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## Datepalm: A Boon for Arid and Semi-arid Regions

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Datepalm fruit is nutritious and has high calorific value. A kilogram of fully ripe fruits can provide around 144 K enriched with carbohydrates. It contains approximately 59%, 18-29% TSS (sugar), 2.5%, 2% protein, maximum 2% fat and minerals.

### Introduction

Datepalm (*Phoenix dactylifera* L.) is an ancient fruit indigenous to countries around the Persian Gulf, Iran, Iraq, Egypt, U.A.E., Pakistan, Sudan, Algeria, Libiya, U.S.A. (California), Israel and India are the major countries of Datepalm cultivation. In India, commercially it is cultivated in *Kutch* district of Gujarat state and a part of Rajasthan. There are more than 19 lacs date palm trees in India. Datepalm requires less input cost and able to give high remuneration.

### Package of Practices for Datepalm Production

**Soil:** Sandy loam soil with good water holding capacity with proper drainage and 8-10 soil pH.

**Climate:** Datepalm requires prolonged hot and dry summer with 25 to 40°C temperature at flowering and fruit ripening stage is preferable. Though, rainfall at fruit ripening stage seems harmful for the quality of dates.

**Varieties:** Commercially cultivation of Barhee, Halway, Khalas and Khunezi varieties of date palm in India. We should identify the best elite Date palm cultivars from Kutch region. The off shoots of these selected elite date palm cultivars should be propagated by tissue culture or the offshoots should be sown directly in the field.

**Propagation:** Date palm can be propagated by three methods (i) by seed (ii) by offshoots and (iii) by tissue Culture. Propagation by seed is not found suitable as it gives almost 50 per cent male plants and 50 per cent female plants. But female plants thus prepared have a large variation. Hence, it gives mixture of different quality of fruits which fetches poor market price.

Propagation by offshoot is ideal in present situation. The offshoots of best quality fruit plants should be separated from its mother plants and transplanted in to the field. The plants thus prepared will have similar characteristics to the mother plant. But plantation, on large scale takes many years as the number of offshoots from the single mother plant is very limited. Moreover, separation of offshoot requires special skill otherwise it may cause damage to offshoots and mother plants too.

Tissue culture is the best method of propagation through which one can produce thousands of similar quality plants in the laboratory, though it is also costlier and lengthy procedure. In India, many tissue culture laboratories have started the work on date palm recently including Gujarat. Many importers are importing tissue culture datapalm plants from other countries, of *Barhee* variety, under the strict quarantine measures.

**Planting distance:** 8.0 m x 8.0 m

**Irrigation:** Date palm requires abundant irrigations throughout its life span. Newly planted offshoot should be irrigated once a week during winter and twice a week in summer seasons as per the local climatic conditions and soil type. Soil should be moistened approximately up to 2 m depth for proper vegetative growth and fruiting. In fully grown orchard, irrigating intervals can be kept 15 to 30 days during winter and 7-10 days during summer. Datepalm can be grown successfully under varying soil types and water quality and it can tolerate poor water quality up to 3000 ppm in light sandy soil.

**Intercropping:** In a new plantation of datepalm any crop can be cultivated as inter crop in between two lines of datepalm initially up to four years. After four years fodder crops, vegetables and any seasonal crop can be safely and successfully grown. But after 4 to 5 years no any other fruit crop is advisable to grow.

**Fertilizer:** For getting optimum yield of fruits, fully grown datepalm should be supplied with 100 kg Farm Yard Manure, 1.0 kg Nitrogen, 1.0 kg Phosphorus & 1.0 kg potash every year three weeks before flowering.

**Pollination:** Being dioecious plant, male and female flowers are borne on separate palms. The chances for natural pollination in datepalm are very less. For getting commercial production, the artificial pollination process should be adopted. Artificial pollination is done by inserting about three mature male strands in inverted position in the centre of each spathe by climbing on the tree. Artificial pollination is a time consuming, tedious and risky job. Artificial pollination by PVC pollinator can reduce drudgery and the risk.

**Fruit thinning:** Thinning of fruits in datepalm helps to improve fruit quality and to increase fruit size. Thinning of fruit is done by removal of one third of the strands from each bunch or removal of one third portion or fruits from each strand.

**Pest and disease:** There are no serious pest and disease observed in datepalm. Sometimes, the crop is damaged by rhinoceros beetle or red palm weevil. The attack of these pests can be avoided by keeping the orchard clean.

**Fruit protection:** Rainfall at the time of fruit ripening deteriorates the fruit quality which causes a heavy loss to the date palm growers. This can be overcome by covering the fruit bunches by plastics or plastic coated papers during June-July.

**Harvesting and yield:** In Gulf countries, fruit is harvested at *Tamar* (fully ripened fruits) stage during September-October. But in India, owing to monsoon rains during this period, it is not possible to allow complete ripening of fruits on the trees and the bunched have to be harvested mostly at *Khalal* stage during June-July. Datepalm trees usually take approximately six years for commercial bearing. After 10 years, the average yield per tree is 100 kg fresh fruits (*Khalal*).

**Marketing:** Depending upon the size, colour, sweetness, pulp percentage, etc., the quality in datepalm fruit is found highly variable. The market price depends on these characters. It may be Rs. 2.00 per Kg of fruits to Rs. 100.00 per Kg of fruits. There is no uniform quality of fruits available in the market. The demand for the quality product is increasing day by day in different part of the countries and abroad. In *Kachchh* (Gujarat), the fresh fruits (*Khalal* stage) are available in market in the last week of June which is found 15 days earlier in the world. In the uniform plantation of single variety datepalm orchard good quality fruits can be harvested which have high potentiality in domestic and international market.

**Value added products:** Some value added product can be prepared from the fresh fruits of Datepalm. Dry dates (*Chhuhara*), fruit juice, jam, syrup and pickles and many more products can be prepared from the date fruits. Moreover, the leaves and dead stem of aged datepalm tree can also provide a livelihood for many families and landless labourers in the datepalm growing regions of the world.