

2010

# Dates Processing Plant



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# Table of Contents

<b>EXECUTIVE SUMMARY</b>	<b>5</b>
<b>1. INTRODUCTION OF THE PRODUCT</b>	<b>6</b>
1.1. THE PRODUCT: DATES (KHAJOOR)	6
1.2. HISTORICAL BACKGROUND OF DATES	7
1.3. HEALTH BENEFITS OF DATES	7
1.4. DATES MATURATION STAGES & RESPECTIVE USAGE	9
1.5. CONSUMPTION PATTERNS & VALUE ADDED PRODUCTS	10
<b>2. SECTOR OVERVIEW</b>	<b>11</b>
2.1 GLOBAL DATES PRODUCTION	11
2.2 DATES PRODUCTION IN PAKISTAN	11
2.3 MAIN DATES VARIETIES OF PAKISTAN	12
2.4 DATE PRODUCTION IN SINDH	12
2.5 COMMERCIALY VIABLE SINDHI DATE VARIETIES	13
2.6 DRY DATE MAKING & THE MONSOON THREAT	13
<b>3. MARKET OVERVIEW</b>	<b>15</b>
3.1 LOCAL MARKETS & CONSUMPTION	15
3.2 INTERNATIONAL MARKETS OF DATES	15
3.3 DATES EXPORT FROM PAKISTAN	16
3.4 DATES IMPORT IN PAKISTAN	16
<b>4. PROFITABLE INVESTMENT GAP</b>	<b>18</b>
4.1. DATES PROCESSING PLANT	18
4.2. MAJOR ISSUES FACED BY THE STAKEHOLDERS	18
4.3. CONCEPT OF DATE PROCESSING	18
4.4. PRESENT PRACTICES IN DATES PROCESSING	19
4.5. MAJOR ISSUES IN CURRENT PRACTICES	19
4.5. DATES PROCESSING PLANT: JUSTIFICATION	20
<b>5. DATES PROCESSING PLANT (DPP)</b>	<b>21</b>
5.1. OPPORTUNITY RATIONALE	21
5.2. PROJECT BRIEF	23
5.3. PROCESS DESCRIPTION	23

5.4. LAND & BUILDING REQUIREMENT	26
5.5. LAYOUT PLAN OF DPP	27
5.6. KEY SUCCESS FACTORS	27
<b>6. PROJECT INPUTS</b>	<b>29</b>
6.1. PROPOSED PROCESSING CAPACITY OF THE DATE PROCESSING PLANT (DPP)	29
6.2. PLANT MACHINERY & EQUIPMENT	29
6.3. LAND & LOCATION REQUIREMENTS	29
6.4. OFFICE EQUIPMENT	29
6.5. HUMAN RESOURCES	30
6.6. INFRASTRUCTURE REQUIREMENTS	30
<b>7. PROJECT ECONOMICS</b>	<b>31</b>
7.1. PROJECT COST	31
7.2. PROJECT RETURNS	31
7.3. CAPITAL STRUCTURE OF THE PROJECT	31
<b>8. PROJECT FINANCIAL STATEMENTS</b>	<b>32</b>
8.1. PROJECT INCOME STATEMENT	32
8.2. PROJECT BALANCE STATEMENT	33
8.3. PROJECT CASH FLOW STATEMENT	34
<b>ANNEX A</b>	<b>35</b>
<b>IMPORTANT CONTACTS</b>	<b>40</b>

## Executive Summary

The most preferred and popular date consumption method in the world is in the form of fresh dates, also known as table dates. In the entire Muslim world, fresh dates are used to break the fast during the holy month of Ramadan. Fresh dates are considered as extremely nourishing fruit since they contain important elements of a healthy food such as multiple types of sugars, carbohydrates, vitamins and minerals. Having a supple and delectable sweet taste with a pleasant chewing texture, dates are a delightful experience. Therefore, good quality fresh dates are used in daily routine for addressing various nutritional requirements by men, women and children of all ages. Dates are also highly recommended to pregnant or lactating women. Having such an appealing fruit, it is required that the locally produced dates are properly & hygienically processed. This processing will enhance its quality and will make it competitive in the local and international markets.

Due to lack of proper processing facilities, the locally produced dates are not appropriately cleaned, packed and packaged according to the international standards, therefore, are considered low in quality. This phenomenon labels Pakistani dates as Industrial Quality dates fetching very humble price in the local and international markets. In the area of processing, there is an acute absence of value addition. This aspect is also a reason for severe date sector underperformance in financial terms.

