to the site can be one of the most important considerations. After carefully reviewing landscape needs, planting site requirements, exposure, soil, and characteristics of various trees, a number of tree varieties or cultivars may be found that will fit the site. The objective should be to select trees that will perform well and satisfy the landscape needs with a minimum of problems.

The question most frequently asked of tree care professionals is “What tree do you think I should plant?” Before this question can be answered, a number of factors need to be considered.

1. Why is the tree being planted?
2. Will the tree provide shade, fruit, seasonal color or act as a windbreak or screen?
3. What is the size and location of the planting site?
4. Does the space lend itself to a large, medium, or small tree?
5. Are there overhead or underground utilities in the vicinity?
6. Is there adequate clearance for sidewalks, patios or driveways?
7. Are there other trees in the area?
8. What types of soil conditions exist?
9. Is the soil deep, fertile and well drained or is it shallow, compacted and infertile?
10. What type of maintenance are you willing to provide?
11. Do you have time to water your newly planted tree until it is established?

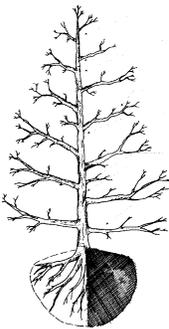
Asking and answering these and other questions prior to beginning the selection process will help determine the “Right Tree for the Right Place”.

Species Selection

Now that the homework is done, you are ready to select a species for the planting site. Make sure to utilize the information you have gathered about your site conditions, and balance them with the aesthetic decisions related to your personal preferences.

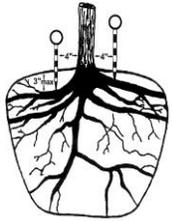
Finding Your Tree at the Nursery

When choosing trees at the nursery or garden center, be sure to select a high quality product. Things to look for in a deciduous tree are healthy leaves or buds, a straight well-developed leader and healthy bark. Look to make sure that the trunk and the limbs are free from insects or mechanical injury. The ideal spacing between branches is 10-18” for most species. Branches should be well distributed around the trunk and have a good tapered trunk. Low branches help develop taper, promote growth, and prevent sunscald.



Tree Planting Tips . . .

When To Plant? The ideal time to plant deciduous trees is during the dormant season – fall after leaf drop or early spring before bud break. This period of cool weather allows plants to begin root establishment in their new location, before spring rains and summer heat stimulate new top growth. Tree planting may be extended through spring if trees are cared for on a regular basis.



How Deep Should Structural Roots Be? Generally, on a young tree, the uppermost structural roots (two or more) should be within the top 1 to 3 inches of the soil surface, measured 3 to 4 inches from the trunk. As a tree matures, roots thicken faster on the topside, effectively reducing the amount of soil above the structural roots and forming the root flare. On landscape sites with poorly drained soil, the roots may need to be even shallower for adequate survival. Structural roots may need to be at, or slightly above, the surrounding grade under extreme conditions.

Planting Process: If the structural roots have been located within 3 inches of the surface, the root ball should be planted with the surface no lower than the same level as existing grade. One to two inches higher usually is preferable to allow settling of the root ball. Dig the planting hole approximately two times wider and no deeper than the root ball. After preparing the site, place the tree in the hole by lifting the tree by the root ball (never by the trunk). Container-grown trees need to be removed from the container and have any circling roots cut to prevent the development of girdling roots, which may result in the death of the tree in later years. When planting balled and burlapped trees remove all wire. After placing in the hole carefully cut away as much of the burlap as possible.

When planting your tree you should set the root ball on solid ground and not on loose backfill in the hole; this eliminates settling. It is **not** necessary to add peat moss or manure to the soil in the planting hole. Backfill around the tree with the original soil from the hole. Add water to settle the soil and prevent air pockets, filling from the bottom up.

Watering: Keep soil moist but not saturated.

Staking: Stake tree properly to keep root ball from shifting. The main tree stem must be able to move; if it is too rigid, root growth, diameter of stem, and height growth will be adversely affected. Remove stakes and straps after roots are established, usually one or two growing seasons. Check the straps at least twice each year and loosen if necessary to prevent girdling.



