

# Dutch Elm Disease

Stanley Rachesky

Extension Entomologist, University of Illinois

In Illinois, Dutch Elm disease was first found in 1950, by 1959 it was known to be in every county in the state. Rapid spread of the disease during the initial period (five to seven years) have ranged from 10 percent to 15 percent of the elm population continuing up to seventy-five percent or more. To give an example: A city that once had an elm population of 20,000 trees and 15,000 have been killed in a period of seven to ten years, the cost of removing the 15,000 trees at \$50.00 to \$100.00 per tree would be \$750,000.00 to \$1½ million. Initiating a control program that would hold the annual loss of elms to two percent or less of the current elm population would eliminate the enormous cost for tree removal, prevent devaluation of real estate and insure the continued enjoyment of the shade.

The first symptoms of Dutch elm disease that can be seen are wilting, curling and yellowing on one or more branches. Brown streaking develops in the sapwood of diseased branches. In a cross section of a branch browning may appear as a series of dots in a single wood ring, or the dots may be so abundant that the entire wood ring appears brown. The presence of brown discoloration in young sapwood is used in the field as a symptom of Dutch elm disease.

In making laboratory diagnosis of wilt diseases such as Dutch elm disease, oak wilt, verticillium wilt and other wilt diseases, it is necessary to culture the disease — producing fungus from a tree showing wilt symptoms. To do this, samples must be taken from living branches with **actively wilting leaves**.

Branch samples must show brown discoloration in the sapwood, either as a layer of brown streaks immediately under the bark or embedded in the wood and visible on the cut ends of the branch sample. **NOTICE: Samples of small twigs, dead or dry branches, bark, leaves and elm branch samples, without brown streaking are not suitable for laboratory culturing and cannot be processed.**

## Method of Collection:

The branch segments should be collected from more than one wilting branch whenever possible. Samples should consist of three or four branch segments, **one-half inch in diameter and six inches long**. It is important to prevent excessive drying and exposure to high temperatures, as most fungi cannot be recovered from dry wood.

The following information should be attached to each sample:

1. Collector's name and address
2. Tree species
3. Address or location of tree
4. Date of collection

## Mailing Samples:

Branch segments from one tree should be grouped together and wrapped in a moisture retaining material such as waxed paper, plastic bag or tinfoil. Do **not** moisten samples as this only causes contamination. Samples should be mailed immediately after collection. If this is not possible, the sample may be wrapped and stored in a refrigerator at 40° F for 24 to 48 hours. To avoid a week-end layover in the post office, samples

should be mailed to the laboratory **the first part of the week**. Samples should be mailed to:

Illinois Natural History Survey

Section of Applied Botany and Plant Pathology  
Urbana, Illinois 61801

## Cause and Spread:

Dutch elm disease is caused by a fungus. This fungus grows in the water conducting vessels of the sapwood, most frequently that of the current season, and causes brown discoloration. It may be transmitted to healthy elms in either of two ways: (1) By elm bark beetles and (2) By grafted roots between diseased and healthy trees.

## Hosts:

No species or variety of elm is known to be immune to Dutch elm disease. It is unfortunate that American elm is the most susceptible of all elms. Although Chinese and Siberian elms are highly resistant to the disease, trees of these species have succumbed to natural infection in Illinois.

## Control:

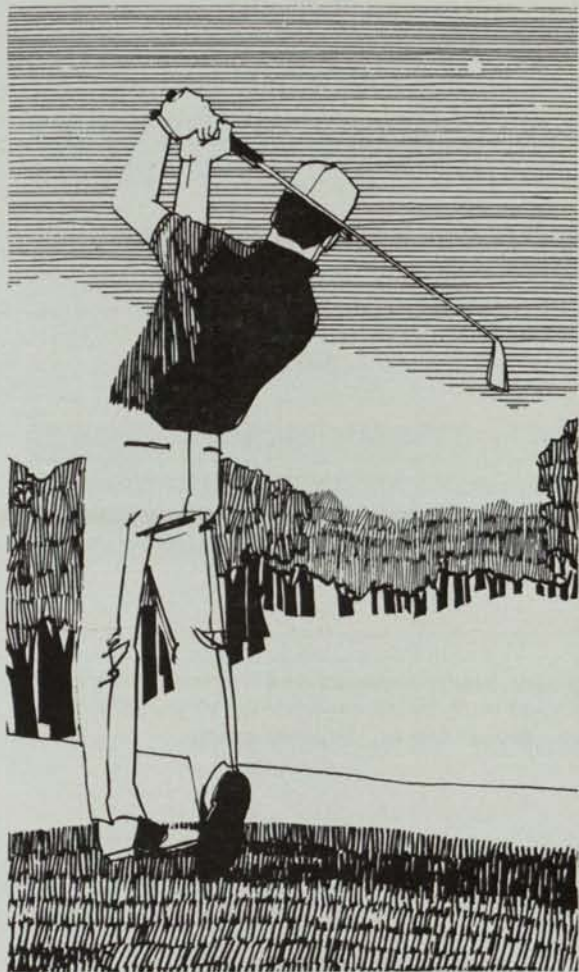
No treatment is known that will cure Dutch elm disease. Destruction of the insect vectors by sanitation and by spraying with insecticides will prevent rapid spread of the fungus to healthy trees. Spraying without sanitation is not recommended. Killing or severing grafted roots between diseased and healthy elms will prevent spread of the fungus through these roots.

