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## Presentation of the Israeli date palm plantation

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**SUMMARY** - The region of Israel was famous for its high quality date culture during the 1st century AD. Date culture was totally destroyed by the end of the 10th century. Date culture in this country was renewed by the introduction of the high quality cultivars of Iraq, Egypt and North Africa. The cultivated area stretches along the Syrian-African rift valley from the gulf of Aqaba to the Sea of Galilee. Today the plantations consist of about 200,000 date palms (female), about half of them young palms. Planting objectives have changed due to the market demands from the Iraqi cultivars through 'Deglet Noor' to 'Medjool'. The spacing between palms in the plantations is 9x9 m and crop is 80-120 kg per tree of the dry cultivars to 150-300 kg per tree of the fresh ones. All growers are members of the organization "Hadiklaim" which buys their fruit and markets it. The marketing target is to export about half of the total crop. Research and guidance are focused on increasing the crop and the profit of growers.

**Key words:** Dates, cultivar, Israel, agricultural economy, marketing.

**RESUME** - "Présentation de la plantation de palmiers dattiers d'Israël". La région d'Israël a été célèbre pour la haute qualité de sa production de dattes au cours du 1er siècle après J.-C. Cette culture a été totalement anéantie à la fin du 10<sup>ème</sup> siècle. La production de dattes dans ce pays fut relancée par l'introduction de cultivars de haute qualité en provenance d'Iraq, d'Egypte et d'Afrique du Nord. L'aire cultivée s'étend le long de la vallée du rift syrio-africain, depuis le Golfe d'Aqaba jusqu'à la Mer de Galilée. Aujourd'hui les plantations représentent environ 200 000 Palmiers dattiers (femelles) dont la moitié sont des individus jeunes. Du fait de l'évolution de la demande sur le marché, les objectifs de plantation sont passés des cultivars irakiens à la variété 'Medjool' en passant par la 'Deglet Noor'. L'espacement entre les palmiers dans les plantations est de 9 x 9 m et les rendements vont de 80 à 120 kg par pied pour les cultivars à dattes sèches jusqu'à 150 à 300 kg par pied pour ceux à dattes fraîches. Tous les cultivateurs de Palmier dattier sont membres de l'organisation "Hadiklaim" qui achète leurs fruits et les commercialise. L'objectif commercial est d'exporter près de la moitié du total de la production. La recherche et l'encadrement ont pour priorité l'augmentation de la production et des revenus des producteurs.

**Mots-clés** : Dattes, cultivar, Israël, économie agricole, commercialisation.

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### Cultivars and location

The Holy Land was well known for its special and excellent date cultivars since ancient times (Goor and Nurock, 1968; Pliny, 1945), as mentioned by Pliny in the 1st century AD: "... But not only are these trees abundant and bear largely in Judaea, but also the most famous are found there, and not in the hole of that country but especially in Jericho ... The Nicholas date belonging to this class is not so juicy but exceptionally large in size, four put end to end making a length of eighteen inches."

The date palms grew by water sources on the Syrian-African rift, from Akaba in the south up to the Sea of Galilee in the north. The most famous centres of date palm culture were Jericho and Ein-Gedi (Fig. 1).

