

# PALM TREES IN EGYPT

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# INTRODUCTION

## In Egypt,

- There are 13 palm species belonging to eight genera.
- Palms grow naturally or cultivated in all coastal & inland desert regions and the Nile Valley & Delta (Amer and Zahran, 1999).

## Here, I will present a review of :

- The naturally growing and cultivated palms in Egypt
- The different locations of date palm cultivation in Egypt
- The different varieties of date palm in Egypt
- Diseases and insects of date palm in Egypt
- The production and the needs of date palm in Egypt

# NATURALLY GROWING PALMS

- Three genera, each represented with one species:
  - *Hyphaenae thebaica* (L.) Mart. (Dom-palm)
  - *Medemia argun* (Martius) Wurrtemberg ex H. A. Wendland (Argune-palm)
  - *Phoenix dactylifera* L. (date-palm). (Amer and Zahran, 1999)

# *Hyphaenae thebaica* (L.) Mart. (Dom-palm) I

- The only representative species of the genus *Hyphaenae* sp. in Egypt
- In the ancient texts , it was mentioned under name Mana (divided into two)  
(Amer and Zahran, 1999)
- Dom fruits dating back to different ancient periods were excavated from different localities:

<b>Localities</b>	Wadi Kubbanya (northwest of Aswan)	Hierakonopols (Kôm el-Ahmar)	Thebes Tomb	Anna's Tomb	Abu Shaar&Red Sea Coast	South Sinai
<b>Period</b>	18.300 years ago	Predynastic (3500 BC)	18 <sup>th</sup> dynasty	New Kingdom	Roman time	Islamic period
<b>References</b>	Reviewed in: Amer and Zahran, (1999)					

# *Hyphaenae thebaica* (L.) Mart. (Dom-palm) II

- Nowadays, it is naturally growing in the southern sections of :The Eastern Desert, the Western Desert and Sinai Peninsula. (Tackholm, 1974; Boulos, 1995).
- Cultivated and fruiting in some gardens of Cairo (Amer and Zahran, 1999).
- Uses:
  - The trunk:  
Posts, beams, doors, water pipes and furniture.
  - Leaves and stalks:  
Roofing, baskets, bags and rope making.
  - Fruits:  
Edible and is used in folk medicine (Manniche, 1989).



Source of the photo:  
[http://en.wikipedia.org/wiki/Doum\\_palm](http://en.wikipedia.org/wiki/Doum_palm)

# *Medemia argun* (Martius) Wurrtemberg ex H. A. Wendland (Argune-palm) I

- Argune palm fruits dating back to different ancient periods were excavated from different localities:

<b>Localities</b>	Saqqara Tombs	Lahun, Fayum	Dier El Madina	Thebes
<b>Period</b>	5 <sup>th</sup> dynasty	12 <sup>th</sup> dynsaty	18 <sup>th</sup> dynasty	6-7 <sup>th</sup> century
<b>References</b>	Reviewed in: Amer and Zahran, (1999)			



# *Medemia argun* (Martius) Wurrtemberg ex H.A. Wendland (Argune-palm) II

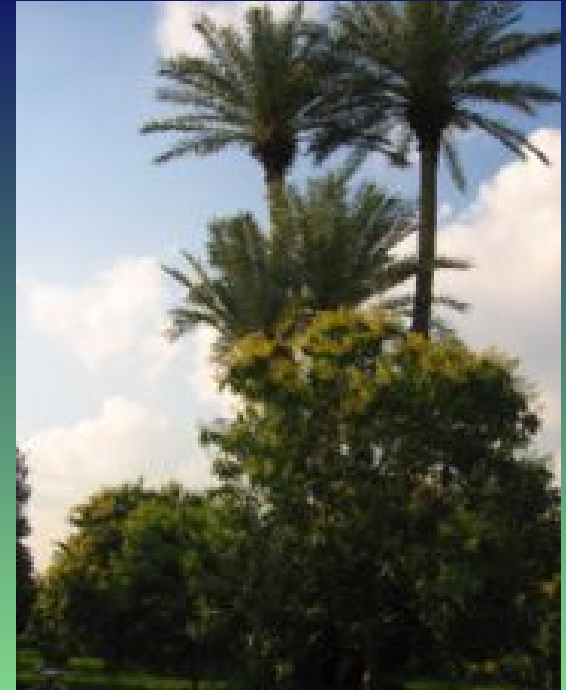
- It is naturally growing in: Dungi Oasis (220 km South West of Aswan) and Nakhila Oasis (200 km West of Aswan) (Tackholm and Drar, 1950; Zahran, 1966; Boulos, 1968; Gibbons and Spanner, 1996).
- **Now**, it is almost extinct in Egypt, there is only one palm in Dungi Oasis of the Nubian desert (Amer and Zahran, 1999).
- **Uses:**
  - The trunk:  
Posts, beams, doors, water pipes and furniture.
  - Leaves and stalks:  
Rope making.
  - Fruits:  
Edible (Amer and Zahran, 1999).



