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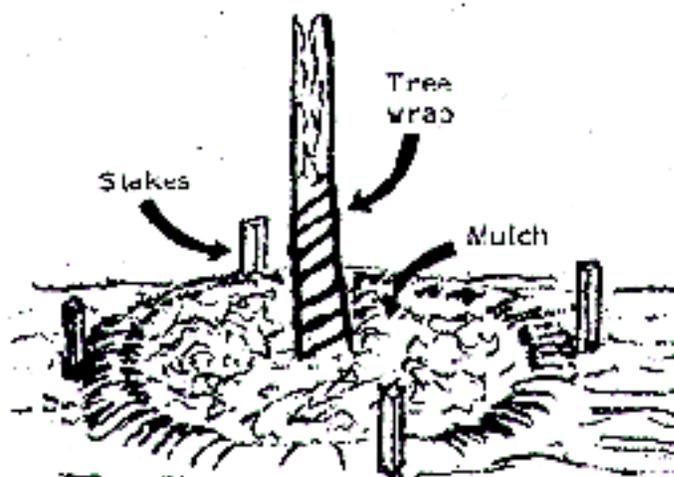
ADDITIONAL TIPS FOR SUCCESSFUL SHADE TREES...

Trees provide not only beauty to the landscape, they offer practical benefits in terms of energy conservation, reduction of air and noise pollution, control of soil erosion, and increased real estate values, among others. However, most trees growing in an urban environment have to overcome constant stress resulting from unnatural growing conditions in order to survive and thrive.

Proper fertilization, pruning, protection during construction and site and species selection are primary factors in a healthy urban forest. But there are additional practices that can vastly improve the appearance, health and longevity of our shade trees, and several of these are herein outlined to help you give your trees the care they deserve and need.

TRUNK PROTECTION

Careless use of lawnmowers, string-type weeding devices and other lawn equipment can result in serious problems for trees. In some cases, especially with tender young trees and shrubs, the cambium layer just beneath the bark becomes completely girdled, resulting in death for the victim. Even in larger trees, repeated damage to the trunk can lead to serious structural problems as decay organisms enter and gain a deadly hold.



You can prevent such damage in a number of ways. One way is to apply mulch around the tree to hold down weed and grass growth so that trimming close to the trunk is unnecessary. Stakes, tree wrap or other mechanical barriers also can be used to protect tree trunks from lawn equipment. Another alternative is use of a highly specialized systemic herbicide (such as

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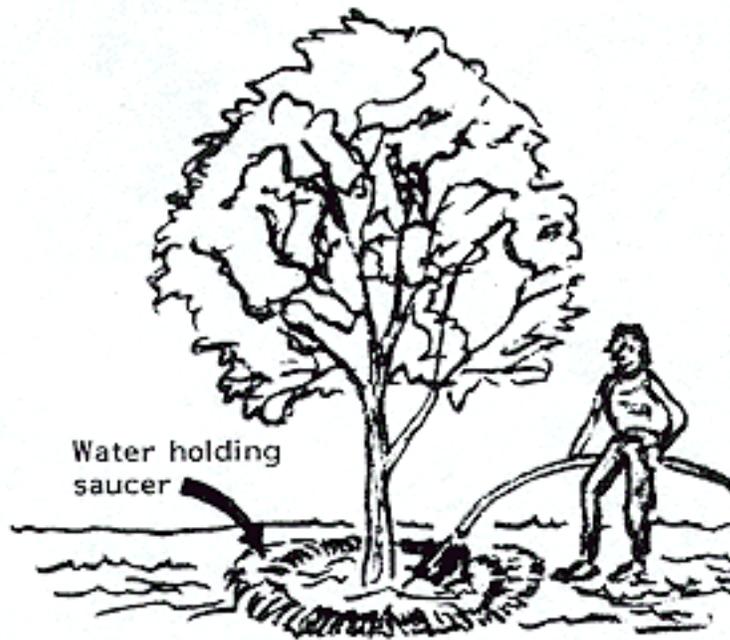
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TRUNK PROTECTION--continued

Round Up, Kleenup or Phytar) that will control unwanted growth but will not harm the tree. Many herbicides will harm trees and shrubs when applied in the root zone, however, so be very selective in choosing a chemical control, and read and follow label directions explicitly.

WATERING

Proper soil moisture is essential for fast initial growth of young trees. In



fact, for newly planted trees, timely and adequate watering may be the difference between survival and mortality, and it certainly will make the difference between minimum and maximum growth.

To facilitate irrigation, a watering saucer, or levee, can be constructed around the planting hole at the time the tree is planted.

THOROUGHLY water newly planted trees once a week unless one inch or more of rainfall occurs. It is essential to saturate the soil to the bottom of the planting hole. Sprinkling or other watering that wets only the top few inches of soil is not adequate and

tends to encourage shallow root development. Soil must have a chance to dry out moderately between waterings.

DO NOT OVER WATER.

Mulch around the tree serves several good purposes, including conservation of moisture.

MULCHING

Mulching is an important but largely neglected horticultural practice in the establishment and maintenance of shade trees. It not only helps protect trunks from lawn equipment, conserves moisture and alleviates soil compaction, mulch also reduces competition for nutrients from unwanted weeds and grasses. This combination of benefits can dramatically increase the initial growth rate of young trees.

Almost any organic material will serve as a surface mulch. Leaves, compost, grass clippings, wood chips, sawdust, and pine bark are among good choices.

Although aged material (that which is allowed to decay somewhat) is superior to "green" material as a soil amendment, either can be used as a

MULCHING--continued

surface mulch for trees.

A mulched area of some two to four feet in diameter around newly planted trees is recommended. To apply mulch, first remove sod from the area, using either a shovel or a specialized systemic herbicide (as described in Trunk Protection) that will not harm the tree. Then add about a three-inch layer of mulch. As the tree's branches spread out, expand the mulched area to the edge of the dripline or a little beyond, for the first five or six years.

DO NOT OVER MULCH. Too much mulch can harbor disease organisms. Also, do not bank mulch against the tree trunk, because the trunk needs to "breathe."

SOIL AERATION

Compaction of soils in the root zone of a tree can be a serious growth deterrent to the tree. Poor vigor, stress, increased insect and disease attacks and even death may result.

Compaction cuts down air exchange between soil and the atmosphere, and, in addition, reduces percolation of rains and irrigation water into the soil, causing increased runoff and erosion.

Any method of breaking up soil compaction without excessive root damage will lessen the problem. Mechanical discing is not generally recommended because this practice can cause excessive root damage. However, light discing (no deeper than an inch or so) will normally cause little harm to the tree.

The process of fertilizing a tree with a soil auger has the extra benefit of helping alleviate soil compaction.

In fact, additional augered holes left open in the root zone are recommended to achieve maximum benefit.

There are various types of mechanical pluggers or spikers which improve soil aeration and water percolation, as well.

Once compaction is corrected, soil structure can be enhanced and re-compaction prevented by the incorporation of a mulch such as finely ground bark or leaf mold into the sod or top one inch of soil. As the mulch filters