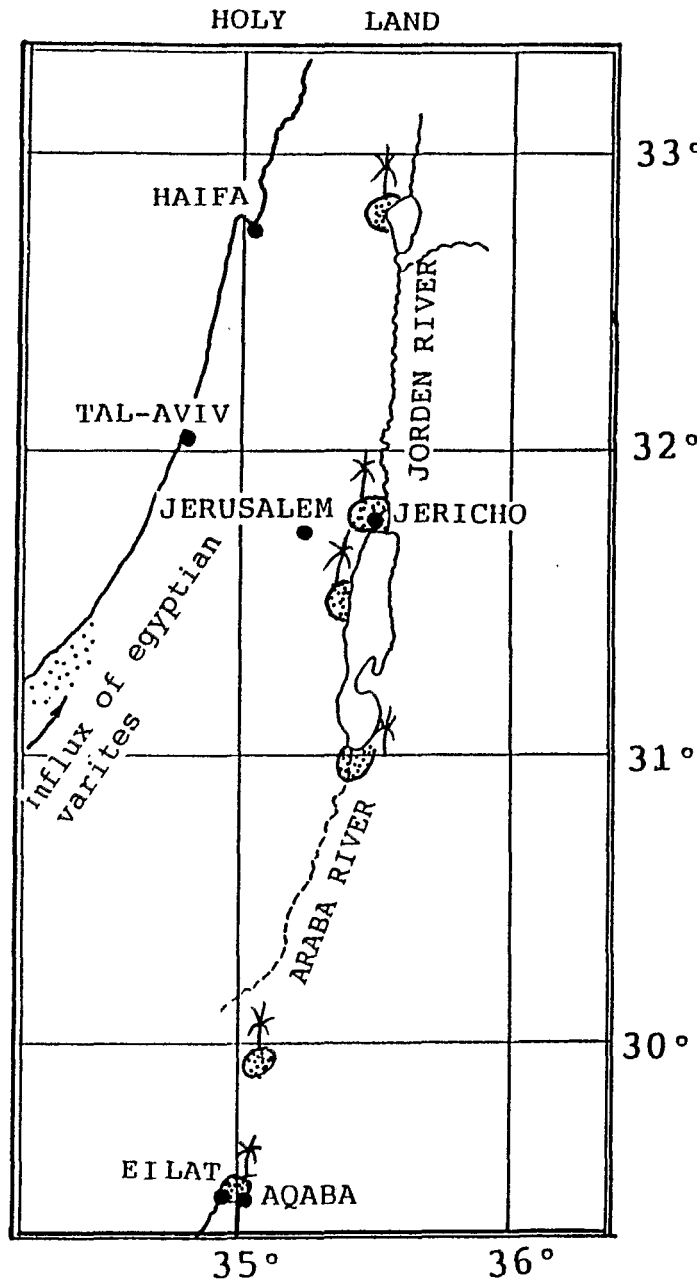


Fig. 1. Ancient sites of date palm oases.

Date palm culture in this region, which reached its climax in the early centuries AD, was fully destroyed at the end of the 10th century. At the end of the 19th century not even one date palm survived in Jericho or Ein-Gedi (Fig. 1).

Renewal of date palm culture in this region (in the upper part of the Jordan Valley) started in 1924, by the introduction of many Iraqi and Egyptian varieties, brought directly from Iraq and Egypt, and North African varieties, brought from California. Only

9 of those varieties turned 'commercial', and their relative importance changed throughout the years, according to the market preference in Israel and abroad.

'Khadrawi' planting in Israel was restricted at the beginning of the 80's, as the local market, which preferred 'Khadrawi' till then, turned to look for 'Deglet Noor' dates. Planting of 'Deglet Noor' palms, in turn, almost totally stopped when growers became aware of the difficulties of exporting this variety, due to the increasing quantities of these dates exported to Europe from North Africa, and especially from Tunisia (Fig. 2).

