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TREES

FOR SHADE & BEAUTY

Their Selection and Care

TREES FOR SHADE AND BEAUTY:

Their Selection and Care

Prepared from information supplied by Plant Science Research Division, Agricultural Research Service

Trees planted around homes and along city and village streets fill a need. They fill a need for shade, a need for screening, a need for softening the harsh and stark lines of buildings, a need for adding beauty and graciousness and a feeling of welcome to streets that otherwise are purely functional.

For trees to do their intended job satisfactorily—and continue to do it—they must be selected carefully, then watched over until they become established. Once they are established, carefully selected trees require less attention.

SELECTING THE RIGHT TREE

When you plant a tree you also plant shade, or shape, or background, or screening, or color. The use that you intend for your tree and the location in which you will plant it should guide you in its selection.

In selecting a shade or ornamental tree—

- Limit selection to trees of reliable **HARDINESS** in your area.
- Select the **FORM** that is best for the intended use.
- Determine the mature **SIZE** that is desirable; consider whether *growth rate* and *longevity* are limiting factors.
- Avoid trees having **UNDESIRABLE CHARACTERISTICS** for the intended use.
- Determine **AVAILABILITY** of suitable trees.

Hardiness

Start with a list of trees that are reliably hardy to the environment that they must grow in. Consider the total environment: The climate, the soil type, the available moisture, the contaminants in the atmosphere, and competition from the activities of human society.

When you consider hardiness to the climate of your area, remember the summer's heat as well as the winter's cold. Trees native to northern climates easily withstand southern winters but may be scorched beyond use by heat of a southern summer.

And be sure trees are *reliably* hardy in your area; trees planted north of their adapted range may grow satisfactorily through a series of milder-than-normal winters, but when an especially severe winter comes along, they will be killed. Then the person who planted them will have lost money and labor and—most precious of all—time.

Soils in the city tend to be compacted and poorly drained. If you are selecting trees for city planting, therefore, you must either select trees that are tolerant of soil compaction

or be prepared to invest time and labor in preventing these conditions.

Available moisture, too, can limit a tree's usefulness. In park plantings or specimen plantings in a yard, trees native to the area are not likely to suffer from lack of water during periods of normal rainfall. Near a street, however, trees can never receive their fair share of water. Rain flows off into gutters and storm drains and is carried away. For city plantings, select trees that can grow in reasonably dry soil, then see that they get enough water to keep them growing until their root systems adjust to the continuous subnormal soil moisture.

City air is filled with smoke and fumes and dust and soot. Some trees can grow successfully in this environment, others cannot. For example, ginkgo and London plane trees do well in downtown fumes and dirt; sugar maple does not.

Trees planted in the open—in parks or large yards—usually have less competition from the activities of human society than street trees. But many city trees must compete with automobiles and foot traffic, with lawnmowers, with sewer lines underground, and with utility lines overhead. To compete with human society successfully, a tree must be tough.

Form

Consider whether the mature form of a tree is appropriate to its intended use. A broad-spreading and low-hanging tree may be ideal as a park or yard tree, but it would be unsatisfactory along a driveway. A slim,



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Trees make your home more attractive by providing shade, shape, screening, background, and color.

upright tree may be perfect for lining driveways, but of little use for shading a patio.

If you are not familiar with the mature form of trees under consideration, study illustrations of them in books or nursery catalogs.

Size

Many homeowners have learned by experience that Norway spruce is not a suitable tree for foundation plantings. The 6-foot-tall evergreens that look so attractive beside the front steps can eventually grow to a height of 70 feet and a spread of 40 feet. And they seem to get out of hand before the homeowner does anything about it.

