

# *Phoenix dactylifera*

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Date palms, Rashidiya, [Dubai](#)

The **date palm** (*Phoenix dactylifera*) is a [palm](#) in the genus *Phoenix*, cultivated for its edible sweet [fruit](#). Although its place of origin is unknown because of long cultivation, it probably originated from lands around the [Persian Gulf](#).<sup>[1]</sup> It is a medium-sized plant, 15–25 m tall, growing singly or forming a clump with several stems from a single root system. The [leaves](#) are 3–5 m long, with spines on the petiole, and [pinnate](#), with about 150 leaflets; the leaflets are 30 cm long and 2 cm wide. The full span of the crown ranges from 6 to 10 m.

## History of dates

Dates have been a [staple food](#) of the [Middle East](#) for thousands of years. They are believed to have originated around the [Persian Gulf](#), and have been cultivated since ancient times from [Mesopotamia](#) to prehistoric [Egypt](#), possibly as early as 4000 BCE. The Ancient Egyptians used the fruits to be made into date [wine](#), and ate them at harvest. There is archaeological evidence of date cultivation in eastern [Arabia](#) in 6000 BCE. (Alvarez-Mon 2006).

In later times, traders spread dates around South and South West [Asia](#), northern [Africa](#), and [Spain](#) and [Italy](#). Dates were introduced into [Mexico](#) and [California](#) by the Spaniards by 1765, around [Mission San Ignacio](#).

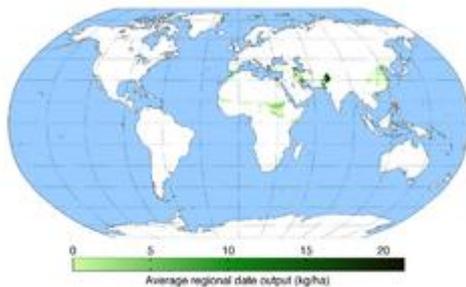
A date palm [cultivar](#), known as [Judean date palm](#) is renowned for its long-lived [orthodox seed](#), which successfully sprouted after accidental storage for 2000 years.<sup>[4]</sup> This particular

seed is presently reputed to be the [oldest viable seed](#) but the upper survival time limit of properly stored seeds remains unknown.<sup>[5]</sup>

## [edit] Dates



Dates



Worldwide date yield

The [fruit](#) is known as a **date**.<sup>[6]</sup> The fruit's English name, as well as the Latin species name *dactylifera*, both come from the Greek word for "finger," *dáktulos*, because of the fruit's elongated shape. Dates are oval-cylindrical, 3–7 cm long, and 2–3 cm diameter, and when unripe, range from bright red to bright yellow in colour, depending on variety. Dates contain a single [seed](#) about 2–2.5 cm long and 6–8 mm thick. Three main [cultivar groups](#) of date exist: soft (e.g. 'Barhee', 'Halawy', 'Khadrawy', 'Medjool'), semi-dry (e.g. 'Dayri', '[Deglet Noor](#)', 'Zahdi'), and dry (e.g. 'Thoory'). The type of fruit depends on the [glucose](#), [fructose](#) and [sucrose](#) content.

The date palm is [dioecious](#), having separate male and female plants. They can be easily grown from seed, but only 50% of seedlings will be female and hence fruit bearing, and dates from seedling plants are often smaller and of poorer quality. Most commercial plantations thus use [cuttings](#) of heavily cropping cultivars. Plants grown from cuttings will fruit 2–3 years earlier than seedling plants.

Dates are naturally wind [pollinated](#) but in both traditional [oasis horticulture](#) and in the modern commercial orchards they are entirely [pollinated manually](#). Natural pollination occurs with about an equal number of male and female plants. However, with assistance, one male can [pollinate](#) up to 100 females. Since the males are of value only as pollinators, this allows the growers to use their resources for many more fruit producing female plants. Some growers do not even maintain any male plants as male flowers become available at local

markets at pollination time. Manual pollination is done by skilled labourers on [ladders](#). In some areas such as [Iraq](#) the pollinator climbs the tree using a special climbing tool that wraps around the tree trunk and the climber's back to keep him attached to the trunk while climbing. Less often the [pollen](#) may be blown onto the female flowers by a wind machine.



Fresh dates, clockwise from top right: crunchy, crunchy opened, soft out of skin, soft.

