

Indiana Community
Tree Selection Guide

Recommendations by
Indiana's City Foresters
&
IDNR, Community & Urban Forestry

Trees are extremely important in our cities, towns, and neighborhoods. They comprise our urban forest and offer Indiana residents a multitude of benefits.



Trees:

- ✦ Sequester carbon
- ✦ Reduce energy consumption
- ✦ Reduce stormwater runoff ... making our water cleaner
- ✦ Provide wildlife habitat
- ✦ Clean our air by absorbing pollutants
- ✦ Increase property values

Plan Before You Plant

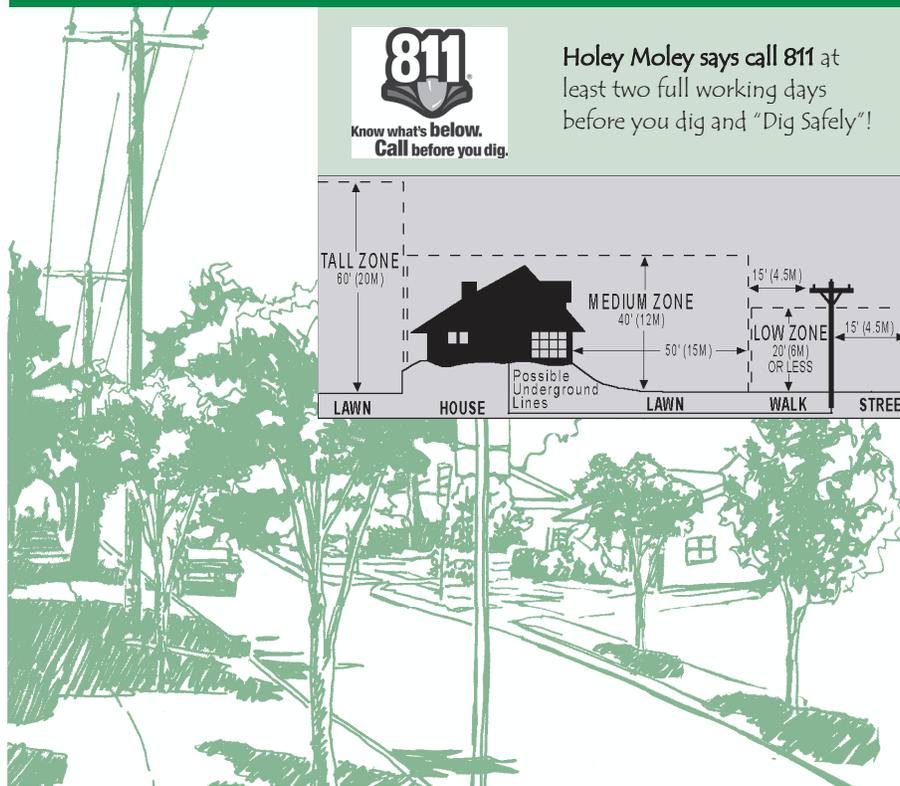
Before a tree is planted in the urban landscape, the project needs to be planned with care. Tree planters in cities and towns need to determine whether the planting site is on public property. (If it is, a permit may be needed to plant since a public tree ordinance may be in effect. A city forester may also be available to help select the right tree for the right place.)

Technical information is needed for cities, towns, non-profits, and tree boards to determine what tree is best suited for a particular site. This guide can help. While it is not an all inclusive list, it will help users. It will also help planters select the right tree for the right place.



RIGHT TREE, RIGHT PLACE CONSIDERATIONS

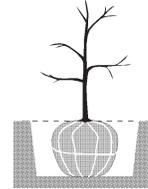
- 📍 Look up, down, all around, above and below ground! What utilities, structures, signs, and other infrastructure are present?
- 📍 How large is the planting area? What size tree will fit there...WHEN IT GROWS UP?
- 📍 Consider mature height and width.
- 📍 If any utilities are present, consult the utility. What trees do they recommend for planting in the utility easement?
- 📍 Consider the trees' function. Is it for shade, screen or buffer?
- 📍 What moisture, light, and air pollution issues are in the area?
- 📍 What is the soil like? Will it accommodate trees?



