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FEEDING SHADE TREES

By N. R. ELLIOTT

Each year, more and more home owners are realizing the necessity for feeding shade trees, if the trees are to live and develop as they should. This applies to trees set during the past few years, as well as to those fifty or more years old. In many places the soil has become so depleted in plant nutrients that it is impossible for the trees to get enough food for growth and maintenance. When young trees are making less than 4 to 6 inches of twig growth each year and the foliage is thin they should be fed; old



An American elm that has been fed with well-rotted manure six times, at two- and three-year intervals.

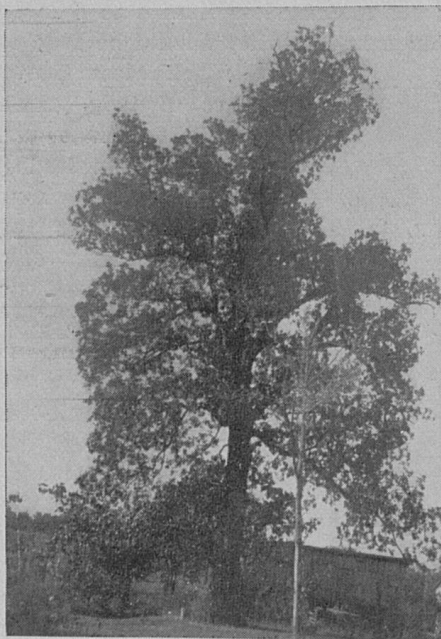
trees with less than 3 inches of twig growth and light foliage usually respond to feeding. On the other hand, when the trees are making a satisfactory growth they need not be fed; however, feeding does no harm, and when there is doubt the trees should be given the benefit by being fed.

Young trees of the slower growing kinds, such as the oaks, maples (Norway and sugar) and ash, can often be stimulated by feeding so that they grow almost as fast as the so-called fast-growing, short-lived kinds, such as the soft maple and box elder.

It should be kept in mind that feeding is not a panacea for all the troubles that beset trees and some may die from unfavorable location, injury from insects, disease or damage by storms, even after they have been fed.

Food to Use. Experimental evidence indicates that trees, like other plants, require nitrogen, phosphorus and potassium in rather large amounts; therefore, the food should contain these elements, in a readily available form. Well-rotted manure and high-grade commercial fertilizer are the two principal materials used in feeding trees. The selection of the material to use will depend upon its availability and, to a certain extent, the location of the trees to be treated. Well-rotted manure is becoming more difficult to obtain and what is available is perhaps needed more on farm crops. When trees are located in the lawn, manure is not so desirable as commercial fertilizer on account of its unsightly appearance and odor. However, trees outside the lawn area, in lots or fields, may be satisfactorily fed with this material.

Experimental work indicates that a fertilizer containing a high percentage of nitrogen, with moderate percentages of phosphorus and potassium should be used for feeding trees. For example, a commercial fertilizer



The growth of this white oak had ceased. It was stimulated by liberal feeding with commercial fertilizer and now is making a satisfactory growth.

with a formula 10 percent nitrogen, 6 percent phosphoric acid and 4 percent potash is probably the one most often used. It should be noted in this formula the percentage of nitrogen equals the combined percentages of phosphorus and potassium. The commercial fertilizer can be used on the lawn without any inconvenience, either when it is applied or afterward.

Method of Application. This is one of the most important things to consider in feeding trees. The material used will determine the method to a certain extent; however, a few things about the way trees feed should be kept in mind. First, the feeding roots are, for the most part, 15 to 20 inches in the ground; second, most of them are in the area under the spread of the branches; third, trees that are 4 inches or over in diameter have few feeding roots within 2 feet of where the trunk enters the ground. Thus it becomes evident that a rather definite area for feeding is outlined. Since the roots are in the ground 15 to 20 inches, some method should be provided to bring the food in close proximity to the roots. When well-rotted manure is used in feeding, its effectiveness can be increased by first loosening the soil by digging, to a depth of 3 or 4 inches. Another method is to make a series of holes in the ground, about 2 inches in diame-

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ter and 20 inches deep, spaced 2 or 3 feet apart, in the area where the food is to be applied. These can be made by driving a piece of 2-inch pipe into the soil, and then pulling it. This method permits the plant nutrients to come in close contact with the feeding roots, and also aerates the soil, which is of distinct benefit to the tree.

When manure is used for feeding, it should be scattered over the prepared area in a layer at least six inches thick. The commercial fertilizer can be either broadcast over the area, loosened by digging, or placed in the holes made by the pipe. The latter method is the one most often used. The number of holes should be the same as the number of pounds of fertilizer to be used. The amount is computed by multiplying the diameter of the trunk of the tree, 3 feet above the ground, in inches, by four, and using this number of pounds. If the fertilizer is broadcast, it will be best to use half this amount. After the fertilizer has been placed in the holes, fill them with water, but do not fill with soil.



Two 16-year old pin oaks. The one on the right, treated in 1937 with 35 pounds of fertilizer, has made an average twig growth of 14 inches while the other tree has had only a 4-inch twig growth.

Another method of applying the fertilizer is to force it into the soil with high pressure. This method is available in only a few of the larger cities, as the equipment is very expensive. However, the method is quite satisfactory.

Time of Application. Trees make practically all their growth in late spring and early summer and it is obvious that the food should be applied at the time when it will be of most benefit to them. Well-rotted manure should be applied in late fall, in order to have time to leach out and down to the roots by early spring. Commercial fertilizer should be broadcast in early winter or placed in the holes in November or February.

Trees fed by means of manure or fertilizer broadcast under the spread of branches, will probably need another feeding in two or three years, while trees fed by means of fertilizer placed in the ground, usually do not need additional feeding for five to eight years. In each case, the time to give another feeding should be governed by the length of twig growth and the denseness of the foliage, as well as the size of the leaves. By giving attention to the feeding of shade trees, it may be possible to prolong the life of beautiful specimens that otherwise would die.

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