

## **The American Date Industry**

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### **HISTORY**

Legend says dates came from the Garden of Eden, and records show dates flourished on the banks of the Nile 5,000 years ago, and were preserved in the tombs of Egyptian Pharaohs. They are sacred to all Mohammedans.

The earliest Spanish explorers said: "Here should grow dates", when they first saw the California deserts. For here was a land like the wastes of the Sahara, like Arabia, like the plains around Baghdad. Then the Mission Fathers who followed the explorers to California planted a few date palms. In 1818, an article encouraging date culture in the United States was written by one Samuel Mitchell who returned from the Orient filled with wonderment at the vast industry that supplied the Arabs and Egyptians with their favorite food. But not until about 1890 was anything much done about it.

Then Uncle Sam's Department of Agriculture sent plant explorers to the far-off date gardens of the world to get offshoots of the famous Babylonian and Arabian date varieties. Offshoots from the finest palms of the old world were sent to California. In spite of extreme care, the early years brought only discouragement. Progress in the hopeful new experiment was very slow until about 1912, when commercial importations of the Deglet Noor were made. Today this variety has surpassed its old world grandeur in the Coachella Valley — the California desert it has transformed into a date garden. The late King of Iraq, whose country was called Babylon in Bible days, recently wrote about the California dates: "We, who have been growing dates for centuries, have never seen such fine dates in our own country."

### **LOCATION OF INDUSTRY**

Sunken 252 feet below sea level, the Coachella Valley is an oddity of Nature. Situated about 125 miles southeast of Los Angeles, it comprises an area approximately 70 miles long by 10 or 12 miles wide at its broadest point. At its southern end lies Slaton Sea and continuing southward, this Valley merges with the great irrigated Imperial Valley.

The name Coachella is derived from a Spanish word meaning "little shell", probably because of the myriads of broken sand-blown shells to be found among the dunes of California's desert. This would seem to prove the statement of geologists that at one time the Gulf of California reached as far north as Coachella Valley, before it was shut off by the silt deposits of the rushing Colorado River.

## ACREAGE

In this valley there are approximately 200,000 date palms. This comprises the total date acreage in the United States at the present time, with the exception of about 75,000 date palms in Arizona. In Iraq, groves 100 miles long are not unknown; and in Egypt, where the industry is as old as history, there are said to be over seven million palms!

## PRODUCTION FACTORS

The cost of bringing a date garden into production is high. It requires about six years and costs from \$2,000 to \$3,000 to carry one acre of date palms to the point where they begin to earn some money for the owner. Even before harvesting begins, each tree must be climbed many times a season. A total of from 50 to 100 trips per tree is not unusual! Early in the cultivating year, the palm is first climbed to remove the dangerous spike-like thorns. In the spring the all important process of pollination begins. This is necessary because Nature, by some curious twist or caprice, has provided no adequate means for transferring the pollen from the male palm to the blossoms on the female palm. And, notwithstanding the fact that the date palm is the oldest known cultivated fruit tree in the world, history tells us that it has been pollinated by man's hand for thousands of years to obtain full clusters of perfect fruit.

The male palm never bears any fruit but normally produces enough pollen to pollinate the blooms on 49 female palms. In other words, the normal planting is approximately 50 palms to the acre, of which one is a male palm.



TYPICAL DATE GROVE

Showing the heavily loaded clusters of dates ready to be harvested.

After picking the pollen from the male palms, it is wheeled in little carts to the pollen room. Here it is shaken from the stalk and the fresh powder-like substance, pale yellow in color, is allowed to dry. From this store, the date worker makes up small jars or tins containing dabs of cotton thoroughly saturated with the pollen. He then proceeds to pollinate the long rows of evenly spaced, producing female palms, which at this season (spring) have already borne clusters of young fruit, not over one-eighth of an inch in size. Climbing the palms again, with his knife the worker slices off the top third of the female fruit-cluster, places the pollinated cotton in the center and ties the stems loosely with hemp twine.

