

THE Status of Dutch Elm Disease and Elm Phloem Necrosis in the Midwest

A great deal of interest has been aroused in recent years in the Midwest among park officials, city foresters, golf course superintendents, etc. as well as the general populace regarding the present status and spread of the much talked about and dreaded Dutch elm disease and elm phloem necrosis. This watchful interest speaks well however for the safety and future of our vast heritage of elm trees, for these two diseases are the most destructive killers of elms in the United States.

The Eastern and Central states particularly have lost vast numbers of beautiful elms from one or both of these diseases. They continue to spread and may soon become serious problems wherever elms are much used as shade trees.

Dutch elm disease is caused by a fungus, whereas elm phloem necrosis is a virus disease. Both diseases are spread chiefly by insects. The smaller European elm bark beetle commonly carries Dutch elm disease, however the native elm bark beetle also carries it. A leaf-hopper spreads elm phloem necrosis. These insects carry the infection from diseased to healthy elms, but the infection may also be spread through root grafts when trees are in close proximity to each other.

Dutch elm disease is now reported in the following Midwestern states: Michigan, Ohio, Indiana, Illinois, Kentucky, Tennessee, and Missouri. Elm phloem necrosis is now reported to be present in Ohio, Indiana, Illinois, Iowa, Nebraska, Kansas, Missouri, Kentucky and Tennessee. The spread of Dutch elm disease is exemplified by its development in Michigan. In 1950 Dutch elm disease was reported in Michigan for the first time presumably crossing the river from Windsor, Canada. Nine cases were reported in the greater Detroit area that year. In 1951 a total of 78 cases were reported in the same greater Detroit area. In 1952 the disease had spread to Flint and Royal Oak, and from present indications it is rapidly moving West across the state. In Illinois, the northern-most infected elm is about 130 miles south of Chicago.

Elm phloem necrosis is spreading much more slowly and is more or less stabilized in its present area. It occurs in Illinois through the southern 2/3 of the state, extending as far northwards as Danville, Bloomington, and Peoria. It has also been found at Melvin, Dwight, and Rockford. An example of the destructiveness of this disease is the fate that befell the elm trees of Mt. Pulaski, Illinois. In 1942 there were about 600 elm trees; in 1948 only 19 healthy trees were left.

The City of Indianapolis, Indiana has been losing thousands of elm trees every year from both diseases. Fortunately neither disease has yet been reported in the greater Chicago area. Of the two diseases, Dutch elm disease is the one most likely to attack in the Chicago area.

While the foregoing presents a rather discouraging picture, the future can be looked upon with hope and optimism. Certainly the battle to save our elms will not be an easy one, and much hard work and unified effort, at heavy cost, will have to go into any program designed to protect our elm trees.

Science has discovered three methods aimed to contain and prevent these destructive diseases. They are:

1. A vigorous sanitation program - removal and proper disposal of diseased and dead elms, pruning of dead wood in healthy elms and other arboricultural practices designed to maintain vigorous growing trees.
2. A program of high dosage DDT sprays designed to kill the insect vectors of either disease. In the

case of the city of Detroit, immediately following the discovery of Dutch elm disease in 1950, a drastic and comprehensive spray program was drawn up for the 1951 season. This spray program was expanded again in 1952. While it is too early to conclusively assess results in such a specific case as this, reports to date show considerably less incidence of Dutch elm disease in Detroit this year than last. Normally, without spraying, the number of infected trees would have jumped materially this year over last. Cases such as this indicate the merits of preventative spraying with DDT. Generally speaking the value of DDT sprays for Dutch elm disease and elm phloem necrosis control over the entire infected area has been amply demonstrated and now accepted by all agencies as being a scientifically sound program. Special DDT formulations have been developed by various insecticide manufacturers for this purpose, such as STANDARD Elm Spray manufactured by the Standard Oil Company.

