

# PREVENTION OF TREE DISEASES INCLUDES ROOT GRAFT BARRIERS

Preventative measures remain the dominant control method for many diseases of trees and ornamentals. Selecting resistant varieties, removing diseased individuals, and planting many varieties in low proportions at safe distances apart are a few of the preventative measures used today.

Another preventative measure, not quite as common but equally important, is blocking transmission of disease by root grafts. This can be an effective measure where susceptible species are planted within root range of each other, generally within 35 to 50 feet. A mechanical or chemical barrier must be created between infected and healthy trees.

Dr. Jay Stipes, a plant pathologist at Virginia Tech maintains the best way to control Dutch elm disease is to prevent it. Stipes has served as a DED consultant to the U.S. Department of the Interior and state forest services across the country. "Severing root grafts is not always the answer, but on campuses, city blocks, golf courses, anywhere elms are planted in rows within close proximity, it cannot be overlooked," Stipes says.

Good sanitation, radical tree surgery, and timely applications of foliar insecticides also must be used to control DED, he says.

"When Dutch elm disease is transmitted above ground by bark beetles, radical tree surgery can often save the tree from further destruction," Stipes explains. "It's like cancer with a human being—you may have to remove a breast or a limb to save the person's life. It's the same way with trees.

"If a tree contracts Dutch elm disease by a natural root graft, however, there's no way to stop it. That's why it's so important to prevent the disease from spreading to other healthy trees."

Removing an infected tree will not eliminate the danger, he says. A mechanical or chemical barrier must be established to protect healthy trees as soon as a diseased tree shows signs of infection. "The strategy should be to sever the root grafts first, and then remove the diseased tree about two weeks later," he says.

Groundskeepers have two options available for severing root grafts mechanically. A trench 30 inches deep can be dug midway between diseased and healthy trees.

"The mechanical approach is probably the surest way to get the job done," Stipes says, "but not always the easiest. There are many instances when a fumigant may be preferred."

Groundskeepers electing to fumigate should have a pesticide applicator's license, Stipes says. Otherwise a professional arborist should be hired.

To stop DED with the fumigant Vapam, Stipes says groundskeepers must first drill 3/4-inch holes about 15 inches into the ground and six inches apart. This may be done with a soil auger, power drill or other suitable tool. The line should be at least 10 feet from the healthy tree, and extend well beyond the infected tree's drip line.

Because some apparently healthy trees may already be infected, it's usually a good idea to make a second fumigation line beyond the second tree, Stipes says.

A solution of one part Vapam and three parts water should then be poured slowly into each hole to within two inches of the soil surface. The hole should be



**Dr. Stipes stands** where a diseased elm was recently removed and points at a healthy elm. A soil fumigant was used as a barrier to root graft transmission two weeks prior to removal of the diseased tree.

sealed with dirt to trap the vapors and minimize grass kill.

The fumigant soaks into the soil and kills tree roots in the immediate area. Thus, the underground root graft is broken and disease-causing sap cannot spread to healthy trees. Stipes cautions that Vapam will kill turf growing along the fumigation line, but this can be reseeded or sodded two weeks after the treatment.

Diseased trees should be removed two weeks after fumigating. A disease-resistant tree may then be planted in its place. Groundskeepers should consult their cooperative extension office for local tree planting recommendations, Stipes says. Always follow instructions on the pesticide label.

**WTT**