Palm-climbing in the date industry is an almost continuous process. For prior to the ripening of the fruit in the fall, the palms must be ascended again and again, unless the loosely knotted twine holding the cotton has been forced apart by the growth of the cluster, it must be cut.

There is now the important thinning-out process, to improve the size and quality and to avoid the danger of excess weight. Even then the grower is not through with palm expense. He must protect his selected crop against the threat of rain, which, though rare in the desert regions in the fall months, may come with a sudden turn of "freak weather." Rain is absolutely ruinous to the date. It causes the very thin skin to break open and allows mould to set in. So up the palms the workers go again, several times for each palm, to tie heavy crepe-paper bags over each cluster of dates.

## **IRRIGATION**

Although the fruit cannot stand rain, the date palms must be heavily irrigated. Water pumped from deep wells is used for irrigating palms in Coachella Valley, as there has been found to be a large supply of exceptionally pure water under the floor of this great valley. An average of 10-acre-feet is applied each year; in other words, enough water to cover one acre 10 feet deep. There is an old Arabic saying, "A date palm must have its feet in water and its head in the fires of heaven."

With a summer heat that registers from 110 to 130 degrees Fahrenheit, the date gardens of the Coachella Valley are irrigated every ten days in summer and every three weeks the rest of the year.

## **YIELD**

In the United States about seven months are required to produce mature fruit. The female tree produces from 10 to 20 clusters of fruit that hang down like gorgeous festoons between the palm leaves. In the case of the Deglet Noor, some of the clusters will weigh over 30 pounds each, and each palm will produce from 200 to 350 pounds of fruit, depending on the care it receives. The soft varieties produce from 100 to 150 pounds per palm. This is after enough thinning to insure a high grade of fruit.

Harvesting is a tedious and costly process, lasting from September through December. Up the ladders, this time with heavy canvas or leather harness, go the small army of workers recruited to accomplish the picking in a systematic manner. The harness may

be attached to a special ladder which revolves about the tree on a thin, easily transported circular rail. Or it may be hung to the strong upper branches of the palms to provide a seat for the worker.

In their native land, date palms have been known to reach a height of 100 feet or more and still produce fruit. The palms in California are still relatively young and are not much higher than forty to fifty feet. How much higher they will be allowed to grow before pulling them out and replanting, will depend on the cost of labor in performing the many palm-climbing operations that are necessary throughout the year. Obviously, the higher the palm the greater will be the cost of harvesting because all the dates on a cluster do not ripen at the same time, and the pickers must go from bunch to bunch and from palm to palm, picking the ripe fruit only and placing it in small baskets, in the case of soft dates. Deglet Noors are picked into 14 or 16 quart pails. These are emptied into lug boxes holding from 18 to 20 pounds of fruit.

## **PACKING OPERATIONS**

When the dates are first received at the packing house, they are weighed and cleaned by a series of long, soft-bristle brushes.

All fruit leaving the receiving room must be fumigated for at least six hours before entering the plant, to avoid any chance of insects getting into the packing house and destroying the fruit. The fruit is then cleaned again in cylindrical drums containing revolving long, soft-bristle brushes. The drum is lined with a long fibre, heavy terry cloth. This cleaning operation removes any particles of sand or dust remaining on the dates and also removes the bloom by a polishing effect. The dates then pass on a moving, endless belt over the grading table where experienced girls separate the various grades.

Another phase of the packing operation is the necessity for moisture control. It has been found that dates with over 26% moisture are subject to spoilage, whereas a date of less than 20% moisture is unpalatable. Therefore, it is common practice to remove the excess moisture from dates that might otherwise be in danger of fermentation. In the case of dates of a dry character, moisture is added by the hydration process, which consists of placing the dry dates in a room into which steam is released at atmospheric pressure.

