

GROWING PALMS

Horticultural and practical advice for the enthusiast

Edited by Randy Moore

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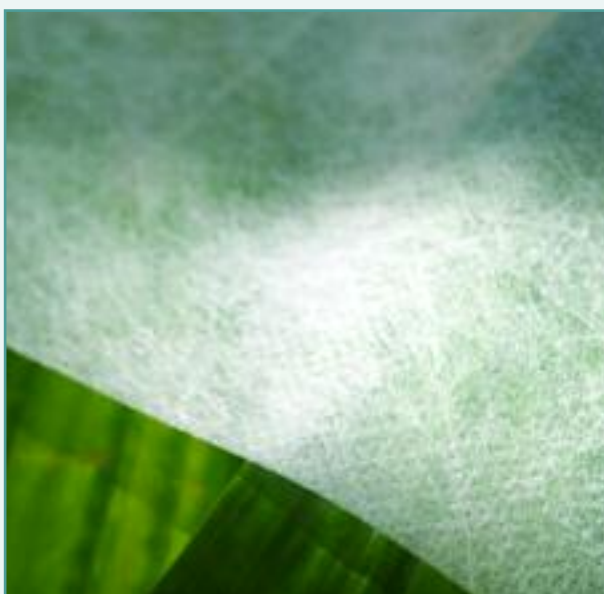
Frost Protection

Many palms are grown in the subtropical climatic zones where there are typically several mid-winter overnight frosts. Many species of cultivated palm can withstand some prolonged cold but are severely damaged by frost. Frost protection can be provided naturally, by the canopy of an overhead tree, or it can be achieved by the overhanging eaves of a nearby structure. Some palm growers will also construct temporary frost protection structures by building a free-standing frame covered with burlap or plastic.

A relatively new horticultural product makes frost protection more effective, affordable and practical. Frost protection blanketing material is manufactured using durable, light-weight non-woven spun polypropylene materials (Fig. 1). Agribon+™ is made by PGI Nonwovens, Inc. (www.agribon.com), and AgriFabric is manufactured by American AgriFabrics of Alpharetta, Georgia (no web site). Frost protection cloth, also known as horticultural fleece, is sold in varying widths (generally from 10 to 30 ft [ca. 3 to 9 m]) and roll lengths (from 100 to 500 ft [30.5 to 152 m]). The wider material is usually sold on shorter rolls. Various weights (thickness) of material are sold. The weights range from 0.5 oz [14 g] to 2.0 oz [57 g] per square yard [0.84 m].

Heavier weights provide greater frost protection and are more costly. For example, a 1.5 oz frost blanket provides about 6–8°F [ca. 4°C] of extra protection below the frost point. The heaviest 2.0 oz blanket can give 8°F [4.4°C] of protection below the frost point. Therefore, if the frost point is 34°F [1.1°C], a 1.5 oz blanket can provide protection down to 26–28°F [ca. -2.8°C].

The ground, especially where exposed to sun, acts as a heat sink, trapping heat during the day and releasing it at night.



1. Close-up of the semi-transparent frost protection material.

Frost protection blankets trap the heat that is released overnight. If the weather has been chilly and overcast for several days, the effectiveness of the frost protection blanket will be impaired by the lack of necessary ground heat.

An advantage of the new frost protection cloth over other materials, particularly plastic sheeting, is its ability to transmit light and allow for air circulation. A 0.5 oz cover will allow for 85% light transmission; 1 oz. transmits 70% light; 1.5 oz transmits 50% and 2.0 oz transmits 30%. Thus, greater frost protection is accompanied by increased light filtration. With many other traditional cover materials, one must remove them each day to allow for air and light transmission. The new material can remain on the palm for the entire cold spell without damage. Once frost warnings have been lifted, the blanket can be removed and stored. The material is durable and reusable.



