



# PRO HORT

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## DECIDUOUS TREES FOR WET SOILS

By Keith Warren, Horticulturist

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Trees For Tomorrow, Spring, 1984.

Heavy wet soils with poor drainage are common in urban areas and often present problems in landscape design decisions. The reason that many trees do poorly in wet soils is because the pore space in the soil, which should contain air, is filled with water. Tree roots need oxygen to survive; without it they die. However, there is a wide range of variability in tolerance to "wet feet."

Some trees have strict requirements for soil conditions. Sugar Maple, for example, needs a moist, well aerated soil which never gets too wet or dry, preferably with adequate humus present. On the other hand, some trees tolerate a wide range of soil conditions. Ash, Honey-locust, Planetree, Poplar and Hackberry are among these. They are quite adaptable, and do quite well in soils which are either excessively wet or dry.

We are often asked which deciduous trees will do best in wet soils. The following list of trees includes those which have repeatedly proven to be well adapted to this condition. While there certainly are others which can do well under moderately wet circumstances, those listed below should be the most reliable.

<u>Acer rubrum</u>	Red Maple
<u>Acer saccharinum</u>	Silver Maple
<u>Alnus species</u>	Alders
<u>Amelanchier species</u>	Serviceberries
<u>Betula nigra</u>	River Birch
<u>Betula pendula</u>	European White Birch
<u>Betula papyrifera</u>	Paper Birch
<u>Celtis laevigata</u>	Sugar Hackberry
<u>Celtis occidentalis</u>	Hackberry
<u>Fraxinus americana</u>	White Ash
<u>Fraxinus pennsylvanica lanceolata</u>	Green Ash
<u>Ginkgo biloba</u>	Ginkgo
<u>Gleditsia triacanthos</u>	Honeylocust
<u>Liquidambar styraciflua</u>	Sweet Gum
<u>Nyssa sylvatica</u>	Black Gum
<u>Platanus acerifolia</u>	Planetree
<u>Populus hybrids</u>	Hybrid poplars
<u>Quercus bicolor</u>	Swamp White Oak
<u>Quercus palustris</u>	Pin Oak
<u>Salix species</u>	Willows
<u>Taxodium distichum</u>	Bald Cypress

## GRASS CLIPPINGS - LEAVE ON OR TAKE OFF?

From The Western Washington Gardener,  
Washington State University Cooperative  
Extension Service, July 1984.

Turfgrass clippings are leaf blades, composed of 75-80 percent water. What isn't water is 3-6 percent nitrogen, 0.5-1 percent phosphorus, and 1-3 percent potassium (a 4-1-3 fertilizer) along with calcium and a few other nutrients. Because they contain little or no lignin or cellulose, and are mostly water, they do not contribute to thatch accumulation. Thatch is composed mainly of stems, crown tissue, leaf sheathes, roots and rhizomes, but not leaf blades.