Dates Processing Plant is the urgent need of the dates' sector for immediately improving the quality of the product. This would facilitate the growers / traders / exporters with fast, standardized and quality processing and packaging of dates overall enhance quality product. Currently unavailable or only limited to a few private sector units with limited capacities, the following processes can increase the quality and worth of dates and would add value for local markets and international buyers. These processes are Washing, Sorting, Grading, Pitting, Glazing, Polishing, Weighing, Fumigating and Packaging. Simple value addition such as dates blocks making and paste making can also be performed.

If the downstream stake holders are provided with appropriate processing facilities, overall efficiency of the entire sector will dramatically improve due to consequent increase in the product quality and increased shelf life which will eventually yield higher revenue generation. Hygienically processed and properly packed dates have a huge market potential in both, local and in the international markets. Local markets consume the major quantities during the holy month of Ramadan. However, during rest of the year, local dates processing factories and exporters remain busy and cater to the international markets.

The establishment of a processing plant will not only dramatically increase the efficiency of the sector and the product quality but will serve as a model date Plant stimulating more such plants in the area. By establishing such plants, ample employment opportunities will be generated for the local youth and hence, will positively impact sociology of the area.

# 1. INTRODUCTION OF THE PRODUCT

## 1.1. *The Product: Dates (Khajoor)*

The date palm (*Phoenix dactylifera* L.) is considered as one of the most important cash crop of the country and holds a very significant position on the agricultural horizon of Sindh. Wonderfully delicious, dates are one of the most popular fruits with an impressive list of essential nutrients, vitamins and minerals, required by humans for normal growth, development and overall well-being. Fresh date is made of soft, easily digestible flesh with simple sugars like fructose and dextrose that when eaten, replenishes energy and revitalizes the body instantly; thus, for these qualities, dates are being used to break fasts during the holy month of Ramadan all across the Muslim world.



Date fruits have a very high nutritional value as one kg of dates possesses around 3000 calories. It consists of 70% carbohydrates (mostly sugars), making it one of the most nourishing natural foods available to man. It also contains proteins, fats, crude fibers, vitamins, minerals, enzymes and other useful substances. The water content is between 15 to 30% depending on the variety and on the maturity stage of the fruit. Due to genetic difference and growth conditions, dates show a wide variety in their final shape and appearance more than any other fruit. Therefore, the quality profile of dates involves a range of color, shape, size, texture and pit to flesh ratio. The other important determinants are weight, moisture contents, sugar and the fiber.

Major constituents of Date Fruit	
Dates contain the following food values, calculated per 100 grams	
Moisture Contents	15 -30 %
Protein	2.5 %
Fat	0.4%
Minerals	2.1%
Carbohydrates	70.0%
Fiber	3.9 %
Vitamins A, B Complex & K are also found in dates	
One Kg (1000 grams) dates contain, on an average, 3000 calories. Whereas average human body requirement is between 2500 to 3000 calories a day	

Having characteristics of low fats, appropriate moisture contents, carbohydrates and other nutritional values with a sweet and supple taste & texture along with a chewing pleasure, dates are considered as complete food and are cherished all around the world.

## **1.2. Historical Background of Dates**

Date fruit is considered as one of the oldest fruits found on earth having the traces in prehistoric era. Alphonse Pyrame de Candolle (1806-1893), a noted French-Swiss botanist claimed that in pre-historic times date palm cultivation ranged from Senegal in the Western Africa to the basin of the River Indus in South Asia. Apart from our own land, dates have been in cultivation in Senegal, Mauritania, Mali, Nigeria, Algeria, Tunisia, Morocco, Libya, Egypt, Sudan, Chad, Iraq, Saudi Arabia, Yemen, UAE, Oman and Iran since the ancient times. Arabs spread dates into Spain during their rule in that Southern European country from the 12th to 15th centuries. Dates were introduced further west into the American continent by the Spaniards in the 18th century.

Currently, all the major dates producing countries form part of the Muslim world. Generally, dates are considered as the fruit consumed mainly by the Muslims, especially during the Holy month of Ramadan and also during their various religious ceremonies. In the Magnificent Holy Quran, there are 22 mentions of this fruit. The Holy Prophet (PBUH) had a special liking for this fruit due to its enormous benefits. Being grown in predominantly Muslim areas, this fruit has a deep and lasting association with Muslims and Islamic traditions, around the world.<sup>1</sup>

## **1.3. Health Benefits of Dates<sup>2</sup>**

Health benefits of dates are uncountable, as this fruit is affluent in natural fibers and is best nourishment for muscles development. People consume dates in several ways, like mixing the dates paste with milk, yoghurt or with bread or butter to make the food tasty and healthy. This paste is beneficial for both adults and children, especially during the time of recovery. According to the modern medicine survey, it is known that dates are useful in preventing abdominal cancer. Muslims break their fast by eating dates and water according to their traditions. Breaking fast with eating dates helps to avoid overeating of the food after the fast. When the body absorbs the nutritional value of the dates, the feeling of hunger gets pacified.

