

## Treating Cold-Damaged Palms<sup>1</sup>

Alan W. Meerow<sup>2</sup>

Cold weather slows down the growth of palms, reduces the activity of the roots, and often weakens the plant to the point where a disease can become active and kill the palm. Severe cold damage from frost or freezing temperatures destroy plant tissues and may severely reduce water conduction in the trunk for years. Often the only above-ground portion of a cold-damaged palm that is still alive is the protected bud. As warmer weather returns, primary or secondary plant pathogens often attack weakened plants through damaged tissue.



**Figure 1.** Severe cold damage.

### Possible Preventative Action

The secondary plant pathogens that cause death of the bud soon after freeze damage are, in most cases, bacteria that are present on healthy palm tissue at low levels, but become a problem only after the damage is received. Consequently, there may be value in applying a preventative spray of fungicidal copper **before** freezing temperatures are reached in order to reduce these bacteria populations to the lowest levels possible. This strategy has not been tested, however, under controlled conditions.

It is evident that palm tissue deficient in one or more essential plant nutrients is less tolerant of exposure to freezing temperatures. Thus, it is important that palms receive a balanced fertilization in late summer or early fall to insure that foliar nutrient levels are near optimum as winter approaches.

### Protecting the Damaged Palm While Waiting for Warm Weather

To avoid attacks by primary or secondary plant pathogens, it is important that steps be taken to insure protection of the healthy bud until active growth resumes.

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  2. Alan W. Meerow, associate professor, Palm and Tropical Ornamentals Specialist, Environmental Horticulture Department, Ft. Lauderdale Agricultural Research and Education Center (AREC), Cooperative Extension Service, Institute of Food and Agricultural Sciences, University of Florida, Gainesville FL 32611.

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Remove the cold-damaged portion of the leaves. Leaves should not be completely removed if they are green (even if they are spotted from the cold). The green intact portions of the palm are important to assure adequate photosynthesis during the recovery stage.

### Disease Control

1. Immediately after pruning, spray the palms with a fungicide containing copper at the recommended rate. **The use of fungicide is recommended only for palms not bearing edible fruit.** Include a spreader sticker.
2. Repeat the copper spray 10 days after the first treatment or use another broad spectrum fungicide. Contact your county agent for current fungicide recommendations. In all cases, these sprays must cover the damaged tissue and healthy bud thoroughly. Copper sprays should not be repeated more than twice because of the possibility of copper phytotoxicity.
3. Palms growing in containers may benefit from a soil drench of fungicides that suppress root diseases. Contact your county agent for current recommendations of available fungicide formulations.
4. Occasionally, cold damage is so severe or disease has already progressed to the point where the spear leaf becomes loose and pulls out easily. With these palms, there is still a chance of recovery if the meristem (growth point) is alive. To treat these palms, remove as much dead and decaying material from around the bud as possible so it can dry out. Drench with a copper fungicide in the bud using the force of the sprayer to clean out the bud as much as possible. Follow up ten days later.

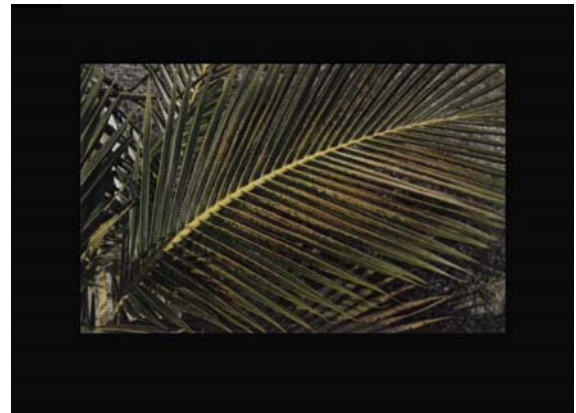
### Nutrients

Warmer weather promotes rapid growth and this helps the palms recover. After the two initial sprays, a monthly application of soluble nutrients should be applied to the leaves. The following formulation has been tested by the Institute of Food and Agricultural Sciences. Other products containing similar nutrients should work equally as well:

- 1/4 to 1/2 teaspoon per gallon S.T.E.M.® (Peter's Soluble Trace Element Mix) Spreader sticker

### Cryptic Cold Damage

Palms that were severely damaged during the winter should be watched carefully during the subsequent spring and summer seasons. Damage to embryonic leaves within the bud may not show up until those leaves emerge (as much as six months to one year after the freeze). If leaves emerging during the spring and summer months appear deformed, partially, browned or otherwise abnormal, this may be indicative of this type of damage. In most cases, the palm will grow out of this later in the season.



**Figure 2.** deformed, partially, browned or otherwise abnormal.

Freeze damage to conducting tissue in the trunk may limit the ability of the palm to supply water to the canopy of leaves. Unlike typical broad-leafed trees, palms have no ability to regenerate conducting tissue in the trunk. Sudden collapse of some (or even all) of the leaves in the crown during the first periods of high temperature in the spring or summer after a winter freeze may indicate that this type of trunk damage has occurred. Unfortunately, there is nothing that can be done to remedy this, and loss of the palm will be inevitable.

### Conclusion

The above steps will help reduce loss from cold damage and speed up recovery. Nutrient sprays should continue into the summer if the plants are young or newly established in the landscape. Older palms will benefit from a soil application of a

granular palm fertilizer in the spring that is repeated every three to four months.