[Parthenocarpic](#) cultivars are available but the seedless fruit is smaller and of lower quality.<sup>[[citation needed](#)]</sup>

Dates ripen in four stages, which are known throughout the world by their [Arabic](#) names *kimri* (unripe), *khlal* (full-size, crunchy), *rutab* (ripe, soft), *tamr* (ripe, sun-dried). A 100 [gram](#) portion of fresh dates is a source of [vitamin C](#)<sup>[[citation needed](#)]</sup> and supplies 230 [kcal](#) (960 [kJ](#)) of energy. Since dates contain relatively little water, they do not become much more concentrated upon drying, although the vitamin C is lost in the process.

Dates are an important traditional crop in [Turkey](#), [Iraq](#), [Arabia](#), and north Africa west to [Morocco](#) and are mentioned more than 50 times in the Bible. In [Islamic](#) countries, dates and yogurt or milk are a traditional first meal when the sun sets during [Ramadan](#). Dates (especially Medjool and [Deglet Noor](#)) are also cultivated in southern [California](#), [Arizona](#) and southern [Florida](#) in the [United States](#).

Date palms can take 4 to 8 years after planting before they will bear fruit, and produce viable yields for commercial harvest between 7 to 10 years. Mature date palms can produce 80–120 kilograms (176–264 [lb](#)) of dates per harvest season, although they do not all ripen at the same time so several harvests are required. In order to get fruit of marketable quality, the bunches of dates must be thinned and bagged or covered before ripening so that the remaining fruits grow larger and are protected from weather and pests such as birds.

## [\[edit\]](#) Cultivars of dates





Date palm orchard, Boumalne, Morocco

A large number of date [cultivars](#) are grown. The most important are:

- Aabel — common in Libya.
- Ajwah — from the town of Medina in Saudi Arabia, it is the subject of a famous [Hadith](#) of the [Prophet Muhammad](#).
- Al-Barakah — from Saudi Arabia.
- Amir Hajj or 'Amer Hajj' — from Iraq, these are soft with a thin skin and thick flesh, sometimes called "the visitor's date" because it is a delicacy served to guests.
- ['Abid Rahim](#) (Arabic: عبد رحيم), from [Sudan](#). In Nigeria it is called Dabino and used by Muslims to break their fast.
- [Barakawi](#) (Arabic: بركاوي), from [Sudan](#).
- Barhee or (barhi) (from Arabic *barh*, a hot wind) — these are nearly spherical, light amber to dark brown when ripe; soft, with thick flesh and rich flavour. One of the few varieties that are good in the *khalal* stage when they are yellow (like a fresh grape as opposed to dry, like a raisin).
- [Bireir](#) (Arabic: برير) — from [Sudan](#).
- [Datça](#) Date - [Turkey](#)
- [Deglet Noor](#) (Arabic: ال نور دقة 'date of light') — so named because the centre appears light or golden when held up to the sun. This is a leading date in [Libya](#), [Algeria](#), the [USA](#), and [Tunisia](#), and in the latter country it is grown in inland oases and is the chief export cultivar. It is semi-dry and not very sweet.
- Derrie or 'Dayri' (the 'Monastery' date) — from southern [Iraq](#) — these are long, slender, nearly black, and soft.
- [Empress](#) — developed by the DaVall Family in [Indio](#) California USA from a seedling of 'Thoory'. It is large, and is softer and sweeter than 'Thoory'. It generally has a light tan top half and brown bottom half.
- Fardh or Fard - common in [Oman](#), deep dark brown, tender skin, sweet flavor, small seed. Keeps well when well packed.
- Ftimi or 'Alligue' — these are grown in inland oases of Tunisia.
- Holwah (Halawi) (Arabic: 'sweet') — these are soft, and extremely sweet, small to medium in size.
- Haleema — in Hoon, Libya (*Haleema* is a woman's name).
- Hayany — from Egypt (Hayani) (*Hayany* is a man's name) — these dates are dark-red to nearly black and soft.
- Iteema — common in [Algeria](#).
- Khajur — common in [India](#) / [Pakistan](#).
- Kenta — common in [Tunisia](#).



