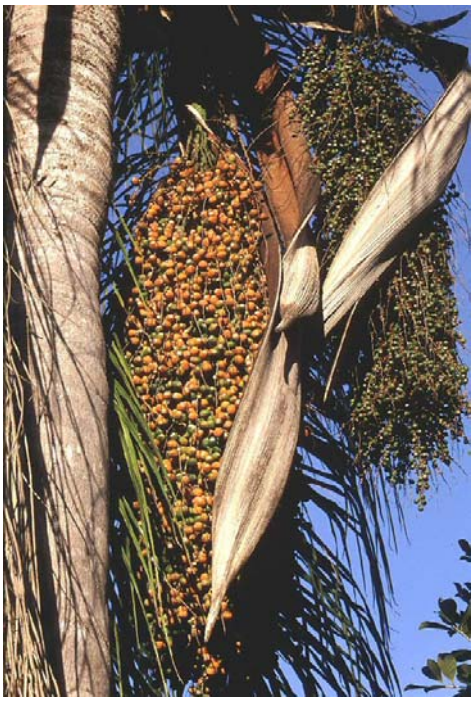
Queen Palms Plagued by Another Disease

Future Use of Queen Palms is Questionable.

Doug Caldwell, Commercial Landscape Horticulture



This queen palm shows a lack of maintenance due to the large accumulation of fruit clusters, fronds and woody, canoe-like structures called spathes that need frequent removal on this high-maintenance palm to keep it tidy looking.

The future use of queen palms has, again, taken another blow. Besides being shallow rooted and tending towards toppling in high winds, as we saw following Hurricane Wilma here in Naples, there is a new disease that should put them directly at the bottom of the desirability and sustainability list.

Another fatal ailment of queen palms (*Syagrus romanzoffiana*) has appeared over the last three years (since 2003) and has recently (July 2007) been named by plant pathologist Dr. Monica Elliott (Univ. Florida, Ft. Lauderdale) as Fusarium decline. This disease, although not as rampant as ganoderma butt rot, has killed 5 to 10% of queen palms in some communities (see: http://flrec.ifas.ufl.edu/palm_prod/palm_diseases.shtml). There is no cure for this disease.

Ganoderma butt rot disease, which disintegrates the interior of the lower 3 feet of the trunk, is taking its toll on many palm species. Recently, most of the palms diagnosed with this fungus disease have been queen palms. Check palms with canopies that look droopy and off-color as this is a wilt disease. Look for the marshmellow-like early stage of this disease. The white stage becomes a woody shelf fungus. Remove these palms as soon as possible and do not replant with another palm. There is no cure for this disease.

Queen palms are not self-cleaning. The frond and the base of the frond, called the boot, remain attached for years and usually need to be mechanically removed one or two times per year for a nice, clean looking palm. Removal is necessary, unless the inhabitants of the boots and clingy stuff that accumulates are not objectionable. These inhabitants include, ants, snakes, lizards, scorpions and rumor has it “palm” rats. Green fronds should *never* be removed as they serve as a nutrient reservoir for future growth. Removing too many green fronds will weaken the “head” by reducing the trunk diameter (called pencil-necking) and the bud could breakout in a storm.

A better choice, on the other hand, would be royal (for large areas) and foxtail palms as they are naturally self-cleaning and shed their fronds. They do not need the extra pruning maintenance required to remove dead fronds, boots and fruit clusters that become a labor and cost burden to keep queen palm looking neat.

Queen palms are messy. Unlike many other palms that produce fruit one or two times a year, it produces clusters of 0.5 inch, orange fruit every other month or so. Avoid planting queen palms near parking areas or sidewalks unless you want to risk twisted ankles. Fruit flies and other insects love to swarm the fermenting, decaying fruit. Fruit clusters are produced on stalks that are 4 to 8 feet long. Removing the cluster when it is green, before the berries create a mess is recommended but can be dangerous! Removing the lighter weight flower after it has expanded is easier. These fruit clusters weigh around 50 pounds and with an ill-aimed cut, can easily knock one off the pruning ladder or crush plantings when it crashes to the ground. Queen palms have another structure that is used for artwork by some. It is a canoe-shaped structure that protects the flower as it emerges. It is a 3 foot long, pointed wooden spathe. Removal of this sharp object with a pole-saw can also put property and life at risk as well as it drops like a spear.

Queen palms do better in acidic soils and frequently exhibit fatal manganese deficiencies in our more alkaline substrate. This means that treatments of manganese sulfate may need to be applied. Manganese (Mn) deficiency affects the newer growth and causes a stunting and brown-yellow frizzled fronds.

Potassium (K) deficiency starts as yellow flecking of the lowest fronds and proceeds to browning of the ends of the leaflets and progresses upward. Avoid using fertilizers that contain quick release nitrogen (ammonium nitrate and urea) and quick-release K, as a K deficiency may be induced. K leaches rapidly in our sandy soils and sulfur coated potassium sulfate sources of K should be used.

