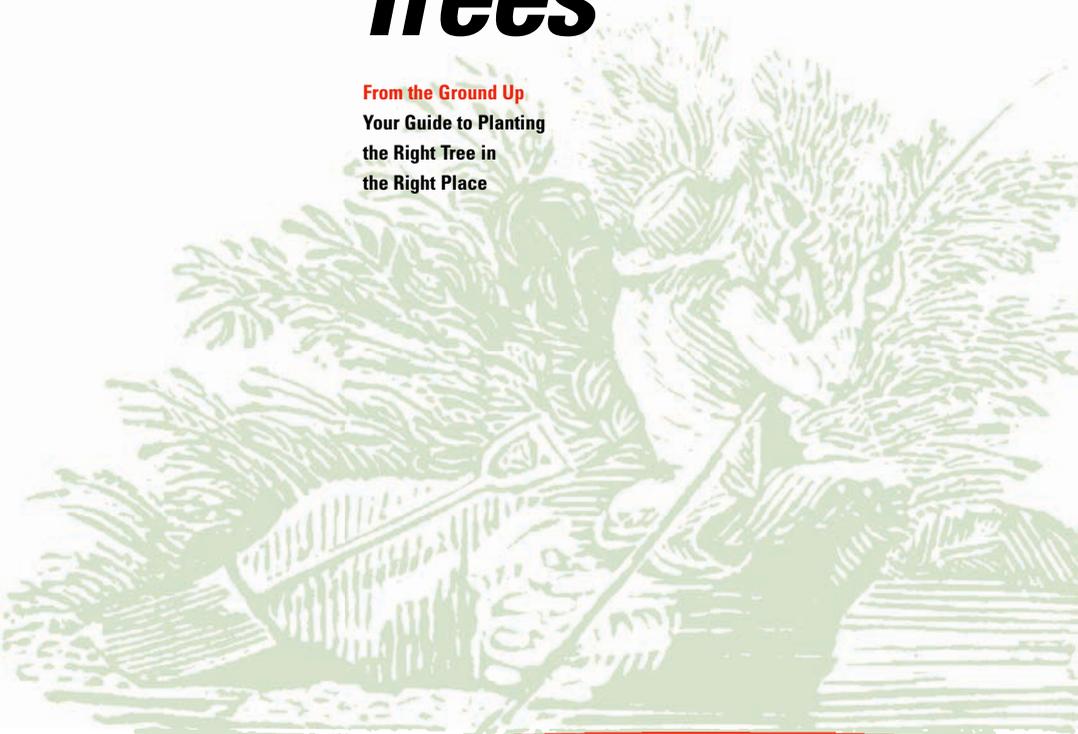




Planting Trees

From the Ground Up
Your Guide to Planting
the Right Tree in
the Right Place



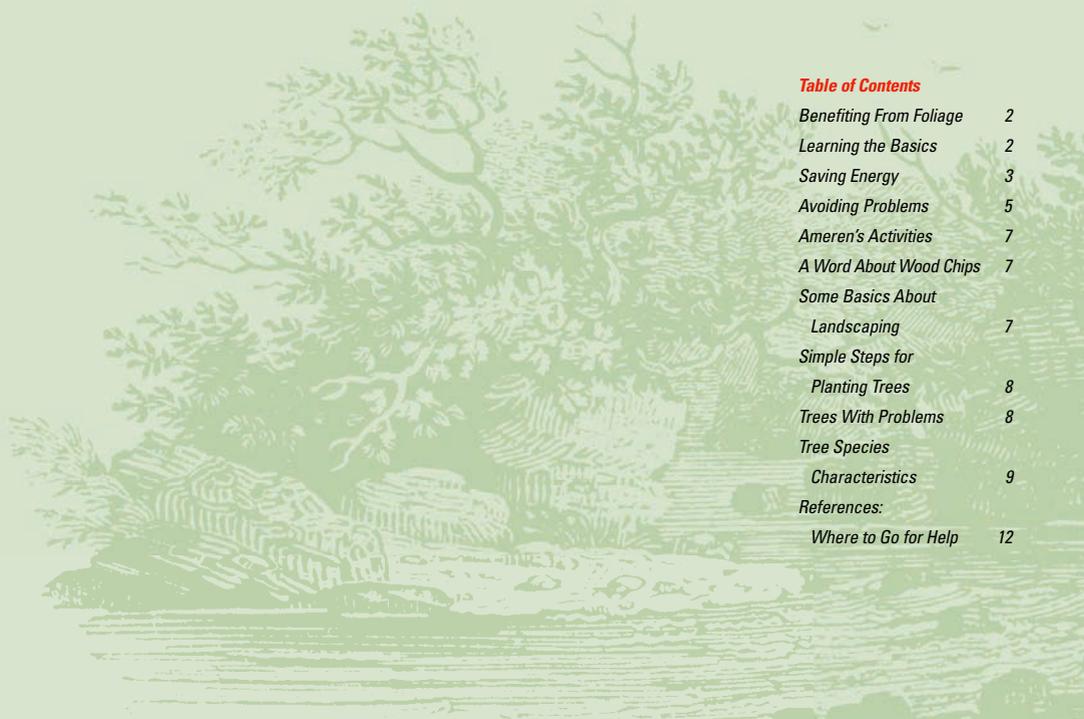


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Ameren Corporation

continues to expand its role beyond that of a reliable energy supplier to serving as a valuable partner in helping you use energy efficiently. ✨ This guide is part of that effort. We created this publication to answer some of the most commonly asked questions about landscaping. It suggests native and well-adapted trees for our region and offers tips on selecting and planting them successfully. It also offers advice on selecting the right tree for the right place – where to plant, what to plant and what not to plant. ✨ This information is also offered to help prevent avoidable disruptions of electric service caused by tree limbs that become entangled in distribution system lines, trees that fall on lines or windblown branches that cross lines. ✨ We hope this guide helps you contribute to the greening of our communities and leads you to discover that there are opportunities for saving energy right in your own backyard.

Benefiting from Foliage

Q WHY PLANT TREES?

A Trees absorb pollution created by industrial plant emissions and automotive exhaust. They help prevent soil from washing and blowing away, suppress noise, and serve as vital animal habitats.

Even more important to your pocketbook, properly placed trees can substantially reduce home energy consumption by providing shade for roofs and walls. Three well-placed trees around a house can cut energy needs for home air conditioning by 10 to 15 percent.

In addition to saving you money, trees can help the environment: Declining energy use translates to less need to burn fossil fuels to generate energy.