Dates are taken as an ideal food which easily balances and digests other foods. It gives extra energy to a tired human body within half an hour after taking it. American Cancer Society recommends intake of 20-35 grams of dietary fiber in a day, supplied through dates. It is said that taking one date in a day will help you maintain your healthy eyes for a lifetime. They are quiet effective in guarding the night blindness problems.

Dates are being utilized for multiple purposes in different parts of the world. It holds a strong position in the list of most delightful fruits due to its sweet taste and texture. It is taken as a nourishing food for gaining recovery and strength. It has a very important medicinal value as well. Following is a brief description of a few medicinal benefits of date fruit.

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<sup>1</sup> Article 'Date Palm Industry; Present Challenges & Future Prospects' by M.E.Jalbani.

<sup>2</sup> Web site : Organic Facts : Article by Ms Seema Adnani  
<http://www.organicfacts.net/health-benefits/fruit/health-benefits-of-dates.html>

**Constipation:** Date is termed to be a laxative fruit and is beneficial for people suffering from constipation. For getting the laxative effect from dates, dates are needed to be soaked for one full night in water to be consumed in the morning like syrup to get their actual advantages.

**Intestinal Disorders:** The nicotinic content that is present in the dates is said to be beneficial for curing any kinds of intestinal disorders. Continuous intake of dates helps to maintain a check on the growth of the pathological organisms and thus, help in the rise of friendly bacteria in the intestines. Metchnikoff, a Russian scientist recommends the liberal consumption of dates which check the growth of pathogenic bacteria and helps establish a colony of lactobacilli, the friendly bacteria in the intestines. Dates are great remedy for intestinal disturbances.

**Weight Gain:** Dates are said to be a part of healthy diet. They consist of sugar, fats, proteins as well as many essential vitamins. If the dates are consumed with the paste of cucumber, one can easily overcome the problem of being under weight. One kilogram of dates contains of almost 3,000 calories. These calories alone are sufficient to meet the daily requirements of a human body as on an average around 2500 calories are considered as sufficient for a normal human being in the east.

**Heart Wealth:** Dates are quite helpful in maintaining heart in a healthy condition. When soaked for whole night and crushed in the morning and consumed, they prove to be quite advantageous for weak hearts. They help to fortify heart, if taken twice in the week.

**Sexual Weakness:** Dates are even beneficial for increasing sexual stamina in the human body. A handful of dates, when soaked in fresh goat's milk for the night and then grinded in the same milk with the mixture of cardamom powder and honey, becomes a very useful tonic for increasing sex endurance and sterility due to functional disorders.

**Intoxication:** Dates are known as an excellent remedy for alcoholic intoxication. Dates provide quick relief in the case of alcoholic intoxication. They should be rubbed and soaked overnight for getting more nutritious values from them.

**Abdominal, Lung & Oral Cavity Cancer:** Dates are beneficial for curing different cancers. They work as useful tonic for all age groups. They work as the medicines, and are natural and do not bear any side effects in the body. They can be easily digested and used for supplying extra needed energy. They are a good source of Vitamin-A (contains 149 IU per 100 g), which is known to have antioxidant properties and is essential for vision. Vitamin A also required maintaining healthy mucus membranes and skin. Consumption of natural fruits rich in vitamin A known to help to protect from lung and oral cavity cancers.

**Health benefits for women:** Dates have tremendous health benefits for women, particularly the pregnant and lactating. Studies show that dates contain certain stimulants which strengthen the muscles of uterus in the last few months of the pregnancy. This assists in the dilation of the uterus at the time of delivery. Due to their value as nutrient and high energy food, dates are always recommended for women in the post-partum period and lactating days. It is believed that dates increase the nutritive value of lactating mothers' milk. Dates protect against building cholesterol.<sup>3</sup>

