

PALM TRUNK SAMPLING for PHYTOPLASMA and FUNGAL PATHOGEN DETECTION

Lethal Yellowing and Lethal Bronzing (aka Texas Phoenix Palm Decline), Fusarium Wilt, and Thielaviopsis

Call and talk with a diagnostician at the lab BEFORE you collect a sample for submission if you are not familiar with the process. The diagnostician will recommend the appropriate type of sample and tests based on your description of the palm and its decline. We recommend sending a photo of the palm to PDC@IFAS.UFL.EDU for best results.

The UF-IFAS PDC uses sawdust collected from the interior tissue of the trunk of palm trees to both test for the presence of DNA of palm phytoplasmas and culture for *Thielaviopsis* and *Fusarium*. You will need the following materials and tools to collect your sawdust sample:

- Portable electric drill with 10in long x 5/16in diameter drill bit; longer is better for *Phoenix* palms
- Clean, self-sealable plastic freezer bags
- Bottle of water
- Golf tees to fill the hole made by the drill bit
- Hammer to tap golf tee into hole
- Portable torch or other method to sterilize the drill bit between trees

TRUNK SAMPLING PROTOCOL

Sample prior to OTC injections!

1) Obtain trunk sample

- First, flame sterilize drill bit by running and twisting it slowly through a propane torch flame to remove debris/DNA on its surface.
- Allow bit to cool by squirting with water.
- Drill a hole into the trunk of the palm. Bore the hole lower on the trunk for cosmetic considerations. Remove at least 2 tablespoons of interior wood shavings from the hole. Do not include pseudobark tissue. Do not touch the shavings with your hands as this can contaminate the sample. See picture.
- For Phoenix palms, drill past the old leaf bases to obtain trunk tissue.
- Avoid discolored (reddish-brown) shavings that are decaying. Decayed samples are less reliable. Do not sample dead palms.
- Label the bags of shavings with site/palm name, date, and location.



2) Surface sterilization of drill bit

---After obtaining the shavings from the trunk, rinse the drill bit with water to remove debris.

---Flame-sterilize with a torch and cool with another squirt of water. This must be done before boring a hole in another palm trunk to avoid cross-contaminating tissue samples and potentially spreading disease.

3) Sealing the hole

---Insert a golf tee or wooden dowel into the sample hole and tap it flush to the trunk with a hammer. This should seal the hole and prevent copious sap bleeding while preventing penetration of pests or other unwanted potential pathogens.

4) Pooling of samples

---If you would like to pool multiple samples (up to 10) into one sample for one result, we still request that you take individual palm samples in separate bags. We will subsample from the samples you submit. We can then discuss testing samples individually if you have a positive result from the pooled sample. We will keep the samples separate for additional testing so no resampling is necessary.

IDENTIFICATION OF CONCH
(Ganoderma Butt Rot of Palms)

The UF-IFAS PDC can identify the fruiting body (conch) collected from the trunk of the palm tree to confirm the disease. The conch should be at least 4" across and carefully broken off the trunk to ensure the conch is mature enough to identify and that there is enough material. Place the conch into a paper bag for shipment. Do not use a plastic bag or add wet paper towels, etc.. Dr. Braham Dhillon's program can identify smaller conchs; contact him directly for more information on testing for Ganoderma from immature conchs or potentially from sawdust: <https://flrec.ifas.ufl.edu/faculty/dr-braham-dhillon>.

GENERAL SAMPLE SUBMISSION GUIDELINES

- 1) Do not add water or pack a sample that is wet.
- 2) Keep samples refrigerated after collection until they are submitted. Ship within 24 hours of collection, but do not ship on Friday. After collecting good samples, do not ruin them by allowing them to bake in the sun or on the back seat of a car prior to submission. DO NOT FREEZE samples.
- 3) All samples must be accompanied by a completed [Palm Sample Submission Form](#). Give complete information on the form and KEEP THE FORM SEPARATE FROM THE SAMPLE. Limit sample information to one (1) sample per form. You are encouraged to include all relevant information.

- 4) Remember to note the age of the planting, symptoms, and recent pesticide and fertilizer history on the sample submission accompanying the sample.
- 5) Do not ship samples on Friday. Mail samples early in the week to avoid the weekend layover in the post office. We recommend overnight shipping via courier with tracking services only. It is important for the sample to arrive within 2 days of collection.

PRICING

- \$80 PCR for detection of palm phytoplasmas (LY, LB) AND culturing for *Thielaviopsis* and *Fusarium*
---sample type: sawdust
- \$60 PCR for detection of palm phytoplasmas only
---sample type: sawdust
- \$40 Culturing for *Fusarium* and *Thielaviopsis* only (*Fusarium* detection would need to have follow-up PCR to confirm palm wilt subspecies, an additional \$50)
---sample type: sawdust
- \$40 Identification of conch for *Ganoderma*
---sample type: mushroom/conch, at least 4" across
- \$150 Pool up to 10 sample, PCR for palm phytoplasmas only; one result for the whole batch
---sample type: sawdust, each palm in its own individual bag; the lab will subsample and pool upon receipt