Size of Mature Trees

<i>Small</i> (Up to 40 feet)	<i>Medium</i> (40 to 75 feet)	<i>Large</i> (More than 75 feet)
Arborvitae	American holly	American beech
Brazilian pepper	Blue spruce	Pecan
Cherry laurel	Goldrain tree	Southern magnolia
Desert willow	Hackberry	Sugar maple
Green ash	Honeylocust	White oak
Hemlock	Live oak	Willow oak
Jacaranda	Norway maple	
Mimosa	Red maple	
Wax	Scotch pine	
	Valley oak	

Growth rate of a potentially large tree, however, may be slow enough to allow the tree's use for many years before it gets too large. Tuliptree, for example may grow to a height of 100 feet or more, which makes it much too large for a yard tree on the usual city or suburban lot. But tuliptree takes more than 100 years to mature. The tree may be of acceptable size for 40 or 50 years after planting. You must decide whether you care what happens 40 years hence.

Longevity also is a matter for thought. Some trees grow rapidly, giving shade and screening soon after they are planted. They reach maturity quickly, then decline. How soon will they decline? Will their decline—and need for removal—affect you? If, when you are 25 years old, you plant a tree with a 40-year life expectancy, you may have to cut it down just as you are planning to spend some of your retirement time sitting under it. But if you plant the same tree when you are 45, you can sit under it in retirement years and you are not likely to care when it begins to decline. You have to decide whether you are planting trees for posterity or for yourself.

Useful Life Expectancy

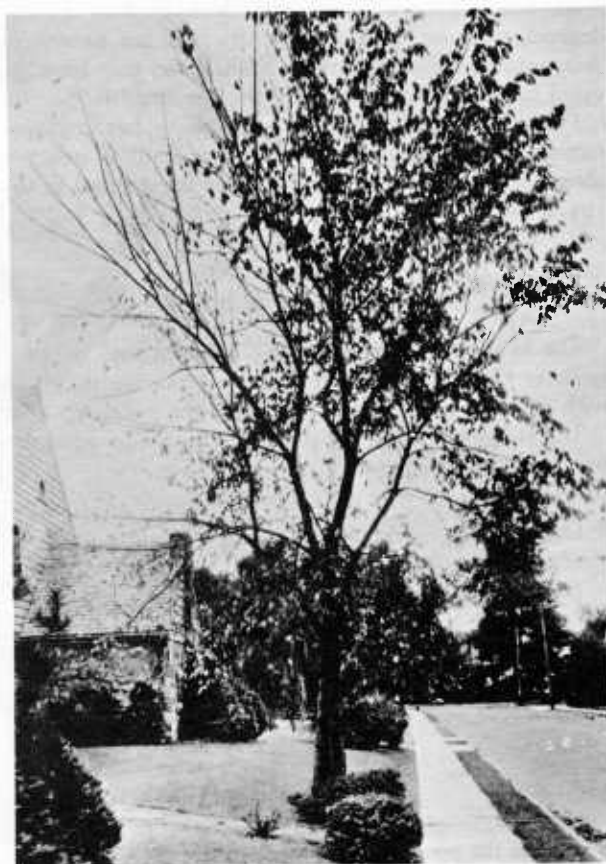
<i>Short</i> (to 50 years)	<i>Medium</i> (to 75 or 100 years)	<i>Long</i> (100 or more years)
Arborvitae	American holly	American beech
Brazilian pepper	Blue spruce	Live oak
Desert willow	Goldrain tree	Pecan
Mimosa	Green ash	Southern magnolia
Redbud	Hackberry	White ash
Sydney wattle	Honeylocust	White oak
Umbrella tree	Jacaranda	Willow oak
	Norway maple	
	Red maple	
	Scotch pine	
	Valley oak	

Undesirable Characteristics

It is difficult to find a tree that has no undesirable characteristics. Some traits make a tree unsuited for any use. For example, the American elm—one of our favorite trees—is susceptible to Dutch elm disease, which makes the tree a poor risk in areas where the disease occurs. Thornless honeylocust is subject to attack by the mimosa webworm, which ruins the appearance of the tree unless it is sprayed every year. White mulberry and the female ginkgo produce fruits that are so objectionable that these species may be considered garbage trees.