2. Installation of protective blanket over a frost-tender palm using nursery pots as the tie down device.

Because the material is very light, it can be applied as a floating cover without the need of a supporting structure. The material needs to be tied down to protect against breezes removing the easily lifted cloth. Ground staples, weighted nursery pots (Fig. 2) or mounds of soil are commonly used anchoring devices.

Most local horticultural suppliers can order a roll of frost protection blanketing material from the manufacturer. It can also be ordered through some of the catalog/online horticultural supply houses such as A.M. Leonard (www.amleo.com). For just a few dollars, you can help protect your most precious palms each winter. – Reviewed by Donald Martin, Valley Center, California, USA 🌴

Palm Collection Databases

A Palm Collection Database can be used by a private display garden to maintain a separate record on each individual palm in the collection. The record can include information on the acquisition, planting, maturation and disposal of every palm. The information can be stored as text and photographs. It can also extend to include maps of the garden and the location of palms in the collection, created with Microsoft Paint.

Why develop a Palm Collection Database unless you are a botanical garden or commercial nursery? When used properly, the Database will provide you with a wealth of knowledge about your palm collection and horticultural practices. Complete information can be kept in an organized and paperless manner. Information about any facet (or combination of factors) can be efficiently retrieved and sorted.

There are no standards for what constitutes a Palm Collection Database for the display garden. In general, it should provide documentation on the entire collection. Since palms are unique from other collected plants (e.g., orchids, cycads, etc.) so are the data contained within each record. This uniqueness is also what makes developing a Palm Collection Database a challenging endeavor. Some of the nomenclature, characteristics and horticultural practices, singularly or in combination, are complicated and relevant only to palms.

Botanical databases can range from simplistic to highly complex and comprehensive. For example, some collectors are satisfied maintaining a simple genus/species listing of their collection on a spreadsheet in Microsoft Excel or Word. They might see little value in having detailed documentation on each palm. Conversely, others see great use in recording and organizing this information so that it can be readily used.

The Montgomery Botanical Center (MBC) in Miami, Florida maintains one of the world's most complete botanical databases. It is used to document MBC's population-based collection of palms and cycads. It uses a database program called BG-Base and a mapping program called BG-Map. The ambitious goal of the database is to provide a detailed record of the life cycle and environmental history of each plant in its living collection. Records are maintained on 25,000 living plants representing 1,100 taxa. The complete inventory is updated each year by collecting new data on about 2,500 plants a month. The database also includes an extensive image database of plant growth and development, reproduction, horticultural and natural disasters.

Microsoft Office Access Database Management Program

There are several advantages to using Microsoft® Office Access 2003 database management application to develop the Palm Collection Database. It is commonly included with Microsoft Office (Word, Excel and PowerPoint) and operates with these other programs. The acquisition cost is about \$200.00. The user interface, while complex by the standards of the other programs in Microsoft Office, is relatively easy to use by non-professional software developers. Importantly, Access has a large user base that insures its continuity, steady updating and upgrading.

The use of Access is mainly appropriate for smaller display gardens not actively involved in botanical research. The trade-off for its ease of use is its limitations in complex record-storage situations where data validation and security are an issue. It has difficulty handling very large databases (over 2 GB), many simultaneous multi-user networking environments and multiple program interfaces (including use with web-based applications). It is best when used in a straightforward single-user, stand-alone situation.

Botanic Gardens Conservation International (www.bgci.org.uk) has developed an Access template designed to provide a database for its member botanical gardens. BG-Recorder 2 is a template that can be downloaded by BGCI members at no cost. The template can then be modified (with a few restrictions) to suit individual needs.

Several other commercial database programs have been developed for managing plant collections. A large number of these programs appear to be oriented toward tracking orchid collections. For example, My Orchids 2.0 (www.orchidtalk.com) is a highly usable and comprehensive database program designed specifically for orchid collectors. While it could be used by a palm collector, much of it is oriented toward blooming, hybridization and other factors that are important to orchid growers but secondary to palms.