Fertilizing: Fertilization at planting is **not necessary**. Nitrogen, which encourages top growth, should only be applied after new roots are established. New roots provide water to the new growth - **no nitrogen for at least one year!**

Mulching: Mulching is an excellent way to conserve soil moisture, reduce competition from other plants, and prevent mower and trimmer injury. **Mulching is one of the most beneficial things a homeowner can do for the health of a tree.** Mulch should be two inches in depth for 2- to 3- inch-caliper trees and not less than four feet in diameter. Later applications to “refresh” the mulch should not increase this depth. Keep the mulch away from the trunk of the tree. Avoid thick layers of mulch around the base of the tree (often called “volcano mulching”); this can restrict oxygen to the root system. Do not pile the extra soil around the base of the tree and use mulch to hide it-excess soil should be removed from the planting site. Avoid organic material that can mat down, like grass clippings. Mulch can give planting beds a uniform and well-maintained look.

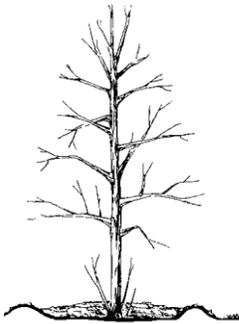


Left Diagram:
Incorrect way
to mulch.

Right Diagram:
Correct way to
mulch.

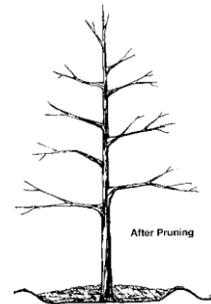


Pruning: At the time of planting, remove only damaged branches. During the next 3-10 years, new roots should be established. Suckers and shoots may develop and should be removed. About every 3 years remove dead branches, branches with weak crotches and interfering branches. When the tree is tall enough to begin pruning for structure, removing interfering branches, branches with weak crotches and selecting primary and secondary branches. This is the time to raise the lower branches. You should only have to prune the tree once every 5-10 years. Remember, a branch that is 5 feet from the ground today, will be 5 feet from the ground for the life of the tree! After a tree becomes mature, you should only need to remove dead and interfering branches every 7-10 years. As the tree becomes over-mature, you will have to increase the frequency of pruning to every 3 years, removing dead and defective branches.



Left Diagram:
Before Pruning

Right Diagram:
After Pruning



*For more information, contact the Garden City Parks Department at 620-271-1574.
Also, refer to the publication titled "Garden City Parks & Tree Board Recommended Tree List".*

Illustrations courtesy of the Kansas Forestry Service

Issue: Fall 2017

Garden City Parks & Tree Board Recommended Tree List

Issue: 2017 Fall

Common Name (Botanical Name)	LANDSCAPE						ENVIRONMENT	
	MATURE SIZE			FLOWER		LEAF		ADDITIONAL COMMENTS
	HEIGHT	SPREAD	SHAPE	COLOR	SEASON	COLOR	SEASON	

