

Lethal Yellowing Disease of Coconut Palms Pops Up ..again!

Doug Caldwell, Collier County Extension, Commercial Horticulture

Originally written: June, 2003 plus updates.



Photo 1. Typical yellowing-bronzing starts with the lower fronds and progresses upward on 'Jamaican Tall' coconuts.



Photo 2. The color of the midrib of the fronds and the nuts of this golden 'Malayan Dwarf' may lead one to think it has the lethal yellowing disease, but this is normal coloration for this variety.



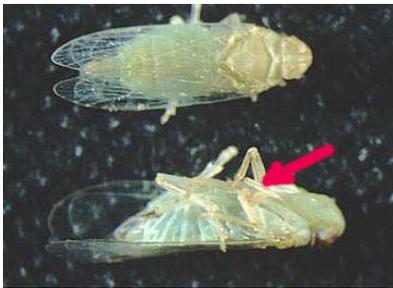
Photos 3 & 4. One of the symptoms of palm lethal yellowing is that all of the nuts, small to large, drop prematurely. The stem end has a blackened, water-soaked appearance. Another symptom is that newly emerging flower tips are chocolate-brown (see photo to right).





Photo 5: 'Malayan' or 'Maypan' varieties do not turn yellow when infected with this disease. Instead, the mid-canopy fronds will turn brown and drop.

In May 2003, a new outbreak of palm lethal yellowing disease (LY) was confirmed in Grey Oaks. Samples sent to the University of Florida Research Center in Ft. Lauderdale tested positive for the pathogen. It is believed that this recent flare-up started when an infected coconut palm was purchased in the severely infected Homestead nursery area and planted in a Naples community. This is also the cause for an outbreak in downtown Naples last January (2002). Since 2001, we have been battling on-going outbreaks in the Henderson Creek & 951 area, Isles of Capri, Poinciana Village, downtown Naples and now Grey Oaks. One case of LY was confirmed on Marco Island in March of 2002. Infected palms have been removed and a preventive inoculation program has been launched to contain the disease in these areas.



*Photo 6. The vector of palm lethal yellows is this planthopper (cixiid), *Myndus crudus*. Note the sucking mouthparts on the insect that is flipped over. The straw-like mouthparts extend between the front legs.*



*Photo 7: A screw pine (*Pandanus*) was found with PLY disease recently (June, 2004) on Isles of Capri. Be on the lookout for brown tips and yellowing on leaves of this reservoir host.*

This disease is vectored by the 3/16 inch long planthopper, *Myndus crudus* (Photo. 6), which injects the mycoplasma-like organism (MLO) when it feeds. The MLO causes problems with water transport within the palm and kills the palm rapidly within three to six months.

The coastal regions of Collier County, Naples and Marco Island harbor the largest remaining population, least 80,000, of 'Jamaican Tall' variety of coconut palms in Florida.

Lethal yellow disease was first diagnosed in Key West, Florida, in 1956. Within three years, 75% of the coconut palms were killed. By 1971, the disease had spread up the Florida Keys to South Miami. LY killed an estimated 95% of the coconut palms (100,000 coconut palms and thousands of other palm species) in the greater Miami area by 1983.

In 1974, LY was in Naples. The Collier County Commission and the City of Naples Council appropriated funds for antibiotics and passed ordinances (County Ordinance 2000-23, now) requiring diseased palms to be removed and disposed (by burial).

In the late 1980's, LY appeared on Estero Island. The next flare-up in Naples was in 1980 and isolated outbreaks occurred in 1991 and in 1998. Because of our suppression program and monitoring plans, Naples has not suffered the large number of coconut palm losses that the Ft. Myers area has.

Probably less than seventy (70) palms have died since LY was found in Collier County, twenty-seven years ago. The current suppression management consists of public education and early detection on ground and aerial surveys. However, we continue to lose 10 to 30 per year that we know about. Buffer zones are implemented which consist of removing confirmed infected palms that still have some green (if the palm is brown, the bugs won't feed on it and its not a threat) and implementing a 100 yard radius buffer zone with antibiotic treatments. If the disease does not show up in the buffer zones for two years, inoculations (trunk-injected) are stopped. The Extension office is working with communities so that they can implement their own suppression program rather than rely on the limited county funding and surveillance time.

If suspect palms are noticed, please contact Collier County Extension office (Doug Caldwell, 353-4244 X203) if the palm is outside of the city proper. If it is **inside the city**, contact Joe Boscaglia (213-7124).

Malayans and Maypans NOT Resistant:

Researchers with the University of Florida have found that the supposedly resistant Malayan and Maypan coconut varieties are susceptible to this disease. In volume 46 of the 2002 Palms (The Journal of the International Palm Society), Broschat, et al, reported that 70% of the Malayans and 83% of the Maypans died in their Ft. Lauderdale plots. Of the Jamaican Tall variety, 91% died in the Ft. Lauderdale trials.

Palms that are highly susceptible to lethal yellow disease besides coconut palms are: Christmas palm, clustering fishtail palm, date palm, the *Pritchardia* species, and windmill palm. LY has been reported on 38 palm species and screwpine, *Pandanus utilis* (Photo. 7).

Fortunately, this disease has not been reported on native Florida palms such as cabbage, royal, paurotis and thatch palms. Other palms that have been disease free are: queen, Mexican washingtonia, foxtail and Alexandra palm.

What to Look for:

Symptoms of LY on coconut palm (symptoms may vary with the other 38 palm hosts):

- 1.) Premature drop of most or all of the fruit of all stages of development .The area by the stem-end of the nut is darkened and water soaked (Photo 3).
- 2.) This is a PLY give-away symptom, if you can catch it! The tips of the normally creamy-yellow male flower cluster, as it emerges are a dark chocolate-brown to blackish. The flower droops instead of being upright.
- 3.) With the Jamaican Tall variety, the older fronds turn yellow-gold first and this symptom follows the fronds up into the youngest leaves (Photo 1). With the tolerant (not resistant) Malayan varieties (green, yellow, golden), the symptoms may appear in the middle of the canopy as a browning and wilting.
- 4.) Too late, only after all the leaves have been killed, the bud collapses, leaving a “telephone pole” trunk. *This entire sequence can occur in 3 to 6 months*, this rapidity is also another indication of the disease.

The fruit of coconut palms injected with the antibiotic, oxytetracycline, should not be eaten per the label instructions.

The biggest issue that should be addressed is that landscapers and homeowners should not buy lethal yellow susceptible palms from the east coast (Homestead) nurseries. If you are having landscaping done, make sure the company can provide an invoice to confirm the source of these palms. Refuse to pay for palms from infected areas, or the entire county may be paying for a big loss in our palm tree population!

With the public and landscape workers’ diligence in reporting suspect palms, we should be able to maintain the alluring tropical image that gives busy Naples some old Florida tranquility.

For more information see: <http://www.naplesgov.com/cs/parkways/yellowing.htm> and <http://edis.ifas.ufl.edu/MG043>

Doug Caldwell is a Certified Arborist and the commercial horticulture extension agent and landscape entomologist with the University of Florida Collier County Extension Service. The Cooperative Extension Service is an off-campus branch of the University of Florida, Institute of the Food and Agricultural Sciences and a department of the Public Services Division of Collier County government. E-mail dlcaldwell@mail.ifas.ufl.edu; Call 353-4244. Extension programs are open to all persons without regard to race, color, creed, sex, handicap or national origin. For updates on Southwest Florida Horticulture: visit: <http://collier.ifas.ufl.edu>

Revised: August 11, 2004