Taking A Tree's Temperature

To get a better understanding of how American elm trees react to Dutch elm disease, plant scientists at Michigan State University have been "taking the temperature" of infected trees.

"Since trees don't have a mouth, much less a tongue to tuck a thermometer under, we measure how fast the tree breathes in air and gives off oxygen," says Dr. John H. Hart, plant pathologist.

To a tree, respiration, or breathing, is just like temperature is to a human. If the rate of respiration goes up, something is wrong.

According to Hart, the fungus that causes Dutch elm disease gives off a toxic compound. When a tree is infected, its respiration rate goes way up before visible signs of wilting appear.

How much water the tree loses into the atmosphere is also a good scientific indicator of sickness, the plant doctor notes. "Elm trees begin to lose water very soon after the fungus invades them," says Hart.

Municipal Sewage Recycling Subject of EPA Grant

A $98,100 grant from the U.S. Environmental Protection Agency has been awarded to the University of Florida's Institute of Food and Agricultural Sciences to test a new method of recycling municipal sewage water through farmland.

The grant, announced by Dr. John W. Sites, dean for research, will be used to expand research already underway in Tallahassee at the city's Southwest Waste Water Treatment Plant. Funds for the study were given to the University, Sites said, because "preliminary tests have been so encouraging and there has been so much national interest in the project."

A major goal of the research is to demonstrate the feasibility of discharging some 2½-million gallons of effluent from the treatment plant over farmland through a sprinkler irrigation system. Heretofore, the daily discharge of waste water, which is about 90 percent treated, has been dumped into Lake Munson west of Tallahassee, causing the lake to become polluted.

Plans are now underway to expand the treatment plant to a 10-million-gallon-a-day capacity, and it's hoped that all the discharge could eventually be retained on land, Sites said.

The new system allows nutrients in the wastewater to be absorbed by various types of plants, including animal forages, growing on the irrigation site.

Work on the Tallahassee project is being coordinated by Dr. Allen R. Overman, associate professor in the University's Agricultural Engineering Department, and Thomas P. Smith, sanitary engineer for the capitol city. Other IFAS researchers are working on a similar waste water disposal system in cooperation with Disneyworld and a sprinkler irrigation system for animal wastes is being tested at the University's Dairy Research Unit near Gainesville.

Overman stressed the need for guarding Florida's fragile ground water supplies from inadequately treated sewage effluent, particularly in areas with highly permeable sandy soils.

"While the land disposal system does offer distinct advantages over dumping treated wastes directly into lakes or streams, irrigation systems with excessively high loading rates could result in nitrate breakthrough to the ground water," he warned.