Users Guide

Definitions

Balled and Burlapped A tree dug out of the ground with a ball of soil around the roots. The soil ball is usually covered with burlap and wrapped with string or wire baskets for support.



Bare-root A tree dug out of a loose growing medium with no soil around the roots. Some trees are sold as bare-root.

Berry A fleshy fruit, with one to many seeds; developed from a single ovary.



Characteristic Traits or qualities of a tree, such as its leaf color, flowers, fruit, shape, size, structure, etc.

City Forester This person employed by the community is also called urban forester, city arborist, beautification manager etc. They are in charge of managing the trees in the community and implementing the urban forestry program usually with a volunteer, advisory committee called a tree board or commission.

Clump Form A tree that has more than one trunk.

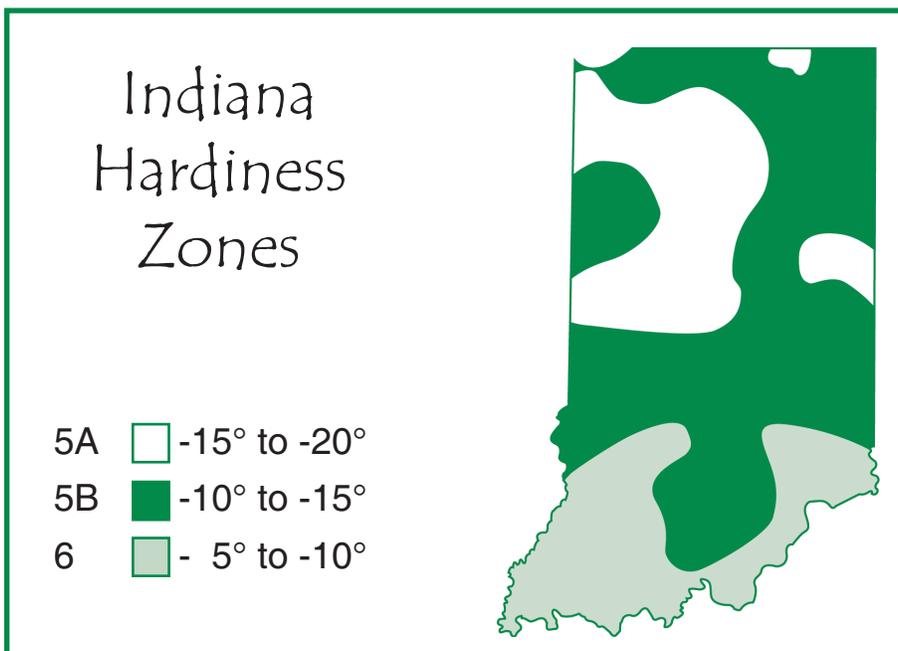
Conifer A cone-bearing tree or shrub, often evergreen, usually with needle-like leaves.



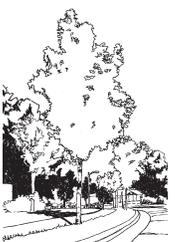
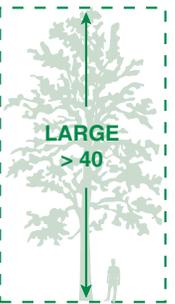
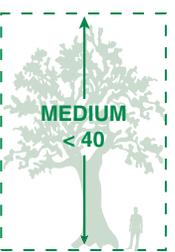
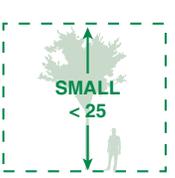
Container-grown A tree raised in a pot that is removed before planting. Many are sold by nurseries in this (potted) form.

Cultivar A variety of plant that is grown for its specific characteristics that may not be present with the original species.

Easement	A portion of land where utilities are located that can be publicly or privately owned.
Evergreen	A tree that retains green leaves throughout the year.
Exotic Species	A tree species that has been imported from another region and does not grow naturally in the region it is being planted.
Foliage	The leaves of a tree.
Fruit	The fully developed ovary of a flower containing one or more seeds.
Habit	The characteristic growth form or general shape of a plant.
Hardiness Zone	Used to indicate geographic limits of cold hardiness, different species, subspecies, genera, or clones.
Hybrid Deciduous	The offspring of two parent trees belonging to a tree that drops its leaves every year.



