

Protecting Citrus from a Highly Destructive Disease

The Fight against Citrus Canker



The citrus canker epidemic severely

intensified in 2004 after four hurricanes crisscrossed Florida's citrus industry and caused considerable spread of the bacterium, including 80,000 acres of previously uninfected commercial production. In 2005, Hurricane Wilma may have spread the disease to the point where an estimated 168,000 to 220,000 acres of commercial citrus could be infected and exposed to canker. If citrus canker continues to spread in Florida, it could result in a severe restriction of interstate and international commerce of fresh citrus fruit, which comprises approximately 20 percent of the state's \$9 billion commercial citrus industry.

Plant pathology is the essential element in preventing an epidemic of this scale. Work done by plant pathologists enables the quick identification of this disease in outbreak areas. Continual research in methods of identification and control is necessary for plant pathologists to manage this disease effectively.

Citrus canker was first found in Florida around 1912 after being spread throughout the southeastern U.S. on imported seedlings from Japan. It was declared eradicated from Florida and the adjacent states in 1933.

Citrus canker was discovered again in Florida in 1986 and was declared eradicated by 1994. Three years later, the disease re-emerged in the same general area on the west coast of Florida where the 1980s outbreak had occurred. In the meantime, a new and separate infestation of citrus canker was discovered in urban Miami in 1995. Initial methods of controlling citrus canker included quarantines and eradication. In January of 2006, United States Department of Agriculture officials stated that they no longer believed that it is possible to eradicate citrus canker and that the program needs to undertake a new approach that focuses on maintaining bacteria levels low enough to sustain citrus production and protect citrus groves that have not been infested with canker.

Citrus canker is caused by *Xanthomonas axonopodis* pv. *citri* (*Xac*), a bacterial pathogen that affects a variety of citrus species and citrus relatives. Citrus canker is highly contagious and can be spread through heavy rains, wind, animals and birds, and through the movement of infected plants.

Symptoms of citrus canker include the appearance of brown, raised lesions surrounded by a water-soaked margin and a yellow ring or halo appearing on leaves and fruit. Old lesions in leaves may fall out, creating a shot-hole effect. The disease causes an infected citrus tree to continually decline in health and fruit production until the tree ceases to produce any fruit.



For more information on this and other stories about plant pathology, please contact APS at apsinfo@scisoc.org or +1.651.454.7250.