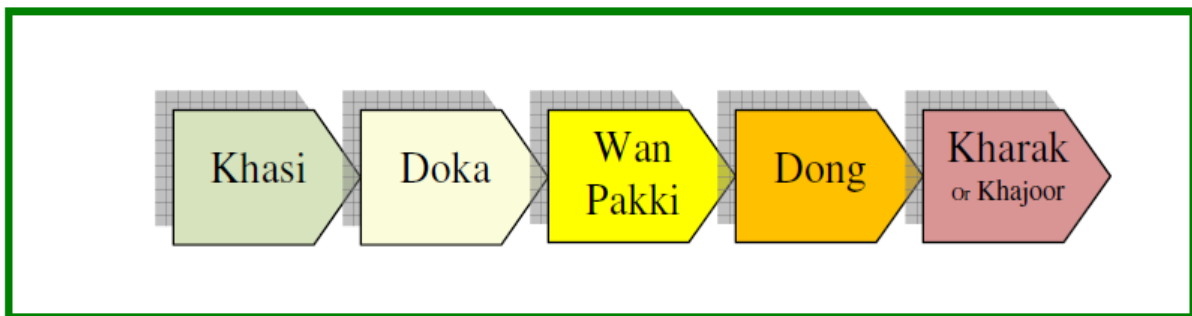
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<sup>3</sup> Article 'Date Palm Industry: Present Challenges & Future Prospects' by M.E.Jalbani



### 1.4. Dates Maturation Stages & Respective Usage

The activities related to dates cultivation start from the month of February every year and lasts till its harvesting in the month of July. This makes almost a 200 days cycle from the pollination stage to harvesting. Harvesting takes place from 15th of July and lasts till the end of August. For understanding the business process of dates, it is important to understand various stages of date maturation. There are five stages of fruit maturation starting from initial fruit (baby fruit) formation to the last stage of ready to eat date. Names of these stages are in Sindhi, the local dialect.



**Khasi:** Formation of fruit takes place after the pollination has occurred. Khasi is the first stage when a baby fruit emerges. It may appear light greenish in colour. Since this is only the first stage, special care is taken for water and urea availability for gaining a better fruit.

**Doka:** Doka is the stage when the fruit has achieved a certain shape and hardness. It appears hard and light yellow in colour and its taste starts getting sweeter. At this stage, the fruit is picked up from the tree tops for its processing as a dry date or to turn it into a kharak. Doka is boiled in SFS for making it a yellow dry date and is simply boiled for making it a brown dry date. If required, doka can be processed for early ripening and turning it into a 'date' or Kharak.

**Wan Pakki:** Wan Pakki is the stage when Doka gets more matured and starts taking a sweeter taste. Basically, it's an overlapping stage of Doka & Wan Pakki where special care is taken of the bunches and the maturing doka. In Sindhi, 'Wan' means hand and Wan Pakki is the process where the bunch is physically adjusted with hands, bad fruits are gotten rid of, and every fruit is checked.

**Dong:** Most fruit is harvested at the Doka and Wan Pakki stages. Now, depending upon the free will or market demand, the remaining fruit is left for attaining to this stage on the tree top. It turns the Doka into a Dong when it starts getting ripened from lower end and reaches up to the half or more, of the fruit. The upper half remains sweet and crunchy. Dong takes a most delicious taste in this stage of maturation. It gets very sweet, half remain comparatively hard and yellow in colour and the rest is soft and yellowish brown in colour. Reaching a certain maturity level within this stage, it is picked up for open markets sale and is fondly cherished by all. In a few dates producing countries, dates are frozen at this stage and are exported for a higher price.

**Kharak:** Kharak is the synonym of date or Khajoor. According to the observed practice, growers or farmers leave hardly a 5 to 7% of the fruit only for gaining this stage on the tree top and that too for a few varieties only. Maximum quantity is processed on the ground for making it Kharak for time economy and also for diminishing chances of any disaster due to rains. Kharak bears a brown colour and is too sweet in taste with a very fascinating chewing mass with a fully made seed in the centre of the fruit.

Internationally, most commonly known stages of date maturation are in Arabic language. There are four stages and are known as Kimiri, Khalal, Rutab and Tamar. Kimiri stands for the first stage when a baby fruit emerges. Khalal is the second stage which equates with Doka and Wan Pakki stage in Sindhi. Rutab is the stage when fruit gets matured and is soft and sweet in taste (Dong). Lastly, it is Tamar where the Rutab turns into a proper date which is Khrak or Khajoor.