Maturity	The point of being fully grown and reaching the potential height and width.
Native Species	A tree species that grows naturally in the region that it is being planted.
Nut	A hard, bony, one-celled fruit that does not split, such as an acorn. 
Ordinance, Tree	An enforceable tool for the city that mandates proper tree care, gives force and direction to professional tree care performed by anyone in the community on public trees, and gives size and placement planting requirements for small, medium, and large trees to enhance, preserve, and protect the health of the urban forest.
Public Right-of-Way	Area between private property line and the street owned by a town or city.
Root	The underground portion of a tree that serves to anchor and absorb water and minerals from the soil.
Seed	A fertilized, ripened ovule, almost always covered with a protective coating and contained in a fruit. 
Semi-evergreen	A plant that retains at least some green foliage well into winter.
Shrub	A woody, perennial plant, smaller than a tree, usually with several stems or trunks. Some can be grown as small trees if pruned properly.
Site	The location where the tree will be planted.
Species	A population of plants or animals whose members reproduce by breeding with each other.
Specimen	A tree placed conspicuously alone in a prominent place to show off its ornamental qualities.
Street Tree	Trees growing in the public street right-of-way that is usually owned by a town or city.

Structure	An item that could hinder the proper growth of a tree such as a building, manholes, utility poles, utility meters, hydrants, catch-basins, stop signs etc.	
Tree lawn	The space where street trees are planted, usually in the public-right-of-way and between the street and sidewalk.	
Tree	A deciduous or coniferous woody plant that is characteristically more than 12 feet in height when it reaches maturity and has fewer than six main stems and most often one main stem.	
Tree, large	A tree that can attain a mature height of over 40 feet at maturity.	
Tree, medium	A tree that can attain a mature height of <u>25 to 40</u> feet at maturity.	
Tree, small	A tree that can attain a mature height of <u>less than 25 feet at maturity</u> . Only small trees should be planted under power lines.	
Utilities	A public service line such as gas, electric, sewer and phone. These lines can be above ground and/or below ground.	
Variety	A population of trees differing slightly but consistently from the typical form of the species and occurring naturally. More loosely applied to forms produced in cultivation.	
Woody Plants	Plants that have hard rather than fleshy stems and produce buds that survive above ground in winter.	



