Cooperative Extension University of California Ventura County

# Landscape Notes

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## ORGANIC AMENDMENTS AND MULCHES FOR PALMS: MULCHING VS. AMENDING

Mulching is an accepted practice for the establishment of woody plants in landscaping. Mulching is the practice of laying a surface covering over soils in which desirable plants are growing. Mulch can be any material: organic materials such as wood chips and composts; or mulches can be composed of rock, plastic or even rubber tires. Even sidewalks of concrete and asphalt surfaces of roads can be considered mulches for tree roots. Mulch retards the loss of moisture from the soil surface and prevents the germination of weeds that compete with desired tree plantings. There is general agreement that mulches are beneficial to establishment of young shade trees (Harris et. al., 2004); however, the effect of mulches on the establishment of landscape palms is less understood .

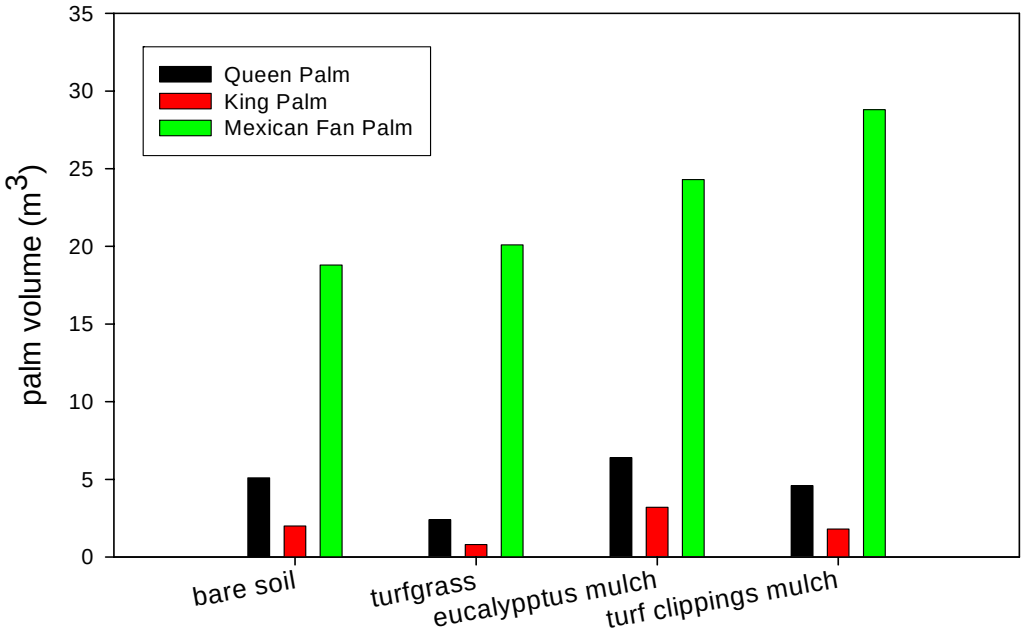
Don Hodel, Farm Advisor, Los Angeles County, and myself conducted experiments in Ventura starting in 1993 to investigate the effects of mulching three palm species, Queen palm (*Syagrus romanzoffiana*) King Palm (*Archontophoenix cunninghammiana*) and Mexican fan palm (*Washingtonia robusta*). The findings of our work were later published (Downer and Hodel, 2001) and a summary of those findings follows.

We chose to study palm species that were typical of the types planted in Southern California landscapes and were both easy and difficult to transplant. Mulch treatments were selected to enhance or possibly detract from palm growth. The treatments were: bare soil; living turfgrass (tall fescue); Eucalyptus chip mulch (from *Sideroxylon rosea*) and tall fescue clippings mulch. For initial treatment, tall fescue mulch was obtained from a local sod farm. As tall fescue turf grew in one set of plots and established, it was eventually clipped and used as mulch for the turf clippings mulched plots. Our goal was to compare mulch that matched the nutritional needs of palms (grass clippings mulch) with a mulch of much lower nitrogen and potassium content (eucalyptus mulch). Since many palms are planted in lawns, we also included the turf plots which are extracting nitrogen, potassium and water as well as competing with the palms planted with them.

The most dramatic effect of our study was the relative growth rates of the different species of palms. Mexican fan palms grew fastest, then queen palms and lastly, king palms (see Fig. 1). Although mulches benefited queen and king palms slightly, neither mulch was a significantly better stimulator, suggesting that the nutrients supplied in turf clippings mulch were not necessary. It was very clear that turfgrass retarded the growth of king and queen palms. King palms were very difficult to establish. This was in part due to their culture in nurseries where they are grown in over 70% shade. When planted to full sun in the landscape, king palms lose most of their “shade” leaves, severely stressing the trees. In mulched plots, there were no losses of king palms; however, in unmulched (bare soil) plots two king palms died and in turfgrass plots three king palms died. Turfgrass also significantly reduced the number of leaves and basal caliper of king and queen palms.