Besides, planting trees is good for your community. Today, only one tree is planted for every four that die or are removed in American cities and towns.

Q WHAT IMPACT CAN LANDSCAPING AND TREE PLANTING HAVE ON THE VALUE OF MY PROPERTY?

A All other factors being equal, trees and shrubs help beautify neighborhoods and can add up to 20 percent to the value of a typical home.

Learning the Basics

Q WHAT GENERAL ADVICE CAN YOU OFFER BEFORE I GO OUT TO BUY A TREE?

A A general rule of thumb is: Remember to place the right tree in the right place. Also choose trees that are hardy, appropriate for your climate, and provide a good shade canopy. Take into consideration the tree's fall color, branching and whether it has flowers or fruit.

Also buy trees that will fit the site at maturity. Before you purchase a tree, find out what it will look like when it is fully grown; then visualize how a tree of that size and shape would look in your yard. For example, a tree that grows to about 40 feet at maturity works best as a background – that is, planted behind the home – or to frame the home on either side. That size tree is also better for a one-story home. Multi-story homes benefit from larger trees (over 40 feet). Smaller trees work best for streetside locations.

Q WHICH IS BETTER: FAST-GROWING OR SLOW-GROWING SPECIES?

A There's a tendency to buy fast-growing trees to have a mature tree in your yard as quickly as possible. But they offer several disadvantages and usually aren't the best choice. For example, fast-growing trees generally have softer wood, making them susceptible to damage from ice storms, high winds and heavy snow. Fast-growing species also are relatively short-lived, have poor branching habits and are more prone to disease. Slower growing species tend to live longer, have strong, dense wood, attract wildlife and are less prone to damage from insects and disease.