SMALL TREES, 30' TALL OR LESS

Cherry, Canadian Red <i>Prunus virginiana 'Canada Red'</i>	25	20	Upright, spreading, rounded	White	Spring	Green, changing to reddish purple	Spring to summer	Straight trunk, well distributed branches, full rounded crown, bright red leaves; tends to form suckers.
Crabapple, Adams <i>Malus 'Adams'</i>	20	20	Dense, rounded	Pink	Spring	Green with reddish tint	Spring	Persistent, dark and glossy 5/8" fruit; very resistant to disease.
Crabapple, Indian Summer <i>Malus 'Indian Summer'</i>	18	20	Rounded	Rose-red	Spring	Bronze-green	Spring; Summer	Bright red, attractive, very persistent 5/8"-3/4" fruit; great fall color; good scab, excellent fireblight, rust and mildew resistance; vigorous growth rate.
Crabapple, Prairiefire <i>Malus 'Prairiefire'</i>	20	20	Upright, spreading to rounded	Bright pinkish red	Spring	Red-maroon, aging reddish green	Spring; Summer	Dark red-purple 3/8"-1/2" persistent fruit; somewhat cone shaped and persistent, very resistant; vigorous growth rate.
Crabapple, Profusion <i>Malus 'Profusion'</i>	20	20	Upright, spreading	Pink	Spring	Purple, fading to bronze	Spring; Summer	Oxblood red 1/2" persistent fruit; moderately susceptible to powdery mildew, scab and fireblight; vigorous growth rate.
Crabapple, Purple Prince <i>Malus 'Purple Prince'</i>	20	20	Rounded	Rose-red	Spring	Deep Purple/Green	Spring	Maroon with a fine blue cast 1/2" fruit; bark like a cherry tree. Good disease resistance, somewhat fireblight susceptible.
Crabapple, Royal Raindrops <i>Malus 'Royal Raindrops'</i>	20	15	Upright Spreading	Pinkish-Red	Spring	Deep Purple	Spring	Bright red 1/4" persistent fruit; Foliage is orange-red in autumn. Highly resistant to disease.
Crabapple, Spring Snow <i>Malus 'Spring Snow'</i>	25	22	Dense, oval	White	Spring	Medium green	Summer	Few to no fruit, severely susceptible to scab, slightly susceptible to cedar apple rust and fireblight
Hawthorne, Cockspur <i>Crataegus crus-galli</i>	20-25	20-25	Rounded spreading	Small white	Spring	Glossy, dark green; orange to bronze	Summer; Fall	Single or multi-stemmed; ornamental, small fall fruit; specify thornless variety; full sun; slow to medium growth rate
Hawthorne, Lavalley <i>Crataegus x lavalleyi</i>	28	20	Irregular vase shaped	White	Spring	Dark green, leathery bronze	Summer; Fall	Full sun, orange 5/8"-3/4" fruit, very showy in fall, coppery red, free of rust & appears more adaptable than other hawthornes; slow to medium growth rate
Goldenrain Tree <i>Koelreuteria paniculata</i>	20-30	20-30	Round vase	Yellow	Summer	Yellow	Fall	Summer green foliage turns yellow in fall; large yellow flowers are followed by green fruit that changes to yellow and then brown; partial shade to full sun; heat tolerant; relatively pest free; medium growth rate; attracts boxelder bugs; readily reseeds
Korean Sun Pear <i>Pyrus fauriei 'Westwood'</i>	12	15	Compact, round	White	Spring	Red to Purple Red	Fall	Tends to fall color earlier than 'Bradford'; it's crotch angles are wider than 'Bradford'; shows good urban soil tolerance; hardier than the Callery pears
Lilac, Japanese <i>Syringa reticulata</i>	20-30	15-20	Oval	White	Summer	No color	Fall	Has profuse small white flowers in the beginning of summer; recovers slowly from bark damage, protect with plastic around the base of young trees or mulch; ornamental bark; prefers full sun; may be susceptible to borers and scale; resistant to powdery mildew; medium growth rate
Maple, Shantung <i>Acer truncatum</i>	20	20	Round	Greenish/ Yellow wings	April-May	Yellow	Fall	Hardy tree, resistant to leaf scorch; slow growth rate
Zelkova, Japanese <i>Zelkova Serrata</i>	24	36	Broad Vased	None		Red	Fall	Medium green leaves in spring and summer. 'Wireless' is almost flat topped. 'City Sprite' is 24' x 18' yellow fall leaf color. 'Village Green' is 40' x 40' rusty red fall leaf color.
Mulberry, Weeping <i>Morus alba pendula 'Chaparral'</i>	12	16	Weeping	Yellow-green catkins	Spring	Dark green; brown	Summer; Fall	Adaptable, long-lived; cultivar shapes range from rounded to columnar; specify powdery mildew resistant cultivar; full sun; slow to medium growth rate
Redbud, Eastern <i>Cercis canadensis Sub Sp. Texensis 'Oklahoma'</i>	20-30	30	Rounded	Purple	Spring	No Color	Fall	Heart shaped leaves and long seedpods in the fall; sun to partial shade; seed pods attract wildlife; no limiting disease problems; medium growth rate; do not over water. Listed Sub-Species is an additional recommendation for the Eastern Redbud.