Some trees have traits that are nuisances, but may be tolerable. Oaks, hickorys, horse chestnuts, crabapples—all produce fruits that attract children who may use them for missiles. Sweetgum fruits—gum balls—are covered with thorny protuberances that make the fruits a nuisance in lawns. Poplars and mimosa produce an abundance of seeds that sprout in lawns and flowerbeds. If you like these trees otherwise, you may choose to overlook their undesirable characteristics.

Some trees have characteristics that are intolerable in one situation but not in another. Some maples, for example, have a tendency to raise and crack pavement with their roots. If they are planted where there is no nearby



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Dutch elm disease has killed thousands of American elms. Until this disease is controlled, American elm is a poor choice for shade-tree plantings.

pavement, this is no problem. Some trees—red and silver maples, elm, willow, and poplar—are notorious sewer cloggers. If they are planted away from sewer lines, again this is no problem.

You must match the tree's characteristics with its intended use; decide if they are compatible.

Availability

When you have narrowed your list down to a few acceptable trees, you must find which of them are available. There is a good chance that the best tree for the purpose may be in such demand that it is not available locally. Then you must either settle for second best or shop around by mail to find the tree you want.

Many reputable nurseries do business by mail. You can feel secure in dealing with any of the old-line firms. But beware of firms that make fantastic claims for their nursery stock or promote common trees by giving them unusual names.

CARING FOR TREES

The city is a difficult, often hostile, environment for shade trees. Success in growing shade trees in the city depends most on selection of a tree that can survive in this unfavorable environment. Then the tree must be cared for until it has a chance to become established.

Planting; fertilizing; watering; mulching; pruning; protecting from insects, diseases, and mechanical injury—these are the steps in preparing a tree for survival in the city.

Planting

The key to good tree planting is generosity: Be generous in digging a planting hole, in replacing poor soil with good, in expending energy to do the job right.

The right way to do the job depends on how good the soil is on the planting site:

In good soil—

- Dig planting holes for bare-root trees large enough to receive the roots when they are spread in a natural position.
- Dig planting holes for balled-and-burlapped trees 2 feet wider than the rootball.
- Dig holes deep enough so you can set the trees at the same level at which they grew in the nursery.

In poor soil—

- Dig holes for all trees as wide and deep as you can conveniently make them.
- Replace the poor soil from the hole with good soil when you fill in around the newly set tree.

In soil with impossibly poor drainage—

- Take all practical measures to improve drainage.

MORE HELP

You may be able to get specific help in selecting trees for your area from sources of information nearby. Try the following for more information:

- City arborist or park superintendent.
- State agricultural experiment station.
- State extension landscape specialist.
- County agricultural agent.
- State highway commission.
- Local power company.

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- Limit tree selection to species having a mature height less than 50 feet.
 - Set the rootball in a shallow depression in the soil.
 - Fill in around the rootball with good soil, forming a slightly concave bed extending out as far from the trunk as you can manage. Topsoil is often removed in building operations. Subsoil is commonly unfavorable for trees. In such cases, the best procedure is to use as much topsoil as practicable in the planting hole.

Pack soil under the newly set tree until it sets at the level at which it grew in the nursery.

Before filling around the rootball, stake or guy the tree. If the trunk diameter of the tree is 3 inches or less, use one or two 6-foot poles or steel fenceposts to stake the tree. Set the poles vertically into the soil next to the rootball. Fasten the trunk to the poles with a loop of wire that is enclosed in a section of garden hose to prevent bark cutting.

If the tree trunk is larger than 3 inches in diameter, support it with three hose-covered guy wires. Loop the wires around the trunk about two-thirds up the main stem or trunk. Stake one guy wire to the ground in the direction of the prevailing wind. Stake the other two wires to the ground to form an equilateral triangle.

