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DUTCH ELM (from page 63)

on wildlife is considerably less severe than other members of this chemical family.

Hansel's prevention program calls for a dormant spray of two percent concentration of methoxychlor prior to leaf emergence. This would be followed with a leaf spray of methoxychlor and Benlate benomyl fungicide applied as a foliar spray one week after leaves reach full size. He believes that "should the fungus be introduced by bark beetle feeding, the absorption of the fungicide through the leaves and young bark will help prevent growth of the fungus and restrict its spread into the system of the tree."

As another part of the prevention program, Hansel recommends feeding the elm tree to maintain a healthy state and pruning as needed, but not during the period when beetles are active.

Treating a diseased tree is what Hansel terms therapy. The first step involves surveillance — a visual sighting of the tree daily during June, July and August for signs of wilt or leaf chlorosis. Injecting a fungicide into the tree's vascular system comprises step two. Pruning of limbs that show flagging (wilt) follows next. Lastly, laboratory identification of DED should be accomplished.

Hansel's record of success looks good. Over a 13 year period, one elm specialist who practiced "Specialized Elm Care" averaged less than 1 tree in 100 lost to DED.

What does "Specialized Elm Care" cost? Hansel says it varies from community to community, but costs range from \$50 to \$100 per year for an average 2-foot diameter elm. Contrast this to as much as \$400 to \$500 to remove a diseased elm in some cities and the cost of "Care" is quickly justified. "This cost is no more than a 'service contract' charge for many appliances with a life expectancy of only 10 to 15 years," notes Hansel.

What other avenues are available in Dutch Elm Disease control?

Plant breeders continue their search in hybridizing the American elm with a more disease-resistant elm species. Their goal is an elm that retains the beauty of the American elm yet exhibits resistance to DED.

Scientists have also discovered that some American elms appear to be naturally resistant to DED. Why? No one knows at this time, but re-

searchers are working on this mystery.

Another glimmer of hope lies in the introduction of a non-stinging wasp, *Dendrosoter Protuberans*, imported from Europe to act as a parasite of the smaller European Elm Bark Beetle. The wasp would lay eggs in the larvae of the beetle. When the eggs hatch, the larvae of the wasp feed on the beetle larvae and kill them. If the wasp spreads throughout the country, it eventually could be an important factor in stopping the spread of DED.

Dr. James Butcher, Michigan State University entomologist says, "As yet we don't know the extent of



This small, non-stinging wasp pushes through elm bark to lay its eggs in the larvae of the elm bark beetle. The wasp larvae become parasites of the beetle larvae, eventually killing them.

its spread, how high its populations are or the significance it will have in the future. We are working closely with the U. S. Forest Service to determine the significance of these developments.

The work that the Shade Tree and Ornamental Plants Laboratory, the Elm Research Institute, the U.S. Forest Service and others has stirred the fire of hope into a raging inferno. Interest is at an all time high and individuals, organizations and municipalities are anxious to try the new discoveries and techniques that scientists have developed.

Optimistically, John Hansel sums it up this way. "I believe we are going to save many thousands of trees this year."