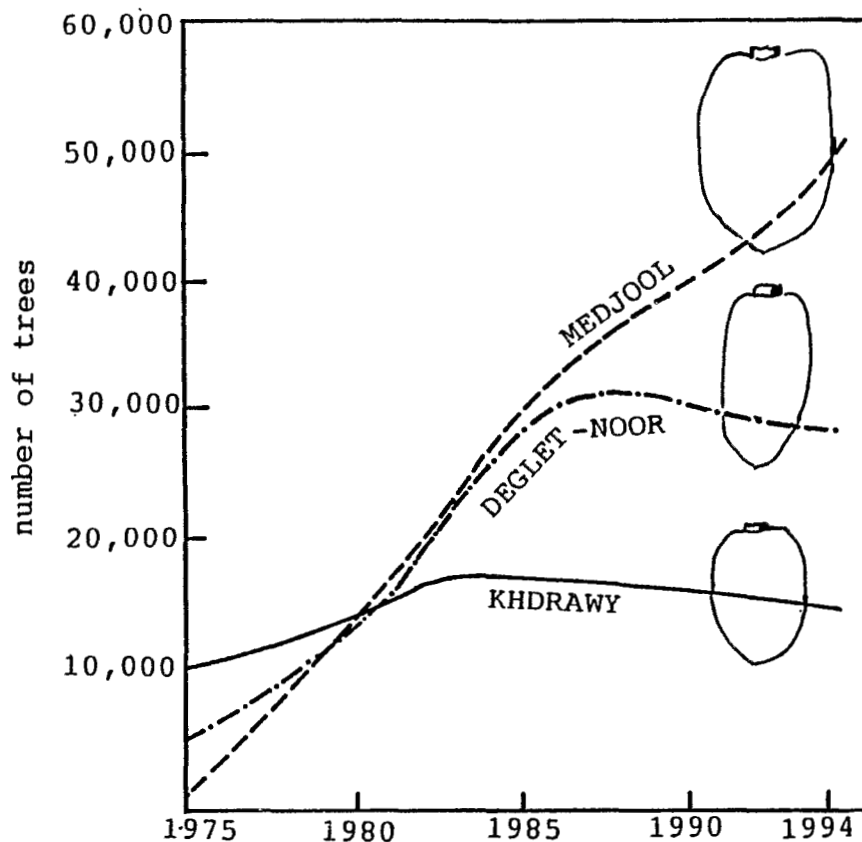


Fig. 2. Ways of planting 'Khadrawi', 'Deglet Noor' and 'Medjool' in Israel.

Today 'Medjool' is the most preferred variety. A similar situation took place in the USA, where the 'Deglet Noor' became the most preferred variety, out of about 140 different varieties, introduced there from all around the world (Nixon, 1950).

Current planting is also mainly of the 'Medjool' palms. In contrast to the traditional date growing countries, which had their "national varieties", in the USA and in Israel, which had not any tradition of date growing or consumption, the preferred variety was chosen by pure commercial considerations.

The date plantation strip along the Syrian-African rift is about 400 km long. Climatic environment changes along this strip and harvest times change accordingly. An interval of about one month can be found between the 1st orchard to ripen and the last one. This interval allows an extension of marketing period for fresh dates like 'Deglet Noor' dates on the strands (or 'Barhee' as fresh dates on strands) (Fig. 3).