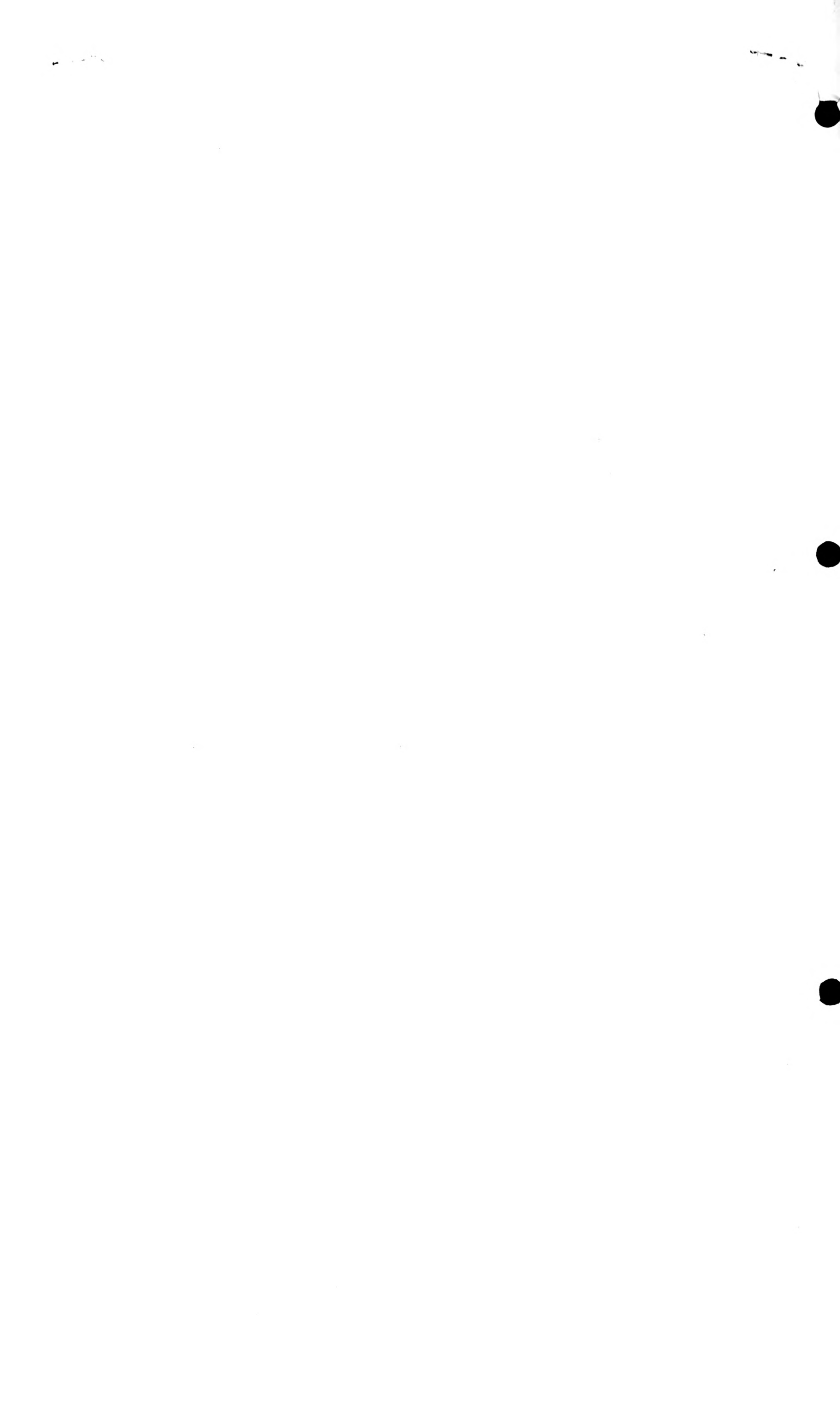
One solution to the "what to do with clippings" problem is to leave them there. Collecting clippings is more than a waste of energy for you, it is also a waste of energy for the plant. As clippings break down, the "recycled" 4-1-3 fertilizer is returned to the turf. By returning clippings to the turf, you have eliminated the time it takes to empty the grass catcher, hauling the clippings to the dump, and the dumping cost.