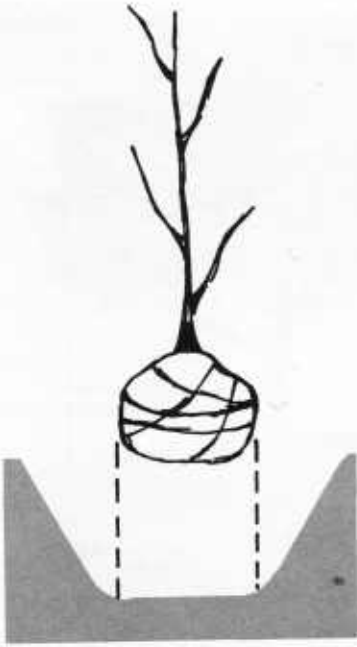
After the tree is set and the hole is filled with good soil, settle the soil around the roots by watering thoroughly. Then wrap the trunk with burlap or creped kraft paper to prevent sunscald. Start wrapping at the top and wrap toward the ground. Tie the wrapping material with stout cord, knotting it about every 18 inches. The wrapping should remain for 1 to 2 years.

Fertilizing

If you use plenty of good soil for backfilling newly planted trees, the trees are not likely to need fertilizer for the first year after planting. However, street trees, planted in the narrow parking between sidewalk and curb, may need earlier feeding.

If you think your trees need fertilizer—if the leaves are paler than normal and if growth is slower than normal—you can apply it in spring this way:

- Measure the diameter of the trunk 3 feet above the ground; use 2 pounds of 5-10-5 for each inch of diameter (a 1-pound coffee can holds about 2 pounds of fertilizer).
- Using a soil auger, if one is available, or a crowbar or



Dig the planting hole large enough for the roots plus plenty of good soil.



Fill hole until top of rootball is even with soil surface.



Drive supporting stakes next to the rootball.



Fill hole with good soil, tamping it firmly. Ridge soil to form shallow basin.



Wrap the trunk with burlap strip. Tie wrapping every 18 inches with stout cord.



Attach tree to supporting stakes with hose-covered wire. Water well, and . . . **STAND BACK AND BE PROUD.**



In soil where drainage is poor or nonexistent, trees can be planted on the "high side" and the area around the root-ball bedded with good soil.

posthold digger, make holes 15 to 24 inches deep and about 18 to 24 inches apart around the drip line of the tree (the area beneath the ends of the longest branches).

- Distribute the fertilizer equally among the holes, then fill the holes with good soil. A mixture of equal parts topsoil, sand, and peatmoss is good for filling the holes; it provides aeration and water access as well as filling the space.

Watering

City trees often get too little water. Many trees grow in places where the area of soil exposed to rainfall is small. Lawn trees have to compete with grass and other plants for water. Drainpipes honeycomb the city and remove thousands of gallons of water every day.

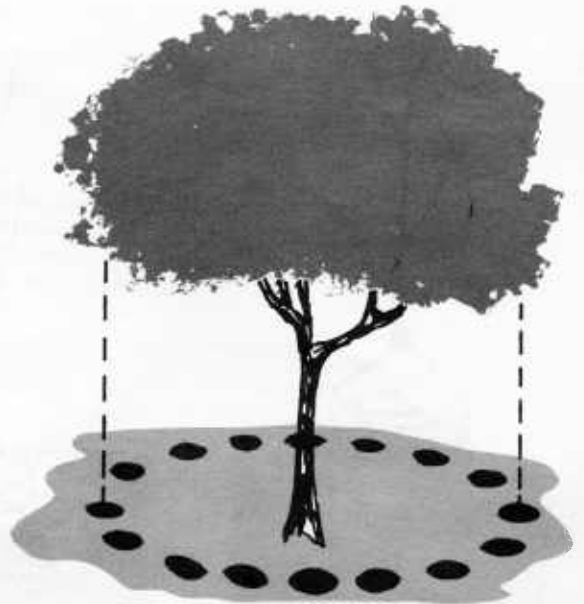
Trees can become conditioned to this constantly low amount of water. But they have to be kept alive until they can adjust.

