

# Common Palm Diseases in Florida

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## Lethal Yellowing

- Most often observed on coconut (*Cocos nucifera*) and Christmas (*Adonidia merrillii*) palms, but host range is much broader and includes *Phoenix* species.
- Disease is caused by a phytoplasma that is transmitted by a leaf hopper. Symptoms vary with the host species, and even among coconut cultivars.
- With most coconut cultivars, observe premature nut fall, flower necrosis, oldest frond turns yellow, brown and hangs parallel to trunk.
- But, with Malayan Dwarf coconut cultivar, observe overall wilt and leaves turn brown rather than yellow. Confirmation can be accomplished with PCR assay, but symptoms alone may be adequate for diagnosis.
- Remove palm if >25% of leaves are discolored. If less than 25%, inject every four months with oxytetracycline HCl.
- No resistant cultivars available.

## Fusarium Wilt

- Fusarium Wilt primarily occurs on Canary Island Date palm (*Phoenix canariensis*) and, to lesser extent, on edible date palm (*Phoenix dactylifera*). No report on pygmy date palm (*Phoenix roebelenii*).
- Disease is caused by the fungus *Fusarium oxysporum* f. sp. *canariensis*. The fungus causes a wilt because it clogs the xylem tissue (water-conducting tissue). The palm eventually dies.
- Symptoms include a dark brown streak on the petiole and rachis. When the petiole is split open, discoloration of the xylem (streaking appearance) is apparent.
- Overall plant symptoms include a progressive wilt and death of leaflets. Wilt is usually lopsided as one side of the rachis will wilt, followed by the other side. You may even see a one-sided wilt of the entire palm.
- The fungus is most likely transmitted to other palms during pruning operations, but can also enter via roots or be seed-borne. Disinfest pruning tools between palms. Example: 1 part Pine-Sol to 3 parts water, and soak 10 minutes.
- If palm is diagnosed with Fusarium Wilt, remove immediately. Confirmation of the pathogen is accomplished with PCR assay, but symptoms alone may be adequate for diagnosis.

## Ganoderma Butt Rot

- The cause of Ganoderma butt rot of palms is the fungus *Ganoderma zonatum*.
- This disease degrades or rots the lower 4-5 feet of the trunk. It is **not** a root rot.
- All palms are considered hosts of this fungus. At this time, **no** palm is considered resistant to this disease. This fungus is not a pathogen of any other plant species.

- The disease is identified by the sexual stage of the fungus, which is the basidiocarp. This is commonly referred to as a conk, a hard, shelf-like structure that will be attached to the lower 4-5 feet of the palm trunk.
- The fungus is probably spread by the sexual spores that are produced and released from the conk.
- Conditions that are conducive for disease development are unknown.
- There is **no** method for preventing the disease or for curing the disease once the palm is infected.
- A diseased palm should be removed as soon as possible, especially during the hurricane season.
- Community conk patrol: Within a neighborhood, monitor live palms, dead palms and palm stumps for conks. Remove conk as soon as you see the conk form to limit production and spread of the fungal spores.
- Because the fungus survives in the soil, planting another palm back in that same location is not recommended. We have no proof that any pre-plant preparations will eliminate the fungus from the soil or ensure a disease-free palm.
- **Internet site for Ganoderma Butt Rot of Palms bulletin:** <http://edis.ifas.ufl.edu/pp100>.

### **Phytophthora Bud Rot**

- The primary cause of Phytophthora Bud Rot in the landscape is *Phytophthora palmivora*.
- This disease causes a terminal bud decay (heart rot), but initial symptoms are the discoloration of the spear leaf (youngest leaf). Spear leaf will rot and is easily removed.
- Very early symptoms on *Washingtonia* spp. is a pale green spear leaf and a general decline in plant growth rate.
- The fungus spreads by spores that may be splashed from plant to plant or by pruning tools. Resting spores that survive in the soil may also cause infections.
- Once the bud is affected, the palm cannot be saved. IF you catch the disease early, before the bud is affected, fungicides specific for *Phytophthora* may be used. Examples are mefenoxam (Subdue Maxx) applied to the bud/canopy or as a soil drench, and fosetyl-Al (Aliette) applied only to the bud/canopy.
- Prevention management strategies include using sanitized pruning tools (Pine-Sol solution); do not severely prune palms; remove diseased palms immediately; plant in well-drained location.

