

(Dutch Elm Disease cont'd.)

ed. If additional symptoms are observed, the trees should be completely removed if there are any elms within 50 feet to prevent root graft transmission. Branch samples can be sent to the Extension Service for DED identification. But don't wait for the results. By the time the results come back, it may be too late to save your tree.

6. Insecticide Sprays: Key and landscape trees can be considered for insecticide treatments. A dormant oil spray (in late winter or early spring) containing Methoxychlor is recommended. The insecticide is like an insurance policy, but sprayed trees can still get DED. Some Chicago area municipalities have dropped spray programs because of costs. They found spraying only reduced losses by about 1-1.5%.

7. Systemic Fungicide: Systemic fungicides can be used to prevent DED and also to "cure" trees infected with DED. When more than 20% of the crown shows symptoms, the chances of recovery are greatly reduced. Again, key and landscape trees should be considered for fungicide treatment. There are three year guarantees being offered by some arborists.

When DED is discovered early, pruning (below brown streak) and fungicide injection have been found to be quite effective.

The key to a successful DED program is regular surveillance by a trained scout and immediate action (i.e. removal, pruning, fungicide injection) when DED is suspected.

For additional information on DED and its control, see Illinois Cooperative Extension Publication No. 647.

The Relationship Between Water pH and Spraying

by Richard Kensinger

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Have you ever wondered why some of your spray applications did not accomplish the job you had expected? After spraying at known targets, such as, dollar spot, brown patch, or cut worms, etc., with proven chemicals, the results did not meet your expectations - or - perhaps you did get some control, but only for a few days. The problem may not be with the chemicals you are using, but with the pH of your water.

Many golf courses are irrigated with well water which contains high amounts of calcium, iron, and magnesium (known as hard water). Such water has a pH of 7 or greater.

The definition of pH is the measure of the hydrogen ions in a solution, which stated in equation form is: $\text{pH} = -\log [\text{H}^+]$. Because this is in the logarithmic form, an increase or decrease by one number would indicate a solution ten times more acidic or basic. For example, a pH of 7 is ten times more acidic than a pH of 8, and a pH of 6 is 100 times more acidic than a pH of 8.

The high pH of well water could cause a pesticide to undergo alkaline hydrolysis. This could greatly reduce its effectiveness, or in some cases, even cause it to be totally inoperative. Chemicals such as Actidione, Proxol, Sevin and Malathion are quite sensitive to a high pH. In general, most fungicides and insecticides should be applied with a slightly acidic pH.

(cont'd. page 18)



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(Water pH and Spraying cont'd.)

However, 2, 4-D, MCPP and dicamba are best applied with a slightly alkaline pH. Methylarsonates are not effected by the pH.

As a result, it is necessary to monitor and adjust the pH. I first treated the pH of my water with litmis paper. I compared my results with the results of three other employees, and ended with a range from 6.5 - 8.0. A more accurate method was found through the Enviro-Test Perry Laboratories in Downers Grove. This is a state certified and approved lab with all the latest lab equipment, which allows them to perform almost any test you might require. After testing my water, they found my pH to be 7.9. This then explained why I only receive a 5 to 6 day control after spraying TGF, thiram and iron sulfate under average conditions.

It was obvious I needed to lower the pH to slightly acidic. I first used a product called water acidification and chelating agent made by WA Cleary. The chelating agent chelates the calcium, magnesium and iron salts thus making them usable for the plant. This product will work alone or in combination with iron sulfate.

Another way to lower the pH is to use Lesco's Iron Plus N which supplies some of the minor elements, sulfur and a very small quantity of nitrogen. One application of 1 oz/M (50 oz/200 gal water) prevented my greens from turning chlorotic for 14-21 days. On the other hand, using the Cleary's acidifier at 12 oz/200 gal water plus 36 ounces of iron sulfate/200 gal, prevented chlorosis for only 10-14 days.

Both products extended the length of control by 75-100%. I now can get 10-12 days control from the TGF-thiram combination; 10-23 days from Daconil WP; and 25-30 days from Chipco 26019, under average conditions. This has resulted in a savings in chemicals and labor, not to mention a little more peace of mind.

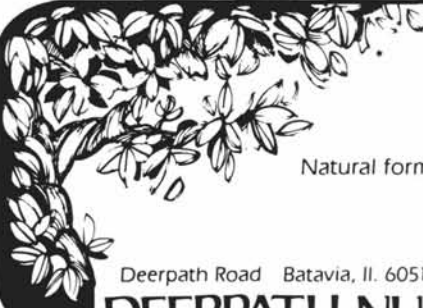
I now regularly modify my pH for all fungicide and insecticide applications throughout the year. However, applying iron sulphate during cold temperatures can blacken a green in a matter of hours.

The following chart illustrates some of the results I have obtained through various combinations and products. Remember, this is for my particular well water. You may get different results from yours. Always check your pH after adding chemicals to see how it has been altered.

CHEMICAL ACIDIFICATION CHART

Product/200 gal.	pH
Normal Well Water	7.9
8 oz. Cleary Acidifer	7.3
12 oz. Cleary Acidifer	7.3
16 oz. Cleary Acidifer	7.1
2½ gal. Sulfur F	7.1
50 oz. Iron Plus (1 oz/M)	6.6
8 oz. Acidifer plus 36 oz. Fe (¾ oz/M)	6.3
10 oz. Acidifer plus 36 oz. Fe (¾ oz/M)	6.0
64 oz. Iron Plus (1.3 oz/M)	5.9
12 oz. Acidifer plus 36 oz. Fe	5.8

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