

## Nutritional components of Date palm and its production status in Nigeria

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**Abstract:** The Nigerian date palm industry has the potential to generate employment and promote economic development. Date palm is one of the greatest producers of food per hectare producing more than 3000 calories per Kg. The review shows that the highest producers of Dates are Egypt, Iran and Saudi Arabia with an annual production statistics of 1,326,000MT, 1,000,000MT and 982,000MT respectively as at 2008. In Nigeria annual Dates production in the country is over 21,000MT. Date are nutritious, assimilative and energy producing. Dates contain K, Ca, Mg, Fe, Cu, Zn, Mn and very low quantities of Si, S and fat content. Infact it is called a mine. It is grown in Nigeria from latitude 10<sup>0</sup> North in the Sudan Savanna to the Sahel regions, despite its nutritional importance the production of the crop is still restricted to compound and home-stead. There is also dearth of information on the statistics of Date production in Nigeria as well as low rate of awareness on its nutritional and economic importance. Therefore this paper unveils the statistics of Dates production in the country, as well as the nutritional importance of Date. This will enhance awareness creation of its potential and economic development in the country. However the concerned of private sectors are required for the accelerated development of the industry.

**Keywords:** Employment generation, calories per Kg, assimilative, dearth of information, unveils, accelerated development.

### INTRODUCTION

The Date palm (*Phoenix dactylifera* L.) is produced mainly in the hot arid regions of Southern Asia and North Africa. It is probably the most ancient cultivated tree crop in the world (Zaid and Wet, 1999). Date production in Nigeria started at about 17<sup>th</sup> century ago but its cultivation and marketing has been subsistence level. Omamor *et al* (2000) reported that pilgrims brought Date palm in to Nigeria from North Africa during trans-Saharan trade and from the Middle East. Though Nigeria is not a major Dates producer in the world, the crop thrives in Northern parts of the country particularly regions above latitude 10<sup>0</sup> North of the equator Okolo *et*

*al* (2000). It is propagated by seed, offshoot and tissue culture. However, tissue culture has been found to be the best method of propagation for commercial planting and true to type of the characteristics of the mother plant. The Date palm is dioecious perennial, the females of which normally begin to bear Date fruits after four years depending on the agronomic practices. It is a monocotyledonous plant with no tap root but fibrous root system. The trunk is vertical and columnar of the same girth all the way up. The girth does not increase once the canopy of fronds has fully developed except the terminal bud experiences an abnormal growth caused by a nutritional deficiency or drought conditions,

which will lead to shrinkage of the trunk. Vertical growth of Date palm is ensured by its terminal bud called *phyllophor* and its height could reach 20m (Zaid and Wet 1999). The trunk and leaves of the Date palm are similar to those of Oil palm. The fronds (Leaves), with average length of 4 metres carry the spines and the leaflets. The fruit is single, Oblong, one-seeded berry with terminal stigma, a flesh *pericarp* and a membranous endocarp.

Despite the invaluable roles of Dates in human life, the Nigerian Date palm industry (production, processing and marketing) is beleaguered with the following problems:

1. Dearth of information on the status of the Nigerian date palm industry.
2. Lack of awareness on the nutritional importance of Dates.

**Objective of the study:**

The main objective of this study is to create awareness on the potentials of the Nigerian Date palm industry.

The specific objectives include:

1. To disclose the statistics of annual Date production in Nigeria and the world.
2. To unveil the nutritional components of Dates.

**METHODOLOGY**

Secondary data were used for this study. The data were collected from NIFOR annual report, NIFOR sub-station Dutse, FAO statistical data base and other related publications.

**RESEARCH FINDINGS**

**Date production in Nigeria**

The Date palm is believed to have been introduced into Nigeria in the early 17<sup>th</sup> century through the trans-Sahara trade route from North

Africa and Muslim pilgrims on pilgrimage to the Holy cities of Mecca and Medina (Omamor et al 2000). Although Date palm has economic, social and religious values in the Sudan-Sahel Savanna region of Nigeria, its cultivation has remained restricted to compounds, homestead and few orchards in the northern parts of the country.

