

## **New Disease of Queen Palms (*Syagrus romanzoffiana*) in the South Florida Landscape May 2005**

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A new and lethal disease affecting only queen palms has emerged in Florida. There are more questions than answers about this problem, but below is a summary of information that has been gathered to date.

The sporadic death of queen palms in one county in Florida was first brought to our attention in 2003. Recent conversations throughout the southern half of the state where queen palms are grown indicate the problem was observed in other counties at approximately the same time, which means we cannot blame the 2004 hurricane season for the spread of the problem. While initially less than 1% of the queen palms died in a single landscape, there are now sites where upwards of 5-10% of the queen palms have died. No other palm species are affected. Most of the queen palms observed have been in the landscape for five or more years – i.e., it is affecting established palms and not necessarily new transplantings.

Initial analysis of the situation in 2003 was wrong. It was presumed at that time the problem was a disease caused by the fungus *Thielaviopsis paradoxa*, in part because of the extensive rot found in the trunk just below the bud. So, for those of you who have read an article entitled “Why are queen palms dying in Palm Beach County?” that information should be discarded. This is the nature of science – a constant learning process. However, we have recently had the opportunity to examine queen palms in the *early* stages of the disease.

We are fairly certain that the problem is a disease as no insects are observed in association with symptomatic palms, nor are nutritional deficiencies implicated in the problem. Symptoms are as follows. The lowest (oldest) 2-3 leaves turn brown but do not break or hang down. The next 2-3 youngest leaves in the canopy will turn varying shades of yellow. The yellowing leaf symptoms alone are not indicative of the disease as these symptoms would be similar for natural senescence, especially when potassium deficiency is present. What makes the disease different from natural senescence is that usually within two months of initial symptoms, the entire canopy has turned brown, as if freeze-dried in place. The leaves do not break or hang limply parallel to the trunk, they simply turn brown in place within the canopy.

Closer examination of the yellowing leaves and the next green leaf in the canopy should reveal what we believe is the initial target of the pathogen – the leaf petiole at the point where it is bending out of the canopy. We have observed initial areas of discoloration (brownish-red color) at this point that then seem to spread in both directions on the petiole, toward the trunk and toward the leaf tip. The petiole is not rotted, but simply discolored. Cross-sections through the petiole reveal internal discoloration. Cross-sections must be done with a sharp saw and not with

a crushing tool such as a clipper, as the crushing motion will discolor tissue also. Leaflet tips, even on lower green leaves, exhibit drought symptoms.

The bud of the palm is not killed until sometime (probably a week or so) after the canopy turns brown. When cross-sections are made through the crown of a dead queen palm, the bud is still clean and white, but older leaf and inflorescence bases are discolored and usually rotted. The symptoms and their development suggest a pathogen, probably fungal, that is producing a toxin.

The pathogen is unknown at this time. We have isolated “potential” pathogens and will shortly be conducting pathogenicity tests. For the latter, we will first try to inoculate healthy queen palm seedlings. But, since the disease seems to be primarily associated with mature queen palms, this may not be successful. Furthermore, we may not have isolated the “real” pathogen yet or, as with the pathogen that causes Lethal Yellowing disease, the pathogen may not be culturable.

Without knowing the exact cause of the problem, no management recommendations can be made at this time, except that diseased palms should be removed immediately and destroyed. Based on the location of the disease throughout the southern half of the state, it would appear that the pathogen is spread by wind. Removing the palm removes the potential source of the disease. Until more is known about the problem, it would not be recommended to plant a queen palm back into the diseased site.



Yellowing lower leaves that are different from natural senescence of potassium deficient leaves.



Dying lower leaves do not break or droop and hang parallel to trunk.



Entire leaf canopy has died and turned brown.



Reddish-brown stripe running in both directions along leaf petiole.



Cross-section through discolored petiole exhibits internal discoloration.



Cross-section through canopy area exhibits clean, non-affected bud but discolored and rotted old leaf and inflorescence bases.