Water trees for the first two seasons after planting them. Water about once a week and let the water run for several hours. If you have one of the special needles that attaches to a garden hose for injecting water and water-soluble fertilizer into the root zone, you will find it to be useful, particularly for watering curbside trees.

If the soil in your area is tight clay or is underlain with hardpan, be careful that you do not overwater. Excess water will kill some kinds of trees faster than drought.

Mulching

In the forest, decaying fallen leaves provide a protective mulch that conserves natural moisture, tempers summer's heat and winter's cold, and adds organic matter to the soil. In city or suburban yards, however, fallen leaves beneath lawn trees are more likely to be considered litter than



Dig holes for fertilizer under the dripline of the tree—about 15 inches deep and 18 to 24 inches apart.

mulch. And fallen leaves in public space along curbs clog gutters and drains, make streets slippery, and are fire hazards, so they must be removed. As a consequence, organic matter in the soil becomes depleted.

Yard trees can be mulched with materials more attractive than rotting leaves—pine bark, tanbark, ground corn-cobs, or peanut hulls, for example—and they will receive the organic matter they need. Trees can be supplied with soil organic matter as a result of fertilizer application; the peatmoss in the soil mixture that is used to fill fertilizing holes will help to keep the soil moist, aerated, and well drained.

Pruning

Inspect your shade trees regularly and prune them when needed. By following this procedure, you can improve their appearance, guard their health, and make them stronger. And by pruning as soon as the need becomes apparent, you can easily correct defects that would require major surgery if allowed to wait.

In your program of scheduled pruning, try to eliminate undesirable branches or shoots while they are small. Drastic, difficult, or expensive pruning may be avoided by early corrective pruning.

Here is a list of things to look for and prune:

- Dead, dying, or unsightly parts of trees.
- Sprouts growing at or near the base of the tree trunk.
- Branches that grow toward the center of the tree.
- Crossed branches. If branches cross and rub together, disease and decay fungi can enter the tree through the abraded parts.
- V crotches. If it is possible to do so without ruining the appearance of the tree, remove one of the members forming a V crotch. V crotches split easily; their removal helps to prevent storm damage to the tree.
- Multiple leaders. If several leaders develop on a

tree that normally has only a single stem and you wish the tree to develop its typical shape, cut out all but one leader. This restores dominance to the remaining stem.

● "Nuisance" growth. Cut out branches that are likely to interfere with electric or telephone wires. Remove branches that shade street lights or block the view in streets so as to constitute a traffic hazard. Prune out branches that shut off breezes. Cut off lower limbs that shade the lawn excessively.

Do not leave stubs when you prune. Stubs usually die. They are points at which decay fungi can enter the tree.

Small pruning cuts heal quickly. Large cuts—more than 1 inch in diameter—should be treated with antiseptic tree dressing to prevent entrance of decay or disease while the wound is healing.

Protecting From Insects, Diseases, and Mechanical Injury

Most insects and diseases can be controlled by spraying. Your county agricultural agent, extension landscape specialist, or State agricultural experiment station can tell you what spray schedules to follow in protecting your trees from insects and diseases. When trees are small, you can spray them yourself. As they grow larger, however, spraying becomes a job for professional arborists, who have the equipment and knowledge required to do a thorough job.

Danger from mechanical injury by lawnmowers, bicycles, and foot traffic is reduced when stakes and guy



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By following a program of regular and frequent pruning, you can correct defects while they are minor, rather than wait until they require major surgery.



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Trees bring beauty and graciousness and a feeling of welcome to streets that otherwise are purely functional. And trees on your streets add dollars to the value of your property.

wires are installed. If needed for protection, tree boxes can be made from snow fencing and placed around trees.

REPLACING LOST TREES

Trees fill a need—a need that remains after the tree is lost. You recognize that yard trees enhance the value of your home by providing shade, screening, color, or architectural balance. If yard trees die you replace them.