Western Soapberry <i>Sapindus drummondii</i>	25-30	25-40	Rounded	White-Yellow	Spring	Yellow	Fall	Native; compound leaves; translucent, golden (inedible) berries persist in winter; few disease or insect problems; tends to sucker; medium growth rate
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MEDIUM TREES, 30' TO 60' TALL

Chinese Pistache <i>Pistacia chinensis</i>	25-35	25-35	Oval	Red	Spring	Orange/red	Fall	Flowers occur on previous year's wood, full sun, grows 1'1"/yr over a 10 year period; medium growth rate
Elm, Allee <i>Ulmus parvifolia 'Emer II'</i>	50	35	Upright vase	None		Yellow-orange to rust red	Fall	Bark exfoliates in a mosaic pattern, tolerant to dutch elm disease, phloem necrosis and elm beetle
Elm, Frontier <i>Ulmus 'Frontier'</i>	40	30	Broadly oval	None		Burgandy	Fall	Tolerant to dutch elm disease and phloem necrosis, moderately resistant to elm leaf beetle
Elm, Lacebark <i>Ulmus parvifolia</i>	40-50	35-50	Rounded	Green	Fall	Red, Yellow	Fall	Bark is mottled, exfoliates in irregular patches exposing lighter bark, excellent, tough and durable tree; medium growth rate
Elm, Pioneer <i>Ulmus 'Pioneer'</i>	50	50	Rounded			Yellow	Fall	Dutch elm resistant, dense canopy, susceptible to elm leaf beetle; rapid growth rate
Hackberry <i>Celtis occidentalis</i>	45-60	40-50	Round	Green	Spring	Yellow	Fall	Dark purple fruit ripening in Sept-Oct, nipple gall disfigures leaves no damage to tree; medium growth rate. 'Prairie Sentinel' identified at Scott Lake State Park
Hornbeam, European <i>Carpinus betulus</i>	35	25	Pyramidal	None		Yellow	Fall	Prefers well drained soils, will show signs of leaf scorch, plant in protected site; slow growth rate
Linden, American (Basswood) <i>Tilia americana</i>	40-60	35-50	Oval, Pyramid	Yellow - Green	Summer	Yellow	Fall	Fragrant flowers in mid-late June, bees make finest honey from these flowers; medium growth rate
Linden, Littleleaf <i>Tilia cordata</i>	50-60	40	Oval	Yellow	Summer	Yellow	Fall	Excellent shade tree for lawn areas; medium growth rate
Linden, Silver <i>Tilia tomentosa</i>	50-60	25-35	Oval	Yellow	Early Summer	Yellow	Fall	Good street tree as it tolerates heat & drought better than other lindens, less prone to insect damage; medium growth rate
Locust, Purple Robe <i>Robinia pseudoacacia</i>	30-50	20-35	Oval	Lavender	May-June	Yellow	Fall	Grows 2' or better/year, extremely fragrant flower, prune in late summer or fall-not spring; fast growth rate
Maple, Caddo Sugar <i>Acer saccharum 'Caddo'</i>	30-50	45	Oval	Green, Yellow	Apr-May	Red, Yellow	Fall	Extremely heat and drought tolerant, beautiful fall color; slow to medium growth rate
Maple, Norwegian Sunset <i>Acer 'Norwegian Sunset'</i>	35	25	Oval			Yellow-orange to red	Fall	Good branch structure & uniform canopy
Maple, Pacific Sunset <i>Acer 'Pacific Sunset'</i>	30	25	Upright spreading			Yellow-orange to bright red	Fall	Finer branching structure than norwegian sunset & colors earlier in fall
Northern Catalpa <i>Catalpa speciosa</i>	40-60	20-40	Oval	White	Spring-Summer	Yellow	Fall	Withstands wet or dry locations as well as alkaline soils, sun or part shade, withstands extremely hot & dry conditions; medium to fast growth rate
Oak, Chinkapin <i>Quercus muehlenbergii</i>	40-50	40-80	Rounded	Brown	Spring	Yellow	Fall	No particular disease or insect problems; medium growth rate
Oak, English <i>Quercus robur 'Skinny Genes' 'Crimson Spire' 'Regal Prince'</i>	40-60+	40-60	Broadly Rounded	Yellow-green catkins	Spring	Dark green; brown	Summer; Fall	Adaptable; long-lived; cultivar shapes range from rounded to columnar; specify powdery mildew resistant cultivar; full sun; produces acorns; slow to medium growth rate. Listed cultivars are the recommended species. Their habits are spires.
Osage Orange <i>Maclura pomifera var. inermis</i>	35	35	Rounded	Green	Late Spring	No color	n/a	Also called hedge apple, a tough durable native tree, select male trees without fruit; medium growth rate
Pagodatree, Japanese <i>Sophora japonica</i>	40-60	40-60	Round	White-Yellow	Late Summer	Yellow	Fall	Compound leaves; tolerant of alkaline soil; well drained soil; can be long-lived; pea-like pods in winter; 25 years to flower; few disease or insect problems; legume; medium growth rate
Pear, Aristocrat <i>Pyrus calleryana 'Aristocrat'</i>	30-40	20-25	Broadly pyramidal	White	Spring	Lustrous dark green; yellow to red	Summer; Fall	Later blooming; fewer flowers; fruit in fall; less prone to breakage than Bradford; somewhat susceptible to fireblight; heat tolerant; full sun; medium to rapid growth rate
Pear, Capital <i>Pyrus calleryana 'Capital'</i>	35	15	Columnar	White	Spring	Medium green, very glossy; reddish-purple	Summer; Fall	Central leader; fruit in fall; less prone to breakage than Bradford; somewhat susceptible to fireblight; heat tolerant; full sun; medium to rapid growth rate
Pear, Chanticleer - Cleveland Select <i>Pyrus calleryana 'Chanticleer'</i>	40	15	Upright narrowly pyramidal	White	Spring	Green glossy; reddish	Spring; Fall	Multiple leaders; fruit in fall; less prone to breakage than Bradford; fireblight tolerant; heat tolerant; full sun; medium to rapid growth rate