PALM COLLECTION DATABASE

A Palm Collection Database has been developed for the members of the International Palm Society. It is oriented towards the needs of private collectors developing display gardens. The database template is divided into three main groups that follow the normal palm collection cycle (Fig. 1):



1. The main switchboard (menu) for the Palm Collection Database. Each item leads to a submenu for adding, maintaining or removing palms from the collection.

Level 1 – Palm Acquisition (identification, sourcing and planting)

Level 2 – Palm Maintenance (fertilization, treatments, and reproduction)

Level 3 – Palm Disposition (sale, death or exchange)

Level 1 – Palm Acquisition.

There are three main activities associated with adding a new palm to the collection. First, the palm is identified by assigning it a unique code number and scientific name. Second, the sourcing information for the palm is recorded. Third, the palm's physical location is given within the display garden.

Palm Identification:

Accession Number: The accession number is automatically assigned as a sequential whole number. This number acts as the primary key that uniquely identifies the specific palm within the collection.

Family: Of course, for purposes of developing a Palm Collection Database, the family *Palmae* is used. However, the PCD is not restrictive, and other plant families can be entered.

Genera: A standardized list of palm genera can be created and stored within the template. Intergeneric hybrid names can also be entered.

The screenshot shows a window titled "Palm Planting" with a form containing the following data:

Accession No.	6
Genera	Dypris
Species	ambouliae
Planting Location	Dry Tropics Golden
Planting Date	4/15/2005
Planting Size	1 Gallon
Planting Notes	Amended backfill with Whitney Farms Uncle Malcom planting mix. Drenched with SuperThrive. Keep constantly moist.

Species Name: The species name is indicated. This can include complications arising from species hybrids, subspecies, variants and cultivars.

Other Names: The vernacular (common) name and any synonymous names can also be entered.

Acquisition Information:

Source: The source of the palm (usually a commercial nursery or fellow collector). A list of usual sources can be developed in a table that is linked to this field.

2. The acquisition of the new palm into the collection is entered into the database. The new palm is identified, then the acquisition and location data are recorded.

Date: The date that the palm was acquired.

Cost: The acquisition cost of the palm.

Size: The initial size of the palm from a standard list: seedling, 4 inch liner, 1 gallon, 2/3 gallon, 5 gallon, 15 gallon, 24 inch box, 36 inch box or specimen.

Condition: The general condition of the palm.

Planting Location (Fig. 2):

Location: The specific garden location is based upon a standardized list developed specifically for your particular display garden. In addition to being field planted in the garden, this record could also include the greenhouse, shadehouse, full sun nursery, conservatory, etc.

Date: The date the palm was planted.

Size: The planted size of the palm from a standard list: seedling, 4 inch liner, 1 gallon, 2/3 gallon, 5 gallon, 15 gallon, 24 inch box, 36 inch box or specimen.

Notes: Any horticultural notes related to the planting of this palm.

Level 2 – Palm Maintenance

Once the palm has been placed into the collection, the database can then be used to record the horticultural practices necessary to its maintenance. The horticultural activities that are covered are: fertilization, growth, treatments and reproduction (Fig. 3).

Fertilization Regimen:

Type: Granular, soluble, foliar, and time release period.

Brand: The fertilizer brand name and manufacturer.

Date: The date of the last application.

Interval: The date (or number of days) to repeat application.

Supplements: Any additives to the regular fertilizer regimen. For example, sea kelp, growth stimulants, fish emulsion, etc.

Notes: Specific notes on the application rate, palm reaction such as burning, etc.

Growth Record:

Measurement Date: This recording may be done periodically – possibly annually at the end of the growing season.

Growth Recording: Palms are commonly measured in centimeters from the ground to the growing point or meristem.

Notes: This field could include notes regarding climatic conditions (e.g., precipitation, wind, frosts) which impede/promote growth, damage caused by natural disasters (e.g., blow-over, fallen limbs, flooding) or errors in horticultural practices (e.g., over-pruning, irrigation problems, etc.)

