



Landscape Notes

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Ventura College Horticulture Program Provides Useful Spring Classes

Don't forget to take advantage of all the useful courses offered at Ventura College this spring. The college is looking for ways to cut funding and the Horticulture program could be in serious trouble if enrollment numbers continue to decline. This spring the college has new instructors teaching Plant Identification, Landscape Management, Landscape Construction, and Landscape Design and Plant Propagation. Be sure to check on-line for new listings that were not printed in the spring schedule of classes. I have been working with (now retired) professor Don Rodrigues to improve the quality of the classes offered at the college and I am hoping that you will consider taking a class at VC this spring. Don will be calling together an ad-hoc advisory committee to help devise ways to support the VC horticulture program (call me if interested in the advisory committee 645-1458.) If you are interested in helping to strengthen the VC horticultural and agricultural programs by attending a night class, please call Ventura College at 805-654-6400 or visit their web site at www.venturacollege.edu

Palm tree Management, Part I: selecting the right palm.

(This article is the first of a multi part series)

Jim Downer and Donald R. Hodel

How do we properly plant palms in landscapes? Is it different than the way we plant shade trees? Perhaps. Like most landscape plants palms can be planted quite young as seedlings from small (1-gallon) containers or as large specimens that were field grown or nursery grown in large boxes. Increasingly specimen palms are moved into landscapes as mature transplants directly from one site to another. Palms are arborescent monocotyledonous plants and grow differently than woody shrubs and trees. They have different root and meristem systems that require some specialized knowledge for their handling and planting. Like all plants they have the same response to flooded soils, compaction and lack of water—they die.

Single stemmed palms are anatomically rather simple. The more complicated multiple trunk palms are similar except that they have shoot-forming buds at their base. The typical single stemmed palm such as *Washingtonia robusta* has two main meristematic areas; 1) the shoot apical meristem or terminal bud that forms leaves and trunk and the root initiation zone at the base of the stem that forms roots. Once a palm forms its trunk, the tissues are fully formed and cannot be changed. Unlike shade trees and other woody vascular plants, palms have no vascular cambium. Their stems do not enlarge throughout their lifetimes and they have no ability to form wound tissue over injuries. There is only one terminal bud per trunk so if it is injured, that stem or the entire plant for a single stemmed palm will be damaged or killed.

Proper planting of palms in landscapes involves: informed selection of a healthy plant; site modification; planting hole preparation; and after-planting care. The first step in a successful landscape palm planting is to select healthy, suitable palms for the site. The other issues will be addressed in future articles. Proper selection involves several criteria, some of which may not be obvious. As in selecting other plants it is desirable to

choose disease and insect free palms and palms free from other defects. This issue of Landscape Notes provides guidelines for selecting the right palm for Southern California landscapes.

Arthropod Pests

Although palms are relatively insect pest free, as with all ornamental plants, more insects are being discovered on California palms every year. The majority of these are sucking insects in the order Homoptera. This order includes the scales, mealybugs and aphids. Insects in the order Homoptera suck plant sap and can be quite damaging, although in most palms the damage is usually slight. Figure 1a is of *Cerataphis palmarum* an aphid quite common on many species of palm; another kind of aphid common to landscape palms is depicted in fig 4. (*Cerataphis brasiliensis*). Figure 1b is of the coconut mealybug also common on king palms and other species. Figure 1c depicts a new mealybug found on palms, especially king palms (*Nipaecoccus* spp.) There is also a soft brown scale (*Coccus hesperidum*) that is quite common on many species (figure 5). Ants are usually associated with these pests. Reject or carefully scrutinize any specimens that ants inhabit.

