

# PHYTOPHTHORA BUD ROT OF PALMS IN SOUTH FLORIDA

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Diseases caused by *Phytophthora* species on various palms include seedling blights & damping-off; trunk, crown & root rots; leaf spots, blights, & petiole rots; nut drop; & apical, bud, or heart rot followed by death of the plant. This paper covers only *Phytophthora* bud rot of mature palms.

This Fact Sheet was prepared to meet the needs of professional landscape & nursery personnel, property managers, owners, & other interested persons, who invariably request information "in writing" after a diagnosis has been made.

Other fungal species have been reported to cause bud rots in palms, often as secondary infections in the last stages of disease development, just before death. These include *Botryodiplodia*, *Chalara* (*Thielaviopsis*), *Colletotrichum*, & *Fusarium*. Also described below is how to distinguish *Phytophthora* bud rot from other bud-rotting diseases.

## SPECIES AFFECTED

*Phytophthora* bud rot is one of the more common diseases encountered in palms in wet tropical climates. Palm species which are reported to be susceptible to *Phytophthora* are listed in Table I. Other susceptible species are listed in Table II.

## CAUSAL ORGANISM

Probably the most common species of *Phytophthora* causing diseases of palms is *P. palmivora*. Synonyms include *P. faberi* and *P. theobromae*. This is a soil-borne fungus in the water-mold group. It occurs naturally in South Florida, and can be spread in soil, on gardening tools and equipment, on plants, and probably in storm water. The fungus enters the palm through wounds, and causes the disintegration of the bud or growing point at the top of the palm.

Table I. List of palm species reported to be susceptible to *Phytophthora*. (1, 2, 3)

<i>Archontophoenix alexandrae</i>	king Alexander palm
<i>Arenga</i> spp.	Dwarf sugar palm
<i>Borassus flabellifer</i>	Lontar palm
<i>Brahea armata</i>	blue hesper palm
<i>Brahea edulis</i>	Guadalupe palm
<i>Butia capitata</i>	pindo palm
<i>Chamaerops humilis</i>	European fan palm
<i>Carpentaria</i> spp	Carpenteria palm
<i>Chamaedorea elegans</i>	parlor palm
<i>C. erupens</i>	bamboo palm
<i>C. seifrizii</i>	reed palm
<i>Chrysalidocarpus lutescens</i>	areca palm
<i>Coccothrinax argentata</i>	silver palm
<i>C. crinita</i>	old man palm
<i>Cocos nucifera</i>	coconut palm
<i>Elaeis guineensis</i>	African oil palm
<i>Howea forsterana</i>	kentia palm
<i>Livistona rotundifolia</i>	round leaf fan palm
<i>Neodypsis decaryi</i>	triangle palm
<i>Normanbya normanbi</i>	Queensland black
<i>Pinanga insignis</i>	
<i>Phoenix canariensis</i>	Canary Island date
<i>Ptychosperma macarthurii</i>	Macarthur palm
<i>Rhopalostylis</i> spp	shaving brush p.
<i>Roystonea elata</i>	Florida royal palm
<i>R. regia</i>	Cuban royal palm
<i>Sabal</i> spp	Cabbage/palmetto
<i>Syagrus romanzoffiana</i>	queen palm
<i>Trachycarpus fortunei</i>	windmill palm
<i>Trypethinax acanthocoma</i>	spiny fiber palm
<i>Washingtonia filifera</i>	petticoat palm
<i>W. robusta</i>	Washington/Mexican fan palm

Table II. List of species (excluding palms) reported to be susceptible to *Phytophthora*. (1,2,3)

<i>Acer rubrum</i>	red maple
<i>Ardisia</i> spp.	coral- & marl-berry
<i>Beaucarnea recurvata</i>	ponytail palm
<i>Buxus microphylla</i>	little-leaf boxwood
<i>Carica papaya</i>	papaya
<i>Carissa</i> spp	Natal plum
<i>Catharanthus roseus</i>	periwinkle
<i>Cattleya</i> spp	orchid
<i>Citrus aurantium</i>	sour orange
<i>C.x paradisi</i>	grapefruit
<i>C. sinensis</i>	sweet orange
<i>Cornus florida</i>	flowering dogwood
<i>Cucurbita pepo</i>	cucumber
<i>Dieffenbachia</i> spp	dumb-cane
<i>Dracaena reflexa</i>	reflexed dracena
<i>Epipremnum aureum</i>	golden pothos
<i>Ficus benjamina</i>	weeping fig
<i>F. carica</i>	edible fig
<i>Hedera canariensis</i>	Algerian ivy
<i>H. helix</i>	English ivy
<i>Illicium</i> spp	anise
<i>Lagerstroemia indica</i>	crepe myrtle
<i>Liriope</i> spp	lily turf
<i>Morrenia odorata</i>	latex/strangler vine
<i>Peperomia obtusifolius</i>	peperomia
<i>Persea americana</i>	avocado
<i>P. borbonia</i>	red bay
<i>Philodendron scandans</i>	
<i>oxycardium</i>	Philodendron
<i>Photinia</i> spp	redleaf photinia
<i>Pittosporum tobira</i>	mock-orange
<i>Poncirus trifoliata</i>	wild orange
<i>Syzigium paniculatum</i>	brush cherry

## OCCURENCE

*Phytophthora palmivora* is distributed worldwide in tropical and warm temperate regions with high rainfall. The fungus is most active during the warm, moist part of the year. In Florida it shows up in the Spring and Summer, but may also be reported during our cooler, drier Winter, especially at sites where it was active earlier, but not diagnosed until Winter.