# *Phoenix dactylifera* L. (date-palm)

Naturally growing in:

- The Oasis of the Western Desert.
- Sinai Peninsula
- Wadies of the Eastern Desert
- Red Sea Coast (Amer and Zahran, 1999).





# CULTIVATED PALMS

## ➤ Introduced palms

18 palm species were introduced to Egypt from Mohammed Ali time (1805) (Ahmed, 1979). Only eight feather and two fan palm species succeeded to grow (Amer and Zahran, 1999).

## ➤ Native palms

- *Phoenix dactylifera* L.

# **INTRODUCED PALMS**

# FEATHER PALMS

# *Syagrus romanzoffianum* (formerly *Arecastrum romanzoffianum* Raf., *Cocos plumosa*) Queen Palm

Introduced from Brazil for ornamental purpose.



Source of the photos:

1- <http://fr.gardening.eu/plantes/Arbres/Arecastrum-romanzoffianum/87/>

2- <http://floridagardener.com/pom/queenpalm.htm>

# *Cocos nucifera* L. (Coconut palm)

Introduced for its fruit usage



Source of the photos:

1. <http://www.dipbot.unict.it/Les%20Palmiers/Descr01.html>
2. <http://www.hear.org/starr/hiplants>



## *Elaeis guineensis* Jaque. (Oil palm)

Introduced from west tropical Africa for its fruit oil.



Source of the photos: [http://en.wikipedia.org/wiki/Oil\\_palm](http://en.wikipedia.org/wiki/Oil_palm)



## *Oreodoxa regia* H.B.&K. (Royal palm)

Introduced from Cuba for ornamental purpose



Source of the photo:

[http://www.rarexoticseeds.com/Trees\\_Palms\\_Shrubs/Graines\\_Roystonea\\_Regia\\_Seeds\\_Oreodoxa\\_Regia\\_Roystonea\\_Elata\\_Royal\\_Palm\\_Seeds.html](http://www.rarexoticseeds.com/Trees_Palms_Shrubs/Graines_Roystonea_Regia_Seeds_Oreodoxa_Regia_Roystonea_Elata_Royal_Palm_Seeds.html)

## ***Phoenix canariensis* Hort. Ex Chabaud (Canary palm)**

Introduced from Canary Island for ornamental purpose.



Source of the photos: [http://fr.wikipedia.org/wiki/Phoenix\\_canariensis](http://fr.wikipedia.org/wiki/Phoenix_canariensis)



## ***Phoenix loureirii* Kunth. (Loureiro's Date Palm )**

Introduced from China for ornamental purpose.



Source of the photos: <http://www.pacsoa.org.au/palms/Phoenix/loureirii.html>



## *Phoenix roebelenii* O'Brien (Pygmy Date Palm)

Introduced from Burma for ornamental purpose.



Source of the photos: [http://en.wikimedia.org/wiki/Phoenix roebelenii](http://en.wikimedia.org/wiki/Phoenix_roebelenii)



## *Phoenix reclinata* Jaq. (wild date palm )

Introduced from Sudan for ornamental purpose.