40 ft. and greater

LARGE TREES

Indiana Community Tree Selection Guide

Genus	Species	Common name	1	2	3	4	5	6	7	8	9	10	11
MAPLE	Acer	nigrum	Black Maple	Y	all	N	N	N	Y	N	Y	N	Y
	Acer	rubrum	Red Maple	Y	all	N	Y	N	Y	Y	Y	N	Y
	Acer	saccharum	Sugar Maple	Y	all	N	N	N	Y	Y	Y	N	Y
	Acer	x freemanii	Freeman Maple	N	all	Y	Y	N	Y	Y	Y	N	Y
CHESTNUT	Aesculus	hippocastanum	Horse Chestnut	Y	all	M	M	Y	M	Y	Y	Y	Y
	Aesculus	glabra	Ohio Buckeye	Y	all	M	M	Y	M	Y	Y	Y	Y
	Aesculus	x carnea	Red Horse Chestnut	N	C/S	Y	Y	Y	N	Y	Y	Y	Y
ALDER BIRCH	Alnus	glutinosa	Black Alder	N	all	N	Y	Y	Y	Y	Y	N	N
	Betula	nigra	River Birch	Y	all	N	Y	M	N	Y	Y	N	Y
HICKORY	Carya	cordiformis	Bitternut Hickory	Y	all	M	M	N	N	N	Y	N	Y
	Carya	glabra	Pignut Hickory	Y	all	Y	M	N	N	N	Y	N	Y
	Carya	laciniosa	Shellbark Hickory	Y	all	Y	M	N	N	N	Y	N	Y
	Carya	ovata	Shagbark Hickory	Y	all	Y	M	N	N	N	Y	N	Y
HACKBERRY	Carya	tomentosa	Mockernut Hickory	Y	all	M	M	N	N	N	Y	N	Y
	Celtis	laevigata	Sugar Hackberry	N	C/S	Y	Y	N	N	Y	Y	N	Y
	Celtis	occidentalis	Common Hackberry	Y	all	Y	Y	N	Y	Y	Y	N	Y
	Fagus	grandifolia	American Beech	Y	all	N	N	N	N	N	Y	N	Y
BEECH	Fagus	sylvatica	European Beech	N	all	N	N	N	N	Y	Y	N	Y
	Fraxinus	americana	White Ash	Y	all	Y	M	Y	M	Y	Y	N	Y
ASH*	Fraxinus	excelsior	European Ash	N	all	M	M	Y	Y	Y	Y	N	Y
	Fraxinus	pennsylvanica	Green Ash	Y	all	M	M	Y	Y	Y	Y	N	Y
GINKGO**	Fraxinus	quadrangulata	Blue Ash	Y	all	M	M	Y	Y	Y	Y	N	Y
	Ginkgo	biloba	Ginkgo	N	all	Y	M	M	N	M	Y	Y-F	N
	Gleditsia	triacanthos	Honeylocust	Y	all	Y	Y	Y	Y	Y	Y	Y	Y
	Gymnocladus	dioicus	Kentucky Coffee Tree	Y	all	Y	M	N	M	N	N	Y-F	N
HONEYLOCUST	Liquidambar	styraciflora	Sweetgum	Y	C/S	M	Y	M	M	Y	Y	N	Y
	Liriodendron	tulipifera	Tulip Tree	Y	all	M	M	N	Y	M	Y	Y	Y
KENTUCKY COFFEE SWEETGUM	Metasequoia	glyptostrobooides	Dawn Redwood	N	all	M	N	N	M	Y	Y	N	Y
	Nyssa	sylvatica	Black Gum	Y	all	Y	Y	N	N	N	Y	N	Y
REDWOOD	Platanus	occidentalis	Sycamore	Y	all	Y	Y	Y	Y	N	Y	N	Y
	Platanus	x acerifolia	London Planetree	N	all	Y	Y	Y	Y	Y	Y	N	N
BLACK GUM	Quercus	alba	White Oak	Y	all	M	N	Y	N	M	Y	N	Y
	Quercus	bicolor	Swamp White Oak	Y	all	M	N	M	N	M	Y	N	Y
SYCAMORE	Quercus	imbricaria	Shingle Oak	Y	all	Y	Y	M	M	N	Y	N	N
	Quercus	macrocarpa	Bur Oak	Y	all	Y	M	M	N	M	Y	N	N
PLANETREE	Quercus	robur	English Oak	N	all	M	M	Y	N	M	Y	N	N
	Quercus	rubra (borealis)	Nothorn Red Oak	Y	all	M	N	Y	Y	Y	Y	N	Y
OAK	Quercus	shumardii	Schumard Oak	Y	all	Y	M	N	M	N	Y	N	Y
	Taxodium	distichum	Bald Cypress	Y	all	N	Y	M	M	Y	Y	N	Y
CYPRESS	Tilia	cordata	Littleleaf Linden	N	all	M	M	N	Y	Y	Y	N	Y
	Tilia	tomentosa	Silver Linden	N	all	M	M	Y	Y	Y	Y	N	Y
LINDEN	Tilia	x euchtora	Crimean Linden	N	all	M	N	Y	Y	Y	Y	N	N
	Zelkova	serrata	Japanese Zelkova	N	all	M	Y	M	N	Y	N	N	Y

TABLE KEY:
 Y=yes
 N=no
 M=Moderate tolerance
 All=all regions
 C/S=Central to South
 F=female

Large Tree Tips

- Grow to be over 40 feet at maturity.
- Recommended for streets with no overhead restrictions and with tree lawns 4-6 ft. or more in width.
- Recommended for large areas such as parks, school yards, homeowner yards.
- Plant at least 1/2 the mature height of the tree from structures.
- **DO NOT PLANT UNDER OR NEAR POWER LINES.**

* Due to Emerald Ash Borer threat, limit plantings.
 ** Female fruits are messy/smells bad.



25 - 40 ft.

