

Soil Nutrient Analysis Laboratory



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Suggested Fertilizer Practices for Trees, Shrubs, Vines and Groundcovers

Woody plants growing in their native habitats get their nutrients from fallen litter, soil minerals and beneficial micro-organisms through their extensive root systems. The ornamentals grown in landscape beds or lawns are more likely to experience competition for nutrients from neighboring plants and often encounter less than favorable soil conditions especially in new developments. Also,

plants that originated in other parts of the country or abroad may have different, and sometimes, higher fertility requirements than our native vegetation. Most homeowners rake up leaves and other plant debris so the nutrients are carted away and not recycled.

Properly fertilized plants are more likely to survive a stress period (drought, severe winter, and insect or disease attack) than plants grown in soil with inadequate nutrient levels. Fertilizer, however, will not overcome poor cultural conditions such as inadequate light, water-logged, compacted or droughty soil, poor plant selection, air pollution, misuse of pesticides, etc. It is wise to have your soil tested before applying fertilizer. Do not use lawn fertilizer containing broad-leaved weed killers (herbicide) near or under woody plants.

When to Apply Fertilizer

The timing of fertilizer applications is partially dependent on the type of fertilizer used. In general, plants can be fertilized in spring (after April 15th) or in fall (before October 15th). Fertilizing from July through September should generally be avoided unless the plant is under severe stress due to a nutrient deficiency. Any new growth that results from fertilizing during this period often does not have time to harden off before the onset of winter, and the result is tip dieback of the new growth.

If using a slow release, inorganic fertilizer or a natural/organic fertilizer, one spring or fall application is generally sufficient for the year. When more typical synthetic, granular fertilizers are used (like 10-6-4 or 10-10-10), the application can be split into thirds with equal portions applied in mid-April, early June and late September.

How Much Fertilizer to Apply

Without a soil test follow the fertilizer recommendations in Table 1. The smaller amount in a given range should supply enough nutrients for maintenance and adequate growth. Use this amount if plants have reached sufficient size. The larger amount in a given range will result in more growth. This may be desirable for plants that have not reached their desired or mature size. Flowering trees and shrubs (crabapple, dogwood, rhododendron, etc.) should receive the smaller amount of fertilizer listed to avoid lush vegetative growth at the expense of flower bud formation. Flower bud formation is essential if flowering is to occur the following season.



Watering After Fertilizing

Ideally, fertilizer should be applied just before a gentle, soaking rain is predicted so that the fertilizer can move into the plant's root zone. Irrigate the fertilized areas if no rain or only a shower is forecasted.

Weight of Fertilizer

Fertilizer recommendations are made in pounds per 100 sq. ft. The following tips may be useful: (1) One level, unpacked cup of a synthetic granular fertilizer like 10-10-10, 10-6-4 or 5-10-5 weighs approximately ½ pound. (2) One level, unpacked cup of an organic blended fertilizer weighs about ⅓ pound. (3) One level, unpacked cup of rock dusts like greensand or rock phosphate weighs ¾ pound.

Substituting Fertilizers

One can substitute a fertilizer of one grade for that of another grade. For example, 10-20-20 can be used in place of 5-10-10. An important adjustment must be made, however. The 10-20-20 contains twice as much nitrogen (first number) as 5-10-10. Therefore, 10-20-20 should be applied at half the rate suggested for 5-10-10. Never apply more nitrogen than recommended as plant injury may occur.

Shrub Fertilization

The root system of most shrubs is located in the area under the plant and extends a few feet beyond the spread of the branches. Therefore, the fertilizer should be broadcast in this area. Avoid injury to the plant by keeping the fertilizer a few inches from the stem. The amount of fertilizer to apply is calculated from Table 1 after measuring the area covered by the plants. See Figure 1.

Tree Fertilization

The root system of a tree can spread from 1½ to 2 times its height. For example, a tree with a height of 40 feet could have a root spread of 60 to 80 feet. This means the roots will spread 30 to 40 feet away from the trunk and puts a large percentage of the fine feeder roots well beyond the tree's drip line. The preferred method of fertilizing trees is to spread the fertilizer on the surface over the entire root system of the plant. This allows more of the root system to pick up the nutrients and eliminates zones of high fertilizer concentration which can damage the fine feeder roots. When calculating the area to be fertilized, estimate the width of the crown then increase this number by 25 to 50 percent for optimal coverage of the tree's root system. The amount of fertilizer to apply is calculated from Table 1 after measuring the area covered by the plants. See Figure 2. Trees growing in a regularly fertilized lawn will probably not require additional fertilizer.