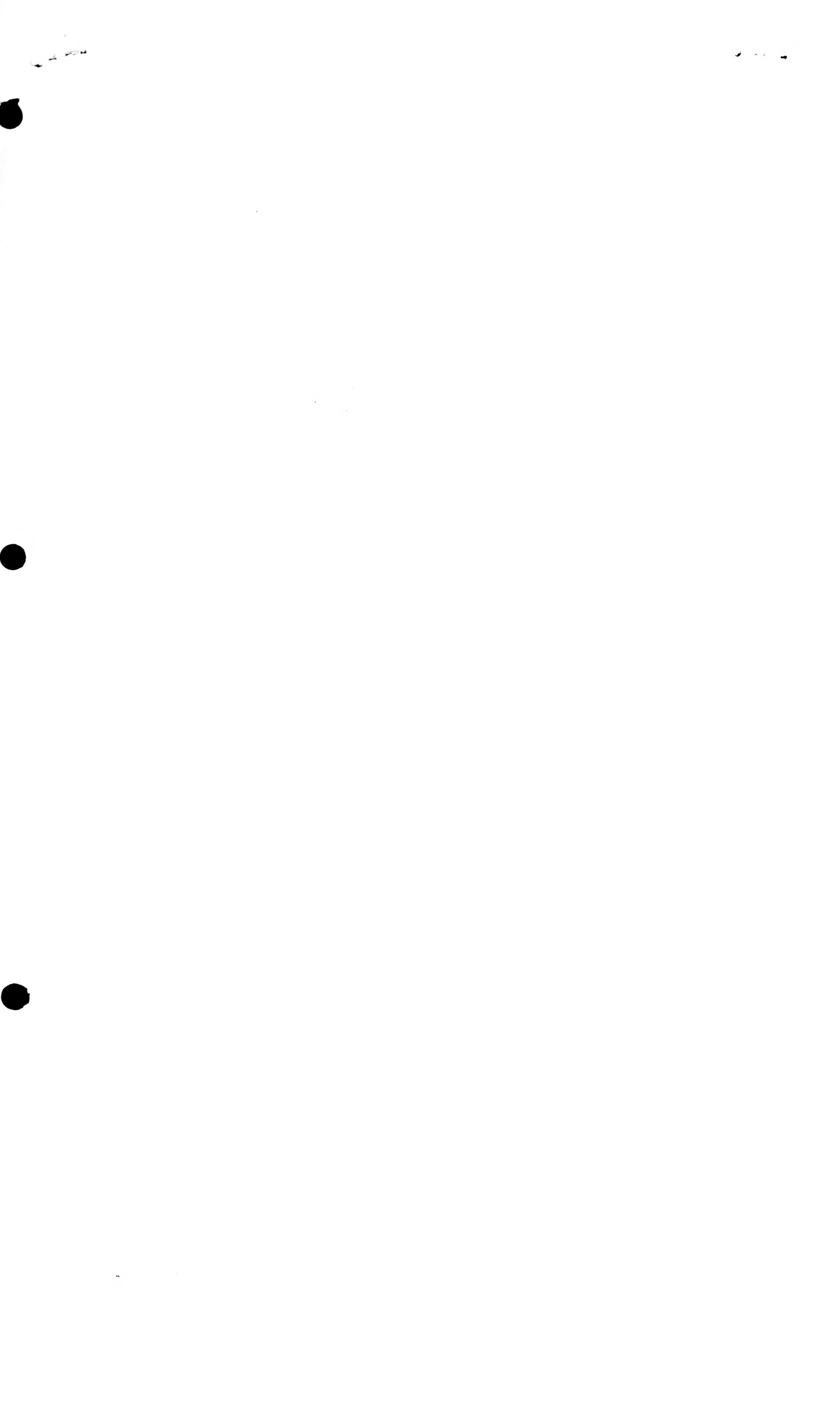
Research has shown that turf requires up to two extra pounds of nitrogen per 1000 square feet where clippings are removed. These studies also indicated that turf needs 20-30 percent more fertilizer if clippings are removed to match the quality of turf plots where clippings are not removed. Thus, fertilizer costs can be cut by returning clippings to the turf, and the need to supply additional fertilizer, which may end up in the ground water, is eliminated.

Other research showed comparable results. Turf specialists found that 1.8 pounds of nitrogen per 1000 square feet were removed when grass clippings were cleaned up. In some cases, researchers found that clippings could return over 50 percent of the nitrogen that was added as fertilizer. The turf was greener and growth was more vigorous where the clippings remained. However, clippings which are very heavy and will become dry mats must be removed. More frequent mowing diminishes this problem.