MEDIUM TREES

Indiana Community Tree Selection Guide

Genus	Species	Common name	Useful range												
			1	2	3	4	5	6	7	8	9	10	11		
ACER	campestre	Hedge Maple	N	all	Y	M	Y	M	Y	Y	Y	Y	Y	N	Y
	maximowiczianum	Nikko Maple	N	all	Y	M	Y	N	Y	N	Y	N	Y	N	Y
	triflorum	Three-Flowered Maple	N	all	N	N	M	N	Y	N	Y	N	Y	N	Y
AMELANCHIER	species	Serviceberry	Y	all	N	M	N	Y	N	Y	N	Y	Y	Y	Y
	betulus	European Hornbeam	N	all	M	M	M	N	Y	N	Y	Y	Y	N	Y
CARPINUS	caroliniana	American Hornbeam	Y	all	N	Y	N	N	N	N	N	Y	N	N	Y
	japonicum	Katsura Tree	N	all	N	Y	N	M	N	N	N	Y	N	N	Y
CLADRASIS	kentukea (lutea)	Yellowwood	Y	C/S	M	M	N	N	Y	N	Y	Y	Y	Y	Y
	colurna	Turkish Filbert	N	all	Y	M	N	N	N	N	N	Y	N	Y	Y
CRATAEGUS	crus-galli	Cockspur Hawthorn	Y	all	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y
	phaenopyrum	Washington Hawthorn	Y	all	Y	M	N	Y	Y	Y	Y	Y	Y	Y	Y
CRATAEGUS	viridis	Winter King Green Hawthorn	Y	all	Y	M	N	Y	Y	Y	Y	Y	Y	Y	Y
	ulmoides	Hardy Rubber Tree	N	C/S	Y	N	M	N	Y	N	Y	N	N	N	N
MAACKIA	amurensis	Amur Maackia	N	all	Y	N	N	N	Y	N	Y	N	N	Y	Y
MAGNOLIA	species	Magnolia	N	all	M	M	N	M	M	M	Y	Y	Y	Y	Y
	virginiana	Hop Hornbeam	Y	all	Y	Y	N	N	N	N	N	Y	N	N	Y
PYRUS	calleryana	Gallery Pear	N	all	Y	N	M	M	Y	Y	Y	Y	Y	Y	Y
	x ambigua	Purple Robe Locust	N	all	M	N	Y	Y	Y	Y	Y	Y	Y	Y	Y

TABLE KEY:

Y=yes

N=no

M=Moderate tolerance

All=all regions

C/S=Central to South

F=female

Medium Tree Tips

- Grow to be a 25-40 foot tree at maturity.
- Check for mature size before planting near utility lines.
- Recommended for areas around the home, yard and with tree lawns that are 4 ft or greater.
- Plant at least 25-35 feet from structures.

25 ft. or less

SMALL TREES

Indiana Community Tree Selection Guide

Genus	Species	Common name	Useful range												
			1	2	3	4	5	6	7	8	9	10	11		
ACER	ginnala	Amur Maple	N	all	Y	N	Y	N	Y	Y	Y	Y	Y	Y	Y
	griseum	Paperbark Maple	N	all	Y	M	Y	N	M	N	N	Y	N	Y	Y
	tataricum	Tartarian Maple	N	all	Y	M	Y	M	M	N	N	Y	Y	Y	Y
CERCIS	canadensis	Eastern Redbud	Y	all	Y	N	N	M	Y	Y	Y	Y	Y	Y	Y
	altemiflia	Pagoda Dogwood	Y	all	Y	Y	Y	M	Y	N	Y	Y	Y	Y	Y
CORNUS	kousa	Kousa Dogwood	N	all	N	N	Y	M	Y	Y	Y	Y	Y	Y	Y
	mas	Cornelian Cherry	N	all	N	Y	N	Y	Y	Y	Y	Y	Y	Y	Y
MALUS	species	Crabapples	N	all	V	V	V	V	V	V	V	V	V	V	V
	species	Cherries	N	all	V	V	V	V	V	V	V	V	V	V	V
SYRINGA	reticulata	Japanese Tree Lilac	N	all	Y	N	Y	N	Y	N	Y	Y	Y	Y	Y
	lantana	Wayfaring Tree	Y	all	Y	Y	N	Y	N	Y	N	Y	Y	Y	Y
VIBURNUM	lentago	Nannyberry Viburnum	Y	all	Y	Y	N	M	Y	N	Y	Y	Y	Y	Y
	plicatum tomentosum	Doublefile Viburnum	N	all	Y	M	N	Y	Y	Y	Y	Y	Y	Y	Y
VIBURNUM	prunifolium	Blackhaw Viburnum	Y	all	Y	Y	M	Y	Y	Y	N	Y	Y	Y	Y

Small Tree Tips

- Generally can be planted under and near power lines.
- Check mature height and spread before planting.
- Recommended for lawn widths 3 ft. or greater.