Khadrawi date



## Medjool date

- Khadrawy (Arabic: 'green') — a cultivar favoured by many Arabs, it is a soft, very dark date.
- Khalasah (Arabic: 'quintessence') — one of the most famous palm cultivars in Saudi Arabia, famous for its sweetness level that is not high nor low, thus, suits most people. Its fruit is called 'Khlas'. Its famous place is 'Huffuf' (Al-Ahsa) and 'Qatif' in the Eastern Province of Saudi Arabia (Al-Sharqheyah).
- Khastawi (Khusatawi, Kustawy) — this is the leading soft date in Iraq; it is syrupy and small in size, prized for dessert.
- Maktoom (Arabic: 'hidden') — this is a large, red-brown, thick-skinned, soft, medium-sweet date.
- Manakbir — a large fruit that ripens early.
- Medjool or (Mejhool) (Arabic: 'unknown') — from [Morocco](#), also grown in the [USA](#), [Saudi Arabia](#), [Jordan](#), the [Palestinian territories](#) and [Israel](#); a large, sweet and succulent date.
- Migraf (Mejraf) — very popular in Southern Yemen, these are large, golden-amber dates.
- Mgmaget Ayuob — from Hoon, Libya.
- [Mishriq](#) (Arabic: 'East' — مشرق) — from [Sudan](#) and [Saudi Arabia](#).
- Mozafati — from Iran, where it is mainly grown in Kerman province, and often named "Bam (Mozafati) dates", after a city in that province. It is a dark, soft and sweet date of medium size. It is exceptionally well-suited for fresh consumption, because of its long shelf life. At a temperature of  $-5$  degrees Celsius ( $23$  °F) it can be kept for up to 2 years. It accounts for 10% of total Iranian date crop. (100,000 tons<sup>[[vague](#)]</sup>, of which 30% is exported).
- Nabtat-seyf — in Saudi Arabia.
- Rotab — from Iran, they are dark and soft.
- Sag'ai — from Saudi Arabia.
- [Saidy](#) (Saidi) — soft, very sweet, these are popular in Libya.
- [Sayer](#) (Sayir) (Arabic: 'common') — these dates are dark orange-brown, of medium size, soft and syrupy.
- Sekkeri — (lit. sugary) (Arabic: سكري) Dark brown skin; distinctly sweet and soft flesh, from Saudi Arabia, it is the most expensive kind.
- Sellaj — (Arabic: سلج) in Saudi Arabia.
- Tagyat — common in Libya.
- Tamej — in Libya.
- Thoory (Thuri) — popular in Algeria, this dry date is brown-red when cured with a bluish bloom and very wrinkled skin. Its flesh is sometimes hard and brittle but the flavour described as sweet and nutty.
- Umeljwary — in Libya.
- Umelkhashab — Brilliant red skin; bittersweet, hard white flesh (Saudi Arabia).

- Zahidi (Arabic: '[Of the] ascetic') — these medium size, cylindrical, light golden-brown semi-dry dates are very sugary, and sold as soft, medium-hard and hard.
- Zaghoul (Arabic: زغول) -Dark red skin, long, and very crunchy when served fresh (as they invariably are), their sugar content is so high that it desiccates the mouth. The variety is essentially exclusive to [Egypt](#), where it is subject to an element of nationalist sentiment ([Saad Zaghloul](#) being a major Egyptian national hero).

The Gaza Strip, especially Dier al Balah, "Village of Dates", is known for its exceptionally sweet red dates. There are more than 100 known cultivars in [Iraq](#).<sup>[\[clarification needed\]](#)</sup> It should be noted, however, that a cultivar can have several names depending on the locality.

## [\[edit\]](#) Production



[Date seller in the old souq in Kuwait City](#)



[Date City in Buraidah](#)



[Date output in 2005](#)

### Top Twenty Dates Producers — 2009 (1000 metric tonnes)

 <a href="#">Egypt</a>	1,350.00
 <a href="#">Iran</a>	1,088.04
 <a href="#">Saudi Arabia</a>	1,052.40
 <a href="#">Pakistan</a>	735.28
 <a href="#">United Arab Emirates</a>	759.00

 <a href="#">Algeria</a>	600.70
 <a href="#">Iraq</a>	507.00
 <a href="#">Sudan</a>	339.30
 <a href="#">Oman</a>	278.59
 <a href="#">Libya</a>	160.10
 <a href="#">Tunisia</a>	145.00
 <a href="#">China</a>	140.00
 <a href="#">Morocco</a>	72.00
 <a href="#">Yemen</a>	56.76
 <a href="#">Niger</a>	37.79
 <a href="#">Turkey</a>	25.28
 <a href="#">Israel</a>	22.19
 <a href="#">Qatar</a>	21.60
 <a href="#">Mauritania</a>	20.00
 <a href="#">Chad</a>	18.78
<b>World Total</b>	(more than) 7462.51

Source:

[UN Food & Agriculture Organisation \(FAO\)](#)<sup>[7]</sup>

## [\[edit\]](#) Food uses

<b>Dates</b>	
	
<a href="#">Deglet Noor</a> dates	
<b>Nutritional value per serving</b>	
<b>Serving size</b>	100 grams
<a href="#">Energy</a>	1,178 kJ (282 kcal)