## TREES IN THE 21st CENTURY

October 17-20 - Seattle  
An educational and training conference for arborists and landscape horticulturists. Sponsored by the International Society of Arboriculture in cooperation with the Center for Urban Horticulture. For details, call Dr. James Clark, 543-8603





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## UPDATE ON FERTILIZATION OF SOLITARY

### SHADE TREES

By Hendrik van de Werken

From Tennessee Nursery Digest, Agricultural Extension Service, University of Tennessee Institute of Agriculture, August 1984.

Shade tree nutrition research conducted over the last decade in Illinois, Oklahoma, Virginia, Tennessee and other states indicates that:

- a. Almost all (+ 80 percent) fibrous roots of broadleaf shade trees are found in the top 12 inches of soil.
- b. The network of fibrous roots extends far beyond the dripline (periphery of the leaf canopy).
- c. Surface broadcast of fertilizers is most effective and efficient.
- d. Nitrogen is the most important and often only element inducing accelerated growth of broadleaf shade trees.
- e. Most garden and nursery soils contain sufficient phosphorus and potassium to support accelerated growth of shade trees.
- f. Liquid deep feeding, feeding in holes, foliar feeding, injection feeding and placement of pills, packets and spikes in the rootzone of shade tree cannot surpass the effectiveness of broadcast application of readily soluble or slow release high nitrogen fertilizers over the entire rootzone of solitary shade trees.

Research at UT has shown that 150 pounds nitrogen (N) per acre greatly accelerates the growth of young shade trees. Dr. Wright of Virginia Polytechnic Institute and State University showed that 300 pounds N per acre did not significantly increase growth beyond that obtained with 150 pounds N per acre.

Presently, soil sampling is the only way to determine the periphery of rootzones of solitary trees. Once this has been established, application of the "Universal Tree Fertilization Computation" (UTFC) formula will give the amount of fertilizer to be applied over the rootzone.

UTFC formula:

R = radius of rootzone

140 = Conversion constant

$\frac{R^2 \times \text{lbs. N per acre}}{140 \times \%N \text{ in fertilizer}}$  = lbs of fertilizer over rootzone

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University of Washington, GF-15  
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Examples: If the rootzone radius is 8 feet and nitrogen is to be applied at 150 pounds per acre using Osmocote 18-6-12, the number of pounds to be used is:

$$\frac{64 \times 150}{140 \times 18} = 3.8 \text{ or } 3 \text{ lbs. } 13 \text{ oz.}$$

When applying 200 pounds N per acre using ammonium nitrate, (33-0-0) for a tree with a rootzone radius of 15 feet (30' diameter), the pounds of fertilizer needed is:

$$\frac{15^2 \times 200}{140 \times 33} = 9.74 \text{ or } 9 \text{ lbs. } 12 \text{ oz.}$$

Early spring fertilization, before the buds on the trees unfold, appears to be a good time to stimulate growth throughout the growing season. Although the growth rate will be increased, flower bud formation or fall coloration may be impaired. When the ground above the rootzone contains ground covers such as ferns, azaleas or other plants sensitive to the high nitrogen gifts split application may be desirable. Soluble fertilizers should be watered in to prevent fertilizer burn or undergrowth.

When trees have attained a desirable size, fertilization may be ceased.

### PESTICIDE HAZARD TO WATERFOWL

From Growing Points, University of Calif. Coop. Extension Service, July-August 1984.

A hazard to grazing waterfowl (widgeon, coots, geese) may develop when diazinon is applied to nearby turf for grub control. This hazard may continue for one to three months after application. Applicators should be alerted to the hazard of using diazinon in the fall and winter or any time waterfowl are present.

### EDUCATIONAL OPPORTUNITIES

Edmonds Community College will offer the following horticulture courses Winter Quarter: Plant I.D., Soils, Pruning, Greenhouse Studies, Landscape Studies, Plant Propagation, Landscape Design, House Plants, Grafting, Wholesale Nursery Practices, Urban Tree Management, Landscape Business, Small Engine Repair, Japanese Gardens, Rock Gardens, Wood Construction Projects. Call: 771-1545

South Seattle Community College also offers Horticulture courses. For details call: 764-5336.