

LOUISIANA PLANT PATHOLOGY

DISEASE IDENTIFICATION AND MANAGEMENT SERIES



Lethal Yellowing of Palms

Candidatus Phytoplasma palmae

Lethal yellowing, a deadly disease affecting palms, has previously occurred only in Florida in the United States. However, this disease has recently been identified in silver date palms and Chinese windmill palms in Baton Rouge.

Lethal yellowing is known to rapidly cause palm decline and then kill mature palms. The disease is caused by a phytoplasma (*Candidatus Phytoplasma palmae*-related), an unculturable bacterium with no cell wall that colonizes phloem tissue. The pathogen is spread and transmitted by the piercing, sap-sucking planthopper *Haplaxius crudus*.

Lethal yellowing causes a decline in 37 palm species. Among these species, those grown in Louisiana include the Canary Island date palm, Chinese fan palm, Chinese windmill palm, date palm (including the Medjool), queen palm and silver date palm.

Symptoms of lethal yellowing in tall palms start with the discoloration of older leaves. Infected leaves turn reddish brown to dark brown and eventually die. Infected palms exhibit a large proportion of discolored leaves in the lower region of the canopy (Figure 1). Lethal yellowing can also cause necrosis of flowers and premature fruit drop. As the disease develops, the spear leaf (apical



Figure 1. A silver date palm shows brown, dead foliage in the lower canopy and chlorosis in the upper canopy. Photo by Raj Singh/ LSU AgCenter



Figure 2. A diseased palm shows a dead spear leaf. Photo by Raj Singh/ LSU AgCenter

meristem) (Figure 2) dies after approximately one-third of the lower leaves have discolored. Diseased palms rapidly die within three to five months after the first appearance of symptoms (Figure 3).

Management of lethal yellowing is not possible in infected palms after the spear leaf dies. Symptomatic palms with dead spear leaves and discoloration in the lower one-third of their canopies should be removed immediately. The diseased palm may serve as a source of the pathogen that the planthopper can transmit to healthy, susceptible palms.

Healthy, susceptible palms may be protected in a landscape where lethal yellowing is prevalent with the antibiotic oxytetracycline hydrochloride (Arbor-OTC from Arborjet is registered for use on palms in Louisiana). This antibiotic may suppress lethal yellowing in an infected palm that has a healthy leaf spear. Because the antibiotic does not eradicate the phytoplasma, trunk

injections will need to be administered every three to four months.

Accurate identification of lethal yellowing in the field is required for effective disease management. Other diseases and disorders of palms may produce similar symptoms, which can make it hard to identify the disease based solely on symptoms. Molecular detection and identification of the pathogen from symptomatic tissue are required for positive confirmation. Lethal yellowing phytoplasma strains (phytoplasma subgroup 16SrIV-A) are closely related to — but differ genetically from — strains in phytoplasma subgroup 16SrIV-D, which cause date palm lethal decline, another deadly disease of palms. Samples from suspected palms can be submitted to the LSU AgCenter Plant Diagnostic Center for positive identification. Before you collect any samples, please contact the center by phone at 225-578-4562 or by email at rsingh@agcenter.lsu.edu.



Figure 3. Chinese windmill palms affected by lethal yellowing disease. Photo by Mary Helen Ferguson/ LSU AgCenter

Authors

Dr. Raj Singh, director, Plant Diagnostic Center, Department of Plant Pathology and Crop Physiology

Dr. Mary Helen Ferguson, research associate, Plant Diagnostic Center, Department of Plant Pathology and Crop Physiology

Visit our website: www.LSUAgCenter.com

William B. Richardson, LSU Vice President for Agriculture, Louisiana State University Agricultural Center,
Louisiana Agricultural Experiment Station, Louisiana Cooperative Extension Service, LSU College of Agriculture

Pub. 3618 (online only) 12/17

The LSU AgCenter and LSU provide equal opportunities in programs and employment.