3. Another approach in the case of Dutch elm disease control, is the treatment of healthy trees with Chemotherapeutic compounds. These chemicals fight the fungus within the tree and are reported to neutralize or antidote the toxins responsible for the disease symptoms. Considerable work has been done in the East on chemotherapeutic treatment, however, this method is considered to be of a preliminary nature and its use is not generally recommended.

If either disease is not yet reported in your area there is no need to apply DDT sprays. A good, active sanitation program is always of value however. A watchful check of your elms would be very worthwhile in areas now free of infection and especially in threatened areas. If you live in an area where either disease is now proven to be active there is no alternative but to undertake a vigorous sanitation and spray program or take your chances, which might be very slim, on the survival of your elm trees.

The Dutch elm disease may attack all elms commonly grown in the United States. The American elm is the most susceptible. Other native and European elms are moderate to highly susceptible. The Siberian and Chinese elms are resistant. Elm phloem necrosis does great damage to the American and the winged elm. Other elms seem to resist this disease.

When elm leaves suddenly wilt, yellow, or dry, thin out, and then drop off, the tree may have one of these diseases. Diseased trees may live only a few weeks, or it may be a year or more before they die. In Dutch elm disease such symptoms usually appear first on only a branch or two, and then spread to other top parts. Elm phloem necrosis, on the other hand, usually affects the entire top instead of just a few branches. As the disease progresses, these symptoms become more noticeable.

Dutch elm disease can be diagnosed correctly only in a laboratory equipped for identifying the fungus. If your elm trees show the foliage systems described above, cut off several small branches with the affected leaves. Look for brown discoloration in one or more annual rings of the wood. This brown color may show up as spots, a stippling, or a partial or complete ring. Dutch elm disease is not present unless this discoloration appears. If you find this brown color, send four or more branches so discolored to your State Agricultural Experiment Station for laboratory diagnosis. The pieces should be about one-half inch in diameter and six inches long.

Elm phloem necrosis can be identified right in the field. Cut through the bark at several places around the lower trunk and pry the bark from the wood so that you can see the inner bark. If the inner bark that lies next to the wood is yellow or the color of butterscotch, sometimes flecked with brown or black, the elm probably is diseased with phloem necrosis. If the inner bark is white and turns brown only after exposure to air, the leaf symptoms are not caused by phloem necrosis. If you find the butterscotch color, place a small amount of the discolored inner layer in a small stoppered vial for a few minutes. Elm phloem necrosis is present if the discolored tissue gives a faint odor of wintergreen.

Once Dutch elm disease or elm phloem necrosis attacks in an area, it will cost heavily to keep them under control. Sanitation must be combined with preventive DDT spraying. Labor and equipment runs high and the DDT sprays are expensive. Who can say however, what the value of a beautiful stately elm tree is? Certainly in terms of actual replacement it is priceless. One needs only to travel to Peoria, or Quincy, or Indianapolis to see the wholesale destruction of our elms from these diseases and how their loss affects our landscape. It is a scene that anyone who enjoys and appreciates trees will wince at the sight of.



OUR MEETING WITH WISCONSIN

The beautiful weather of this September continued thru the day of our joint meeting with the Wisconsin Greenkeepers Association on Monday, September 15 at Brown's Lake. It was a glorious day and the members turned out in large numbers to play Al Ebber's long, tough golf course. Al had the course in wonderful shape and he received many compliments on the fine condition of the greens. Some of the boys had quite a time with the 630 yard 6th hole, many of them never having seen a hole of such distance and naturally it was a tough hole for them to play.