Date palm is grown in northern Nigeria including Kaduna, Katsina, Kano, Sokoto, Kebbi Jigawa, Yobe, Borno, Gombe, Bauchi and Adamawa States. Other states including Plateau, Taraba, Nassarawa, Southern Kaduna and Niger State could be classified as marginal areas for Date palm cultivation in the country. Dates production in Nigeria has two fruiting seasons (dry and wet seasons fruits), but only the dry season fruit is economically useful. Despite the abundant land resource the country is still increasingly dependent on dates import to meet local demand. The statistics of annual Dates production in the country from the studied states deduce so far is over 21,000 MT from the available data as shown in Table 1. This figure is insignificant compared to local demand in the country. As a result, the nation resorts to Dates import to meet local demand. This shows that the market prospects of Dates in Nigerian are very bright.

Table 1: Statistics on Annual Dates production in Nigeria

S/N	States	Annual production in Metrics Tone (MT)
1	Adamawa	200
2	Bauchi	6,000
3	Borno	1000
4	Gombe	1,500
5	Jigawa	5,000
6	Kano	6,000
7	Plateau	Insignificant
8	Taraba	Insignificant
9	Yobe	2,000
10	Kaduna	-

11	Nasarawo	-
12	Katsina	-
13	Zanfara	-
14	Kebbi	-
15	Sokoto	-
	<b>Total</b>	<b>21,700 (MT)</b>

516,293MT and 328,200MT respectively (FAO Statistics) Table 2.

In West Africa, Mauritania is the highest Dates producer as at 2005 followed by Chad and Niger with annual production figures of 22,000MT, 15,000MT and 8,000MT respectively (Table 4: FAO Statistics 2008). Nigeria is not listed among the Dates producers at the international scene. This is attributed to dearth of information on the Nigeria Date palm industry.

**Dates production in Africa.**

Dates production in Africa was 2.2 million MT in 2001 and 2.4 million MT in 2006. Egypt is the highest Dates producer in Africa as at 2005 followed by Algeria and Sudan with annual production statistics of 1, 117,000 MT,

Table 2: Major Dates Producers in the World in '000MT (1999 – 2008)

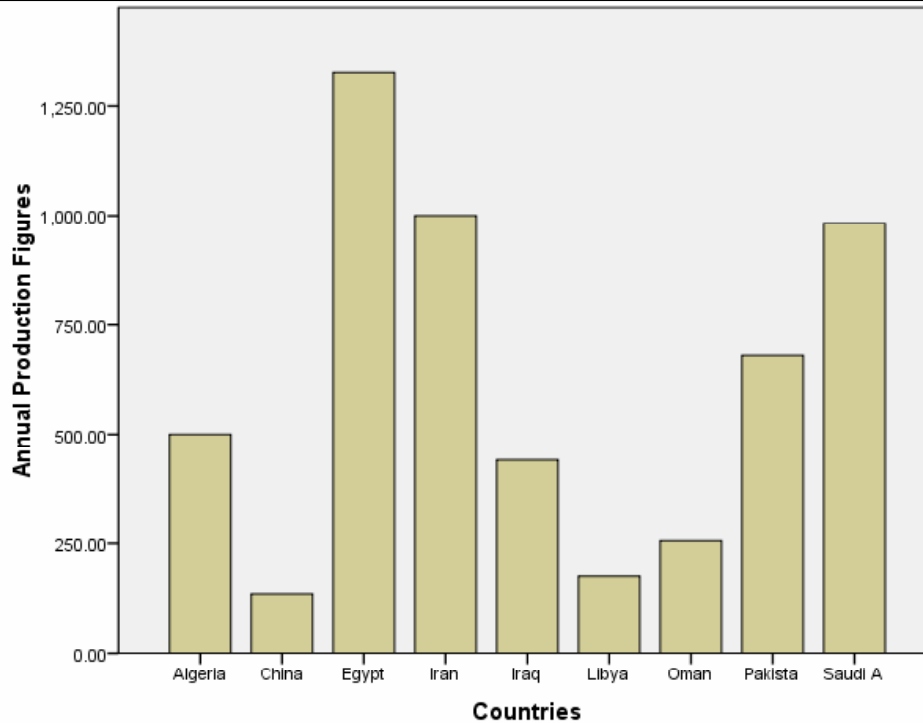
Country	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Egypt	1,113	1,113	1,113	1,090	1,122	1,166	1,170	1,329	1,314	1,326
China	120	120	120	133	123	128	134	125	130	135
Iran	875	875	875	879	885	990	998	1000	1000	1000
UAE	758	758	758	758	759	815	859	-	-	-
Iraq	650	650	650	866	868	875	404	432	440	440
Pakistan	630	630	630	625	427	622	497	426	557	680
Algeria	437	418	437	418	472	443	516	491	526	500
Sudan	330	330	330	330	328	336	328	328	-	-
Oman	239	239	298	239	220	231	247	259	256	256
Libya	140	140	140	200	200	150	180	170	175	175
Saudi A	818	818	818	830	884	941	970	977	982	982
Tunisia	113	113	113	120	117	122	125	125	-	-

