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Fertilizing Woody Ornamentals

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Attractive trees and shrubs are important components in all well-landscaped properties. Planned maintenance and care are essential for keeping them healthy and vigorous. An adequate fertilization program is an important requirement of any good woody-plant maintenance program. It is important, however, that plants not be overfertilized and that fertilizer not be expected to overcome problems caused by the use of unadapted varieties, improper planting techniques, poor soil drainage, soil compaction, or incorrect watering practices.

In many yards, a good lawn maintenance program may eliminate the need for supplemental fertilization for trees and other woody plants in the lawn. Additional fertilizer would simply be a waste of money and might result in nutrient imbalances or pollution of local water supplies.

Occasionally, additional fertilizer is needed in areas where a tree's root growth is restricted by streets, curbs, or other structural features. Shrubs and vines frequently serve as screens or borders for lawn areas within the landscape. Consequently, these plants are frequently forgotten or neglected in the normal lawn fertilization program.

Plant signs indicating the need for fertilization include lack of terminal growth, pale green or yellow leaves, mottled leaves, dead branches, stunted leaves, and early loss of leaves.

General tree vigor is determined by comparing the length of twig growth during the past 3 to 4 years (Figure 1). Young trees should have at least 9 to 12 inches of terminal growth per year. Large mature trees usually average 6 to 9 inches of growth. Shrub vigor is the same way. Growth varies from season to season and from variety to variety. It also depends on the species and size being examined.

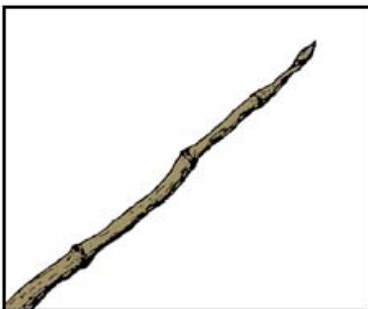


Figure 1. The distance between bud scale scars provides an excellent indication of a tree's growth rate. The ring of scars near the branch tip shows where growth started last spring. The bud scars near the base of the branch denote where the previous season's growth started. By locating bud scars for the past 3 to 4 years the rate of growth can be determined readily.

Obtain a Soil or Foliar Analysis

Fertilizer recommendations should be based on a soil and/or foliar analysis. Instructions for taking a soil or leaf sample can be obtained from the county Extension office. Such analyses allow the application of fertilizers in amounts and ratios that minimize nutrient waste and the threat of pollution.

Without such analyses, general lawn fertilizer recommendations of 1 to 2 pounds of actual nitrogen per 1,000 square feet per year will meet the needs of most trees and shrubs. In turf areas, do not apply this amount at one time but rather make several applications to prevent fertilizer burn of the turf.

Proper timing of fertilizer applications has a marked effect on the growth of woody plants. In general, the best time to apply fertilizer is in the late winter before spring growth begins.

Soil type also affects the timing of fertilizer applications. For sandy or loam soils, apply fertilizer as soil temperatures begin to rise and before growth occurs. For heavy clay soils apply the fertilizer in mid winter after the plant is completely dormant.

The maximum growth response to the fertilizer is obtained if the fertilizer is available in the root zone at or slightly before the start of spring growth. In sandy soils fertilizer moves more rapidly into the root zone, whereas in heavy soils, it takes much longer for the fertilizer to penetrate.

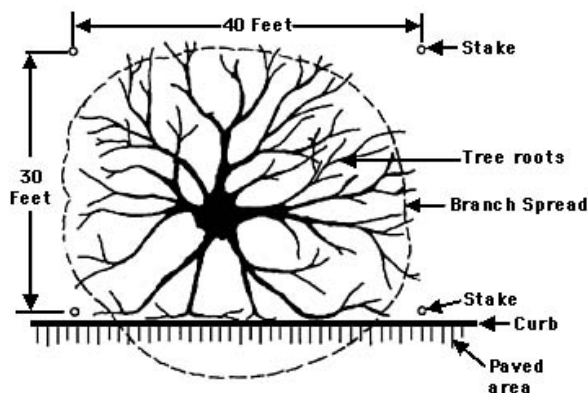
Do not apply fertilizers from August 1 until late fall (about the time of the average date of the first killing frost). Late summer fertilizing can stimulate an excessive amount of new growth, making plants more susceptible to winter injury. In south Texas where freeze damage is slight, late summer fertilizer applications are beneficial and provide needed nutrients for late fall and winter growth.

Most fertilizers are purchased according to their analysis which is the percentage of the three major plant nutrients – nitrogen, phosphorus and potassium. The analysis is shown on the bag or container and consists of three numbers (i.e., 12-4-8). The first number indicates the percentage of nitrogen (N), the second gives the percentage of phosphorus(P), and the third is the percentage of potassium(K). A 50-pound bag of a 12-4-8 fertilizer contains 6 pounds of N, 2 pounds of P and 4 pounds of K.

Tree growth is limited by nitrogen deficiency more often than by lack of phosphorus or potassium. For this reason, it is recommended that a fertilizer with a 2-1-1 or 3-1-1 ratio be used for trees. Fertilizers with a 2-1-1 or similar ratio are available, such as 12-6-6. Organic fertilizers are more readily available now in easy-to-spread, pelletized forms.

Computing Amount of Fertilizer Needed

To figure the amount of nitrogen-containing fertilizer needed for woody plants, determine the square footage beneath the tree or shrubs. Stake off a square or rectangular area that includes the entire branch spread of the trees and shrubs in an area, and use the area to calculate the square footage. If roots are restricted by pavement, curb or a building, subtract the restricted area from the total area computed (Figure 2).



Apply 1 pound of actual nitrogen per thousand square feet. A nursery professional or County Extension Agent can assist you in determining how many pounds of a specific fertilizer product are needed to apply the recommended rate.

Application Methods

Research shows that when fertilizing trees and shrubs, surface applications of nitrogen-containing fertilizers are as efficient as the old method of punching holes. Fertilizer may be distributed by hand or with a fertilizer spreader. Distribute the fertilizer evenly and avoid skips and overlapping which result in light and dark streaks in grass growing beneath the trees. To obtain even distribution, divide the fertilizer into two equal lots and apply one-half lengthwise over the area and the remainder crosswise over the area. Water the area thoroughly after fertilizing, soaking the soil to a depth of at least 6 inches.

Micronutrients

The micronutrient most commonly deficient in Texas soils is Iron. This deficiency usually is noted in alkaline soil regions. The iron becomes insoluble and the plant cannot extract sufficient amounts from the soil for good growth. Iron deficiency symptoms include pale

green to yellow leaves with darker green venation. It is very common on plant species not adapted to alkaline soils including some of the red oaks, maples and hollies.

Iron deficiency can be corrected partially with foliar applications of chelated iron provided label recommendations are followed. If the soil is only slightly alkaline, use soil applications of an iron fertilizer.

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