I am seeing more boron deficiency more frequently, which can be fatal if not corrected, although that is sort of hit or miss. There are several catchy descriptors for boron deficiency: fishbone leaf, hook leaf, fasciation, blind leaf, and accordian leaf. These are terms describe the malformed new growth caused by the lack of just a tiny amount of boron, a micronutrient, just at the right moment when a new leaf is in the embryonic stage. Boron is associated with cell division and cell production in buds and root tips. Because this element is water soluble, it may leach before the palm roots absorb it, especially in sandy soils and especially during particularly rainy periods or if over-irrigated. See http://flrec.ifas.ufl.edu/palm_prod/palm_nutrition.shtml for more on palm nutrition.

Short-term, queen palms may be cheaper at the nursery and are easy to grow rapidly from seed. However, the long-term disadvantages (three fatal nutrient deficiencies, two fatal diseases, not self-cleaning, too much fruit and unstable in high winds) outweigh the quick-fix perspective. When the queen palm is used, both the pocket book and the landscape will suffer. Alternative palms that should be considered include cabbage palm (not self-cleaning) and foxtail, teddy bear, Alexandra, piccabeen and smaller palms such as spindle and *Cocothrinax* species should be used with our small Florida lots. Some of these will be discussed in future articles.

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Palm Trunk Sampling for DNA Extraction and Phytoplasma Detection

(Lethal Yellowing and Texas Phoenix Palm Decline)

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Materials and Tools

- A portable electric drill and 6½ inch long x 5/16 inch diameter drill bit (longer is better for *Phoenix* palms). Alternatively, a carpenter's brace and a brace bit (e.g., ½ inch diameter).
- Clean, self-sealable plastic freezer bags (e.g., Ziploc bags).
- Squirt bottle containing water.
- Golf tees to fill the hole made by the drill bit, or wooden dowels 5 inch long x ½ inch diameter for the hole left by brace bit. Hammer to put golf tee or dowel in hole.
- Portable propane torch.

Procedure

(1) Obtaining the trunk sample (figure at end of document)

- Begin by flame sterilizing the drill bit by running and twisting it slowly through the propane torch flame to cook any debris or DNA that might be adhering to its surface (Fig. 1a).
- Cool the bit using a liberal squirt of water from a squirt bottle (Fig. 1b).
- Bore a hole into the trunk of the palm. Anywhere on the trunk is fine but the lower the better for cosmetic considerations. The interior wood shavings (at least 3 grams; enough to fill a film canister) removed from the hole (Fig. 1c) should be collected into a sealable plastic bag (Fig. 1d) (do not use paper bags). Avoid any hand contact with the shavings since this tissue is the sample used for DNA extraction.
- For *Phoenix* palms, be sure to drill past the old leaf bases to obtain trunk tissue.
- Shavings that appear noticeably discolored (reddish-brown) due to interior trunk decay are much less reliable as samples than non-discolored samples. Such samples should be avoided, if possible; as should sampling dead palms.
- Label bags with useful details (e.g., palm name, date and location) so you can match results with the palm sample.

(2) Surface sterilization of the drill bit

- At the end of the operation, the boring bit is first rinsed with water to remove debris.
- The bit is then flame-sterilized with the propane torch and then cooled again with another squirt of water (Figs. 1a and 1b).
- This operation must be carried out before boring a hole in another plant trunk to avoid cross-contaminating tissue samples.

(3) Sealing the hole

- Insert a golf tee or wooden dowel into the sample hole and tap it flush to the trunk with a hammer (Fig. 1e).
- This should seal the hole and prevent copious sap bleeding while preventing penetration of pests and or other unwanted potential pathogens.

(4) Handling and shipping of samples

- Once the trunk sample is obtained (Fig. 1d), keep it chilled (e.g., ice chest with ice or blue ice). Cooling will prevent the samples from discoloring during transportation from the collection site to where they will be stored prior to shipment.
- DO NOT FREEZE the samples. Ship within 24 hours of collection.
- When the samples are ready for shipment, send them by overnight courier (e.g., FedEx) still in their original sealable plastic bags. Do not ship samples on Friday as there is no Saturday delivery to university addresses. No ice is necessary for shipping.
- Cost for each sample is $75. Place check (**payable to FEPDC**) in separate bag in packet with samples. Provide contact information, photos, relevant information, etc.

(5) Ship to either the Fort Lauderdale R.E.C. or the Florida Extension Plant Disease Clinic in Gainesville. These are the only two labs set-up to handle palm phytoplasma samples.

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Figure 1. Trunk sampling for phytoplasma detection by molecular techniques. Boring a hole to obtain interior trunk tissues from which DNA will be extracted (c). The shavings are collected into a polybag avoiding hand contact with the sample (d). Rinsing of the boring bit after flame sterilization at the end of the operation to avoid contamination in a subsequent sampling operation (a & b).