### ***1.5. Consumption Patterns & Value Added Products***

Dates are consumed in both fresh and processed forms. Generally, dates are taken as fresh table dates. The biggest use of dates occurs in the month of Ramadan for breaking fast throughout the Muslim world and in the Muslim households in the rest of the world. Dates may be consumed in many different ways such as; Fresh table dates, frozen dong (Rutab) dates, stuffed dates with roasted nuts such as almond or cashew nuts, dates with chocolate coatings, dates with sesame seeds etc. Value addition is another important segment in the date consumption pattern in the world. The value added products may include; dates blocks, dates energy bars, dates syrup, date honey, date pickles, date paste, date spread, date dry powder, date sugar, date sparkling juice, date vinegar and date ethanol fuel. These value added products are highly viable commercially. Many countries of the world, dates producers or not, acquire good quality dates and export them after value addition. This helps them in generating high volumes of revenues.

## 2. SECTOR OVERVIEW

### 2.1 Global Dates Production

Global date production is steadily growing from 1.85 million tons in 1965 to 7 million tons in 2005-6. It is expected that the world production would have crossed 7.5 million tons mark due to aggressive efforts made by the largest dates growing countries of the world during last five years. These countries include Kingdom of Saudi Arabia, United Arab Emirates, Iran, Iraq, Tunisia, Algeria, Sudan, Oman, the USA and Israel. The following table depicts the percentage share of the major dates growing countries in the world.

World Date Production			
	Country	Production (Tons)	Percentage
1	Egypt	1,120,000	15%
2	Iran	920,000	13%
3	Saudi Arabia	830,000	12%
4	UAE	760,000	11%
5	Pakistan*	622,000	9%
6	Algeria	420,000	6%
7	Iraq	400,000	6%
8	Sudan	330,000	5%
9	Oman	238,000	3%
10	Libya	140,000	2%
11	China	120,000	2%
12	Tunisia	122,000	2%
13	USA	17,000	-
14	Israel	11,700	-
15	Others	1,014,537	14%
Source: COMTRADE-FAOSTAT-2006 & Pakistan Statistical Year Book 2008			
* Figure corresponds to the year 2005-06			

### 2.2 Dates production in Pakistan

Pakistan is the fifth largest dates producing country in the world having a production quantum fluctuating around 550,000 tons to around 650,000 tons per year. Dates are cultivated on over 90,000 hectares' area in Pakistan. The following chart depicts the annual production figures:

Annual Production of Dates of Pakistan		
	Year	Production (Tons)
1	2004-05	622,100
2	2005-06	496,576
3	2006-07	426,265
4	2007-08	557,500
Source: ITC/Pakistan Statistical Year Book-2008		

### 2.3 Main Dates Varieties of Pakistan

There are more than 300 varieties of dates grown in Pakistan. Many of these dates are unique in taste and texture and are commercially very viable. The following chart depicts the main date varieties found in the four provinces

Dates are mainly produced in arid regions having high temperatures, low humidity and ample water for growth. Baluchistan and Sindh are the two major provinces contributing around 85% to 90% to the total date production of Pakistan. Some parts of Punjab and Khyber Pakhtunkhwa also produce a few varieties and add up to the national total. Despite fluctuations in production on yearly basis, an average production can be perceived in percentage terms. Accordingly, Sindh's production has gradually increased and now ranges from 50% to 52%, Baluchistan has slightly declined and now produces around 38%, Punjab contributes around 10% and lastly, Khyber Pakhtunkhwa contributes 3% to 4% to the overall date production of the country.

Provinces & Main Dates Varieties			
<i>Baluchistan</i>	<i>Sindh</i>	<i>Punjab</i>	<i>Khyber Pakhtunkhwa</i>
Mozawati	Aseel	Hilavi	Dhakki
Begum Jangi	Fasli	Khudrawi	Mazavati
Kaharba	Bhedir	Zahidi	Basrai
Sabzo	Karbalian	Dom	Kango
Halini	Kupro		Halini
Gongna	Mithri		Zahidi
Jansor	Valaeti		Gulistan
Dashtiari	Autakin		Shakri
Aseel	Bhandwary		
Rabai	Kachuawary		
Aab-e-Dandan	Red Zardi		
Koozan Abad			
Pasheena			

Source: Miscellaneous research literature

### 2.4 Date Production in Sindh

Sindh has become the largest dates producing province of Pakistan having produced around 329,900 tons<sup>4</sup> of dates during 2009-10, which comes to around 52% of the total dates produced this year. These dates are produced on an area of around 27,9855 hectares in Sindh. Khairpur and Sukkur are the main districts having the highest production and the most suitable climatic and soil conditions. Almost 80% to 85% dates are produced in these two districts. Besides these main centers of date production, there are a few more areas which produce around 15% of the total dates produced in Sindh.

Dates Production in Sindh	
2007-08	2,73,000 Tons
2008-09	2,57,936 Tons
2009-10	3,29,900 Tons

The above table shows that dates production in Sindh is consecutively increasing. This is a very encouraging sign for the date sector stakeholders.

