

Golf Course Trees Respond Fast to Feeding Program

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IT IS no secret to greenkeepers that applications of chemical and organic fertilizers are beneficial to greens, tees and fairways. In fact, fertilizers are a well recognized necessity in connection with turf growth. But what about the fertilization of the trees that border these fairways, that shade the tees and that contribute so much to the beauty and popularity of both the golf course and the grounds? Is shade tree feeding practical, advisable and necessary?

Whether you are considering grass, farm crops or trees, good, well prepared and well managed soils are equally essential to healthy, vigorous growth. Shade trees after all, are just large plants. Their fundamental requirements are essentially the same as those of turf or of commercial crops. And because this is true, it frequently happens that golf course trees need help, for all too often they are expected to thrive where conditions are entirely unsatisfactory.

Because of these things, it is strange that we find so little thought given to shade tree feeding. The greenkeeper, for instance, prepares the best and richest soils for his greens, but assumes that the trees, which have to draw on the soil in one spot for perhaps a hundred years or longer, need no assistance in their struggle for life. Many and varied are the theoretical and imaginary reasons why shade trees should be segregated from other plants insofar as fertilizers are concerned.

But if theory and limited observations can be swept aside, and if practical results can be considered, then it can be definitely stated that the general value of fertilizers in shade tree care has been amply demonstrated on many thousands of trees.

Methods and materials used in agriculture often are neither necessary nor desirable in the feeding of shade trees, at least no more so than they are necessary in golf course maintenance. The reason for this is the difference in environment under which the trees may grow and be-

cause we do not require shade trees to produce a commercial crop of edible seeds, roots or tubers. Ordinarily, the value of a shade tree lies in its restful color, in its form and in the cool, refreshing shade it provides during summer. Just as a good green must form a perfect carpet of grass, so must the beautiful tree give a luxuriant mass of fresh, green foliage.

Trees Need Fertilizer

Of fundamental importance in the health of trees are factors such as drainage and the physical condition of the soil. But beyond these, chemical fertilizers play a very definite and important part in producing fine, healthy, green foliage. If chemical fertilizers are so important, what should they supply? Soil students and horticulturists agree that of the eleven or more chemical elements necessary to plant life only three—nitrogen, phosphorus and potassium—are present in soils in such small quantities that they often may become limiting factors in the growth of plants. These three elements are provided by so-called "complete" chemical fertilizers and are given in the fertilizer analysis as nitrogen, phosphoric acid and potash. The proportions which vary with the purpose of the fertilizer are stated in numbers by the fertilizer men. For instance, 1-2-1 would mean a fertilizer containing 1% of nitrogen, 2% of phosphoric acid and 1% of potash.

Special Ration for Trees

A complete fertilizer may be "balanced ration" for one crop but not for another. With trees, the "balanced ration" must be particularly high in nitrogen. The fact of the matter is that an application of phosphoric acid and potash to trees has so seldom been of benefit that their presence in complete fertilizers for shade trees should be in limited quantities, for it is only in unusual cases that they will have any distinct value.

A number of factors influence the lack of response of trees to phosphorus and

potash applications. For one thing the chemical make-up of tree tissues is different from that of most farm crops. Trees are able to absorb minerals over a longer period of time than annual crops, and because of their somewhat deeper rooting habit it is possible for them to feed in the lower mineral containing layers of soil which are denied to the shorter lived plants and which hold but little nitrogen. It is known, however, that some of our native forest soils which have produced, and are still producing, excellent stands of timber, are low in available phosphorus when these soils are judged by their need of phosphorus for other crops. Quite a good many species of shade trees have been shown to respond readily to applications of nitrogen only while they are growing in soils containing negligible quantities of phosphorus for general agricultural purposes.

It may be readily seen, then, that many of the commonly used general fertilizers applied in quantities recommended for lawns or gardens cannot possibly supply shade trees with enough nitrogen. If, to build up the nitrogen supply, these fertilizers are applied in large quantities, the procedure becomes wasteful in view of the unnecessarily large amounts of phosphorus that will be given. For example, a 4-12-4 mixture while beneficial in proportion to its nitrogen content is certainly not an economical shade tree fertilizer. Instead, a well balanced shade tree mixture should contain at least two and preferably three times as much nitrogen as phosphoric acid or potash.

Two Forms of Nitrogen Needed

It is not only important that tree fertilizers should contain large proportions of nitrogen but careful consideration should be given to the materials that are used to supply it. The general belief is that plants can use nitrogen to best advantage in what is known chemically as the nitrate form. And although this is true, the disadvantage arises that under certain soil and moisture conditions nitrate nitrogen is readily leached out and may be lost to the tree. Because of this situation, nitrate nitrogen should not be used entirely. Instead, other more slowly available forms must be employed as well.