Source: FAO Statistics Division 2008

**World dates production**

World Dates production (as shown in Table 2) was 5.1 million MT in 1999 and this increased to 6.7 million MT in 2006 (FAO,2008). The major Dates producers in the world are situated in the Middle East and North Africa. Date is probably the most ancient cultivated tree crop in the world (Zaid and Wet, 1999). FAO statistical data showed that the ten top producing countries as at 2008 were Egypt (1.3m MT), Iraq (0.4m MT), Iran (1.0m MT),

Qatar (0.02m MT), Pakistan (0.6m MT), Algeria (0.5m,MT), Saudi Arabia (0.9 MT), China (0.1), Oman (0.2m MT) and Libya ( 0.1m MT). Egypt remains the largest World producer of Dates as at 2005 (fig.2). Information on major Date producers in the world as at 2008 is shown in Fig 1. Egypt is the highest Date producer in the world as at 2008 followed by Iran and Saudi Arabia with annual production statistics of 1,326,000MT, 1,000,000MT and 982,000MT respectively.



**Fig 1: Major Date producers in the World (2008)**

Source: 1. FAO Statistics Division 2008  
2. Nigerian Institute for oil palm research

#### World date exports and import

The total quantity of Dates exported in 2005 was 416,660 MT at an export value of three hundred and eight five million US dollar. (\$385,000,000). When this figure is compared with total production during the period it was found that over 90% of Dates produced are consumed within the producing countries. The annual Dates exports fluctuate between 400,000MT – 600,000MT during the period 1999 – 2005 as shown in Table 3.

The total quantity of Dates imported in year 2005 was 626,160MT (Table 3) and the value was four hundred and thirty eight million US dollar (\$438,000,000). The import price during the period was about seven hundred US dollar (\$700/MT) per metric Tonne of Dates (FAO, 2008).

Table 3: World Dates Exports and Imports

Years	Export (MT)	Imports (MT)
1999	474,297	530,002
2000	359,370	510,710
2001	687,940	560,330
2002	588,440	588,920
2003	601,610	598,000
2004	384,640	671,480
2005	416,660	626,160

Source: FAO Statistics Division 2008

#### World market price of dates

World market price of Dates increased from about 400 US dollar per metric tonne in year 2001 to about 800 US dollars per metric tonne in year 2005 as shown in Fig 3. This shows insufficient supply of Dates at the international market.