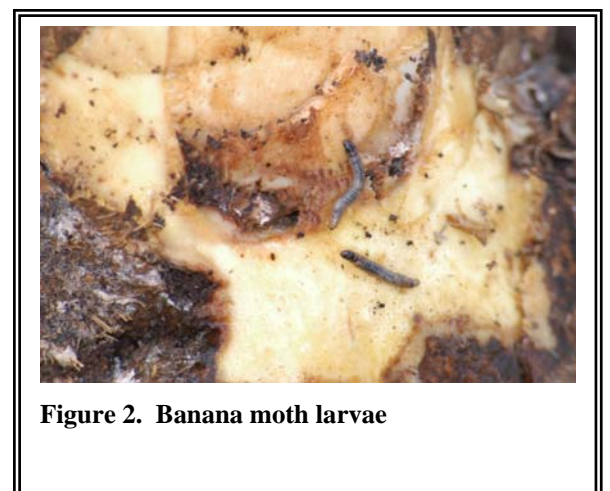
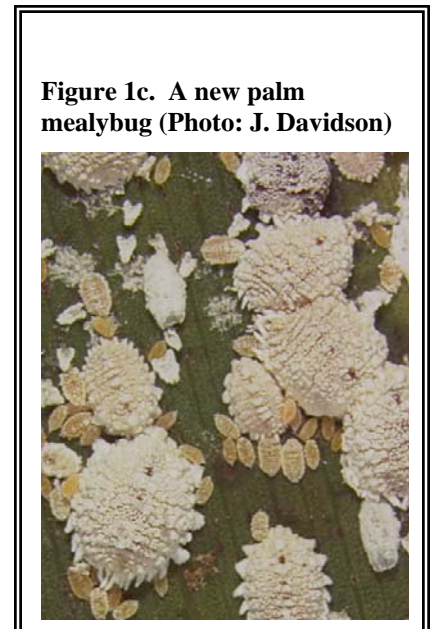
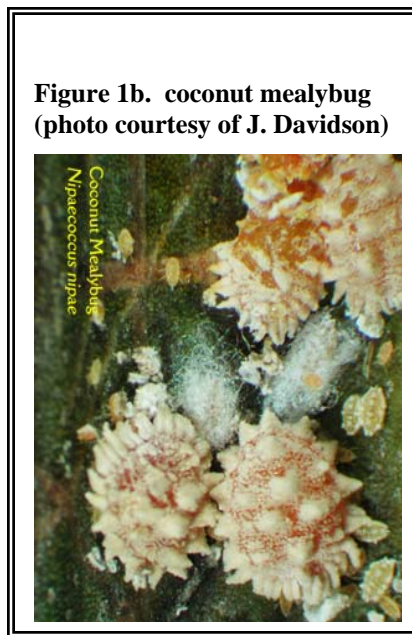




Figure4. palm aphid (photo courtesy of D. Hodel)



Figure 5. Soft brown scale on palm (photo courtesy of D. Hodel)

Banana Moth

The banana moth is a Lepidoptera whose larvae feed in the root initiation zone and lower stem of queen palms (*Syagrus rommanzoffiana*) damaging and severing roots (figure 2). Occasionally seen on larger palms in the landscape, it prefers to attack nursery stock. It can cause enough damage that the main stem will topple over (Figure 3). Stem failure can happen with no apparent foliar symptoms. Palms require relatively few vascular bundles to maintain green color. Be sure to inspect the lower trunk of queen palms to avoid those infested with banana moth.

Diseases

Selecting palms free of disease is an obvious selection criteria, yet may not be easily attainable. Some diseases like pink rot are common and easily diagnosed (see Landscape Notes Vol. 17 No.2). Others like diamond scale occur only on *Washingtonia* and although easily detected and debilitating are not tree killers (LN Vol. 17 No1). One of the most destructive diseases to landscape palms is Fusarium Wilt and primarily affects palms in the *Phoenix* genus. When the disease is in full progression its symptoms are obvious (LN Vol.17 No1). Palms showing symptoms of Fusarium Wilt should be rejected. For a complete listing of palm diseases see the Compendium of Ornamental Palm Diseases and Disorders published by the American Phytopathological Society Press.