Pest/Disease Treatments:

Pest/Disease: Separately records the most common pests and diseases encountered by this palm.

Treatment: Separately records the insecticide, miticide or fungicide used for treating the pests and diseases.

Interval: The recommended interval for repeat preventative treatment.

Adjuvant: Any spray stickers, markers or PH adjustment which was used in conjunction with the pesticide or fungicide.

Notes: The success of knockdown with the indicated treatment and subsequent reoccurrence.

Pruning Notes: Leaf removal for appearance, disease, damage, reduction of transpiration during transplanting, etc.

Reproductive Information:

Sex: Male, female, hermaphrodite.

First Flower: The date the palm reached maturity with its first flower.

Flowering Frequency: How often does the palm produce flowers?

Time to Maturity: The time from flowering until the harvesting of ripe fruit.

Germination Percentage: What is the likelihood of germination based upon past experience? This record provides an indication of seed viability.

Germination Time: The time from sowing to sprouting.

Level 3 – Palm Disposition

The removal of the palm from the living collection can occur in several different ways. The methods of disposition of a palm covered are: fertilization, growth, treatments and reproduction (Fig. 4).

Disposition from Collection:

Date: When the palm was removed from the living collection.

Accession	6
Genus	Dysois
Species	ambosiniae
Fertilizer Type/Brand	Apo: Palm Plus
Last Fertilize Date	6/30/2005
Fertilization Interval	90
Fertilizer Supplements	Custom Organic Mix
Fertilization Note	Refreshed mulch - Corazon Forest Mulch on 6/30/05

3. Information on the maintenance of an existing palm in the collection is recorded. The fertilization record for a palm is shown.

Size: The final size of the palm from a standard list: seedling, 4 inch liner, 1 gallon, 2/3 gallon, 5 gallon, 15 gallon, 24 inch box, 36 inch box or specimen.

Cause: Removal of the palm may be due to sale, death or exchange.

Sale or Exchange: Buyer's Name: The name of the person acquiring the palm.

Sale: Price: The sale price.

Death: Reason: The cause of death, if known.

Exchange: Plants: The palm(s) or other items received in exchange.

Customized Reporting

The Microsoft Access program allows the user to organize and format reports by extracting the stored data (Fig. 5). A report "wizard" in Access automates the process of selecting the data fields, sorting the data and formatting the reports. Queries are used to retrieve data based on specific criteria. For example, the collector can quickly create a customized report that only includes palms acquired from a particular nursery during the past year, and sorted in order genus (primary sort) and species (secondary sort), with the acquisition size and cost and garden location.



4. A palm is removed from the living collection due to its sale, death or exchange. In this example, a palm has died due to gopher damage.

Genus	Species	Acquisition Date	Acquisition Cost	Acquisition Size	Acquisition Location
Elaeis	Elaeis	11/1/2004	1.00	4 inch	Conservatory
Roystonea	Roystonea	11/1/2004	1.00	4 inch	Conservatory
Livistona	Livistona	11/1/2004	1.00	4 inch	Conservatory
...

5. A sample customized report generated in Access from data stored in the Palm Collection Database. In this case, the tropical palm collection located in the Conservatory is listed by Genus and Species.

Most hobbyists will not have a need to record all of this information for every palm in the collection. With the exception of the Accession Number, which serves as the unique identifying key for each palm in the database, all of the other fields are optional.

Members of the International Palm Society can receive a free copy of the Palm Collection Database by e-mail. The database requires 1.32 MB of disk space and a recent version of Microsoft Office Access. Send your request to Randal.Moore@cox.net. – Randal J. Moore, Poway, California USA 🌴

Submit an article!

Members are encouraged to submit articles for the “Growing Palms” section to Randal J. Moore, Growing Palms Editor, at Randal.Moore@cox.net.