(For a list of problem trees, see page 8 in this publication.)

Q HOW IMPORTANT IS SOIL IN DETERMINING THE SUCCESS OF PLANTING?

A Planting methods should be adjusted to fit soil types. Poorly drained clay soils, typical of modern urban developments in this region, require procedures that differ from well-drained, friable (crumbly) soils found in many older neighborhoods. Soil reaction, or pH, is an indicator of nutrient availability. In slightly acidic to neutral soils, most nutrients are available at optimal levels, while some nutrients are less available in alkaline soils.

Consult your nursery or arborist about what vegetation and trees perform best in the soil available in your yard. County offices of the University of Missouri Extension Service or the Illinois Cooperative Extension Service will test soils for nominal fees.

Q WHAT TREES ARE BEST FOR ATTRACTING BIRDS?

A The natural way to invite birds into your yard is to use trees and shrubs that provide food and shelter. The number of species of birds that feed on a particular plant can vary. Many birds feed regularly on berries – their favorite being bright and decorative. Consider planting trees and shrubs with fruits that remain as a food source throughout the winter.

Q ARE PLANTS POISONOUS FOR CHILDREN?

A Leaves and berries on a number of plants can be poisonous. If you have young children around, check with extension agents, your nursery or landscape designer to make sure you are not planting poisonous plants where children play.

Saving Energy

Q CAN LANDSCAPING HELP ME SAVE ON HEATING AND COOLING COSTS?

A Yes. Proper use of trees, shrubs and vines can minimize the effects of the factors responsible for unwanted heat or cold.

Here are some techniques that will help:

- Directly shade your house from both direct sunlight and reflected light from the ground, buildings, and sky. For example, use shrubbery to shade glass patio doors from late afternoon rays.
- Use plants to reduce the transfer of cool or hot air around your house. Reducing the amount of energy needed to cool or heat a house during times of peak temperatures allows homeowners to use smaller air conditioners or heating units.
- Plant trees to reduce the velocity of wind striking outside walls of your house and to moderate temperature fluctuations inside.

Q TO GAIN THE GREATEST ENERGY EFFICIENCY THROUGH LANDSCAPING, WHAT WOULD AMEREN RECOMMEND?

A Your first priority should be to shade windows, especially those on the east and west sides of your house. If trees are planted on the south side, they should be pruned along the lower portion of the trunk to allow maximum solar heating of walls in winter.

In general, for energy savings, shade as much of the roof and walls as possible. If you must make a choice between dense shade covering a smaller portion of the roof and walls or less-dense shade covering more area, the larger, but less-dense, coverage is more beneficial.

Q CAN YOU NAME SOME TYPES OF TREES AND OFFER SOME TECHNIQUES THAT WOULD BE BEST FOR SAVING ENERGY?

A Deciduous varieties, such as maple, oak and ash trees, are leafy in the warmer months – late spring, summer and early fall – but drop their leaves in late fall, while evergreens hold their needles throughout the year.

Deciduous trees planted on the west and southwest sides of a house will provide cooling shade in the summer, but in the winter, the bare branches will let most of the sunshine through to warm the house.

Evergreens can be used effectively not only for their year-round decorative appearance, but also as excellent protection against winter winds. A windbreak of evergreens planted to the north and west of your house can save energy during the winter. The use of evergreen trees or tall growing shrubs must be restricted to areas where the plant's shadow does not fall on the south-facing windows during winter months.

(Also see pages 9-11 in this brochure for a listing of trees, their heights at maturity and other characteristics.)

Q IS IT A GOOD IDEA TO PLANT TREES OR OTHER VEGETATION SO THAT THEY SHADE MY AIR CONDITIONER?

A Yes. By shading your air conditioner, the air temperature in the shaded area is lower. This will significantly increase the operating efficiency and life of your air conditioner. The air conditioner area should be completely shaded during the late afternoons of the warmest months (July and August) by planting as close to due west of the unit as possible. One caution: The exhaust from an air conditioning unit can kill a sapling that is planted too close to that part of the unit.