<u>Carbohydrates</u>	75.03 g
- <u>Sugars</u>	63.35 g
- <u>Dietary fiber</u>	8 g
<u>Fat</u>	0.39 g
<u>Protein</u>	2.45
<u>Water</u>	20.53 g
<u>Vitamin A</u>	10 IU
- <u>beta-carotene</u>	6 µg (0%)
- <u>lutein</u> and <u>zeaxanthin</u>	75 µg
<u>Thiamine (vit. B<sub>1</sub>)</u>	0.052 mg (5%)
<u>Riboflavin (vit. B<sub>2</sub>)</u>	0.066 mg (6%)
<u>Niacin (vit. B<sub>3</sub>)</u>	1.274 mg (8%)
<u>Pantothenic acid (B<sub>5</sub>)</u>	0.589 mg (12%)
<u>Vitamin B<sub>6</sub></u>	0.165 mg (13%)
<u>Folate (vit. B<sub>9</sub>)</u>	19 µg (5%)
<u>Vitamin C</u>	0.4 mg (0%)
<u>Vitamin E</u>	0.05 mg (0%)
<u>Vitamin K</u>	2.7 µg (3%)
<u>Calcium</u>	39 mg (4%)

<a href="#">Iron</a>	1.02 mg (8%)
<a href="#">Magnesium</a>	43 mg (12%)
<a href="#">Manganese</a>	0.262 mg (12%)
<a href="#">Phosphorus</a>	62 mg (9%)
<a href="#">Potassium</a>	656 mg (14%)
<a href="#">Sodium</a>	2 mg (0%)
<a href="#">Zinc</a>	0.29 mg (3%)

Percentages are relative to [US recommendations](#) for adults.

Source: [USDA Nutrient Database](#)

Dry or soft dates are eaten out-of-hand, or may be pitted and stuffed with fillings such as [almonds](#), [walnuts](#), candied [orange](#) and [lemon peel](#), [tahini](#), [marzipan](#) or [cream cheese](#). Pitted dates are also referred to as *stoned dates*. Partially dried pitted dates may be glazed with glucose syrup for use as a snack food. Dates can also be chopped and used in a range of sweet and savory dishes, from [tajines](#) (tagines) in [Morocco](#) to [puddings](#), [ka'ak](#) (types of Arab cookies) and other dessert items. Date nut bread, a type of cake, is very popular in the United States, especially around holidays. Dates are also processed into cubes, paste called "'ajwa", spread, date syrup or "[honey](#)" called "dibs" or "[rub](#)" in Libya, powder (date sugar), [vinegar](#) or [alcohol](#). Recent innovations include [chocolate](#)-covered dates and products such as sparkling date juice, used in some Islamic countries as a non-alcoholic version of [champagne](#), for special occasions and religious times such as [Ramadan](#).

Dates can also be dehydrated, ground and mixed with grain to form a nutritious stockfeed. Dried dates are fed to camels, horses and dogs in the Sahara. In northern [Nigeria](#), dates and [peppers](#) added to the native [beer](#) are believed to make it less intoxicating.



Sweet sap tapped from date palm in West Bengal, India

Young date leaves are cooked and eaten as a vegetable, as is the terminal bud or heart, though its removal kills the palm. The finely ground seeds are mixed with [flour](#) to make bread in times of scarcity. The flowers of the date palm are also edible. Traditionally the female flowers are the most available for sale and weigh 300–400 grams. The flower buds are used in salad or ground with dried fish to make a [condiment](#) for bread.

Dates provide a wide range of essential nutrients, and are a very good source of dietary potassium. The sugar content of ripe dates is about 80%; the remainder consists of protein, fiber, and trace elements including boron, cobalt, copper, fluorine, magnesium, manganese, selenium, and zinc.<sup>[8]</sup> The [glycemic index](#) for three different varieties of dates are 35.5 (khalas), 49.7 (barhi) and 30.5 (bo ma'an).<sup>[9]</sup>

In [India](#) and [Pakistan](#), North Africa, [Ghana](#), and [Côte d'Ivoire](#), date palms are tapped for the sweet [sap](#), which is converted into palm sugar (known as [jaggery](#) or *gur*), [molasses](#) or alcoholic beverages. In North Africa the sap obtained from tapping palm trees is known as *lāgbī*. If left for a sufficient period of time (typically hours, depending on the temperature) *lāgbī* easily becomes an alcoholic drink. Special skill is required when tapping the palm tree so that it does not die.