We concluded from this study that mulches are generally beneficial for the establishment of palms, and that turfgrass (tall fescue) retards palm establishment. Mexican fan palms grew fast and established well in turfgrass despite its competition for water and nutrients. Mulches do not seem to significantly stimulate the already fast growth of Mexican fan palms, although the trend was toward larger trees with turfgrass clippings mulch.

Figure 1. Size of palms as affected by mulch




**NOTE:**

**Full color photos and graphs may be clearly seen within this newsletter available on line at http://ceventura.ucdavis.edu**

Another practice that is often preached but has little scientific merit is the amending of planting holes with organic materials. Although commonly held to be a valuable practice, incorporation of organic composts in tree planting holes has rarely benefited shade trees (Harris et al., 2004). The effects of amending palm planting holes is considered necessary by many horticulturists but the evidence suggesting that palms benefit from amendments is lacking in the scientific literature.

We conducted an amendment study on five species of palms: *Washingtonia robusta, Trachycarpus fortunei, Syagrus rommanozoffiana, Chamaerops humilis and Archotophoenix cunninghamiana.* We planted one gallon containers of each palm in Irvine, CA in a gravely loam soil. Into each planting hole we incorporated the following: no amendment, just native backfill; 25%composted bark in the backfill, or 50% composted bark in the backfill.

After one year of growth, none of the amended palms were larger, or of better quality than the unamended palms. We showed no advantage to the incorporation of amendment into the backfill of these palms.

Some palms may benefit from mulching during their early establishment in landscapes while none of the palms we studied benefited by amending the soil. As with shade tree culture, it is better to keep the organic materials on the surface, while planting palms directly into the native soil backfill.

References

Downer, J. and D. Hodel. 2001. The effects of mulching on establishment of *Syagrus romanzoffiana*(Cham.)Becc., *Washingtonia robusta* H.Wendl. and *Archontophoenix cunninghamiana* (H.Wendl.)&Drude in the landscape. Scientia Hort. 87:85-92.

Harris, R.W., Matheny, N. and J. Clark. 2004. Arboriculture care of trees shrubs and vines in the landscape. Prentice Hall, Inc. Upper Saddle River, NJ.

## *Dendroconos Valens*: The Red Turpentine Beetle

This may be the year before the big flood in California, but so far, we are in a drought! During times of drought, coniferous trees especially pines become susceptible to attack from beetles. I have seen an increasing number of Monterey pines and Canary Island pines attacked by bark beetles this year. As a prelude to engraver beetle attacks we often see attack by the red turpentine beetle. The presence of red turpentine beetles is easy to detect from the accumulation of reddish white granular frass at the base of the tree. Also in evidence are pitch tubes that exude from the bark near the base of the tree.


Although red turpentine beetles are not serious pests, and most trees can withstand attack from a few beetles, they are a harbinger of disaster in many cases. The fact that red turpentine beetles have successfully attacked a pine, indicate that it is in a state of low vigor and likely to be attacked by the more dangerous five spined engraver beetles (*Ips paraconfusus*). Red turpentine beetle is multi generational and can complete several life cycles each year. Pitch tubes are usually seen on the lower 8 feet of trunk and especially at the base of the tree near the root collar area. (See photo at right).

In general, bark beetles can be prevented by maintaining a high moisture content in the wood of pines and by reducing competition between trees by limiting planting density (taking out excess trees). For high value trees, trunk sprays of pesticides (see Pest Note 7421) are very effective protectants. Once beetles are in the tree, they are impossible to control. Injected insecticides do not work.

Pine bark beetles have reached epidemic populations in our local mountains resulting in massive die off of Jeffrey and ponderosa pine. Since most Southern California landscapes are well irrigated, we have not seen the epidemic numbers of beetles witnessed in mountain forests; however, we should be alert to the presence of beetles in urban landscapes and take measures to prevent their damage where possible. (See References for this article on next page).

*Note: These photos may be clearly seen in full color at our website: http://ceventura.ucdavis.edu*

Red Turpentine Beetle (Photo by Jack Kelly Clark)
Pitch Tubes (Photo by Jack Kelly Clark)

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# Landscape Notes

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Environmental Horticulture Advisor

## Oaks in Urban Landscapes II Symposium

October 28, 2004, 7:30 – 4:30 pm
The Arboretum of Los Angeles County
Ayres Hall, Arcadia, California

*Get registration form and symposium details on-line at http://ceventura.ucdavis.edu*
or call: Jim Downer at 805) 645-1458 or Jill Berry at 626) 821-4624

We have applied for 6.5 CEU hrs. for arborists and 3.5 hrs. for PCA and PCO license holders.

**References:**

Dreistadt, S.H. 2004. Pests of Landscape Trees and Shrubs: An integrated Pest Management Guide, 2nd ed. University of California Agriculture and Natural Resources Publication 3359.

Dreistadt, S.H., D.L. Dahlsten, and T.D. Paine 2004. Bark Beetles University of California Agriculture and Natural Resources Pest Note #7421. (http://www.ipm.ucdavis.edu/PMG/PESTNOTES/pn7421.html)