Common Name (Botanical Name)	LANDSCAPE						ENVIRONMENT		ADDITIONAL COMMENTS
	MATURE SIZE			FLOWER		LEAF			
	HEIGHT	SPREAD	SHAPE	COLOR	SEASON	COLOR	SEASON		
TALL TREES, MORE THAN 60'									
Elm, Accolade <i>Ulmus japonica x wilsoniana</i> 'Morton'	70	60	Vase	None		Glossy dark green; yellow	Summer; Fall	Vase shaped with arching branches, resistant to elm leaf beetle, tolerant to dutch elm disease and phloem necrosis	
Elm, Princeton <i>Ulmus americana</i>	60	80	Vase	None		Dark Green	Summer	Large leathery foliage. Leaves yellowing in the fall, good , not absolute, resistance to elm leaf beetle and Dutch elm disease. Fairly fast growing tree.	
Honeylocust, Thornless <i>Gleditsia triacanthos var. inermis</i>	30-70	50	Oval	Yellow	May-June	Yellow	Fall	Leaves fall early; full sun, one of our most adaptable native tree but over used, current borer problems with stress; fast growth rate. 'Streetkeeper' has a narrow tight habit. 'Skyline' is pyramidal and more upright than most forms.	
Kentucky Coffeetree (Male) <i>Gymnocladus dioica 'Espresso'</i>	30-70	45-60	Oval	White	Spring	Yellow	Fall	One of the last trees to leaf out in spring; brown leathery pods 5-10" long in fall; holds pods through winter; slow to medium growth rate. 'Espresso' is a male with no pods.	
Oak, Bur <i>Quercus macrocarpa</i>	70-80	60-80	Round	Brown	Spring-Summer	Yellow	Fall	Native; prefers well-drained soil; full sun; very long life; difficult to transplant large caliper trees; produces acorns; slow growth rate. 'Urban Pinnacle' Narrow pyramidal to oval with dark green glossy leaves. Resistant to mildew and anthracnose. Acorns are very small.	
Oak, Shumard <i>Quercus shumardii</i>	60-80	35-60	Oval	Brown	April-May	Red-orange	Fall	Native; prefers well-drained soil; full sun; long lived; may be difficult to transplant; produces acorns; no serious pest or disease problems; slow to medium growth rate	
Pecan <i>Carya illinoensis</i>	70-100	40-75	Oval	Green or Yellow	Early Spring	Yellow-green	Fall	Native; edible nuts; prefers moist soil; purchase hardy, northern grown nursery stock; slow to medium growth rate	