Source of the photos: [http://common.wikipedia.org/wiki/Phoenix\\_reclinata](http://common.wikipedia.org/wiki/Phoenix_reclinata)

# FAN PALMS



## ***Washingtonia robusta* Wendl. (Mexican washingtonia)**

Introduced from Mexico for ornamental purpose.



Source of the photo: [http://fr.wikipedia.org/wiki/Washingtonia\\_robusta](http://fr.wikipedia.org/wiki/Washingtonia_robusta).

***Washingtonia filifera* (L. Linden) H. Wendl. (American washingtonia)**

Introduced from USA for ornamental purpose.



Source of the photo: [http://fr.wikipedia.org/wiki/Image:Washingtonia filifera in Palm Canyon.jpg](http://fr.wikipedia.org/wiki/Image:Washingtonia_filifera_in_Palm_Canyon.jpg)

# **NATIVE PALMS**

## ***Phoenix dactylifera* L. (date-palm)**

- In Egypt, date palm tree is the most ancient tree (Bircher, 1990), agricultural operations on date palm, are known at least since 2500 AC.
- Its plantation is spread out all over Egypt where irrigated agriculture is possible (Amer and Zahran, 1999).
- There are more than 27 cultivars produce different types of dates (Amer and Zahran, 1999).
- There are 14 millions trees, occupy 73.653000 feddans, represent 6.32 % of the fruit cultivated area in Egypt (F.A.O., 2002).
- The annual production of dates: 1.113.270 million tons (13.91 % of the Egyptian fruit production) (F.A.O., 2002).

## The locations of Date palm cultivation I

- **The Nile delta:**  
There is one third of the productive date palm in Egypt (2,000,000 trees). In this area dates maturation is uncompleted or very slow at the late stage because of the lack of heat and high humidity. For that, dates are harvested in kalal stage when they are still humid and must be eaten rapidly.
- **The Nile valley (above Cairo to Aswan):**  
There is half of the productive date palm in Egypt (3,500,000 trees). More than two-third of these date palms are from seeds, so, they present a high diversity and their date quality is low.
- **The New valley (succession of depressions extend from the South East to North West of the Western part of Egypt). Various Oasis are located in this valley; Siwa, Al Bahareya, Al Farafra, Al Dakhla, Al Kharga and Al Fayyum.**  
There are about 700,000 productive date palms. About 50% of them are from seeds.  
The variety Saidi presents one half of the total number of palms of this area, for its good quality, it is exported to the Nile valley.

### Other places

- **South & North Sinai, along the Red Sea and in Matrouh.**  
There are about 600,000 trees at these areas (Amer and Zahran, 1999)

## The locations of Date palm cultivation II





# The varieties of Date palm I

- The different varieties of Date palm spread out according to two main different climatic regions:
  - The Mediterranean region
  - The Desert region
- There are more than 27 native cultivars of date palms in Egypt.
- They are classified under three kinds based on the percentage of moisture in the fruits:
  - Fresh date (Rutab)
  - Semi-dry date (Agua)
  - Dry date (Tamr)

# The varieties of Date palm II

Characteristics	Kind of variety		
	Fresh date (Rutab)	Semi-dry date (Agua)	Dry date (Tamr)
Moisture content	More than 30 %	20-30 %	Less than 20 %
Majority of sugar contents	Inverted	Inverted	Mainly sucrose
Localities	the Nile delta and in the Mediterranean Coast.	the New Valley, Al Fayyum, Al jizah & Ash Sharqiya	Aswan and Qena

Source of the data: (Amer and Zahran, 1999) and <http://www.mazra3a.com/date-palm.html>

# Fresh date (Rutab) I

- The dates could not be kept at ambient conditions for a long time since they usually deteriorate and ferment.
- They are either consumed fresh (Hayany, Zaghloul and Samany), or need to be naturally or artificially matured to become edible (Amhat).