Other vegetation should be grown on trellises two feet to three feet away from the air conditioner to avoid obstructing the air intakes and to allow access to the unit. Place shrubs far enough away so that shadows – rather than leaves – fall on the air conditioner.

Avoiding Problems

Q WHAT SHOULD YOU AVOID WHEN LANDSCAPING?

A All power lines – overhead and underground. Again, when planting trees, you should consider planting the right tree in the right place.

Strong winds, wet snow, sleet and ice storms can cause trees and limbs to fall across power lines, putting you and your neighbors in the dark. Falling limbs and trees can result in risk to the public from downed power lines and in property damage. To avoid planting a tree that might grow into power lines, check trees for mature sizes before purchasing any tree type.

(Consult your nursery or arborist. Also see pages 9-11 in this brochure for listings of trees and their heights at maturity and other characteristics.)

If you want a tall tree, don't plant it within 35 feet of distribution overhead lines; tall trees growing near lines, even when trimmed properly, will need pruning in later years. Even if these trees are trimmed properly, they will look somewhat unnatural. Pruning is done to ensure delivery of safe and reliable electric service.

Q BUT POWER LINES ARE EVERYWHERE, SO WHAT KINDS OF TREES CAN I PLANT NEAR LINES?

A You can have safe and beautiful trees near power lines if small-maturing trees are planted and regularly pruned while the trees are young and small. Varieties of these smaller trees include crabapples, hawthorns and cherries. Avoid planting poplars, elms, silver maple and other fast-growing varieties.

Trees planted near lines should reach a height of no more than 25 feet.

Use this chart or the graphic showing examples of plantings that provide safe spacing as a handy reference:

DISTANCE FROM DISTRIBUTION SYSTEM OVERHEAD LINE*	CHOOSE TREES WITH MAXIMUM HEIGHT AT MATURITY**
Up to 20 feet	25 feet tall
20 to 30 feet	25–45 feet tall
Beyond 30 feet	Over 45 feet tall

* Within either side of the overhead line. If you plan to plant near a cross-country transmission line (typically those with steel structures), please call an Ameren Customer Service Center.

** See pages 9-11 in this brochure for listings of trees and their heights at maturity and other characteristics.

EXAMPLES OF PLANTINGS THAT PROVIDE SAFE SPACING FROM OVERHEAD DISTRIBUTION LINES

Large Trees

- (over 45 ft.)
 Shag Bark Hickory
 Sugar Maple
 Bur Oak
 Northern Red Oak
 Pecan
 White Pine
 Norway Spruce
 Sweetgum
 Black Walnut

Medium Trees

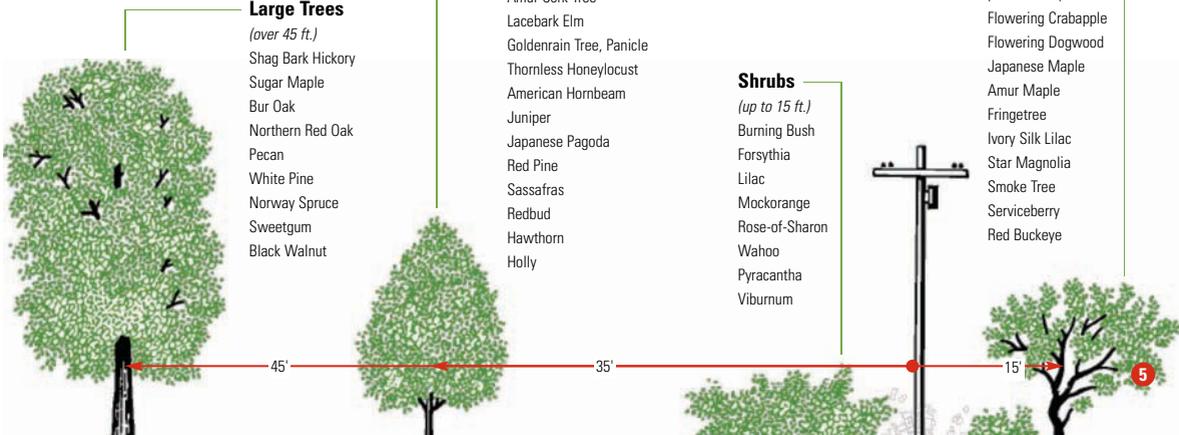
- (25-45 ft.)
 Amur Cork Tree
 Lacebark Elm
 Goldenrain Tree, Panic
 Thornless Honeylocust
 American Hornbeam
 Juniper
 Japanese Pagoda
 Red Pine
 Sassafras
 Redbud
 Hawthorn
 Holly

