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## The date palm sector in Egypt

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**SUMMARY** - Egypt is at the second place in the world concerning the production of dates. The date palm tree is also present in all the cultivated areas of the country. However, a new policy for the development of the date palm sector has to be established to face the future needs in relation to the demographic growth.

**Key words:** Egypt, date palm tree, date production, development policy.

**RESUME** - "Le secteur phoenicicole en Egypte". L'Egypte est le second producteur de dattes dans le monde. Le Palmier dattier y est en outre présent dans toutes les zones cultivées du pays. Cependant, une nouvelle politique de développement du secteur phoenicicole doit être établie pour faire face aux besoins futurs liés à la croissance démographique.

**Mots-clés** : Egypte, palmier dattier, production dattière, politique de développement.

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### Introduction

Date palm is the oldest or one of the oldest plants cultivated by man. Its origin is still controversial. It is supposed to have appeared either in Mesopotamia or in Egypt. In Egypt, agricultural operations on date palm, like pollination, are known at least since 2500 AC as proved by ancient texts.

Its plantation is nowadays spread out all over Egypt, wherever water is available.

### Location and importance of the date palm oases

The total number of productive date palms is of nearly 7 million (Table 1). Date palms are present in all the places where irrigated agriculture is possible (Fig. 1).

#### In the Nile delta

For one part, the plantations extend in the Nile delta where there is about 1/3 of the productive date palms of Egypt (2,000,000 trees).

In this area, the particular climatic conditions lead to specific common traits of the date palms behaviour and of its cultivation: because of the lack of heat (Fig. 2) and

of the relatively high humidity, dates maturation is uncompleted or very slow at the late stage. As a consequence, most of the date palms varieties have been selected to be eatable at the "kalal" stage. But, when harvested at that stage, they are very humid and cannot be kept at ambient conditions more than a few days. They have to be eaten rapidly.

Table 1. Average number of bearable palm trees and their total production (Ministry of Agriculture, General Administration of Horticulture, 1994)

Governorate	Acreage (Fd)	Number of bearable palm trees	Average trees (kg)	Production (tons)
Alexandria	225	25,062	97.16	2,435
Behera	9,998	631,716	125.08	79,015
Gharbia	102	16,027	115.62	1,853
Kafr El-Sheikh	5,221	240,172	121.70	29,229
Dakahlia	450	44,721	80.07	3,581
Damietta	68	364,956	74.83	27,310
El-Sharkia	1,643	449,555	171.16	76,947
El-Ismailia	291	134,701	57.79	7,785
Bort Saïd	-	3,183	93.62	298
El-Suez	7	14,100	125.00	1,763
El-Minufiya	84	21,420	117.65	2,520
El-Kalyoubia	700	71,667	110.37	7,910
Cairo	359	32,081	92.11	2,955
Giza	5,296	456,939	134.76	61,577
Beni Suef	264	176,055	119.22	20,989
El-Fayoum	452	589,362	117.88	69,473
El-Minia	913	415,748	90.60	37,667
Assyout	749	463,147	78.20	36,218
Souhag	1,037	338,517	73.60	24,915
Qena	657	285,825	60.99	17,432
Aswan	3,060	735,774	60.61	44,596
North Sinai	6,804	200,821	61.01	12,252
South Sinai	278	25,668	61.05	1,567
Matrouh	5,058	466,619	78.50	36,630
New Valley	10,019	692,491	51.66	35,771
The Red Sea	-	-	-	-
El-Nobaria	7,317	54,920	61.01	3,351
Total	61,052	6,951,247	93.51	646,039

### In The Nile valley

From above Cairo to Aswan, in the short strip of cultivated land that extends along the Nile river and, also, in Fayoum depression, the number of productive date palms reaches half of the country total number (3,500,000 trees).