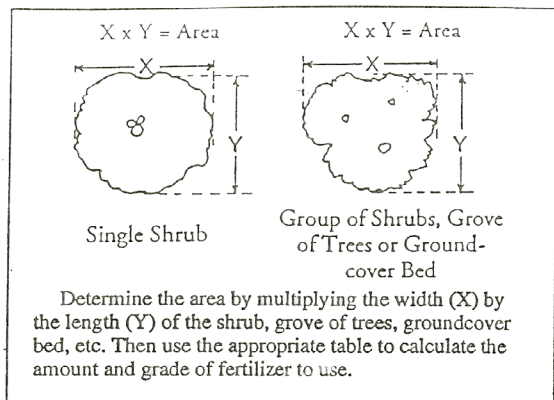
Ericaceous Plants

The ericaceous plants (rhododendron, azalea, laurel, andromeda, etc.) are shallow, fibrous-rooted plants that can be damaged by heavy applications of fertilizer. Apply only the lower rates of fertilizer for plants of this group. An important cultural practice that is often neglected for this group of plants is maintaining the soil's organic matter content. This is easily accomplished by adding an inch or two of organic mulch every year or so.

Vines

A vine will "travel" a long distance from where it was planted alongside a wall or under a trellis. The roots radiate in all directions from the ground unless the vine is planted against a building or some structure that restricts the growth of the roots. Stay at least one foot away from the stem when broadcasting the fertilizer. Cover an area at least 10 ft. x 10 ft. (100 sq. ft.) around the stem for large established vines. If the ground is bare or planted with shrubs, scratch the fertilizer into the soil to a depth of ½ to 1 inch. Vines growing in or near a regularly fertilized lawn will probably not require additional fertilizer.

Figure 1



Groundcovers

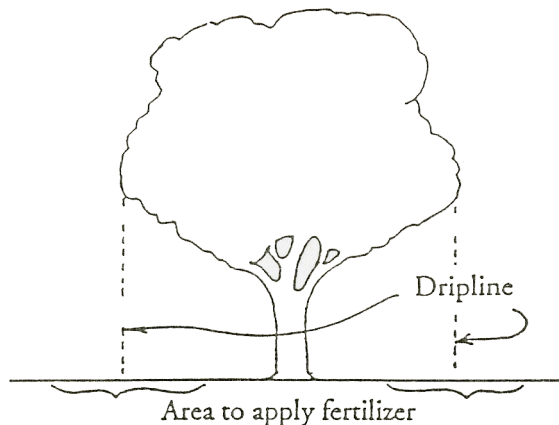
Determine the area of the groundcover bed. Broadcast the amount of fertilizer evenly over the area. Apply the fertilizer when the foliage is dry to prevent injury. Fertilizer sticking to wet foliage can cause "burning", and should be brushed or hosed off.

Table 1. Fertilizer Recommendations for Trees, Shrubs and Groundcovers

Fertilizer Grade	Deciduous Trees, Shrubs, Groundcovers and Vines	Evergreen Trees and Shrubs; Narrow-leaf evergreens, Rhododendrons and Azaleas
	Lbs. of fertilizer per 100 sq. ft.	Lbs. of fertilizer per 100 sq. ft.
10-6-4 or 10-10-10	1-2	½ - 1

One pound of nitrogen can be supplied by 8.3 lbs. of bloodmeal or 2.2 lbs. of urea. One pound of phosphorus can be supplied by 6.75 lbs. of bonemeal or 2 lbs. of triplesuperphosphate. One pound of potassium can be supplied by 4.5 lbs. of sul-po-mag or 1.5 lbs of potash (KCl.)

Figure 2



Prepared by: Edmond L. Marrotte, Consumer Horticulturist, 1995

Revised by: Carol Quish, UConn Home & Garden Center, 2005 and D. Pettinelli, UConn Home and Garden Education Center, 2015

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