Shrubs

- (up to 15 ft.)
 Burning Bush
 Forsythia
 Lilac
 Mockorange
 Rose-of-Sharon
 Wahoo
 Pyracantha
 Viburnum

Small Trees

- (under 25 ft.)
 Flowering Crabapple
 Flowering Dogwood
 Japanese Maple
 Amur Maple
 Fringetree
 Ivory Silk Lilac
 Star Magnolia
 Smoke Tree
 Serviceberry
 Red Buckeye



Q WHAT SHOULD I DO IF I HAVE A TREE THAT IS GROWING INTO POWER LINES?

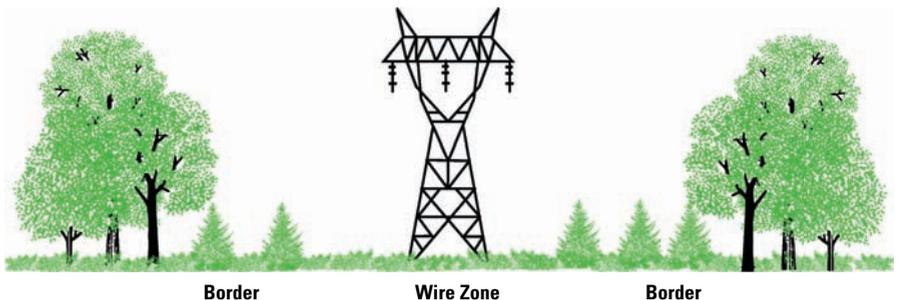
A Call an Ameren Customer Service Center, and a Forestry Department representative will visit you to determine the proper course of action.

Q WHAT ABOUT UNDERGROUND LINES? ARE THEY A PROBLEM?

A They can be. Always check the location of underground services before starting any digging project, including tree planting. Cutting into a line can be deadly. How can you tell which kind of service you have? Easy. If you don't see overhead lines nearby or wires coming into your house, your service is underground. Besides electric lines, there is also danger in uncovering or damaging telephone cables, cable television, gas or sewage lines. Check before you dig. In Missouri, call 1-800-344-7483, and in Illinois, call 1-800-892-0123, before starting any excavation work. If necessary, utility representatives will meet you at the site to determine the location of underground facilities and avoid costly damage, danger to you and time delays.

Q HOW IS VEGETATION AROUND THE HIGH-VOLTAGE TRANSMISSION LINES HANDLED?

A Ameren continually manages vegetation on its transmission rights-of-way to provide safe, reliable electrical service while maintaining, and, where possible, improving desirable wildlife habitat within the rights-of-way. To control vegetation both under, and to the sides, of high voltage transmission wires, Ameren takes a "zoned" approach to managing rights-of-way. The zone directly beneath and 20 feet beyond the wires is called the "wire zone." It is managed to encourage low growing plant species with a mature height of 10 feet or less. The next zone outward is the "border zone," where plants with a mature height of less than 25 feet are encouraged. All mature healthy plant species are allowed to grow beyond the border zone. The entire right-of-way becomes a transition zone between the mature forest and the vegetation found within the right-of-way. Ameren's membership in Project Habitat supports its vegetation management program on transmission rights-of-way. Through this program, Ameren works with various public and private agencies to manage transmission rights-of-way to provide a healthy environment for all plant and animal life.



Ameren's Activities

Q WHAT IS AMEREN DOING TO ENCOURAGE USE OF TREES AS AN ENVIRONMENTAL RESOURCE?

