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# Transplanting Large Palms

KEN PFALZGRAF

*P.O. Box 12478, Las Vegas, NV 89112 USA*

Relocating large palms demands appropriate sized equipment, trained staff, and respect for the delicate nature of the palm crown.

Moving large, established palms inevitably means severing live roots. Until an adequate root system redevelops, a palm must sustain itself on water and starch stored in its stem. Simply put, successful mature palm relocation is a race between root re-establishment and stem storage depletion. Eliminating stress prior to transplanting has a direct influence on success rates.

The first step in moving a palm is pruning the roots, either mechanically or manually. The root ball is dug 26–60 cm (10–24 in.) from the trunk. The second step is lifting the palm out of the ground with hoisting equipment. The hoisting equipment varies from cranes in urban salvage sites to front-end loaders affixed with pipe booms in field sites (Fig. 1). Undersized equipment may have difficulty in lifting large specimens, with resulting rough handling and possible stem fracture. The irrigation furrows in field nurseries and groves may also present a fracture hazard if the loader operator is apathetic or unaware of the impact of sudden jolts on the palm crown.

Dead or damaged roots are likely sites for pathogen activity and should be shaved from the root ball. A rounded, sharpened shovel is commonly used. Likewise, inflorescences and in-fructescences must be removed, as they divert water and nutrients from root regeneration. Leaves are either completely removed (as in *Sabal palmetto*) or bundled and tied (as in *Phoenix dactylifera*).

Large palms are usually moved on flat bed trucks. Desiccation of the crown at highway speeds will be lessened by covering the load with shade cloth. Water must be applied to the root ball every few hours, so that the root ball does not dry out completely. Once again, the fragile nature of the crown makes it a likely candidate for

fracture should the road be rough and the crown left unsupported. Survival is enhanced when palms are dug, transported, and installed without delay.

Holes should be excavated and back fill prepared before the palms arrive at the site in order to prevent lengthy delays leading to additional crane charges and root ball desiccation. The palms are positioned in the planting holes and back fill is added to the hole. The root ball should be buried at the same depth at which the palm was growing. Palm root balls are sometimes buried too deeply in an attempt to achieve a uniform installation; however, the urge to bury the rootball too deeply may be curbed by realizing that columnar uniformity, having been addressed by the Romans some time past, can hardly be considered a design innovation.

With the palm set at the proper grade and back filled, it is watered and staked (when necessary). Staking should avoid wounding the stem. In applying water to the soil, we must remember that we are not providing water to the palm (it is relying on stored water). We are simply creating a zone in which roots can re-establish. Too much water encourages the development of air-carrying roots at the expense of nutrient-carrying roots. Too little water hinders root growth. Potentiometer readings at several root zone depths are invaluable in maintaining the proper moisture level. The crown should be untied only after roots begin to regrow.

## Post-transplant Problems

1. Root regrowth is noted, but upon untying the leaves, the juvenile portion of the crown falls to one side. Likely cause: crown fracture during removal, transport, or installation. Although the palm may recover, the risk of pathogen infection is high and the fracture site will inevitably be visible as a constricted area in the trunk.

2. Roots fail to develop, and the crown begins



1. A pair of *Phoenix dactylifera* is hoisted as a single specimen, using a boom on a front-end loader.

to die from the bottom (oldest leaves) up. Likely cause: storage reserve depletion, insufficient water and starch. The palms are too small or under stress prior to relocation.

3. Several juvenile leaves near the spear wither and die, with the remaining leaves appearing healthy. Likely cause: Transplanting damage to water conducting tissue of the developing leaves. This kind of damage may be seasonal, occurring when palms are moved while actively growing. Fortunately, the damage is not life-threatening.

4. Lower leaves collapse while still green, leaves in the middle of the crown die below developing inflorescences, but younger leaves appear healthy. Likely cause: emergent inflorescences aborting and decaying in the crown. Decay in the crown is serious, and the dead inflorescences should be removed immediately. A copper-based fungicide should be applied to the affected area.

Moving large palms is an activity best left to professionals. With proper care before, during, and after relocation, even large palms can be successfully transplanted, giving clients the appearance of an established landscape in a very short time.