Tree Characteristics

All trees have certain characteristics that enable them to thrive in the right site. The following characteristics are listed in the key and the user can determine what tree will fit into the chosen site based on these characteristics.

Native

A tree species that grows naturally in the region that it is being planted.

Useful range

When selecting a tree to plant, consider the different climates in Indiana. Northern regions normally have colder winters than southern regions which can affect tree survival. Certain trees may be better suited for planting in one climate over another. The State of Indiana has been divided into three regions: North, Central, and South.

Drought tolerant

A drought tolerant selection may need to be considered when a site lacks sufficient water where heat stress may occur. Examples would be an open sunny location, parking lot or a street.

Wet tolerant

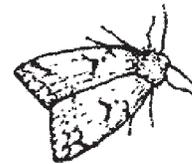
A wet tolerant tree selection may need to be considered when a site will have excessive moisture present. An example would be an area that floods or holds excessive soil moisture. A site with high clay soil may retain excessive water.

Salt tolerant

Salt tolerant trees may be needed when planted in locations where there is exposure to road salt spray or run off. Examples include areas along major thoroughfares, along salted sidewalks, and in parking lots.

Insect and disease prone

Insects and diseases can affect almost every tree.



Most trees have specific problems, however, these may vary across different regions of the state. Severity of problems may change greatly from year to year. Tree selection should be made from disease resistant species in your area.

Easy to transplant

Certain species are easier to transplant than others. Transplanting time can also affect tree survival. Certain trees are best transplanted in spring because of slow recovery time after planting. The majority of the trees are best planted in the fall.

Cultivars

A named plant selection from which identical or nearly identical plants can be produced through vegetative reproduction or cloning. They are often superior in quality.

Fruit or Seed

Tree fruiting may be considered a positive or negative. Positives can be fruit shape and color and the attraction of birds and other wildlife. Negatives are large falling fruit that causes excessive ground litter.



Showy flowers

All trees flower, however, some are more conspicuous than others. Typically, ornamental trees are selected for their showy flowers. Most ornamental trees are in bloom for one to three weeks starting in early spring while others begin blooming in early summer.

Site

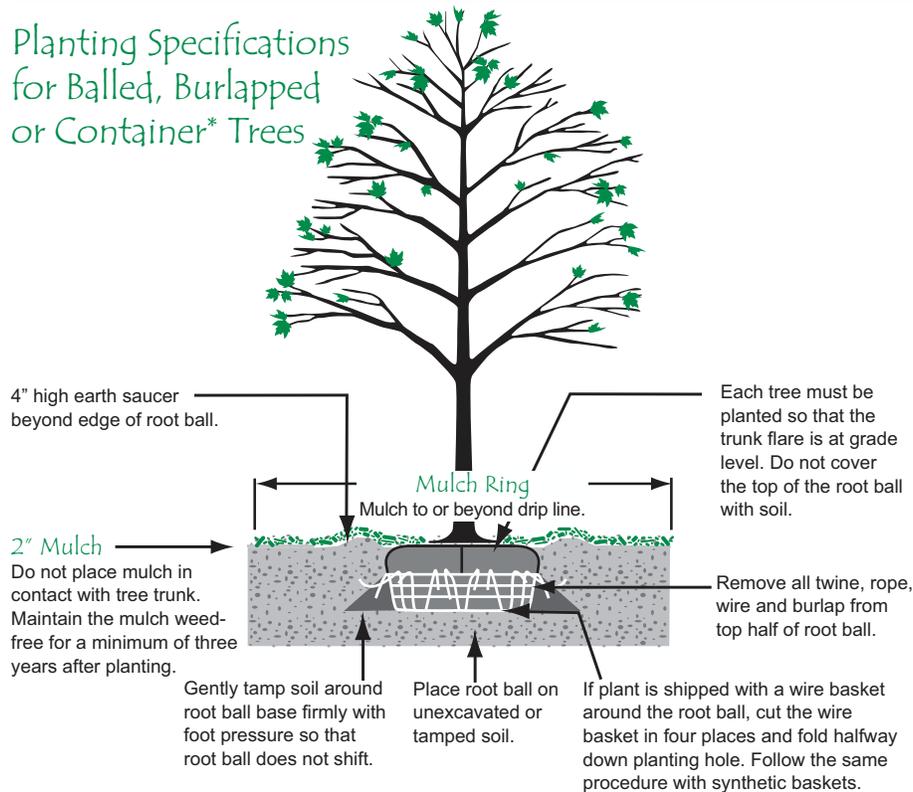
The location where the tree will be planted.