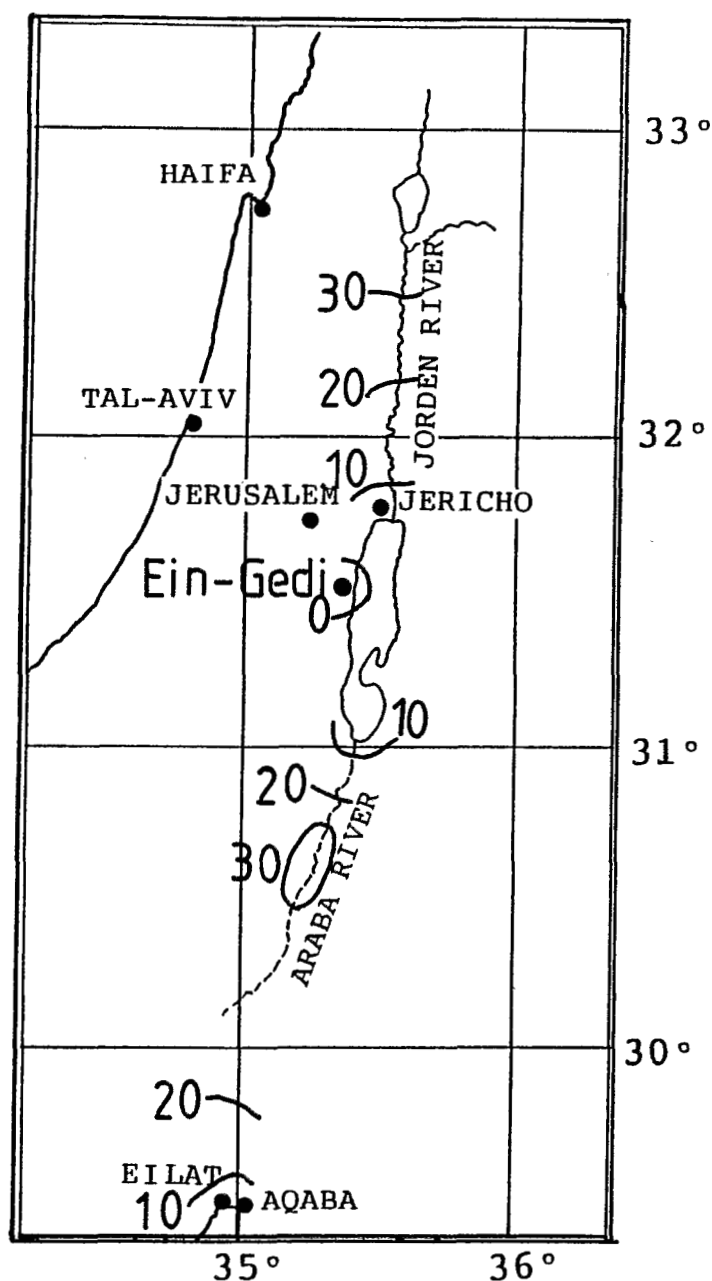


Fig. 3. Relative delay of ripening (in days) of 'Deglet Noor', *versus* 'Ein gedi' (Dead Sea).

Current date plantation map does not fit the historical one. Dates are grown today wherever climate and soil conditions are suitable and water can be supplied, even from distant sources. Still date growers have to face the difficulties of hard work at desert climate and staying far away from cultural centres.

### Farming systems and commercial organization

The Israeli date growers prefer the living quality in the small villages. Most of them (in the kibbuzes and the cooperative villages) belong to cooperative settling movements, so they are not competing with each other and they cooperate in a common marketing organization.



92% of the Israeli date plantations are owned and cultivated by collectives or cooperatives. The usual size of a plantation in those settlements is between 20 and 30 ha. 14% of these plantations are of large size (30-50 ha). The size of privately owned units is generally smaller than 10 ha. Growers owning plantations smaller than 15 ha generally have difficulties in purchasing and maintaining the sophisticated mechanical equipment necessary to work on high palm trees.

Since date growing in Israel is based on commercial considerations only, expansion or restriction of plantation size is decided according to the profitability of this crop as opposed to that of other crops, like early grapes or mango varieties.

The current number of date palms in Israel is about 200,000, of which only half are fully matured and about one quarter do not bear fruit yet (Fig. 4).

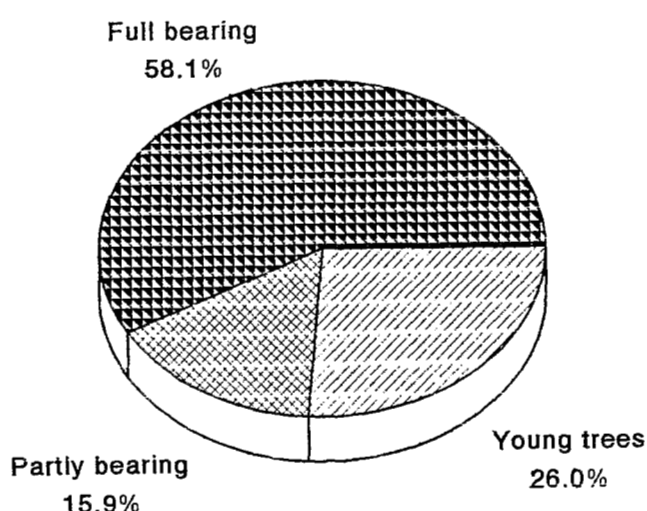


Fig. 4. Age distribution of date palm in Israel.

The two main varieties (by number of trees) are the 'Hayani' and the 'Medjool' (Fig. 5).