## ***2.5 Commercially Viable Sindhi Date Varieties***

Dates sector offers a fascinating business opportunity to the investors in Sindh. The highest production and long practiced date culture makes the two districts, Khairpur & Sukkur, as central venue for successful business venturing. There are two modes of date utilization: a) as Fresh date and its variants and b) dry dates (Chohara).

**Fresh Dates:** In Sindh, Aseel, Fasli, Karbalain and Kupro are the main varieties having significant commercial value. Due to its characteristics, Aseel is known as the best Sindhi date variety. It has a very sweet taste and a delectable texture along with a nice shiny surface. Aseel has a very good pit to flesh ration. The pit is closely clinched with the flesh making it difficult for air and insects to intrude. It's length varies between 4 to 5 cm having a diameter from 2.5 to 2.9 cm. On appropriate low temperatures, it can be stored for at least 2 years. Due to its characteristics, Aseel is the most grown date variety and almost 85% of the dates produces in Khairpur & Sukkur are consisted Aseel variety. Good quality Aseel is used and traded as the Fresh Table Date in the local and international markets. However, C and D quality of Aseel is traded as a popular industrial date variety. Like wise Fasli, Karbalain and Kupro are also regarded as very good varieties due to their characteristics. According to the figures collected from Trade Development Authority of Pakistan, Pakistan exported fresh dates worth US\$ 3.3 million to various countries of the world.

**Dry Dates:** Pakistan is the biggest exporter of dry date to the world. Inida has become the major buyer of Pakistani dry date in the recent years. According to the estimates, almost 70% dates are turned into dry dates the major chunk is exported to India. According to the figures collected from Trade Development Authority of Pakistan, Pakistan exported dry dates worth US\$ 41.3 million to various countries of the world.

## ***2.6 Dry Date Making & the Monsoon Threat***

There are two motivations for turning dates into dry dates. One is to capitalize on the world's largest dry date market next door, Inida, and the other one is to secure dates by processing it fast before the monsoon rains and to get it into the markets (commercial activity) as fast as possible. An absence of appropriate cold storages and processing facilities is also a contributing factor in this regard.

In Khairpur & Sukkur, despite favourable temperatures and enabling environmental conditions, there is one big threat in the form of monsoon season which coincides with the harvesting season every year. Although, this threat looms over the heads of stake holders every year, fortunately, such an occurrence is found to be every three to four years. However, when ever this phenomenon takes place, it creates lots of problems for the poor farmers in terms of loss of major portion of their ready crops. Rain water is regarded as the major source of decay of dates present on the palms or lying over a vast land for drying purposes. As a result of any such incident, the poor farmers have to face enormous financial losses which take them back by at least

three years. Hence, they are left with no choice but to borrow more money to recover from the current losses and to further lead their lives till the next crop season.

Having this scenario, there is an urgent need of establishing such appropriate facilities where dates could be secured by way of turning them into dry date or only by getting rid of their extra moisture due to rains.

### **3. MARKET OVERVIEW**

#### ***3.1 Local Markets & Consumption***

Date production in Pakistan fluctuates due to climatic condition during the harvesting season. On an average, the country produces around 550,000 tons of dates annually. In 2009, the total exports of fresh and dry dates stand at around 110,000 tons. Therefore, the dates left for local consumption comes to around 440,000 tons. The demand for dates reaches its peak during the month of Ramadan when the dates are used to break the fast across the country. This market demand is met by importing dates to Pakistan.

All the dates growing districts house a dates' market as is Agha Qadir Dad Khan Agricultural Market in Sukkur where mainly dry dates are traded and as Khajoor Anaaj Mandi in Khairpur where fresh dates are traded. In Karachi, there is a Khajji Market (Khajoor Bazar) in Lea Market area where a major trade activity takes place. On the other hand, in all the major urban centers, there is a small segment dealing in sale of dates for satisfying the local area needs. Prices of dates in the local markets are fixed on the basis of various factors including the demand and supply situation. Time also an important for setting the price. Gradually, time of dates harvesting is closing up with the advent of Ramadan which makes impacts on pricing. Currently, the prices have been noted from Rs. 1800/- to Rs. 4000/- per 40 Kg depending upon the variety. Further adding up overheads, the prices go up to Rs.80/- to Rs. 180/- per Kg.