Skinny trunk

There is a tendency among growers to space palms closely in the field in order to promote rapid growth. Overcrowding produces a palm with a very thin trunk that lacks adequate strength. I have seen this in plantings of queen palms and Mexican fan palms. Because the demand is great and inventories are low, landscape clientele often accept these palms and plant them in landscapes. The result is palm trunk failures. The trunk is not able to withstand even slight winds and will break. Rapidly grown, “skinny” palms should be avoided. I have seen failures that occurred in the landscape even before the palms could establish (Figure 6). Drying that causes

shrinkage and buckling inside the main stem may have caused this failure. In other cases, the palm does not fail but will continue to grow and produce a stem that increases to its normal diameter above the abnormally slender portion. If the trunk grown at the nursery was very narrow, the new larger stem will cause a failure at a later date when its weight exceeds the ability of the skinny stem below to support it. Just as with shade trees, palms should have tapered trunks. Lack of taper or “hour-glassing” along the upper stem may indicate a palm lacking sufficient trunk strength to survive landscape wind conditions.

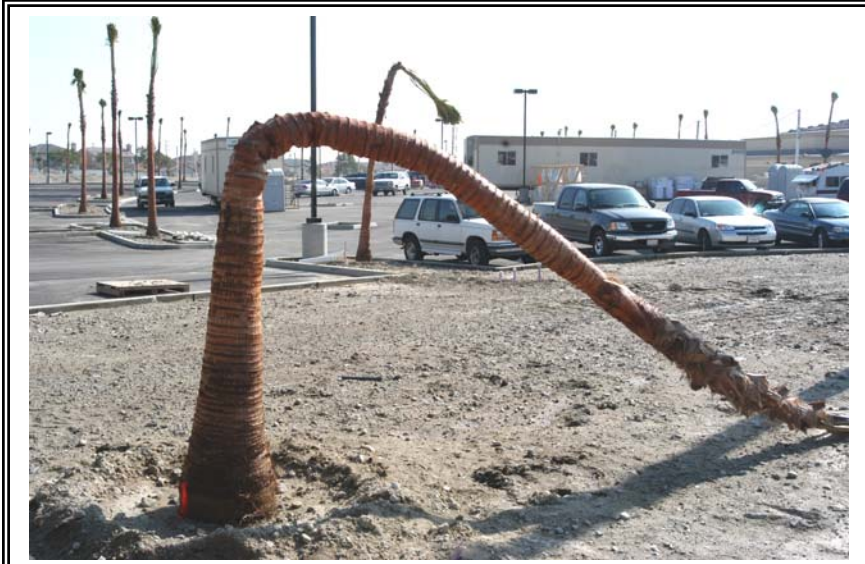


Figure 6. Trunk buckling and failure in *Washingtonia* spp.

Frequently, palm stems are wounded in transport or handling at the nursery or on the landscape site. It is important to remember that because palms have no vascular cambium, they cannot “heal” wounds on their trunks. Blemishes, marks, scrapes etc. will be there forever or worse will be the entry site for rots caused by fungi. Trunk rots caused by *Gliocladium vermoesenei* are particularly devastating to king palm (*Archontophoenix cunninghamiana*). In palms like the king palm that have clasping leaf bases, it is important not to remove leaves prematurely. Early leaf removal from king palms often leaves a tear at the base of the frond attachment where pink rot can enter and cause trunk

decay. Pruning saws used to remove fruit and flowers can also cause wounds on palms, and when tree spikes are used to climb palms. While the wounds created by use of these tools are often justified by tree and nursery workers, it is not necessary to purchase specimen landscape palms that have been wounded in this way. Inspect for such damage and reject them before purchase.

Nutrient deficiencies

Palms are susceptible to nutrient deficiencies as are all plants. Queen palms and date palms (members of the genus *Phoenix*) are the most frequently deficient palms seen in landscapes. Although not typically a problem with nursery-grown stock, sometimes a large nursery grown palm will suffer from nutrient deficiency. Since the most common nutrient deficiencies are macronutrients, they show symptoms on old leaves. Macronutrients are mobile in the plant and will be drawn from old foliage to supply emerging fronds. Therefore it is important not to remove fronds prematurely that may be showing deficiency symptoms. Magnesium and potassium deficiency are the most commonly seen in landscape specimens. The symptoms are seen as a generalized yellowing of older leaves (Fig. 7). Sometimes potassium deficient leaves have yellow stippling or flecking. Avoid purchase of palms with deficiencies, as they cannot be corrected in the older leaves. The only way to get a healthy set of leaves is to grow out leaves that have enough mineral nutrition to maintain their green color. On large specimens it may take many months to over a year to grow out of a macronutrient deficiency completely. Only select palms with adequately green older foliage.