In Southeast Spain (where a large date plantation exists including [UNESCO](#) protected [Palmeral of Elche](#)) dates (usually pitted with fried almond) are served wrapped in [bacon](#) and shallow fried.

It is also used to make [Jallab](#).

## **[\[edit\]](#) Cultural reference**

Represents the provincial tree of [Balochistan \(Pakistan\)](#) (unofficial).

## **[\[edit\]](#) Other uses of the plant**



 Date Palm stump showing the wood structure

Date seeds are soaked and ground up for animal feed. Their oil is suitable for use in soap and cosmetics. They can also be processed chemically as a source of [oxalic acid](#). The seeds are also burned to make [charcoal](#) for [silversmiths](#), and can be strung in necklaces. Date seeds are also ground and used in the manner of [coffee](#) beans, or as an additive to coffee.

Stripped fruit clusters are used as brooms. In Pakistan, a viscous, thick syrup made from the ripe fruits is used as a coating for leather bags and pipes to prevent leaking.

Date palm [sap](#) is used to make [palm syrup](#) and numerous edible products derived from the syrup.



 Date Palm in [Coat of arms](#) of [Saudi Arabia](#)

Date palm leaves are used for [Palm Sunday](#) in the [Christian](#) religion. In North Africa, they are commonly used for making huts. Mature leaves are also made into mats, screens, baskets and fans. Processed leaves can be used for [insulating board](#). Dried leaf [petioles](#) are a source of [cellulose](#) pulp, used for walking sticks, brooms, fishing floats and fuel. Leaf sheaths are prized for their scent, and fibre from them is also used for rope, coarse cloth, and large hats. The leaves are also used as a [lulav](#) in the Jewish holiday of [Sukkot](#).

Date palm [wood](#) is used for posts and rafters for huts; it is lighter than [coconut](#) and not very durable. It is also used for construction such as bridges and aqueducts, and parts of [dhows](#). Leftover wood is burnt for fuel.

Where craft traditions still thrive, such as in [Oman](#), the palm tree is the most versatile of all indigenous plants, and virtually every part of the tree is utilized to make functional items ranging from rope and baskets to [beehives](#), fishing boats, and traditional dwellings.<sup>[[citation needed](#)]</sup>

When Muslims break fast in the [evening meal of Ramadan](#), it is traditional to eat a date first.

## **[edit]** Traditional medicinal uses



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Date Palm trees in [Multan](#), [Pakistan](#)

Dates have a high [tannin](#) content and are used medicinally as a detergent (having cleansing power) and [astringent](#) in [intestinal](#) troubles.<sup>[*[citation needed](#)*]</sup> As an [infusion](#), [decoction](#), syrup, or paste, dates may be administered for sore throat, colds, bronchial [catarrh](#), and taken to relieve [fever](#) and a number of other complaints.<sup>[*[citation needed](#)*]</sup> One traditional belief is that it can counteract [alcohol intoxication](#). The seed powder is also used in some traditional medicines. Because of their laxative quality, dates are considered to be good at preventing [constipation](#).

A gum that exudes from the wounded trunk is employed in India for treating [diarrhea](#) and genito-[urinary](#) ailments.<sup>[*[citation needed](#)*]</sup> The roots are used against toothache. The [pollen](#) yields an [estrogenic](#) principle, [estrone](#), and has a [gonadotropic](#) effect on young rats.

## **[edit]** Diseases

*Main article: [List of date palm diseases](#)*

Date Palms are susceptible to a [disease](#) called Bayoud disease, which is caused by the [fungus](#) *[Fusarium oxysporum](#)*. This disease, which kills many of the popular older cultivars like 'Deglet Noor', has led to a major decline in production where it is present, notably [Morocco](#) and western [Algeria](#). However, new cultivars resistant to the disease are being developed.

## **[edit]** Date palm genome

In 2009, a team of researchers at the Weill Cornell Medical College in Qatar published a draft version of the date palm genome (Khalas variety).<sup>[*[10](#)*]<sup>[*[11](#)*]</sup></sup>

## [\[edit\]](#) Gallery



Ammari



Angou



Arichti



Bejjou



Bisr Helou



Gounda



Gousbi



Branch of Hamraya dates



Hissa



Hissa



Kenta



Kentichi



Lagou



Touzerzayet from [Tunisia](#)



Tounja



Date palm with fruits at the Abdul Aziz Date Farm in [Medina](#).



Ripe and dry dates fruit bunches at the Khurram Abdullah Bajwa Date Farm in [Medina](#).