



# Landscape Notes

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The Palm Disease and Disorder Issue

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## Landscape Entomology Symposium—WE STILL HAVE ROOM!

Due to underwhelming turnout (despite a great program) I have extended the cutoff date for the Landscape Entomology Symposium coming up June 17 at the Saticoy Country Club. We have great speakers on the latest landscape insect problems, 6.5 PCA and 5 arborist CEU hours, great food for a reasonable registration cost of \$65.00. If you want to attend the meeting give me a call at 805-645-1458 or mail your registration fee with a check made out to UC REGENTS to Jim Downer, University of California Cooperative Extension, 669 County Square Drive, suite 100, Ventura CA 93003.

## Palm Disease Note

Palms are being increasingly planted in Southern California landscapes as accent and specimen plantings. In many ways, palms are the signature trees of Southern California landscapes and are used to create the Mediterranean, tropical and subtropical “look”. Over the last ten years, dramatic, increased use of Queen palms (*Syagrus rommanzoffiana*) and both the Canary Island date palm (*Phoenix canariensis*) and the date palm (*Phoenix dactylifera*) have flooded landscapes with newly planted palms. Palms, like all plants are susceptible to various biotic and abiotic disease problems. With all the increased planting, we are starting to see more and more problems with palms in the landscape. The intense demand for palms has led to mass production of them in the desert areas of California, along the coast and in the inland valleys. These nursery or field grown plants are then sold and shipped everywhere from Las Vegas, Nevada to San Francisco or used locally near the area of production. Although palms tolerate a wide range of growing conditions, their acclimatization from one area to another is taken for granted, often leading to problems during the establishment phase of their growth. This is the first in a series of discussions on important palm diseases in Southern California.

## Fusarium Wilt or NOT??

Fusarium wilt is one of the most destructive palm diseases in California landscapes. It results in the death of *Phoenix canariensis*, is incurable and easily spread by common pruning practices. Since *P. canariensis* palms are large and often require a crane to install, the cost of removal and replacement (with a non-susceptible species) is exorbitant. The disease is widespread, affecting palms in landscapes wherever *P. canariensis* is grown and the density of diseased individuals seems to be increasing. Since a single Canary Island Date palm can cost over \$10,000, this disease is taken quite seriously. Recent articles have appeared in many Southern California newspapers (many of these with misinformation about the disease) and the disease was recently featured on many network television channels as well as the Cable News Network. Big palms mean big money and big losses when they get sick--and this is news!

The disease was first identified in California by Feather, Ohr and Munnecke (1979) and later further characterized by the same group of researchers (Feather et al. 1989). There has been no further substantive research on the problem in California. Feather et al. showed that the disease is transmitted mechanically by pruning equipment and that the pathogen (*Fusarium oxysporum* f.sp. *canariensis*) can infect and cause disease in the date palm. They also showed that the disease can occur in hot inland valleys and desert regions such as Anza Borego as well as in coastal landscapes. Feather et al. (1979) further defined a disease complex between *Gliocladium vermoeseni* and *F. oxysporum* occurring particularly in coastal landscapes where the pink rot pathogen (*G. vermoeseni*) is prevalent. The main outcome of Feather and others work was that we learned that the disease is both soil and pruning equipment borne, that it is fatal and that fungicides were ineffective. Little has changed since these conclusions were drawn. Trees continue to die and there is no effective therapy for diseased trees.

For managers of Canary Island date palms, angst is severe when contemplating the diagnosis of *Fusarium* wilt. For many years plant pathologists and consultants have coached clientele to look for one-sided frond death as a symptom of the disease. *Fusarium* infected trees typically display this symptom and it has been very diagnostic. However, in a recent consultation, I examined fronds of Canary Island Date palms displaying one sided wilt without the presence of *Fusarium*. It is essential that preliminary diagnoses are verified by isolation and identification of the fungus from infected plant material.

There are other shoot blights and stalk rots reported in the literature caused by *Diplodia phoenicum* (Farr et al., 1995). Also, infection of the base of the fronds by *Gliocladium vermoeseni* can cause similar one-sided frond death and vascular discoloration. In my recent examination of one-sided frond death in Canary Island date palms I isolated *Dothiorella* spp. and observed the same fungus later fruiting on the samples. This has been a particularly abundant year for *Dothiorella* caused diseases and it comes as no surprise that this fungus is hosted by *Phoenix*.

Although infection by *Dothiorella* or *Fusarium* can produce identical one-sided death symptoms (fig. 1a,b), there are differences which are obvious on closer inspection. When slicing through the rachis of the frond, *Fusarium* infected samples will show browning in scattered vascular bundles—the overall look is a slight browning of the otherwise white tissue. *Dothiorella* causes a severe browning of all the cortical tissues including the xylem elements giving a broad band of dark tissue (fig. 2). If the samples are retained in a moist cool place, they may form fruiting bodies (pycnidia) that erupt through the epidermis of the rachis (fig. 3). Microscopic examination of the fruiting bodies and spores will confirm the diagnosis.

These observations are of course preliminary, and I will be looking at a lot more palms in the near future as well as conducting experiments on pathogenicity of *Dothiorella* on *Phoenix*. The main point is that diagnosticians should be cautious about diagnosing *Fusarium* wilt solely on the basis of one-sided frond death symptoms and vascular discoloration.

## References

- Farr, D.F., Bills, G.F. Chamuris, G.P. and Rossman, A.Y. 1995. Fungi on plants and plant products in the United States. American Phytopathological Soc. St. Paul MN.
- Feather, T.V., Ohr, H.D. and Munnecke, D.E. 1979. Wilt and dieback of canary island palm in California. California Agriculture 33:19-20.
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Figure 1a *Dothiorella*



Figure 1b Fusarium Wilt



Figure 2. Vascular browning of *Dothiorella* infection.  
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Figure 3. Pycnidia of *Dothiorella*