A In 2001, Ameren announced its first annual \$25,000 contribution to Forest Releaf as the premier sponsor of Project CommuniTree — a 10-acre nursery operation. Established in 1996, volunteers grow trees at the nursery for planting on public properties and nonprofit facilities throughout Missouri and into Illinois. Based in Missouri, Forest Releaf is committed to guiding and inspiring personal and community stewardship of trees and forest. Through Project CommuniTree, based in Berkeley, Mo., the nonprofit organization has distributed tens of thousands of free trees for public plantings in parks, at schools and along municipal streets. For many years, Ameren has provided grants to encourage the planting of trees and gardens; the company's sponsorship of Project CommuniTree continues that tradition with an organization that has demonstrated a strong commitment to the region and the environment. Individuals, organizations, community groups and municipalities are eligible to apply to Forest ReLeaf for the trees, which are available on a first-come, first-served basis each spring and fall. Recipients are asked to care for the trees for at least three years after planting. (For more information, call toll-free 1-888-4-RELEAF or St. Louis, call 314-533-LEAF.)

A Word About Wood Chips

Ameren will deliver a load of wood chips to you at no charge when crews contracted by Ameren are working in your neighborhood. If you see a tree-trimming crew in your neighborhood, you can ask the foreman if there are any wood chips available. Keep in mind that a normal load measures 10 to 12 cubic yards. For more information, customers can call an Ameren Customer Service Center.

Some Basics About Landscaping

- Avoid planting trees directly beneath power lines, near poles or too close to electrical equipment. The diagram on page 5 can be used as a guide to safe spacing from overhead lines for various species of trees.
- Don't plant a large tree too close to a house. It may loosen roofing, mar paint and clog gutters with leaves. A shallow-rooted and weak tree could fall onto the house, causing major damage.
- Avoid trees with low branches that are too close to the driveway and can scratch cars.
- Avoid planting large trees in the area between the curb and the sidewalk. These areas are typically not large enough to support the growth habits for trees with a mature height over 25 feet.
- Remove limbs of large shade trees that can obscure street signs and traffic lights, creating a hazard

- for motorists and pedestrians. Screening your own driveway so that you cannot see approaching traffic is also dangerous.
- Don't plant shallow-rooted trees that can clog sewer lines causing damage.
- Plant clean trees – those that don't shed fruit or flowers – near the patio to avoid littering the area.

NOTE: The information in this publication is directed toward Ameren's electric distribution facilities and does not pertain to the transmission system. Due to the extremely high voltage of transmission lines, Ameren strives to maintain a right-of-way corridor with vegetation growth that will not exceed 10 feet in height. If you have a question about what type of vegetation is acceptable to plant in a specific location, please contact the sources listed on page 12 of this publication.

Simple Steps for Planting Trees

- 1 Dig a hole three times wider than the tree's root ball and no deeper than necessary to cover the roots.
- 2 Make sure the root ball doesn't have compacted, circling roots. Loosen them with your fingertips. Keep the delicate roots moist and out of direct sunlight.
- 3 Place the tree at the correct depth (with the top of the root ball at or just above the soil surface) and at a right angle to the ground.
- 4 Partially fill the hole, lightly pack the soil around the roots with the handle of your shovel to eliminate air pockets and water. Refill and pack again until the soil is even with the top of the root ball.
- 5 Stake and tie the tree only if stability is a problem. If a tree continues to lean in the planting hole, staking is always recommended. In most cases, staking only requires a single metal fence post or long wooden stake driven into the ground two to three feet from the tree. Leave enough of the stake above ground so at least the top of the stake is even with the lowest branch. To prevent bark damage, attach the tree to the stake by a rope or twine through a piece of hose. Don't leave the stake on for more than two growing seasons.
- 6 Use the leftover soil to form a 4-inch deep by 3-feet wide water basin around the tree. **WATER DEEPLY!**
- 7 Place a circle of mulch around the newly planted tree to conserve soil moisture and moderate soil temperatures. The mulch should cover an area four times the diameter of the root ball and be three to four inches deep. Mulch should be pulled away from the trunk of the tree to prevent disease or rot.

Trees with Problems

AILANTHUS: (Tree of Heaven) This durable tree will grow almost anywhere. It has an extensive root system. Root suckers and sprouts spring up along that system causing the tree to take over the landscape. It is not recommended for small urban sites.