EVERGREEN TREES

Pine, Bristlecone <i>Pinus aristata</i>	40		Conical	Purple	Mid Summer	Green		Picturesque; short, dark blue-green needles with white resin dots are retained many years; oldest known tree greater than 4,000 years old; requires full sun and well drained soil; slow growth rate
Pine, Pinyon <i>Pinus edulis</i>	20-30	15-20	Round	Red-Yellow	Spring	Blue-green		Aromatic; edible nuts; short, light-green needles; requires full sun and well drained soils; slow growth rate
Pine, Austrian <i>Pinus nigra</i>	60	20-40	Oval	Yellow	April-May	Green		Introduced pine; very dark green needles; Variable form; easy to grow; reported to be subject to pine wilt disease; resistant to tip moth; if crowded may be subject to needle and tip blight; medium to fast growth rate
Pine, Southwestern White <i>Pinus strobiformis</i>	30	50	Pyramidal-conical			Blue-green		Native to Colorado. Needles are 2.5 to 4 inches long. Cones are 3 to 10 inches long. Garden City is home of both of the Co-Champion Southwestern White Pine Trees.
Red Cedar, Eastern <i>Juniperus virginiana</i>	40-50	10-20	Pyramidal	Green-Yellow	April-May	Green		Common native evergreen; variable form and color; widely used in windbreaks; very easy to grow; valuable wildlife tree; alternate host for cedar-apple and hawthorn rust; do not plant near non-resistant apples, crabapples and hawthorns; medium to fast growth rate
Spruce, Colorado Blue <i>Picea pungens var. glauca</i>	50-75	25	Pyramidal	Green-Orange-Purple	April-May	Blue-green		Dense, pyramidal, ornamental evergreen with stiff blue needles; with age may lose needles on lower branches; needs regular watering in hot weather; full sun; slow to medium growth rate
Spruce, Norway <i>Picea abies</i>	60	25	Pyramidal	Reddish-pink	Mid Spring	Dark green		Many cultivars with variable growth rate form; may need some protection from hot summer winds; can tolerate some shade; medium to fast growth rate

For more information, contact the Garden City Parks Department at 620-271-1574. Also, refer to the publication titled "Tree Selection, Planting & Maintenance Guide - Garden City Parks & Tree Board".

TREE WISDOM

Garden City is located within a treeless plain. Given appropriate care, the recommended trees in this list should successfully adapt to our climate extremes and alkaline soils that range from clayey to sandy. Growing trees need water to survive, especially after planting. In most years local rainfall is insufficient to maintain a healthy tree. Irrigate enough to provide moist soil, but avoid continuously saturated soil. **Proper planting technique is essential!** See Kansas Forestry Service planting information in publication MF1119 at www.kansasforests.org/resources/. Avoid commercial fertilizers at planting and during the first year unless recommended by a professional after a soil test. A good mulch of organic materials is very beneficial. Be mindful of and seek expert advice about the following:

1. What purpose the tree will serve? Will the tree provide shade, fruit, seasonal color, shelter or food for wildlife, or act as a windbreak or screen?
2. Consider tree species in your neighbor's yard and yours, and protect against loss from disease, insects and weather by planting several trees species.
3. Traits may be inappropriate for a planting site. Does the species tend to sucker, split or drop fruit, nuts or large leaves?
4. Imagine the mature size of the tree and then measure. Does the size and location of the planting site lend itself to a large, medium, or small tree? Are there overhead or underground utilities and adequate clearance from eaves, gutters, foundations, sidewalks, patios or driveways? Is a source of water nearby?
5. Determine the soil type and how it will affect your work and tree establishment. Is the soil compacted or tight, loose and sandy, water-logged or dry?
6. What irrigation, pruning, trimming and other maintenance (staking, wrapping and control of weeds insects, deer and rabbits) will you be able to provide?