## SYMPTOMS AND DIAGNOSIS

By the time the symptoms are noticed, it is probably too late to save the infected palm. However, it is important to diagnose the problem as quickly as possible in order to take steps to save other susceptible palms in the planting.

The symptoms to watch for, in the order in which they usually occur, include the following.

1. the bud only falls over.
2. the bud has a foul odor.
3. the spear-leaf rots at the base, and
4. is easy to pull out.
5. the oldest fronds look OK, even after the bud has rotted.
6. the oldest fronds turn yellow, then brown, then collapse, and finally,
7. they fall off on their own.

If these symptoms are noticed, specimens should be brought to a Plant Disease Diagnostic Clinic for confirmation of the cause. Pull out the spear-leaf or cut off the top of the palm. (The infected plant will die even if you don't cut off the top. Your efforts are aimed at protecting asymptomatic plants.) It is best to bring in the specimen as soon as the symptoms are noticed, because as plants die from any cause, opportunistic organisms may invade the tissues.

This can lead to an incorrect diagnosis of the cause of death.

For a comparison of the symptoms of Phytophthora bud rot with symptoms of other diseases often confused with it, see *In Writing* fact-sheet # 26, "Field diagnosis of diseases of landscape palms." You may wish to pick up a copy at your local Extension office.

### CHEMICAL CONTROL

Earlier published recommendations (3) stated that good control of *Phytophthora* could be accomplished by a soil drench or a foliar spray of appropriate chemicals (see Table III). (Foliar applications will translocate to the roots, and soil drenches will reduce populations of the fungus in the root zone.)

Table III. Chemicals, frequency of application, & method of application recommended for treating *Phytophthora*.

chemical: **Aliette** (fosetyl aluminum).

rate: follow label directions.

frequency: every 3 months for one season.

method of appl: can be applied foliar, root dip, drench, trunk spray or paint, & chemigation.

chemical: **Banrot** (ethazol + thiophanate methyl).

rate: follow label directions.

frequency: 2 applications, 6 months apart.

method of appl: apply as a drench.

chemical: **Subdue** (metalaxyl).

rate: follow label directions.

frequency: 2 applications, 6 months apart.

method of appl: can be applied foliar, root dip, drench, trunk spray, & chemigation.

Since the immediate problem involves the infection & possible death of the bud, thus the whole plant, it would be better to drench the bud & spray the foliage. In addition, all asymptomatic palms in the vicinity should be

treated. The stumps of palms which have not been removed & which are suspected of having died from *Phytophthora* infection should also be treated.

### PREVENTION AND TREATMENT

If you suspect that a palm in your care is infected with Phytophthora, what should you do? And what do you tell the owner? The following suggestions may be useful in treating infected palms and suppressing spread of the pathogen to healthy palms in the vicinity.

1. Submit a specimen to a Plant Disease Diagnostic Clinic for confirmation.
2. Treat palms showing symptoms by spraying the leaves & drenching the bud. Such palms may or may not benefit from treatment.
3. Treat susceptible palms in the landscape.
4. Treat other susceptible species in the landscape.
5. Treat the stumps of palms which have not been removed, & which are suspected of having died of *Phytophthora* infection.
6. Remove infected nursery stock; potted or field plants, as soon as possible.
7. Destroy all above-ground parts of landscape palms killed by *Phytophthora*. Do not chip and do not use as a mulch.
8. Do not leave dead palms in the landscape. This could result in spread of the spores.
9. Any palms later transplanted to the site should be treated to suppress infection through roots damaged in transplanting.
10. Re-treat all plants as in Table III.
11. Avoid injury to the trunks or roots of all palms.

### Selected References

1. Alfieri, S.A., Jr., et al.. 1994. *Diseases and disorders of plants in Florida*. Bull. no. 14. Florida Dept. Agriculture and Consumer Ser.. 1114 pp.
2. Chase, A. R., and T. K. Broschat. (eds.). 1991. *Diseases and disorders of ornamental palms*. American Phytopath. Soc. Press, St. Paul. pp 21-24.
3. Meerow, A.W.. 1994. *Betrock's guide to landscape palms*. Betrock Information Systems, Hollywood, Florida. pp 129 & 133.

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The inclusion or exclusion of trade-named products in this publication is not an endorsement of particular products over other equally-effective products not mentioned. Trade-names are used to simplify information.  
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### *In Writing*

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