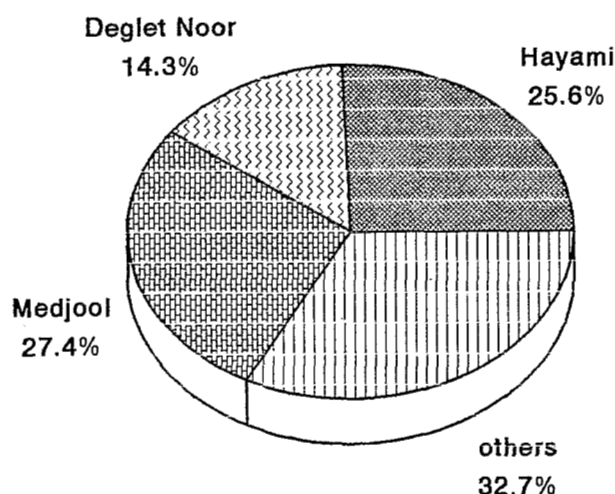


Fig. 5. Date Palm varieties in Israel.

Date palms in Israel are always planted in 9x9 m distance without any intermediate crops. Annual crop varies from 80 to 120 kg per tree for dried dates to 150-300 kg per tree for fresh dates (like 'Hayani' or 'Barhee').

Development policy for the date culture in Israel is based on the following principles:

- (i) Every variety has to be profitable, independent of any governmental subsidies.
- (ii) Production costs are relatively high in Israel.
- (iii) Date annual consumption in Israel is low (about 1 kg per person, which is only 1% of the annual fresh fruit consumption) (Fig. 6).

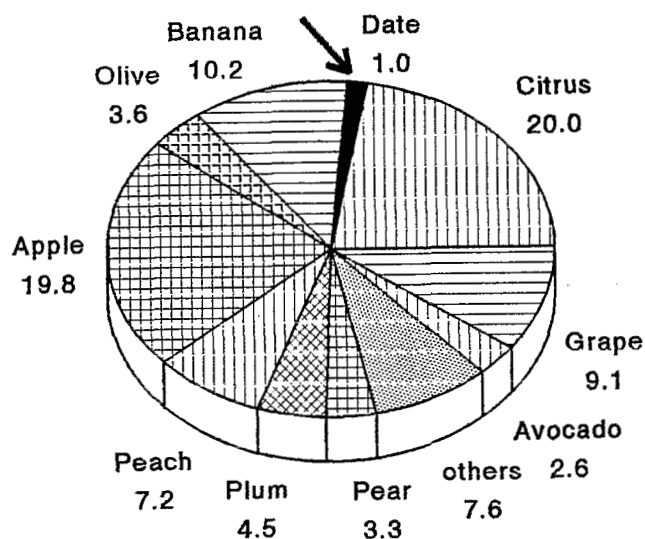


Fig. 6. Fresh fruit consumption in Israel (kg per person).

The annual date crop of Israel is about 12,000 tons (twice the annual local consumption) and the expected growth in the next years is quite large.

## Development and research needs

The following conclusions are necessary:

(i) Demand for a well organized and efficient marketing system, which should act to ensure prices at the local market, distribute the fruit and keep its marketing advantage against competitors abroad and develop new markets for it.

(ii) Demand for a high percentage of high quality fruit, to fit standards of exclusive markets, which pay high prices.

(iii) Demand for research and guide systems, which should help the growers to reach high annual crops of good quality and to develop new products.

The Israeli date growers' organization, named "Hadiklaim", buys the whole crop of each grower as it enters the packing house. It finances storing, curing, packing and marketing costs, determines sales policy (quantities and prices) and sells the dates in the local and overseas markets (Fig. 7).