#### Nutritional importance of date palm

Date palm is one of the greatest producers of food per hectare, Compared to

cooked rice 1800 calories/kg; Meat (without fat): 2,245 calories/Kg; Banana: 970 calories/Kg; Orange: 480 calories/Kg; Dates gives more than 3000 calories/kg. The Date fruits consists of 70% carbohydrate (mostly invert sugar e.g. glucose and fructose) important for persons who cannot tolerate sucrose and it is easily absorbed by the human body without being subjected to the digestion that ordinary sugar undergoes. Dates contain potassium (K), calcium (Ca), magnesium (Mg), iron (Fe), copper (Cu), zinc (Zn), manganese (Mn) and very low quantities of silicon (Si), sulphur (S) and with very low sodium and fat content. Moderate quantities of chlorine (Cl), sodium (Na) and phosphorus (P) are found in Date fruit. Its phosphorus content is similar to that found in the same quantities of apricots, pears and grapes put together. The iron content of 3mg per 100mg is almost a third of the recommended dietary allowance for an adult male. Its high contents of magnesium (600mg per kg) of Dates could also be very beneficial in preventing cancer. Dates consumers in Sahara areas are known to have the lowest rate of cancer; a fact attributed to Magnesium found in Dates. Infact it is called a mine in itself because it is very rich in minerals (Zaid and Wet, 1999). It has 2% protein and less than 2% pectin substance. Dates have 1Mg of Na per 100kg, thus a good food for those on low sodium diet. Dates also contain 2.5% fibre, which is important for diet to aid digestion and

evacuation. Date foods are good sources of vitamins A, B<sub>1</sub> (Thiamine), B<sub>2</sub> (riboflavin) and B<sub>7</sub> (nicotinic acid or niacin). Dates are suitable for the manufacture of jam, syrup, pastry, bakery, confectionaries etc (Zaid and Wet, 1999). In addition Dates are used in the manufacture of the following products:

- Snacks, salads and appetizers
- Date flour (dietetic baby food)
- Breakfast foods (Date with other dry fruits cereals and nuts)
- Date nut roll
- Chocolate, Date butter or creams
- Liquid sugar (low calorie sweetener for soft drinks) and vinegar.

These are indications that the Date palm industry has the potential to provide employment to both skilled and unskilled labour thereby generating income and alleviating poverty.

Other importance of date palm includes manufacture of local fan, ropes, Baskets, foot mats, bags, beds, bird cages, traps, blankets, chairs, cushion, doors, window frames, fences, fire wood, life belt (FAO, 1982). The Date palm in the midst of the deserts and savannah, serve a useful purpose in the area of shade provision. Desert travelers do take advantage of its shade. It is also known to function as wind breaks and checks wind erosion. The Date palm can be used to check desert encroachment in the northern parts of Nigeria and for ornamental purposes in the South.

Table 4: Major Dates Producers in West Africa

Country	1999	2000	2001	2002	2003	2004	2005	2006
Benin	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
Chad	18,000	18,000	18,000	18,000	18,000	16,268	15,337	18,000
Niger	7,700	7,700	7,700	7,700	7,800	7,844	7,896	7,896
Mauritania	20,000	20,000	20,000	24,000	20,000	24,000	22,000	-
Nigeria	Na	Na	Na	Na	Na	Na	Na	Na

Source: FAO Statistics Division 2008

Na = Not available

### Date palm seedlings

This is one of the commercializable technologies in The Nigerian Institute for Oil palm Research (NIFOR). The technology involves the raising of Date palm seedlings for 9 - 12 months. Entrepreneur/ farmers are invited to study and adopt this innovation for commercialization. This will help to generate employment and income for others.

### CONCLUSION AND RECOMMENDATION

The Nigerian Date palm industry is a sleeping giant that is yet to be woken up. The potentials of the industry to enhance economic development in the country are enormous. The abundant land resource, the nutritional and economic importance of the Date palm, high market prospects, with favorable environmental and climatic conditions are indicators of such potentials. This however calls for the Date Palm farmers to invest more in its cultivation in order to rip its full potentials. Adequate concern with co-operation of government and private sectors is also required for accelerated development of the Nigerian Date palm industry. Available statistics on annual Dates production in Nigeria shows a figure of over 21,000MT. Linkage of agricultural production with manufacturing is recommended for speedy development of the Nigerian Date Palm industry. Economic

Utilization of wet season fruits is an area for further research.

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