These other forms of nitrogen are changed over to nitrate or available nitrogen by the action of bacteria, and the activity of these bacteria is in turn influ-

enced by several factors of which a chief one is temperature. For example, in cold soils the bacteria are not at work, and in extremely dry soils their helpful action may be checked because the surface roots cannot absorb the nitrates. So it develops that even with a fertilizer made up of both immediately available inorganic and a more slowly available organic material, certain conditions may occur to check the supply of nitrogen that is available to the trees. Often this fluctuation in nitrogen supply can actually be followed by watching the changes in color of the leaves of trees growing in soils of limited fertility during prolonged and extremely wet or extremely hot and dry periods in midsummer.

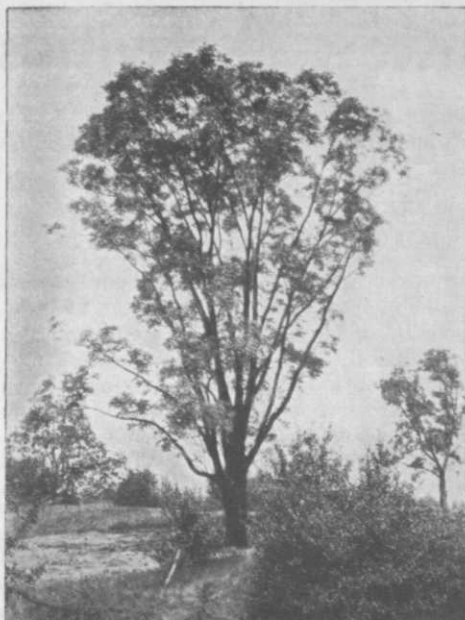
September Tells Story

Fortunately it appears that trees are able to take up and store nitrogen beyond their immediate needs. Experiments conclusively show that well fertilized trees retain their rich, dark green foliage during unfavorable seasons when the foliage of similar trees with a limited food supply lose their color and beauty. In the spring well fed trees obtain their normal color earlier than do unfertilized trees and in the fall they stay green longer and hold their leaves later.

While it is relatively easy to have beautiful trees in June when growing conditions are usually at their best, the actual test is really the condition of your trees in September, following perhaps a dry, scorching summer such as we had in 1930. The fact that well fed trees retain their foliage several weeks longer than do undernourished trees is of importance to those interested in golf, because it means that well fed trees tend to prolong the golf playing season, by avoiding the nuisance and annoyance of the early falling leaves which so frequently litter the greens.

But feeding trees cannot be looked upon as a general panacea, for it does not prevent the attacks of insects, diseases and certain other troubles with which trees must at times contend. Neither will an occasional or half-hearted attempt at feeding restore the beauty of a long-neglected tree. However, when a complete and skillful diagnosis of a declining tree discloses no parasite responsible for its unfavorable condition, thorough annual feeding usually results in an improvement that is definite and in many cases quite striking.

The illustrations that accompany this article tell the feeding story much better



Here are two views of the same walnut tree. Photo on left was taken in 1927 just prior to fertilization. The other photo shows how well the tree has responded by 1930 to the treatment

than it can possibly be told with words. The before and after pictures of the large walnut tree are deserving of attention in view of the fact that the last picture was taken in August 1930, which was along toward the end of the driest season ever recorded in Ohio. In spite of the most trying weather condi-

tions the tree showed remarkable improvement without the aid of artificial watering. All through the parched and rainless days of August and September this tree held up to the sky great masses of refreshing, unscorched foliage, while other unfed trees in the same locality were in a desperate condition.

English Heads Connecticut Club Managers

CONNECTICUT Chapter of the New England Club Managers association at its annual meeting held at the Wampanoag C. C., West Hartford, elected the following officers to serve for 1932:

Pres.—Stuart English, Wampanoag C. C.;
 V. P.—J. J. Flynn, Farmington C. C.;
 Treas.—L. F. Chevers, Racebrook C. C.;
 Sec.—George E. Broadhurst, Sequin G. C.;
 Auditor—Thomas H. Lloyd, The Country Club of Springfield, Mass.

Trustees elected: George K. Schwind, University Club, Hartford, and I. R. Fish, Shuttlemeadow C. C.

The meeting was preceded by a dinner

and followed by a lengthy discussion on matters pertinent to club management.

George Broadhurst, the new secretary, has served as manager of the Sequin G. C. for the past two years. Previous to this connection he managed the Elm Tree Inn of Farmington, a fine old hostelry dating back to the days of the Revolution.

Night Golf Events Go Big at Oregon Club

AS A NOVEL feature of a stag evening, the Grants Pass (Ore.) C. C. recently tested after dark the skill of those present at approaching, putting, driving and playing explosion shots. A light was placed in the cup. In the approaching contest, players shot from 100 feet.