Fertilizing Trees

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Fertilizer applications are used during the growing season to improve the health and appearance of trees. Most deciduous trees should be fertilized once every one to two years. Evergreens may be fertilized in the spring, but less often than other trees.

Since trees have their greatest need for nutrients in the spring, fertilizer should be applied any time between leaf drop in the fall and leafing out in the spring. The health and vigor of a tree may be improved by applying fertilizers up to July 1. Beyond that time, new growth stimulated by the fertilizer may not have to adequately harden off before winter.

Trees growing in naturalized areas where little or no mowing takes place and leaves are collected may not need regular fertilizing.

Methods

There are two main methods of applying fertilizer to trees. The fertilizer can be applied directly to the soil surface or it can be applied down into the soil.

Spreading the fertilizer on the soil surface under the tree is the easiest and least expensive method.

Putting the fertilizer down into the soil is more difficult but gets phosphorus and potassium down into the root zone and provides the benefit of aeration. This can be accomplished by using a root feeder, drilling or punching holes in the soil, or by driving fertilizer spikes into the soil.

Using a hose-attached root feeder (example: Ross Root Feeder) will get the material into the root zone in a liquid form. Water flows past pre-measured tablets in an enclosed chamber and passes through a hollow needle inserted into the soil about 8 to 12 inches

deep. Follow label directions to get the calculated amount of material equally distrubted to each of the holes.

Another method of application is by making holes approximately 2 to 3 feet apart at and beyond the drip line of the tree (see sketch). Holes are punched or drilled into the soil 8 to 12 inches deep, slanting toward the center of the tree. The calculated amount of fertilizer for the tree should be distributed equally to the available holes. Water thoroughly to dissolve the fertilizer. This is the most effective method of applying an iron supplement to trees suffering from iron chlorosis.

Fertilizer spikes or stakes are a popular and convenient method for getting nutrients into the root zone, even though the distribution of nutrients is very limited. The cost is high for the nutrient content provided. Be sure to follow label directions to determine the amount of material to apply and to prevent damage from excessive amounts of fertilizer.

Foliar feeding of trees is becoming more popular with homeowners. This form of fertilization is often used to correct any micronutrient deficiencies. Iron chlorosis is the most common micronutrient deficiency seen in North Dakota, due to typically high soil pH values. Iron can be added anytime during the growing season, as it does not stimulate excessive growth but corrects a chlorotic (leaf yellowing symptom) condition typically common on some silver maples.

Foliar spray material is also used to help get young trees established in the landscape and help recently transplanted trees overcome the shock of being moved. As with other methods, be sure to follow label directions to avoid fertilizer salt damage.

The amount is of fertilizer is usually determined by the nitrogen content of the material. For example, a standard recommendation is 1 pound of actual nitrogen per 1000 square feet. This can easily be calculated by taking an example of 20-10-10 fertilizer. Divide the weight, for example 100 pounds, by 20, the percent nitrogen (100/20 = 5) to get the amount of material needed, 5 pounds. This means that by applying 5 pounds of 20-10-10 over 1000 square feet, 1 pound of actual nitrogen would be applied (5 pounds of fertilizer X 20 percent nitrogen = 1 pound of actual nitrogen).

When looking at a bag of fertilizer for nutrient information, nitrogen is available from different sources -- synthetic organic, natural organic (WIN -- water insoluble nitrogen) or inorganic (WSN -- water soluble nitrogen). When selecting a fertilizer, one-third to one-half of the nitrogen source should be in one of the organic, or WIN forms. These forms of nitrogen are more slowly available and are not as apt to leach through the soil quickly. Typical slow-release forms of nitrogen are urea formaldehyde (UF), isobutylidene diurea (IBDU) and sulfur coated urea (SCU).

The fertilizer/herbicide products available on the homeowner market for turf areas are a potential source for damage to trees when applied to areas under the tree canopy. The active herbicide component is often dicamba, which may cause decline, stress and possibly contribute to the loss of established trees.