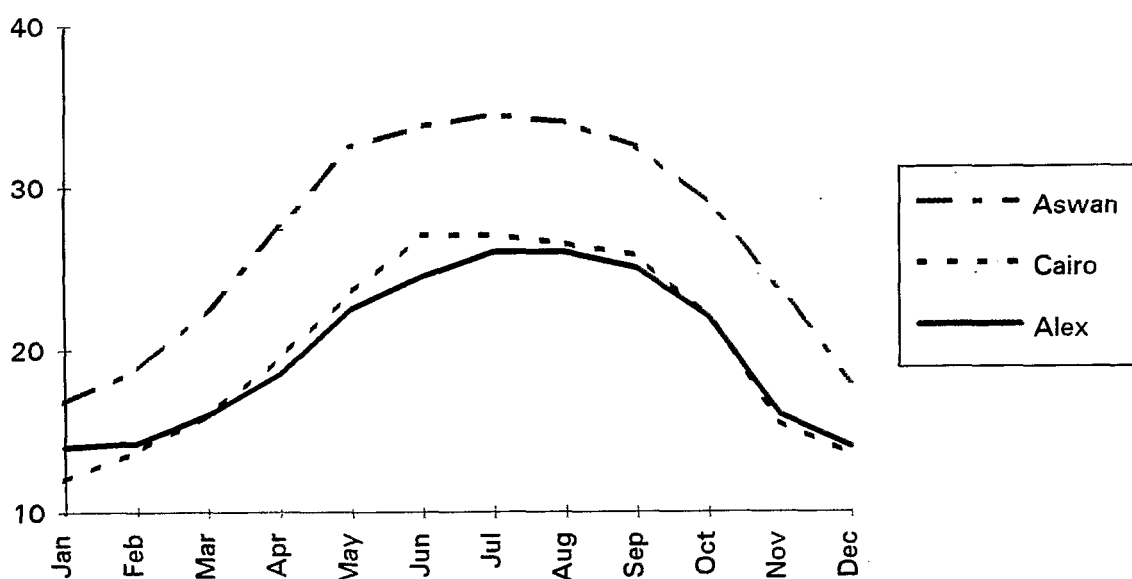


Fig. 2. The monthly average temperature (°C).

### In the New Valley

The western part of Egypt, from the Nile to the Libyan frontier, is occupied by a vast desert plateau. It is cut, from the South East to North West, by a succession of depressions called the New Valley. In this "valley", various oases are located that are, from the North to the South: Siwa, Baharia, Farafra, Dakla, Kharga and Fayoum.

The total number of productive date palms is estimated at about 700,000 trees. A large amount of them (about 50%) are from seeds. These date palms are very heterogeneous and, in average, of low quality.

Beside the palms from seeds, mainly, one variety, 'Saidi', has been propagated. It could represent nearly one half of the total number of palms of this area. Because of its good quality and of the importance of its production, it is exported to the Nile valley.

### In some other places

Date palms are also present but in smaller number in the South and North Sinai, along the Red Sea and in Matrouh Governorate. The total number of productive date palms in these areas is evaluated at 600,000 trees.

### The Date palm cultivars

Cultivars of dry, half dry and high moisture content dates are spread out according to two main different climatic regions: the Mediterranean one for which the data of Alexandria and Cairo are good represents and the desert one of which climatic conditions are represented by the data of Aswan (Figs 2 et 3).

## The high moisture content cultivars

The flesh of the fruit of these cultivars at the stage at which they are eaten, had a high moisture content (over 50%). The dates could not be kept at ambient conditions for a long time since they usually deteriorate and ferment. The majority of their sugars are inverted. The fruits are usually of an oblong shape and they differ in colour.

They are consumed fresh as in Hayani, Zagloul and Samani. However, others need to be naturally or artificially matured to become edible, i.e., Amhat.

The most important cultivars of this group are: 'Zagloul', 'Samani', 'Hayani', 'Bent Aasha', 'El Sergy', 'Soqr El Damin', 'El Kaboushi', 'El Arabi' and 'El Kanabi'.

These kinds of cultivars are principally located in the Nile delta and in the Mediterranean coast. The heat requirements of such cultivars are about 2,100 °F units during the growth season (May to October) with an average daily temperature of less than 77°F (25°C).

## The half dry date cultivars

The fruits of this group have moderate moisture content and high percent of inverted sugar plus low percentage of sucrose. The dates can be preserved longer than the ones of the previous group, because of their high content of soluble solids and low moisture content.

The main varieties are:

(i) 'Sewi' or 'Saidi' from which a popular compressed paste made of seeded or non seeded dates is made (El Agwa). This variety is mainly located in the New Valley, Fayoum and Giza Governorates.

(ii) 'El Amri' which is principally located around Facous and Abou Kabir, in Sharkia Governorate.

(iii) 'El Aglani' which is also principally located in Sharkia Governorate.

The heat requirements for these varieties are higher than the ones of the first group. These varieties need to be planted in districts where the average daily temperature prevailing during the growth season is at least higher than 80°F (27°C). But, this average can reach 84°F (29°C) in the oasis of New Valley where the variety 'Saidy' is very well adapted.