Root Systems

Unlike shade trees, palms do not have a complicated system of highly branched roots. Palm roots originate from the root initiation zone and are fibrous, not woody. Palm roots have no secondary growth. There is no vascular cambium in palms. Thus palms do not have the classic root defects experienced in shade trees. Kinked and girdled roots are not a problem. Also, palms are almost never too root bound when container grown. It is important that palms have healthy roots. They should be light colored and actively growing. Do not select a palm with dried soft roots, rotten roots, or one lacking sufficient roots to maintain the top. Palm

roots have vesicular/arbuscular mycorrhizae associated with them and certainly these fungi play an important role in nutrient acquisition for most palms. There is not much information about the efficacy of mycorrhizal products for palm culture. Although some palms are slow to establish or difficult to transplant, there is no direct evidence that these problems are primarily related to failures of palm mycorrhizae systems. Further research is necessary in this area.

Although roots of most landscape palms commonly grown in Southern California will branch or resprout after cutting (Pittenger et al., 2004), cut roots will not resprout if they desiccate. Proper post-harvest handling of large transplanted palms is critical to their proper establishment in landscapes. It is important that root balls arrive on the job site intact and in a moist state; otherwise the trees should be rejected. Bare root palms should be highly suspect, as their roots will be subject to the greatest drying stress (Figure 8).

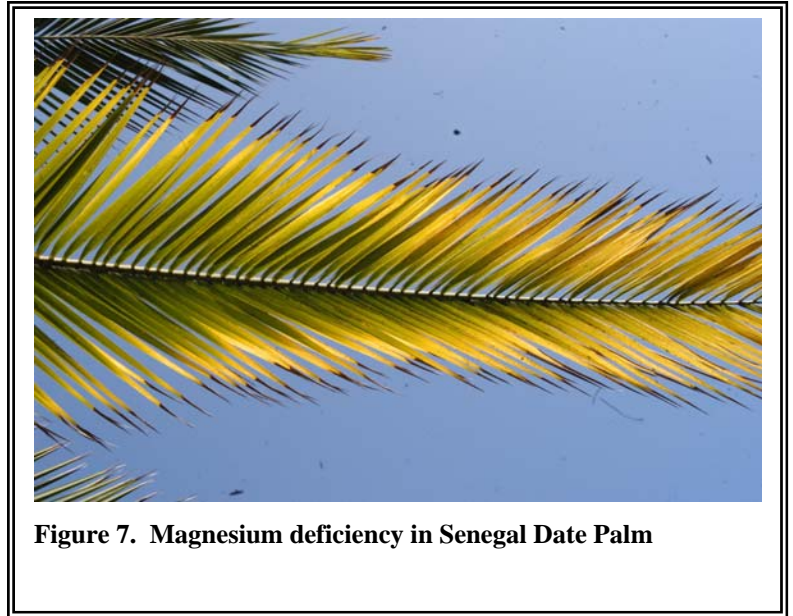


Figure 7. Magnesium deficiency in Senegal Date Palm



Figure 8. Palm in bare root condition

Plant Adaptations

Always select trees adapted to the climate you want to plant them in. Southern California is a Mediterranean climate and due to our moderate temperatures we can grow many kinds of palms in most of our landscapes. However, in hot (and cold) inland valleys some palms may be unsuitable. Palms are found in many climates of the world and the tropical species require much more humidity and do not tolerate freezing temperatures and long cool winters. Coconut palms, royal palms, and other tropical species, while attractive and tempting are not suited to Southern California landscapes.

Trachycarpus, *Washingtonia*, *Brahea*, *Butea*, and some *Phoenix* are nearly bomb

proof and tolerate the occasional freezing weather and low temperatures in the 20°F range.

When selecting palms large or small, look for vigorous well-formed plants free of defects, pests, and diseases. Getting off to a good start will prevent maintenance headaches later.

References:

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