Al was a wonderful host and the buffet dinner that evening was something to long remember. All you could eat and no questions asked. As you can probably guess, a number of the boys went back for seconds. Well, you couldn't blame us, the food was so delicious. Pres. Gabbey, Wisconsin President called the meeting to order and after the proper introductions were made, the meeting was opened for discussion. The topic was localized dry spots on putting greens. The Tournament Committee then took over. It was discovered after some close figuring that the Midwest was successful in the defense of the Midwest-Wisconsin Trophy and the cup returns again to Illinois. Members of the winning team were; Dick Buchen, Stan Arendt, Julius Goffo, Bill Krafft. Blind bogey winners were as follows: 1- John Stumpl, 2- Ed Muzik, 3- Paul Jensen, 4- W. Taylor, 5- J. Kuppel, 6- Frank Mastroleo, 7- Norm Kramer, 8- F. Iverson, 9- Don Wagner, 10- O. Johnson, 11- Adolph Bertucci, 12- Herman Dahl, 13- Charley Vann, 14- Elmer Berg, 15- Emil Cassier, 16- Joe Klem, 17- J. Mugho, 18- Ray Runnfeldt, 19- A. Williams, 20- John Crewe, 21- Bill Saielli, 22- Les Verhaalen, 23- A. Michels, 24- A. Fryberger, 25- Ray Davis, 26- L. Marquette, 27- Roy Chaplin.



Dr. Grau in his talk at Columbus on Tues. discussed Zoysia planting. Among other things mentioned was that one ounce of seed was enough to plant 5 acres. This is done by planting the seed in flats and transplanting. One flat produced 1200 plants.

SPREADING IT THIN

Dr.'s J. A. DeFrance and J. A. Simmons of the Rhode Island Experiment Station, Kingston, Rhode Island, were the guests of Dr. Milt Carleton, Research Director of Vaughan's Seed Store the last week in September, Dr. Carleton took Dr's De France and Simmons to visit our research project at Downers Grove, Ill., where Dr. De France carefully looked over the area selected by the Midwest organization for the site of our proposed project. Dr. De France had some technical suggestions to Dr. Voight.

From the Station we went to Vaughan's trial grounds at Western Springs and looked over the seed plantings there. After lunch, Dr. DeFrance and Dr. Simmons, Dr. Carleton, Dr. Rhodes of the Experiment Station at Downers Grove, Dr. Voight and the Mole traveled out to see Merion Blue grass at Warren's Turf Nursery at Worth, Ill., where the Dr's saw Merion on a large scale for the first time. Ben Warren has about 20 acres ready for cutting and H & E Nursery at Flossmoor have 20 acres ready to go. It was hard to pry the various Drs. off the beautiful planting and after looking over some Chlordane applications to crab grass they went on to Medinah C. C. where they had time only to examine one green treated with Soiloam and one fairway which had been treated with various kinds of crab grass control methods and see the effect of root pruning at the entrance of Medinah and it was time to get the men to the train.

The Research Committee had planned to have a special meeting and discussion when Drs. De France and Simmons came to the district, but with but a 12 hour notice it was impossible to make any arrangements at all. Dr. Carleton had not time to make any plans, as he knew nothing of Dr. De France's plans until they met at the Sherman Hotel.

We hope that next time he comes to town he will let us have a little notice ahead of time. There are a lot of good people who would like to meet him and we invite him to come again soon.

Everybody seems to be busy and happy getting things back in shape after a hard summer. The usual shortages in help have appeared since school started, although some of the workers on strike at the Chicago plants have found their way out to golf courses.

The first dry weather of the season has made fall watering important.

Ray Davis says it hailed hard, covering the fairways at Medinah on the afternoon of September 22. His new shed at Medinah, a steel building of corrugated construction, 40 x 60 is now full of good dry soil for early topdressing.

The terrific storm of the morning of Labor Day, Sept. 1, flooded many golf courses in the Chicago District and did considerable windstorm damage, but Beverly Country Club seems to have been in the very center of the storm. Bob Williams reports that his course was closed for two days and that he and his crew were busy for two weeks cleaning up and getting the course back in shape again.

Al Ebbers had to excuse himself for a time on the afternoon at Brown's Lake. He said he had to try several cases that afternoon. Al is the local Justice of the Peace in Burlington, Wisconsin. Some of the boys remarked that Al might be a pretty good guy to know.

And along the same lines you really should know this man. He is Bert Barrows, veteran Superintendent of Kenosha Country Club, Kenosha, Wisconsin. Bert is the Republican candidate for sheriff of Kenosha County in this coming election.

THE MOLE