Fall color

Fall leaf color can create interesting views. Different types of trees can create a color collage of yellow, red, orange, and purple. This may be a consideration in the design of a landscape.

Tree Planting Guidelines

Planting Specifications for Balled, Burlapped or Container* Trees



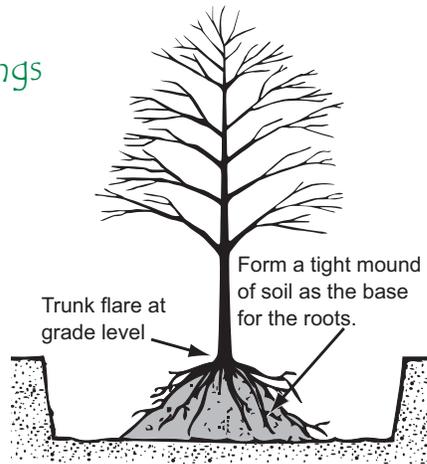
- o Dig planting hole 2X the width of the root ball.
- o Limit pruning at time of planting.
- o Prune only crossover limbs, co-dominant leaders, and broken or dead branches.
- o Stake trees only if in a windy site.
- o Wrap tree trunks only if it is a thin bark species.
- o Remove wraps at end of winter.
- o If possible, mark the north side of the tree in the nursery, and rotate tree to face north at the site.
- o In wet or slowly draining areas, position the (flare) 1-2 inches above grade.

* For container trees: remove from container and follow the above procedures.

Planting Specifications for Bare Root Trees— including Seedlings

The Planting Hole:

- The planting hole should be dug wide and deep enough to accommodate roots without bending them or screwing them into the hole. Do not cut roots in order to fit them into the planting hole.
- Do not make the hole too deep.
- Create a mound of firmly packed soil in the center of the planting hole for the root mass to sit upon at the correct depth.



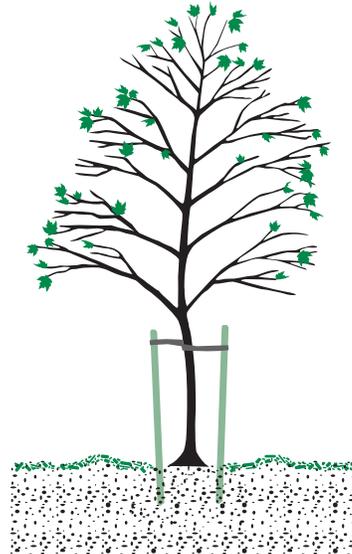
Placing the tree in the hole:

- Spread out roots of bare root trees over the mound in the center of the hole before backfilling.
- Position the top-most root where it meets the trunk just at the soil surface. This is called 'planting at grade level' and it is the correct depth for most tree plantings.
- Be sure there are no kinks, folds or circling roots.
- Roots should be positioned more-or-less straight out from the trunk and over the mound.
- Firm soil while filling in hole. Be sure that any air pockets are filled in.
- When the hole is about three-fourths filled with soil, gently begin adding water to settle soil as you continue to fill in hole. Press gently on the soil to minimize air pockets. Do not pound or stomp.
- Be careful not to injure roots with the shovel used for backfilling. If practical, use your hands to backfill to avoid skinning the bark.
- Any broken roots need to be cut cleanly with a sharp pruning tool. Pruning roots indiscriminately at planting will not stimulate root regeneration, will not help in overcoming transplant shock, and is not recommended. Only adequate irrigation and air management can help overcome transplant shock.
- Finally, place 2-4 inches of mulch out to the drip line; make a well with the mulch to retain moisture.