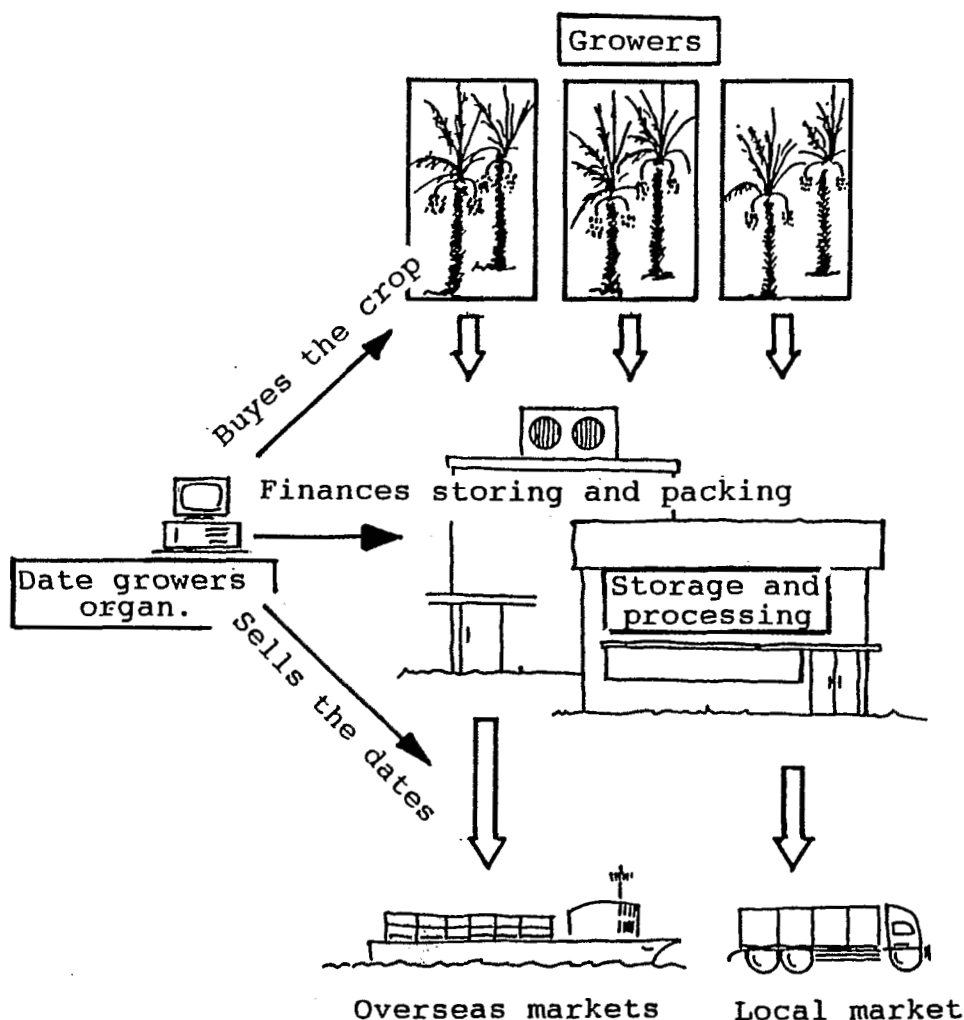


Fig. 7. Activity of the organization of date palm growers "Diklaim" in Israel.

Good fruit quality is in the grower's interest. Low quality fruit can only be sold for industrial use, and therefore, it barely pays the production costs.

There are two professional guiding systems to support the grower: the Ministry of Agriculture guides and the regional packing house field service personnel.

On the other hand, it is very difficult to obtain half, or more, of the crop at the high quality required to fit European standards.

Most of the research projects are financed by the date growers.



A professional committee of the growers' organization is responsible for the selection of research targets and projects.

Subjects of research are directly determined by the possibility of increasing the grower's income. Accordingly, the main projects are as follows: (i) extending shelf life of fresh dates consumed as "halal" or "rutab"; (ii) curing and marketing fresh 'Medjool' (soft, high moistured dates); and (iii) getting fruit free of insects and their signs, with minimal insecticide residues.

Basic research is neglected in this system. Subjects such as water-soil-plant relations, fruit physiology, reproductive organs regularity, genetics or regeneration are not dealt with as thoroughly as necessary.

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