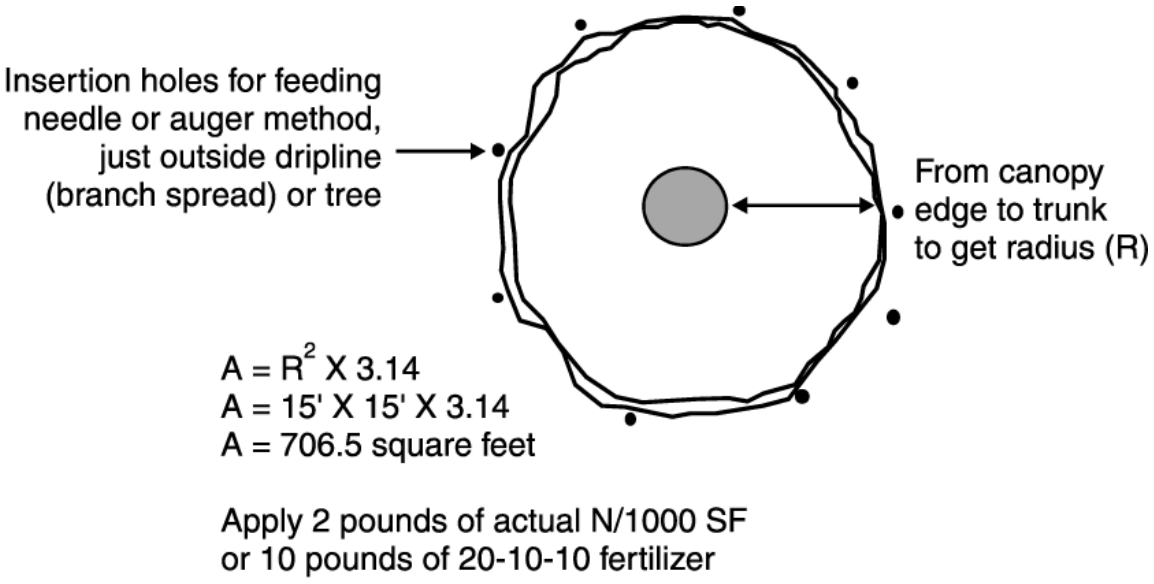
Application Calculations

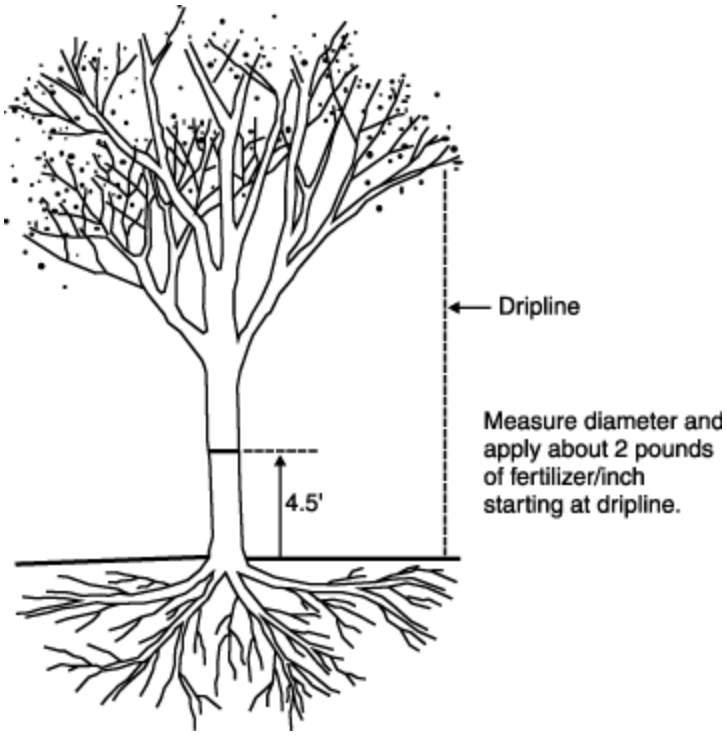
The area to be fertilized under a tree canopy forms a circle. To calculate the square footage, take the radius squared X 3.14. Suppose a tree has a spread of 30 feet. This would equal 706 square feet that would be considered for fertilizer application. To get 2 pounds of actual nitrogen per 1000 square feet over that area, 1.4 pounds would be needed (706/1000 x X/2 = 0.7 x 2X = 1.4). If the percent nitrogen in the fertilizer is 10, then 20 pounds of that material would be needed; if the percentage is 5, then 40 pounds; if the percentage of nitrogen is 20, then only 10 pounds, etc.

Another method of fertilizer calculation is to measure the trunk diameter of the tree at 4.5 feet above ground level. With this method, about 2 pounds of a complete fertilizer containing 10 to 20 percent nitrogen should be used for each inch of trunk diameter.

Whether using the broadcast, root feeder, soil auger or fertilizer spike method of application, spread the nutrients as uniformly and evenly possible for uniform nutrient uptake. Most of the fibrous roots are near or beyond the drip line of the tree and absorb the plant nutrients from the soil. Avoid applying fertilizer to within 2 to 3 feet of the trunk.

Calculating Tree Fertilization Requirements





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