Planting Specifications for Bare Root Trees that need to be Staked

Stake if ...

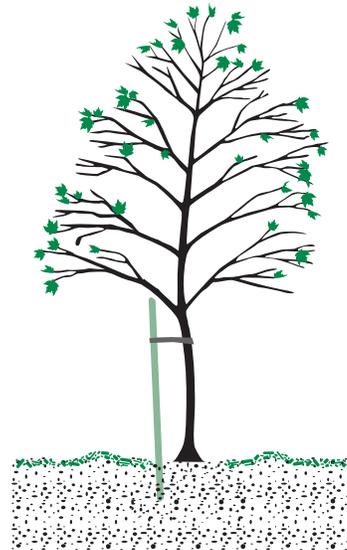
- the tree or trees are in very open sites and exposed to high winds. This would include the wind produced from passing vehicular traffic.
- the soil is sandy or loose.
- people are inexperienced in bare root plantings and may not have back filled the hole correctly.
- trees are overly tall.
- poorly formed tree needs correction



Dual support staking system

Tree staking tips:

- The stakes generally need to be removed after one growing season (a year).
- Some materials will cut into the tree. Garden hose, ropes etc. are not recommended.
- A properly designed staking system that allows some movement of the tree is important.
- Staking systems that branch out in various directions can be a tripping and mowing hazard.
- Single or dual poled stakes work best in high pedestrian and high mow care areas.
- Tree guards may be needed around seedling and bare root trees to protect them from wildlife browse, mower, and weed whip damage.



One pole staking system

References & Recommended Publications

Several references were used in compiling this guide. They are excellent tools for anyone who wants to plant trees. They are available in most bookstores and from the International Society of Arboriculture website.

101 Trees of Indiana; A Field Guide – Marion Jackson

Landscape Tree Factsheets, Including Evergreens for Screens – Gerhold, Laçasse, Wandell

Manual of Woody Landscape Plants – Michael Dirr

Plants for North America – Harrison Flint

Trees & Shrub Handbook, Selection-Care-Pests-Diseases – Morton Arboretum

Trees for Urban and Suburban Landscapes – Edward Gilman

Trees of Indiana – Charles Deam

Websites

The Division of Forestry website can guide users to a variety of sites that offer tips on tree selection, identification, urban forestry planning and management. Find the links at Indiana DNR, Division of Forestry;

www.IN.gov/dnr/forestry

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Technical Support Contacts

-  IDNR, Community & Urban Forestry, 317-915-9390; urbanforestry@dnr.IN.gov
-  City Forester – may be available in your community. Contact your municipality to check.
-  Indiana Urban Forest Council, 317-489-8775
-  Purdue University Cooperative Extension Service – in your county, www.ces.purdue.edu; 1-888-398-4636
-  Soil and Water Conservation District (SWCD) – in your county
-  Electric Utility – Indiana’s major utilities have foresters who can advise regarding tree planting under power lines.

Indiana City Foresters

Anderson	765-648-6853	LaPorte	219-362-8220
Bloomington	812-349-3716	Madison	812-265-8308
Carmel	317-571-2478	Michigan City	219-873-1400
Columbus	812-375-2742	Mishawaka	574-258-1664
Decatur	260-724-2520	Muncie	765-747-4847
Elkhart	574-295-7517	New Albany	812-948-5333
Evansville	812-475-1426	Noblesville	317-776-6348
Ft. Wayne	260-427-6403	South Bend	574-299-4783
Goshen	574-534-2901	Syracuse	574-457-3440
Indianapolis	317-327-7094	Terre Haute	812-232-2727
Lafayette	765-807-1383	W. Lafayette	765-775-5110

For additional information;

Indiana Department of Natural Resources – Community & Urban Forestry
317-915-9390
urbanforestry@dnr.IN.gov

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