#### ***3.2 International Markets of Dates***

Major dates producing countries are fortunately the part of predominantly Muslim world. Egypt is in the lead followed by Iran, Saudi Arabia, UAE, Pakistan, Algeria, Iraq, Sudan and Tunisia. According to the statistics, India, France, Germany, United Kingdom, Malaysia, Italy, Spain, Russian Federation, Canada, and the USA are the major dates importing countries of the world. Likewise, Tunisia, Pakistan, France, the USA and Germany are the top exporting countries of dates in dollar terms.

In the world date markets, Tunisia is a bright example for success in business. Tunisia produces only 2% dates of the world total production but has developed infrastructure complying international agricultural and trade standards to only produce the prim verities of Deglet Nour & Medjool. Tunisia has targeted the high end market of Europe and earns huge foreign exchange. Tunisia is the largest exporter of dates in terms of dollar value and has exported its prime dates worth over US\$ 170 in 2008 (Source: ITC calculations based on COMTRADE statistics). Likewise, France, does not produce dates, instead, imports dates from its old colonies and exports them after value addition to the European markets and basket foreign exchange.

The price tag for good quality (Extra Class, A Class or B Class Quality) dates ranges between US\$ 2500 to as high as US\$ 4500 per ton. However, Pakistani dates only fetch a very humble price from the international market ranging from a mere US\$ 600 to US\$ 1500 in case of very good quality. Clearly, Europe, the USA, the UK are the major high end markets for prime date varieties.

### 3.3 Dates Export from Pakistan

Pakistan is a major date exporting country and stand at 2nd in exports after Tunisia. Pakistani dates are exported to Bangladesh, India, Germany, Canada, Japan, UAE, Denmark, South Africa, Australia, Saudi Arabia, the USA and the UK.

Pakistan's Global Export of Dates		
	Year	US\$ 000
1	2006	37.655
2	2007	38.692
3	2008	39.800
4	2009	44.600

*Source : ITC & TDAP*

Pakistani dates are mainly regarded as Industrial dates and fetch a humble price. Pakistani prime quality Aseel fetch an FOB price between US\$ 600 to US\$ 1500 per ton in Europe and North American markets. If the quality is better, these prices may go up to US\$ 2000 a ton. Pakistani dates can easily get a handsome price from the international markets if the overall sector is developed with setting specific targets for process & quality improvement.

In 2008, the USA imported 1079 tons of fresh dates and 667 tons of dry dates from Pakistan. Recently, Bangladesh has also emerged as a big date market for Pakistani dates. Bangladesh imported 1057 tons of fresh dates and 557 tons of dry dates from Pakistan during 2008. The major revenue for Pakistan is generated from the export of dry dates. Pakistan is the major supplier of dry dates to India. As the statistics show, for the period July – May 2008-9, Pakistan had exported over 100,125 tons of dry dates to India worth US\$ 38 million out of total dry date exports of US\$ 39.9 million during that period.

### 3.4 Dates Import in Pakistan

Pakistan imported fresh and dried dates worth US\$ 3.3 million in the year 2008, from different countries of the world. These dates were imported from Iran, Iraq, Saudi Arabia, UAE, Qatar, Kuwait, China and Bahrain. These imported dates do not make any significant effect on the prices of the local dates. Import of dates, basically compliment the locally produced dates and offers more options for the end consumer. According to the available data, Pakistan imported Dates in the following manner during last three years.



<b>Pakistan's Imports of Dates (Fresh &amp; Dry)</b>		
	<i>Year</i>	<i>Value: US\$ '000'</i>
1	2006	3124
2	2007	4229
3	2008	3307
<i>COMTRADE Statistics</i>		

High quality dates are imported from Saudi Arabia and UAE, to cater to the Super Markets and modern shopping malls in the main cities such as Karachi, Lahore, Islamabad, Faisalabad and Sialkot. These dates are found in very attractive wrappings in different types of packaging options. The mass market consumes multiple options of locally produced dates. Varieties of Irani and Iraqi dates of different qualities are also imported to make up the shortfalls during the steep rise in demand during Ramadan season, offering a comparable price range.

## **4. PROFITABLE INVESTMENT GAP**

### ***4.1. Dates Processing Plant***

Dates processing plant is the urgent need of the dates sector. This initiative would be positively impacting with a paradigm change on the business practices in Khairpur and Sukkur dates markets. Establishment of this plant would facilitate the markets with supply base of hygienically processed dates for the local and international consumption. As a result, the stakeholders will avail a chance of earning more money for their hard work round the year.