EASTERN COTTONWOOD: This fast-growing tree can withstand heat and poor soils. Its massive production of cotton-like seeds can cause allergy problems and clog air conditioners. Even the cottonless variety produces a massive root system that can destroy sewers, walks and foundations. And its branches are susceptible to wind and ice damage.

WHITE BIRCH: This short-lived ornamental tree is highly susceptible to bronze birch borer, birch leaf

miner and other serious pests. A popular tree, it is somewhat tolerant of city environments but is not a tree that can be depended upon to survive.

LOMBARDY POPLAR: This is a very short-lived tree. It may live only 10 years before disease and wood bores destroy it. The tree also has a weak wood that is susceptible to wind and ice damage.

SILVER MAPLE: This is a widely planted tree but one with weak wood that is susceptible to wind and ice damage.

AMERICAN ELM: The native American Elm is among the fastest-growing and reaches a great height but is being ravaged by Dutch Elm disease.

Tree Species Characteristics

Small (Up to 25 feet at maturity)

Common Name		Fast, Moderate, Slow	Full Sun, Partial Shade, Shade	Ornamental, Shade, Windbreak, Broadleaf Evergreen	Improved Varieties Available	Attractive Spring, Summer Flowers, Fall & Winter Fruit	Yellow to Reddish, Orange to Red Fall leaf color	Botanical Name
Yoshino Cherry		F	F	O		Sp	Y	Prunus Yedoensis
Corkscrew Willow		F/M	F	O	✓		Y	Salix matsudana
Flowering Crabapple		M	F	O	✓	Sp		Malus
Flowering Dogwood		M/S	P/S	O	✓	Sp	R	Cornus florida
Washington Hawthorne		M/S	F/P	O	✓	Sp	Y/R	Crataegus phaenopyrum
American Holly		S	F/P	O/B	✓	F		Ilex opaca
Amur Maple		M	F/P	O	✓		Y/R	Acer ginnala
Japanese Maple		S	P/S	O				Acer palmatum
Redbud		M	F/P	O	✓	Sp	Y	Cercis canadensis
Rose-of-Sharon		F	F	O	✓	S	Y	Hibiscus syriacus
Serviceberry		M	S	O	✓	Sp	Y/R	Amelanchier arborea
American Smoketree		M	F	O	✓	Sp	Y/O/R	Cotinus obovatus
Sumac		F	F	O	✓		R	Rhus typhina

Medium (25-45 feet at maturity)

Amur Cork Tree		M	F	O			Y	Phellodendron amurense
Lacebark Elm		M	F/P	O/S			Y	Ulmus parvifolia

Tree Species Characteristics

Common Name		Fast, Moderate, Slow	Full Sun, Partial Shade, Shade	Ornamental, Shade, Windbreak, Broadleaf Evergreen	Improved Varieties Available	Attractive Spring, Summer Flowers, Fall & Winter Fruit	Yellow to Reddish, Orange to Red Fall leaf color	Botanical Name
Goldenrain Tree, Panicle		M	F	O/S		Sp		Koelreuteria paniculata
Thornless Honeylocust		F/M	F	O/S	✓		Y	Gleditsia triacanthos
American Hornbeam		S	F	O/S			Y/O	Carpinus caroliniana
Japanese Pagoda		M	F	O	✓		Y	Sophora japonica
Juniper		M	F/P	W	✓			Juniperus virginiana
Red Pine			M	F	O/S/W			Pinus resinosa
Sassafras		F	F/P	O/S			O/R	Sassafras albidum

Large (Over 45 feet at maturity)

Green Ash		F	F	S	✓		Y	Fraxinus pennsylvanica
Baldcypress		M	F/P	O/S			Y	Taxodium distichum
Blackgum		M	F/P	O/S			O/R	Nyssa sylvatica
Ginkgo		M/S	F	O/S	✓		Y	Ginkgo biloba
Shag Bark Hickory		M/S	F/P	O/S			Y	Carya ovata
Japanese Zelkova		F/M	F	O/S	✓		Y	Zelkova serrata
Kentucky Coffeetree		F/M	F/P	O/S			Y	Gymnocladus dioica
Littleleaf Linden		M	F	O/S	✓	Sp	Y	Tilia cordata

