

FACT SHEET

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SHADE TREE EVALUATION - TEXAS

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The value of a tree is generally best understood when a dollar value is placed on it. For this reason a committee of tree specialists, under the auspices of the National Arborist Association and the International Shade Tree Conference, met and devised a mathematical means of determining the value of a shade or ornamental tree. The following formula and description is based on their work.

In determining the monetary value of shade and ornamental trees, three basic factors must be considered. These are tree size, kind and condition. The shade tree evaluation committee decided that the cross-section area of the trunk at a point 4½ feet above the ground is the best means of expressing shade tree size. This is calculated by taking 0.7854 times the square of the diameter. Thus, a 10-inch tree has a cross-section area of 78.54 inches. The value of a perfect specimen shade tree, in the committee's opinion is \$9 per square inch of trunk cross-section (1970).

However not all species and varieties of trees are of equal value. A list of trees growing in Texas must be segregated into classes based on relative value. Trees in Class I are valued at 100 percent. Class II at 80 percent, Class III at 60 percent, Class IV at 40 percent and Class V at 20 percent. A 10-inch perfect specimen in Class I is, therefore, worth \$706. In Class V, it would only be worth \$141.

Very few shade trees are perfect specimens. As trees become large and old, they often become defective through decay, broken limbs, man-caused damage or poorly proportioned growth. The person making an appraisal must consider the tree's condition and judge it on a percentage basis. For example, the 10-inch tree in Class I might be a poorly proportioned tree or crowding a house, and instead of being worth \$706, might be worth 60 percent or \$424. A qualified arborist should be consulted in tree appraisal work, if practicable.

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Some of these species apply only in East Texas, some to warmer climes, some to more western, etc., but are grouped together to fit into the region as a whole. Zone 10 trees were generally omitted. Palms are also excluded because their growth habits do not conform to the formula.

CLASS NO. I - 100 PERCENT

Carya illinoensis—Pecan
Cornus florida—Flowering Dogwood
Fagus grandifolia—American Beech
Ilex opaca—American Holly
Ilex vomitoria—Yaupon Holly
Liquidambar styraciflua—Sweet Gum
Magnolia grandiflora—Southern Magnolia
Nyssa sylvatica—Tupelo
Quercus alba—White Oak
Quercus macrocarpa—Bur Oak
Quercus muhlenbergii—Chinkapin Oak
Quercus nigra—Water Oak
Quercus shumardii—Shumard Oak
Quercus texana—Spanish Oak
Quercus virginiana—Live Oak
Sophora secundiflora—Mescal Bean Sophora
Taxodium distichum—Bald Cypress
Ulmus crassifolia—Cedar Elm

CLASS NO. II - 80 PERCENT

Arbutus texana—Texas Madrone
Carya spp.—Hickories
Diospyros texana—Texas Persimmon
Fraxinus velutina 'glabra'—Modesto Ash
Ginkgo biloba—Ginkgo
Juglans nigra—Black Walnut
Koelreuteria apiculata—Southern Golden Raintree
Koelreuteria paniculata—Panicked Golden Raintree
Lagerstroemia indica—Crepe Myrtle
Magnolia virginiana—Sweetbay
Olea manzanilla—Manzanilla Olive
Picea pungens—Colorado Blue Spruce
Pinus edulis—Pinon Pine

Pinus elliottii—Slash Pine
Pinus halepensis—Aleppo Pine
Pinus nigra—Austrian Pine
Pinus ponderosa—Ponderosa Pine
Pinus taeda—Loblolly Pine
Pinus thunbergii—Japanese Black Pine
Pistacia chinensis—Chinese Pistachio
Pithecellobium flexicaule—Texas Ebony
Quercus falcata—Southern Red Oak
Quercus phellos—Willow Oak
Quercus velutina—Black Oak
Ulmus americana—American Elm

CLASS NO. III – 60 PERCENT

Acacia farnesiana—Huisache
Acer grandidentatum sinuosum—Bigtooth Maple
Acer rubrum—Red Maple
Betula nigra—River Birch
Cedrus deodara—Deodar Cedar
Chilopsis linearis—Desert Willow
Ehretia anacua—Anaqua
Eriobotrya japonica—Loquat
Fraxinus pennsylvanica lanceolata—Green Ash
Fraxinus velutina (Select Male)—Velvet Ash
Gleditsia triacanthos inermis—Thornless Honeylocust
Gymnocladus dioica—Kentucky Coffeetree
Leucaena pulverulenta—Great Lead-tree
Liriodendron tulipifera—Tulip Poplar
Malus species and varieties—Flowering Crab
Morus alba (fruitless)—Fruitless Mulberry
Persea americana—Avocado
Persea borbonia—Redbay
Pinus echinata—Shortleaf Pine
Pinus pinea—Italian Stone Pine
Platanus occidentalis—American Planetree Sycamore
Prosopis glandulosa—Honey Mesquite
Pyrus calleryana—Calleryana Pear
Quercus stellata—Post Oak
Sapindus drummondii—Western Soapberry
Sophora japonica—Japanese Pagodatree

CLASS NO. IV – 40 PERCENT

Acer saccharinum—Silver Maple
Broussonetia papyrifera—Paper Mulberry
Bumellia lanuginosa—Gum Elastic
Celtis occidentalis—Common Hackberry
Cercis spp.—Redbud
Crataegus spp.—Hawthorns

Cupressus arizonica—Arizona Cypress
Firmiana simplex—Chinese Parasol Tree
Fraxinus velutina (seedling)—Arizona Ash
Juniperus spp.—Junipers, Cedar
Maclura pomifera—Bois d'Arc
Prunus blireiana—Ornamental Plum
Prunus mexicana—Mexican Plum
Sabium sebiferum—Chinese Tallow
Ulmus parvifolia sempervirens—Evergreen Elm
Zizyphus jujube—Jujube

CLASS NO. V – 20 PERCENT

Acer negundo—Boxelder
Ailanthus altissima—Tree of Heaven
Albizia julibrissin—Silktree
Catalpa spp.—Catalpa
Celtis laevigata—Sugarberry
Eleagnus angustifolia—Russian Olive
Melia azedarach—Chinaberry
Morus rubra—Red Mulberry
Parkinsonia aculeata—Palo Verde
Populus spp.—Cottonwood and Poplars
Robinia pseudoacacia—Black Locust
Salix spp.—Willows
Tamarix spp.—Tamarisk
Thuja spp.—Arbor Vitae
Ulmus parvifolia—Chinese Elm
Ulmus pumila—Siberian Elm

Classification is based on the following considerations:

- A. Permanence
- B. Resistance and low maintenance
- C. Natural beauty and landscape quality
- D. Cost of replacement (includes availability—high cost rates higher)
- E. Site adaptability

If each species or cultivar can be rated from 20 to 1 on descending value in each category, the resulting score would be a direct reading of its class. For example, one can classify live oak (*Q. virginiana*) as follows: A – 20, B – 18, C – 18, D – 15, E – 18. Total score equals 89. Result: Class I.

By the same process, the willow easily falls into Class V. Actually, after a few species are classified thusly, other species are compared to the classified species and fall easily into their respective categories. Of course, this is all based on individual judgment. Final classifications were made after consulting arborists and horticulturists.