Every case of dates is individually inspected for quality. If passed, the official stamp of approval is affixed to the box end, and no Desert Sweets (the cooperative's trade mark brand) leave the packing house without this stamp. The cost is considerable, but this illustrates the extent to which the date growers are going in order to maintain the highest standards in the country for the Desert Sweets Brand.

## **PROPAGATION**

Date palms grown from seed are not true to the parent. Neither can they be budded or grafted like other fruit trees. The only known method, then, of propagating any specific variety is by means of the suckers or offshoots that develop around the lower base of

the palm tree, as these are always true to the parent.

When these offshoots have developed roots of their own, which they do within two to three years, they are carefully removed from the parent tree by means of wide, specially designed chisels. A robust female palm produces 10 to 20 daughters or offshoots before losing her capacity of motherhood at the age of 15 to 20 years. She then settles down exclusively to bearing large quantities of fruit for the rest of her life. Male palms bear their sons in the same manner as daughters are born to the female palm.

## **VARIETIES**

In the development of any new horticultural industry, for its future success, careful consideration must be given to the varieties best adapted to local conditions and to present and future markets.

Of the hundreds of varieties imported into this country, only about a dozen were found suitable for commercial culture in California and Arizona. A few were found to produce more and finer fruits than in their native habitats.

Date palms produce three general classes or types of dates, as follows: (1) the soft date, (2) the semi-soft date, (3) the dry or bread date. All date varieties throughout the world readily fall into the above classes.

A strict division is between dates of a high invert sugar content and those containing mostly cane type sugar. With the exception of Deglet Noor and bread dates, most U. S. grown varieties contain a preponderance of invert sugar.

In America the Saidy and the Khadrawi are the principal soft varieties grown. The Deglet Noor and the Zahidi are the principal semi-soft dates, with excellent shipping, keeping and eating qualities. And the Thoory is the outstanding dry or bread date.

The most popular of these varieties in this country is the Deglet Noor, which ranks supreme among the dates of all varieties. It is the one that boasts the largest acreage of growing palms, and produces the greatest money crop of dates. Deglet Noor is of Arabic origin and, properly transliterated, is Deglet-Al-Nur, meaning "Date of Light," an allusion to its translucency when ripe. The flavor is very rich and pleasing and its chewy texture makes it excellent eating.

At the present time the principal commercial varieties being grown in Arizona include the Khadrawi, Zahidi, Iteema, Kustawi, Halawi, Hayany, and Deglet Noor.

## **MARKETING**

United Date Growers of California is the cooperative association through which some 85% of all California date growers pool their entire date production, for the purpose of establishing standards of grading and routing all supplies through one marketing channel. This reduces the factor of non-standard competition within the industry. With the exception of a small acreage in Arizona, California's Coachella Valley is virtually the only date producing area in the United States. United is, therefore, in almost complete control of American date supplies. Calavo, Inc., is the exclusive selling agency for

United Date Growers.

## **FOREIGN AND DOMESTIC SUPPLY**

Twelve million pounds were grown in Coachella Valley last year. The balance of imported fruit fulfilled the demand for a popular-priced eating date, useful, too, for baking and confections.

In 1940 a total of 44 million pounds was imported. The bulk of these came from Iraq, with Arabia and the United Kingdom furnishing nearly all the rest. According to these statistics, America imports nearly four times as many dates as are grown domestically. But practically all the "quality" date packages, all the "gift-dates", and a large percentage of the "table" dates are grown in California. Small exportations of the home crop have been made.

## **FUTURE PROSPECTS**

Overcoming numerous and difficult obstacles, the young California date industry is rapidly becoming more and more important in the economy of the state. Excellent progress has been made during its brief history in the way of improving the quality, handling methods, and increasing the production. Based on present acreage, production should reach 20 to 25 million pounds in the near future. It is expected that demand will keep pace with the anticipated increased production, as the consuming public becomes better acquainted with the superior quality of the home product.

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