Sanitation is the careful, thorough and prompt removal and proper disposal of all diseased elm trees. This material includes all weakened, dying and recently killed elms, all elm wood piles, bark on stumps and recently killed branches on healthy trees. Proper disposal of elm material consists of burning it or burying it under one foot of soil before the beetle can emerge.

Beetle infested elm material found between April 1 and September 1 should be disposed of immediately or sprayed with methoxychlor. Beetle infested material found after September 1 should be disposed of by May 1 of the following year.

## Spraying:

Spraying with special formulations of methoxychlor will help protect healthy trees. Methoxychlor, although more expensive than DDT, is much less hazardous to birds and other warm blooded animals and it can be substituted for DDT. Sanitation and the application of methoxychlor as a spring dormant spray can give up to 99 percent control of Dutch elm disease and very little, if any, loss of birds from the insecticide. Properly formulated concentrate of this insecticide is available commercially. Although this insecticide will not give complete protection of all sprayed trees, when combined with sanitation gives the best protection known at present. Methoxychlor reduces the chance of infection by killing many of the fungus bearing beetles before they can gnaw through the bark and deposit fungus spores in the sapwood of healthy trees. A single dormant spray is recommended for elms sprayed on a community-wide basis. This spray may be applied in fall or spring at any suitable time after the leaves have fallen, in late October or November, until new flowers or leaves appear, in early April or May. It should contain 12 per cent insecticide if it is applied with a mist blower or two per cent insecticide if it is applied with a hydraulic sprayer. To obtain maximum protection of elms of special value, an ad-



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ditional spray may be applied after the second growth of leaves occurs, usually in late July in Illinois. This foliage spray should be half the strength of the dormant spray. To adequately cover alms 70 to 90 feet tall, mist blowers must develop 6,000 or more cubic feet of air per minute at a velocity of 90 or more miles per hour and hydraulic sprayers must develop 500 to 600 pounds of pressure and deliver 35 or more gallons of spray per minute.

To effectively prevent bark beetle feeding, all bark surfaces must be completely coated with insecticide. Special care should be taken to thoroughly coat the crotches of young shoots, especially those in the upper parts of the trees. Trees should be sprayed when wind velocity is less than five miles per hour, when the bark is dry and when the temperature is above freezing.

Once upon a time, there lived a typewriter. His 46 keys functioned quite well except one key which was not working, and that madx thx diffxrxncx.

Somx may say to oursxlvs, "Wxll, I'm only onx pxrson. I won't makx or brxak a projxt." But it doxs makx a diffxrxncx, bxcaus any projxt, to bx xf-ctivx, nxxds thx sincrx cooperation and participation of vxry onx — a 100 pxrcxnt xffort.

So, at this 1968 sxason, wx want to rxmind our-sxlvs that although wx may bx only onx pxrson and that wx fxll that our xfforts may not bx aprxciatxd, rxmxmbxr this typxwritxr story and say to yoursxlf, "I am an important pxrson in thx Midwxst Golf Coursx Supxrintxndxnts' Association and I am nxxdxd vxry much."

And lxt mx say "Amxn," bxcaus wx think so, too.

## ILLINOIS TURFGRASS FOUNDATION

**From the Office of the Executive Secretary—349-7766**

The newly elected officers of the ILLINOIS TURFGRASS FOUNDATION held their first Board of Directors meeting of the year at the office of the President, Robert G. Johnson, Illinois Lawn Equipment in Orland Park. Present were: Robert Johnson, Ben Warren, John Coghill, Mr. Hurr, Mr. Frederickson, Mr. Bottoms, Mr. Miles, Acting Secretary Mrs. Carey and Dr. Michael Britton and Dr. Jack Butler from the University of Illinois.

The first order of business was the approval and appointment of Dorothy H. Carey as Executive Secretary-Treasurer to fill the post vacated by the death of Dr. Frederick F. Weinard. The ILLINOIS TURFGRASS FOUNDATION is happy to announce the acceptance of Mrs. Carey whose qualifications were highly recommended. For many years Mrs. Carey has held and still holds the position of Executive Secretary for the Chicagoland Golf Assn., Southwest Golf Assn. and the Sod Growers Assn. of Mid-America.

The next order of business was the proposed agenda for the forth coming year. A Bi-Annual newsletter or publication will be sent to members of the ITF; a short course will be in the offering for industrial plant managers or groundsman bringing them up to date on what is happening in the research and care of turf. Problem questions will be answered. The Flower Show held March 23rd to 31st finds the ITF with a redesigned booth this year.

The next Board meeting is expected to be held at the Flower Show in March.