## The Dry date varieties ('El Tamr')

Matured fruits of this group contain a low moisture percentage (15 to 20%) and high percentage of sugar (65 to 70%) in which sucrose represents a significant part. They can be kept for a very long time under normal ambient temperature.



The most important varieties in such group are: 'El Barakawi', 'El Abrimi', 'El Sakouti', 'El Barmatoda', 'El Malkabi', 'El Gondaila', 'El Gargoda', 'El Digna' and 'El Shamia'.

These varieties are located in Aswan and Qena Governorates where the heat requirements needed for these varieties are available and range between 3,600 and 4,300 °F units during the growth season.

## **The present status of date palm in Egypt**

The date palm culture in Egypt is nearly always associated with other crops. Its status follows the general characteristics of the agriculture in this country. In fact, the Nile valley is the biggest oasis of the world.

### **Dependence on the water resources**

The agriculture activity in Egypt concerns only 3% of total land surface. Agriculture is totally dependent on irrigation mainly from the Nile and in some places from the underground water.

The principal irrigation water resources are the Nile and the water gathered in its dams, particularly the High Dam of Aswan. The Egypt annual water quota from the Nile is 55.5 billion m<sup>3</sup> per year. This quantity to which the drainage water and the ground water of the valley and of the delta has to be added, allows the irrigation of about 6 million feddans (1 feddan = 0.42 ha) in the valley and about 1.5 million feddans of reclaimed land. It should allow the irrigation of a supplementary reclaimed land of 1.1 million feddans in the year 2000.

But, these water resources are fragile, depending on the rain that falls on the High Ethiopian plateau (Fig. 3). For example, in spite of the High Dam of Aswan, an important decrease of the agriculture production has been the consequence of the draught in the Ethiopian High Plateau in 1987-1988.

The change of water use, from flood irrigation to permanent irrigation permitted by the High Dam, needs also new knowledge and practices. Bad management has led to an increase of soil salinity and an excessive rise of water table in many places.

Lastly, the cost of irrigation has increased a lot with the new pumping needs to elevate water to the reclaimed lands.

The date palm culture is particularly well adapted to this difficult context, but data are missing to evaluate it precisely: its role to reduce the evapotranspiration of the other plants and its capacity to reuse the infiltrated water and to support salted water.

### **Socio-economic situation**

The oasis agriculture is possible on only 3% of the total surface of Egypt but it gives work to 37% of the total labour force.

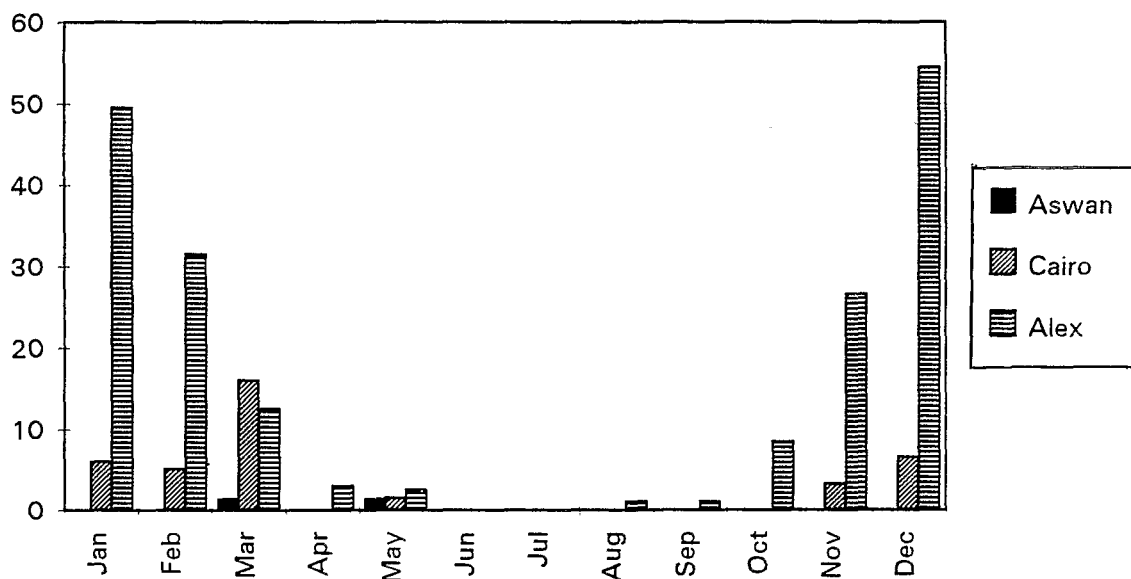


Fig. 3. Average rainfall (mm).