But what about trees on public space? How are you affected by loss of street or park trees? What can you do to insure that they are replaced?

How You Are Affected

Community beautification pays off economically as well as aesthetically. Residential property in an attractive part of town is worth more than residential property in an unattractive part of town. Trees on your streets add dollars to the value of your property. Conversely, your property loses value when trees are removed and not replaced.

What You Can Do

If you live in an incorporated city or town, let city authorities know that you think lost street and park trees should be replaced. Voters' associations, garden clubs, service clubs, parent-teacher groups—all should express their interest in having street trees properly cared for and, if necessary, replaced. They should also express their appreciation to city authorities who do a good job of street-tree maintenance and replacement.

If you live in an unincorporated community, replacing street trees is likely to be more of a do-it-yourself job. But you, together with other interested citizens, can insure that lost trees are replaced satisfactorily.

Help is available to citizens' groups through your city parks system, your State agricultural experiment station, your county agricultural agent, commercial nurserymen, and, in many areas, the local light and power company.

Helpful Publications for Home Gardeners

Information on growing ornamental plants is available from U.S. Department of Agriculture publications listed in this section. You can obtain single free copies from your county agricultural agent or you can write the Office of Information, U.S. Department of Agriculture, Washington, D.C. 20250. Include your ZIP Code in your address.

You can purchase copies in any number at the price shown beside the name of each publication. Send your order and remittance to the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Include your ZIP Code in your address.

- G25, Roses for the Home (15¢)
G51, Better Lawns—Establishment, Maintenance, Renovation, Lawn Problems, Grasses (25¢)
G53, Lawn Insects—How to Control Them (20¢)
G61, Lawn Diseases—How to Control Them (25¢)
G65, Growing Chrysanthemums in the Home Garden (10¢)
G66, Growing Iris in the Home Garden (10¢)
G71, Growing Azaleas and Rhododendrons (10¢)
G80, Home Propagation of Ornamental Trees and Shrubs (10¢)
G82, Selecting and Growing House Plants (15¢)
G83, Pruning Shade Trees and Repairing Their Injuries (10¢)
G86, Growing Camellias (15¢)
G89, Selecting Fertilizers for Lawns and Gardens (10¢)
G91, Growing Flowering Annuals (10¢)
G102, Iron Deficiency in Plants: How to Control It in Yards and Gardens (20¢)
G104, Protecting Shade Trees During Home Construction (10¢)
G114, Growing Flowering Perennials (25¢)
G120, Growing Boxwoods (15¢)
G123, Lawn Weed Control With Herbicides (15¢)
G130, Growing Hollies (5¢)
G131, Growing Dahlias (10¢)
G132, Growing Magnolias (10¢)
G135, Growing Flowering Crabapples (5¢)
G136, Spring Flowering Bulbs (15¢)
G149, Growing Pansies (10¢)
G151, Summer Flowering Bulbs (15¢)
G152, Growing Gardenias (10¢)
G154, Growing the Bradford Ornamental Pear (10¢)
G159, Controlling the Japanese Beetle (25¢)
G164, Home Planting By Design (25¢)
G165, Pruning Ornamental Shrubs and Vines (10¢)
G175, Growing Ground Covers (15¢)
G187, Indoor Gardens With Controlled Lighting (15¢)
G188, Growing Ornamentals in Urban Gardens (15¢)
F1972, Poison Ivy, Poison Oak, and Poison Sumac (10¢)
M814, Plant Hardiness Zone Map (20¢)
M1056, A Guide to Natural Beauty (55¢)

The following publications are for sale only by the Superintendent of Documents.

Consumers All, 1965 Yearbook of Agriculture (\$2.75)
Outdoors USA, 1967 Yearbook of Agriculture (\$2.75)

"Color It Green With Trees"

Washington, D.C.

Issued July 1966
Slightly revised March 1972

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price 10 cents

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