## ➤ The main varieties are:

- Amhat
- Bent-Eisha
- Hyany
- Samany
- Zaghlool

## ➤ Other varieties are:

- Bergy
- Om-Elferakh
- Aloraby (Oraiby)
- Holwa (Halawy)
- Al-Sergy

# Fresh date (Rutab) II

Characteristics	Fresh date varieties				
	Amhat	Smany	Hyany	Bent-Eisha	Zaghlool
<b>Fruit color</b>	Pale yellow turned pale brown	Yellow mottled red	Dark red turned shiny black	Red turned black	Shiny red turned black
<b>Fruit size</b>	3 cm length 2-2.5 cm diameter	5.3-5.8 cm length 2.8-3.5 cm diameter	4-5 cm length 2.5-3 cm diameter	3.5-4 cm length 2.2-2.5 cm diameter	6 cm length 2.5-3 cm diameter
<b>No. of trees</b>	220000	182000	1000000	272000	300000
<b>Average production by tree</b>	70-200 kg	85-300 kg	90-200 kg	80-105 kg	75-130 kg
<b>Marketing</b>	Beginning of September	Mi-September	Mi-August	Beginning of November	Mi-September

Source of the data: (Amer and Zahran, 1999) and <http://aradina.kenanaonline.com/page/3756>.

# Fresh date (Rutab) III

Characteristics	Fresh date varieties				
	Bergy	Om-Elferakh	Aloraby (Oraiby)	Holwa (Halawy)	Al-Sergy
<b>Fruit color</b>	Bright Yellow to orange	Dark red	Dark red	Red	Lemon yellow
<b>Average production by tree</b>	> 150 kg	130-180 kg	100-120 kg	120 kg	
<b>Marketing</b>	End-October & November	December	Mi-November		

Source of the data: <http://www.mazra3a.com/date-palm.html>

# Fresh date (Rutab) IV



**Amhat**



**Samany**



**Hyany**



**Bent-Eisha**



**Zaghlool**



# Fresh date (Rutab) V



**Bergy**



**Om-Elferakh**



**Aloraby**

# Semi-dry date (Agua) I

- The dates can be preserved longer because of their high content of soluble solids and low moisture content.
- The main varieties are:
  - **Siwy or Saidy**  
located in the New Valley, Al-Bahareya Oasis, Al Fayyum and Al Jizah governorates.
  - **Amry**  
located around Facous and Abou Kabir, in Ash Sharqiya governorate.
  - **Aglany**  
principally located in Ash Sharqiya governorate.
  - **Hegazy-Abyad**  
Located in Al Kharga and Al Dakhla Oasises.

## Semi-dry date (Agua) III



**Siwy (Saidy)**



**Amry**



**Aglany**



**Hegazy-Abyad**

# Semi-dry date (Agua) II

Characteristics	Semi-dry Dates Varieties			
	Siwy (Saidy)	Amry	Aglany	Hegazy-Abyad
Fruit color	Yellow	Orange turned dark brown	Lemon yellow turned dark	Dark yellow turned olive yellow
Fruit size	3.5-4 cm length 2-2.5 cm diameter	5-5.5 cm length 2-2.5 cm diameter	3.5-4 cm length 2-2.5 cm diameter	4-4.8 cm length 2.2-2.3 cm diameter
Average production by tree	90-150 kg	70-100 kg	40-80 kg	

Source of the data: <http://www.mazra3a.com/date-palm.html>

# Dry date (Tamr) I

- They can be kept for a very long time under normal ambient temperature.
- The main varieties are:
  - Berkawy (Sakkoty or Ebremy)
  - Gondaila
  - Gargoada (Qarqouda)
  - Malkaby
  - Bartamoda
  - Shamiya
  - Dagna

# Dry date (Tamr) II

Characteristics	Dry date varieties						
	Berkawy (Sakkoty or Ebremy)	Gondaila	Gargoada (Qarqouda)	Malkaby	Bartamoda	Shamiya	Dagna
<b>Fruit color</b>	Orange turned brown tip & yellow base	Lemon yellow turned brown	Lemon yellow turned brown	Red	Orange mottled red turned pale brown	Light brown	Lemon yellow turned pale brown
<b>Fruit size</b>	4-5 cm length <1.5 cm diameter	4-4.5 cm length 2.2-2.5 cm diameter	3-4 cm length 1.5-2 cm diameter	5-5.6 cm length 2.5 cm diameter	5-6 cm length 1.6-2 cm diameter	6-8 cm length 2.5-3 cm diameter	2.5-3 cm length 1-1.5 cm diameter
<b>Average production by tree</b>	55 kg	25-35 kg			30-60 kg		