Tree Species Characteristics

Common Name		Fast, Moderate, Slow	Full Sun, Partial Shade, Shade	Ornamental, Shade, Windbreak, Broadleaf Evergreen	Improved Varieties Available	Attractive Spring, Summer Flowers, Fall & Winter Fruit	Yellow to Reddish, Orange to Red Fall leaf color	Botanical Name
Norway Maple		M	F/P	O/S	✓		Y/R	Acer platanoides
 Red Maple		F/M	F/P	O/S	✓		O/R	Acer rubrum
Sugar Maple		M	F	O/S	✓		R/Y	Acer saccharum
 Bur Oak		S	F	S		F	Y	Quercus macrocarpa
English Oak		M/S	F	S		F	Y	Quercus robur
 Northern Red Oak		M	F	S		F	O/R	Quercus rubra
Shumard Oak		M	F	S		F	O/R	Quercus shumardii
 Pecan		M	F	S	✓	F	Y	Carya illinoensis
Eastern White Pine		M	F	O/S/W		F		Pinus strobus
 Scotch Pine		M	F	O/S/W		F		Pinus sylvestris
River Birch		F	F	O/S	✓		Y	Betula nigra
 Blue Spruce		S	F	O/S/W	✓	F		Picea pungens
Norway Spruce		S	F	O/S/W		F		Picea abies
 Sweetgum		F/M	F	O/S	✓	F	O/R	Liquidambar styraciflua
Tuliptree		F	F	O/S		Sp	Y	Liriodendron tulipifera
 Black Walnut		M	F			F	Y	Juglans nigra

References: Where to Go for Help

This booklet is designed to give you broad guidelines on the selection, planting and care of new trees. Here is a listing of other sources of more specific information and expert help as you select and add trees or shrubs to your home's landscape:

AVOIDING UNDERGROUND UTILITY FACILITIES:	In Missouri: 1-800-344-7483 (1-800-DIG-RITE) In Illinois: 1-800-892-0123
GENERAL INFORMATION ON TREE PLANTING AND CARE:	Forest Releaf of Missouri: 888-4-RELEAF University of Illinois Extension: 217-782-4617 Illinois Department of Natural Resources: 217-785-8744 Missouri Department of Conservation: 573-522-4115 Missouri University Extension Service (Each county has a university extension office; check your local directory) The National Arbor Day Foundation, Nebraska City, NE: 1-888-448-7337
GENERAL GARDENING INFORMATION:	Missouri Botanical Garden Center for Home Gardening: 314-577-9440 Hotline Garden Information: 314-776-5522

About Ameren

Based in St. Louis, Mo., Ameren Corporation was created with the year-end 1997 merger of Union Electric, now doing business as AmerenUE, and CIPSCO Incorporated, once the parent company of Springfield, Ill.-based AmerenCIPS. ✱ Ameren has grown since then to include Peoria, Ill.-based AmerenCILCO and Decatur, Ill.-based AmerenIP. Today, Ameren Corporation provides energy services to 2.4 million electric and nearly one million natural gas customers over 64,000 square miles in Illinois and Missouri. Among the nation's top utility companies in size and sales, Ameren prides itself on a long tradition of cost containment, quality customer service and preservation of the environment. ✱ As a National Arbor Day Foundation Tree Line USA utility, Ameren demonstrates practices that protect and enhance America's urban forests. For more information on Ameren's Vegetation Management Program, visit our Web site at www.ameren.com.



Ameren is active both in Illinois and Missouri in promoting the efficient use of energy. Ameren's Illinois utilities have been active since 2008 in launching a range of energy efficiency programs. Ameren's Illinois utilities have also created www.actonenergy.com — a dynamic, award-winning Web site to provide advice and program information.

Through aggressive energy efficiency initiatives, in Missouri, AmerenUE expects to offset 540 megawatts of electricity usage by 2025 through a range of programs to help customers reduce consumption and save money. For more visit, www.ameren.com/energyefficiency/.