The majority of the farms are very small: about 95% of ownership is of less than 5 feddans (2.1 ha). But, there are also larger farms belonging to individuals or to private societies: it is estimated that 25% of the agriculture land belong to 1% of owners who have farms of an average of 20 ha.

Very little is known about the role of the date palm in the family farming systems. Equally, not much is known about the fact that the plantation of date palms has been a part of the strategy of private companies.

No more precise data are available on the place that the date palm has had in the important programme of land reclamation followed by Egypt since 1952: about 1.5 million acres have been reclaimed.

From the current available figures concerning date palm compared with anterior ones, it does not seem that date palm has played a significant part in this reclamation programme.

## The production and the needs

At present, Egypt, that is only at the fourth place regarding the number of palms, that represents one third of the number of the country at the first place (Iran), is at the second place concerning the production, evaluated at 645,000 tons in 1994.

The average high yield of the date palm in Egypt explains this fact: it is of about 90 kg per tree, calculated on the base of the bearing palms; this figure is reduced to 75 kg when considering all the palm trees. But, even calculated like this, this figure is very high compared to the world average that is of 35 kg per tree.



This high yield can be explained by two main reasons:

(i) A good access to water, particularly because the palm trees in Egypt benefit nearly always from the irrigation of associated crops and because in many places water table is close to the surface.

(ii) The fact that about half of the production is constituted of soft dates, that means fruits that contain more than 50% of water. The yield would appear closer to the world mean if the water content were divided by two, as it is in the half-dry dates.

But Egypt is importing dates to answer to its internal demand: 3,500 tons in 1992. The quick increase of its population that is estimated to double in 25 years and to reach 75 million of inhabitants by the year 2000, will increase this dependence if an important effort is not realized to increase and modify the production. As a 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. It has to be emphasized also, that, probably, the largest part of the production and of the importations is consumed by the part of the population that has the lowest income.

Concerning the processing, various factories to cure and to process dates exist in the Delta. There exists one in the New Valley (Kharga). The capacities of these factories are limited and, anyhow, the soft quality of half of the date production makes the date processing difficult and/or expensive.

## **The plan to improve the production of dates in Egypt**

A Date Palm Group has been formed to define a plan for the development of the date palm production in Egypt. Date palm is playing an important role in the Egyptian agriculture but it is not as important as it should be.

The objective of this plan is to develop an active date palm sector capable of answering to the present and future needs of dates and date palm by-products, taking into account the land and water scarcity as well as the economic and social factors.

### **Establishment of a global situation appraisal**

The lack of information on the situation of the date sector makes the establishment of priority proposals difficult, both at the production and commercial level.

The establishment of a global situation appraisal constitutes an indispensable preliminary activity. It will allow to define the priorities at the level of research and development.

### **Establishment of a Date Palm Centre**

The absence of a specialized Centre dealing with date palm is considered to be responsible of the lack of knowledge and projects concerning this sector.

The activities of this Centre will be:

(i) To gather all the existing information and to coordinate or to take in charge the present scattered activities.

(ii) To carry on global system analysis to be able to propose research/training/development projects adapted to each type of situation of the date palm sector in Egypt.

(iii) To study the cultural practices and to propose improvements or experimentations (irrigation, water saving and salinity control, mechanization, pests and diseases control, under cropping, etc.).

(iv) To study the handling, processing and storage of the dates and to propose improvements.

(v) To establish the basic data on the local and export date marketing sector and to propose solutions to improve its efficiency, to guarantee good prices to the farmers and to decrease the final market prices by limiting the number of intermediate operators.

(vi) To pursue the already undertaken evaluation of the female and male genetic patrimony in the Egyptian palm groves and to create collections of Egyptian date palm cultivars.

(vii) To pursue the already undertaken biological monitoring of vitroplants and to enhance the rescue of existing endangered offshoots.

(viii) To establish projects for the dedensification of overcrowded date palm groves and for the substitution of the old date palm trees as well as the bad quality varieties or seedlings.

(ix) To study the present situation of the exploitation of the date palm by-products and to look for new ones.

(x) To assist the Ministry of Agriculture in establishing an incentive policy for the date palm development.

(xi) To collaborate with international date palm research programmes and to exchange expertise of date palm industry.