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ENH1204

Hurricane-Damaged Palms in the Landscape: Care after the Storm[1]

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While many palm species are adapted to windstorms, a hurricane can damage even the most tolerant palms. This publication provides suggestions about what to do after a windstorm has occurred once it is safe to venture outside to care for the landscape.

It is important to understand how a palm grows. The growing point of a palm is the apical meristem, often referred to as the palm bud or palm heart. It is located at the top of the trunk, surrounded by the leaf bases. All new leaves come from this bud. If the bud is severely damaged, new leaves fail to develop, and the palm eventually dies.

Unless the palm trunk is broken or it is otherwise obvious that the bud has been damaged, there is no way to predict which palms will survive wind damage and which ones will not, as the bud is not visible or accessible for inspection. However, it is apparent after several years of hurricanes in Florida that certain palm species are more tolerant of high winds than others. The native sabal palm (*Sabal palmetto*) and royal palm (*Roystonea regia*) both tend to survive high winds, but in very different ways. While sabal palms lose very few leaves, royal palms (which have a crownshaft) shed most of their leaves.

The following are some suggestions on caring for palms after a hurricane. **The main point to note (and inform clientele) is that it will be at least 6 months (and probably longer) before it is apparent that a palm will recover.**

Recovery consists of new leaves emerging from the bud. In some cases, the new leaves will not look normal—they may be abnormally shaped and/or shorter than normal, or the leaflets or leaf segments may have necrotic (dead tissue) edges. However, over time, each successive new leaf should appear a little more normal until eventually, normal leaves appear. Again, this takes time, so patience is required. It is recommended to monitor damaged palms carefully during the next 1–2 years.

It is also important to understand that because of the storm, people are examining their landscape more closely than they probably did before the storm. Thus, they may not realize that the palms had problems (such as nutrient deficiencies—see http://edis.ifas.ufl.edu/ep273) *prior to* the storm. The challenge is to determine which problems existed before the storm (and address them accordingly) as opposed to those that developed because of the storm.

Broken Palms

If the trunk of a single-stemmed palm is broken, it should be cut at the base and removed. It will not recover. However, a clustering palm has a lateral meristem at the soil line. Thus, new stems will emerge, and the palm should recover in most cases. Cut the broken stems as close to the soil line as possible. If possible, the stumps of single-stem palms should be removed or ground up. If the stumps are left in place, they should be monitored for *Ganoderma zonatum*

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conk (shelf-like mushroom) development. As soon as a conk starts to form, it should be removed, placed in a bag and the bag placed in garbage that will be incinerated or buried. The fungus is not harmful to people or pets, but it may kill the other palms in the landscape if it spreads. See *Ganoderma Butt Rot of Palms* (http://edis.ifas.ufl.edu/pp100).

Uprooted Palms

Palms should be stood upright as soon as possible and replanted at the same depth at which they were planted previously. Bracing is necessary and should be kept in place for at least 6 months. These "replanted" palms should be treated as if they were being installed for the first time. **Thus, water management is the most important component of a management program in the first 6 months.** The root zone should be irrigated as necessary during the re-establishment period. Refer to *Transplanting Palms in the Landscape* (http://edis.ifas.ufl.edu/ep001) for more information about caring for transplanted palms.

Leaf Removal

If the broken leaves are still green, it is recommended to leave them attached, as they will provide photosynthetic capability for the palm as it recovers. However, if only a few leaves are broken, then removing these leaves (and only these leaves) may be acceptable. See *Pruning Palms* (http://edis.ifas.ufl.edu/ep443) for more information about how to remove palm leaves.

Fertilization

For palms that are not uprooted, maintain the same fertilization program that was in place prior to the storm. For replanted palms, no extra fertilizer should be applied to the root zone until the palm exhibits new growth (i.e., new leaves). This will take a month or longer in many cases. There is no known benefit to applying a micronutrient spray to the canopy, and it may be harmful if applied incorrectly. See *Fertilization of Field-Grown and Landscape Palms in Florida* (http://edis.ifas.ufl.edu/ep261) for more information about proper fertilization of landscape palms.

Fungicides

There is no research to document the benefits of using fungicides after a hurricane. The theory behind this common recommendation is that if the apical meristem (bud) has been damaged, then it is possible that fungal pathogens (primarily *Phytophthora* or *Thielaviopsis*) or secondary bacterial pathogens may become established in the bud and cause a bud rot (see *Bud Rot of Palm* [http://edis.ifas.ufl.edu/pp144]). The only chemical pesticides that may have an effect on both fungi and bacteria are copper-based fungicides (not copper nutrient sprays). These fungicides should be applied as a drench to the bud, not to the soil, as these fungicides do not translocate from the soil to the bud area where they are needed.

All fungicides must be used in accordance with the label. Do **NOT** mix fungicides together or with a nutrient spray unless the label indicates it is safe to do so. There is no research to indicate copper-based fungicides will help wind-damaged palms, but they probably will not hurt the palm if used according to the label. The normal recommendation is not to use copper-based fungicides more than twice because they are not prone to degradation in the environment.

Based on observations from previous hurricane seasons, it is obvious that many palms, especially native palm species, survive windstorms without any fungicide applications. Thus, it may be best to reserve fungicide use for those palms that are highly valuable or severely damaged.

Yellow New Leaves Immediately after the Storm

Although this phenomenon has been observed on other palms, it is most commonly seen on royal palms. The youngest leaf of a palm is the spear leaf, which is actually an unopened leaf. It is normally upright (ramrod straight) in the center of the canopy. Under normal circumstances, it opens slowly from the tip to the leaf base. As each portion of the leaf expands, it becomes the normal color associated with mature leaves. In a windstorm, it is not uncommon for this spear leaf to be forced open prematurely. If this occurs, the leaf appears chlorotic (pale green or yellow) because it was not fully developed. Typically, these leaves assume a normal green color after a few days. As stated previously, as long as the bud (from which all subsequent new leaves emerge) is not damaged, the palm will produce a new canopy to replace the one that was lost in the hurricane. It will take at least a year (and usually longer) for the entire canopy to be replaced.

Soluble Salts in the Soil

If the landscape has been flooded with salt water, the salts from evaporated or percolated salt water can cause serious injury to many species of palm. This is especially true if the salt water remains on the landscape for more than a few hours, or if there is no significant rainfall after the salt water

recedes. In the latter case, it may help to heavily leach the soil around palms with fresh water as soon as possible. Salt injury typically causes tip necrosis on leaves throughout the canopy. See *Physiological Disorders of Landscape Palms* (http://edis.ifas.ufl.edu/ep263) for more information about soil-soluble salt injury.