Source of the data: Amer and Zahran, 1999 and <http://www.mazra3a.com/date-palm.html>

# Dry date (Tamr) III



**Berkawy**  
(Sakkoty or Ebremy)



**Gondaila**



**Gargoadā**  
(Qarqouda)



**Malkaby**



**Bartamoda**



**Shamiya**



# **Diseases of date palm in Egypt**

# Diseases of date palm in Egypt I

## ➤ **Inflorcence rot**

*Mauginiella scaettae* Cav.

*Thielaviopsis paradoxa*

*Fusarium moniliform*

## ➤ **Leaf spot of date palm**

*Thielaviopsis paradoxa*

*Botryodiplodia theobromae*

*Cladosporium* sp.

*Alternaria alternata*

*Fusarium* sp.

## ➤ **Fruit rot**

*Alternaria* sp.

*Fusarium* sp.

*Cladosporium* sp.

*Aspergillus* sp.

*Penicillium* sp.

*Botryodiplodia* sp.

*Rhizopus* sp.

*Helminthosporium* sp.

*Thielaviopsis paradoxa*

## ➤ **Diplodia leaf base rot**

*Botryodiplodia theobromae*

*Diplodia phoenicum*



# Diseases of date palm in Egypt II

## ➤ **Root rot of date palm**

*Fusarium* sp., *Omphalia* sp.

*Armellaria mellea*, *Pythium* sp.

*Macrophomina* sp. & *Rhizoctonia* sp.



Source of the photo: <http://aradina.kenanaonline.com/page/3757>

# Diseases of date palm in Egypt III

➤ **Bending head**

*Thielaviopsis paradoxa*  
*Botryodiplodia theobromae*



Source of the photos: <http://www.mazra3a.com/date-palm.html>

➤ **Graphiola leaf spot**

*Graphiola phoenicis*



Source of the photos: <http://aradina.kenanaonline.com/page/3757>

# Diseases of date palm in Egypt IV

➤ **Black scorch**  
*Thielaviopsis paradoxa*



Source of the photo: <http://aradina.kenanaonline.com/page/3757>

# Insects of date palm in Egypt

- *Rhynchophorus ferrugineus*, Curculionidae, Coleoptera.
- *Macrotoma palmata*, Cerambycidae, Coleoptera.
- *Phonapate frontalis*, Bostrichidae, Coleoptera.
- *Parlatoria blanchardii*, Diaspididae, Homoptera.
- *Phyllgnathus excavatus*, Scarabaeidae, Coleoptera.
- *Amitermis desertorium*, Termitidae.
- *Psamotermis hypostom*, Hodotermitidae.
- *Batrachedra amydraula*, Momphidae, Lepidoptera.
- *Ephestia Calidella*, Pyralidae, Lepidoptera.
- *Ephestia cautelia*, Pyralidae, Lepidoptera.
- *Coccotrypes dactyliperda*, Scolytidae, Coleoptera.

# The production and the needs of date palm in Egypt

- The date palm culture in Egypt is always associated with other crops.
- Egypt, at the fourth place regarding the number of palms and the second place regarding the production.
- The high yield can be explained by two main reasons:
  - A good access to water, particularly because the palm trees in Egypt benefit always from the irrigation of associated crops.
  - The extension of the date palm cultivated areas in Matrouh, New Valley, Sinai, Red Sea, Nobareya, Tushka, Owainat and the new reclamation lands.
- About half of the production is constituted of soft dates, that means fruits that contain more than 50 % of water.
- Egypt is importing dates to answer to its internal demand.
- As large part of the production must be eaten as fresh fruits (soft varieties), an important percentage of the needs cannot be covered outside the short harvest period.
- The largest part of the production and of the importations is consumed by the part of the population that has the lowest income.

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