### **Thielaviopsis Bud or Trunk Rot**

- The cause of Thielaviopsis Bud or Trunk Rot is the fungus *Thielaviopsis paradoxa* (old name is *Chalara paradoxa*).
- Symptoms observed depend on where the infection begins, as the fungus can invade the bud, spear leaf, or the trunk. The trunk can be invaded via mechanical damage or natural growth cracks.
- New version of disease: invades trunk just below bud via cut green leaf petiole and inflorescence.
- Infection of the spear leaf results in a black scorched appearance of the emerging frond. The fungus usually moves down the spear leaf to the bud, killing the bud. This results in the crown falling or breaking off.
- Infection of the lower trunk, results in a trunk rot and stem bleeding. The stem bleeding is usually black and gummy. Infected areas are soft and sunken, turning black; eventually the trunk falls over at the point of greatest trunk rot.
- New version of disease: oldest leaves wilt, turn brown first but rest of leaves quickly (within 1-2 months) wilt and turn brown also.

- Death normally occurs, so remove and destroy the palm as soon as the disease is diagnosed. Diagnosis via symptoms, and cross-sections through trunk.
- For bud rot, **IF** caught early, **MAY** see curative control with products containing thiophanate methyl. For new disease, it **MAY** be useful to treat newly cut leaf petioles and inflorescences with copper hydroxide (Kocide) or mancozeb (Dithane) as a preventive measure.
- Disease prevention also includes not using tree spikes, pruning only *dead* leaves and inflorescences, sanitizing pruning tools.

## False Smut

- This is a leaf spot disease of *Phoenix* species caused by the fungus *Graphiola phoenicis*.
- Disease looks similar to potassium (K) deficiency, but signs of fungus (i.e., the fungus itself) are obvious to naked eye. It is not a lethal disease, just unsightly.
- The *Phoenix dactylifera* cultivars Deglet Noor, Zahidi, Medjool are all susceptible – these are what we plant because these are the cultivars used for edible date production in the U.S. *Phoenix* palms are not adapted to sub-tropical Florida!
- Remove infected foliage, **BUT** only after eliminating nutrient deficiencies. The nutrient deficiencies of date palms are far more harmful to the palm than this disease.

## General Concepts

- Disease Diagnosis: Symptoms are the most important clues. Learn the symptoms. Root samples are almost worthless, as there are no primary root diseases of palms in the landscape. Secondary root rot does occur due to poor soil conditions, transplanting, etc., so the environmental conditions must be dealt with to solve the problem.
- Except for False Smut, the common palm diseases in Florida are lethal. Lethal yellowing is the only disease you can prevent or cure with a chemical, and only cure if less than 25% of leaves with symptoms. Bottom line: With most diseases, the palm has to be removed!
- Other possible reasons why a palm may look “sick” include: 1) nutrient deficiency; 2) lightning strikes; 3) power line decline; 4) pre-emergent herbicide damage (even mature palms in the landscape can be effected by herbicides).
- Palms are monocots! A palm stem (trunk) has only one growing point. This is where all growth takes place. In other words, there is only one place where all leaves are formed. Once that growing point is damaged, there will be no more growth and the palm will die.
- Because there are so few controls for palms, concentrate on optimizing cultural management. Spend your money on recommended fertilizers, prune more often and less severely, prune only dead leaves, plant in the proper location, plant palms adapted to your area. Diversify the landscape with hardwoods!
- Nutrient deficiencies and over-pruning palms are the primary problems in the landscape. Over-pruning provides more points of entry for plant pathogens. It contributes to a worsening of nutrient deficiencies.
- Pruning rules: 1) Remove **ONLY** dead or nearly dead leaves. 2) Remove discolored leaves **ONLY** if correct fertilizers are being applied. 3) **NEVER** remove leaves above the horizontal. 4) Cut leaves as close as possible to trunk. 5) Disinfect (sanitize) pruning tools if you suspect you are working in a landscape with diseased palms.