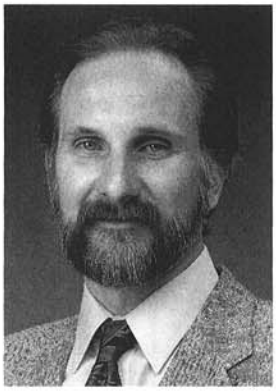
Lee M. Hutchins Award

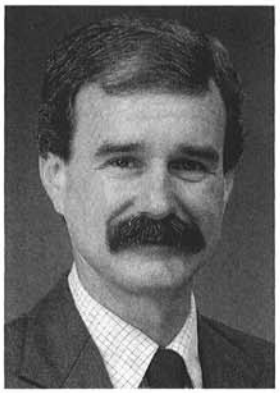
The Lee M. Hutchins Fund was established in 1979 by gifts from the estate of Dr. Lee M. Hutchins. The award, consisting of a certificate and income from the invested fund, is given for the best contribution to basic or applied research on diseases of perennial fruit plants (tree fruits, tree nuts, and small fruits and grapes, including tropical fruits but excluding vegetables). The results of the research must have been published in an official journal of the Society.

Tim R. Gottwald



Tim R. Gottwald was born in Lynwood, CA. He received his B.S. degree in botany from California State University, Long Beach and his Ph.D. degree in plant pathology from Oregon State University. In 1980 Dr. Gottwald joined USDA-ARS at the U.S. Fruit and Tree Nut Research Laboratory in Byron, GA, as a research plant pathologist working on pecan diseases. In 1985 he assumed his present position at the U.S. Horticultural Research Laboratory in Orlando, FL, examining epidemiological aspects of citrus diseases.

James H. Graham



James H. Graham was born in Birmingham, AL. He received his B.S. degree in biology from the University of California, Irvine, and his Ph.D. degree in mycology from Oregon State University. In 1981 he joined the University of Florida's Citrus Research and Education Center at Lake Alfred. As a professor of soil microbiology, Dr. Graham's research has been directed toward citrus tree declines.

A novel citrus bacterial disease first appeared in Florida during September 1984. The disease, citrus bacterial spot (CBS), caused by *Xanthomonas campestris* pv. *citrumelo*, originally was thought to be a new form of citrus canker. Several large nurseries fell under quarantine and eradication efforts. Gottwald, Graham, and associates established a series of joint USDA/University of Florida studies to increase understanding of both pathogens. Because of the quarantine, their research could not be carried out under normal conditions.

Graham and Gottwald, along with several collaborators, established a series of quarantine field plots to study the etiology and epidemiology of citrus canker in Argentina, CBS in Florida and Maryland, and to compare the two diseases in Beltsville, MD. They studied foci of distributions of both diseases as they occurred in Florida. They found that CBS was a nursery disease that did not spread or survive in newly established groves and that disease incidence decreased linearly over time irrespective of strain aggressiveness and cultivar susceptibility.

Drs. Gottwald and Graham, in conjunction with E. Civerolo, developed a rapid, accurate detached leaf assay to evaluate the etiology and virulence of both xanthomonads. The assay elucidated variation in aggressiveness among *X. c. citrumelo* strains and established that citrus canker strains and only the most aggressive of CBS strains were pathogens. Both pathogens were characterized by serological, biochemical, and genetic techniques. This work confirmed that *X. c. citrumelo* strains were heterogeneous and provided evidence that *X. c. citrumelo* strains were representatives of a diverse endemic xanthomonad flora in Florida.

Graham and Gottwald studied the susceptibility of citrus species and relatives to citrus canker and CBS. Citrus was resistant to CBS strains with the exception of trifoliate orange and its hybrids. However, citrus canker affected citrus and trifoliate hybrids alike, and only a few citrus relatives were resistant. In control studies, copper fungicides had a limited effect on both pathogens. In conjunction with L. W. Timmer, Drs. Gottwald and Graham demonstrated that windbreaks were an inexpensive and practical citrus canker control strategy. For CBS, careful management of overhead irrigation and reduced mechanical operations that cause wounding were effective in reducing disease incidence in Florida nurseries.

The research efforts of Gottwald, Graham, and associates have resulted in 33 publications. Their research findings enabled the Citrus Canker Technical Advisory Committee to focus its policies and procedures on biological facts, distinguish between the pathogens, and deregulate CBS. Their most important contributions were in epidemiology, strain characterization, bacterial survival, and host resistance.