### ***4.2. Major Issues Faced by the Stakeholders***

Although Pakistan is one of the major date grower country in the world, but as yet she is devoid of any well thought of sector improvement initiative. On the contrary, Khairpur has the most densely cultivated date palm population in the south eastern region of the world, it is badly dependant upon ages old cultivation, harvesting, trading and processing practices. Pakistan realized its dates exporting potential during Iran-Iraq War when accidentally both the major dates producing countries could not export their usual supplies to the world. Since then, Pakistan entered the international date markets and gained the second highest position as a dates exporter with an export of around US\$ 40 million. However, despite promising business prospects related in dates export, the Government could not take any concrete steps for exploring the enormous business potential for manipulating the international markets. Currently, due to multiple reasons, the major part of the dates production is turned into dry dates. Almost 90% of dry dates are exported to India. Dry dates fetch a very humble price in the international markets than fresh dates. The major problem Pakistan faces is that Pakistani dates are not processed and packed as per international standards. These dates need to be packed in line with the best international quality and hygiene practices. Packaging is also not done following the international protocol. There are a number of market entry requirements for high end European markets. Pakistan badly lacks understanding of such protocols established for consumer rights protection related to foods in the western world. Quality and safety in pre harvest and post harvest practices, organic cultivation, international packaging and markings related to origin of the product, social accountability protocols etc. are a number of things which are required to be taken care of for attaining a better price and bigger share of the international markets.

### ***4.3. Concept of Date Processing***

For dates, different meanings are attached to the word 'processing'. For our purposes Processing has a limited connotation. There are examples where Processing is confused with Value Addition. For the purpose of this document, processing will be restricted to the basic action on the product whereby it is treated for some basic hygiene and quality procedures for securing it for the longer terms.

These basic and extremely essential steps are detailed below.

- Fumigation
- Cleaning or Washing
- Drying
- Sorting & Sizing
- Weighing
- Packaging

This processing aims to enhance the quality and preserve the product characteristics in its natural form so that the product remain original and could be marketed as a fresh and sumptuous table date.

#### ***4.4. Present Practices in Dates Processing***

In the present scenario, only a negligible percentage of dates is processed as against the huge volume produced. This processing is mainly done only by the exporters who are required to follow a few basic international quality standards. Presently, there are around ten date processing factories in the private sector doing rather a commendable job of creating, keeping and serving what ever local and international markets Pakistan has. These date factories are catering to the imports needs of the USA, the UK, GCC countries, Latin American countries and European countries etc. A few companies are working on systematic lines having proper management systems and are fulfilling the requirements of their foreign buyers. A couple of other companies have traditional labor intensive style of processing where they are also using household labor as their extensions and are providing seasonal earning opportunities to a large number of households.

#### ***4.5. Major Issues in Current Practices***

There are a few very far reaching issues prevalent on the current dates processing scene. In the first place, there is hardly any understanding of processing the fruit for better returns. During the meetings with the stake holders, it was revealed that despite some of them known the importance of processing, they have not been facilitated with the required infrastructure support. Since, this involves huge quantities with a time constraint on the other hand, people tend to get rid of their produce at the earliest to avoid any chance of destruction due to rains or infestation and sell that away to the commission agents, middle men and business entities.

The main issues related to processing are of quality and standardization. During the process, hygiene standards are heavily neglected and work environment is not found to be compatible with a food processing entity.

#### ***4.5. Dates Processing Plant: Justification***

Having aforementioned problems and limitations in dates processing in one of the largest dates producing countries of the world, there is also an opportunity. This opportunity relates to dates processing with a broader vision of increasing local and international markets share in the world markets. A dates processing plant (DPP) would work as an important public utility service established for the use of dates growers, farmers and other stake holders of Khairpur, Sukkur and other adjoining areas producing dates. Sukkur and Khairpur would be the main beneficiaries getting the direct benefits of these facilities.

Establishment of this DPP would be beneficial in the following ways:

- It will directly enhance credibility of the dates to a 100% in terms of hygiene
- Processed date will attract higher revenues from the markets
- Higher revenues will improve the general economic scene of the cluster district
- Job opportunities will be created for the young human resources of the area
- Having enormous potential for date processing, it offers successful business venturing
- A huge date market in the closest vicinity such as Bangladesh, India, China and Afghanistan next door ensures the continuity of profitable business
- Current initiatives of Government would facilitate immensely to the investors in establishment of such a facility which includes one window operation, subsidized land acquisition, tax exemptions, zero rated machinery imports etc.

## **5. DATES PROCESSING PLANT (DPP)**

### **5.1. *Opportunity Rationale***

Since, there are enormous qualities and quantities of dates available in Sindh, especially in Khairpur, it offers many winning investment opportunities. Dates processing is also one of such very viable business opportunity. Despite these huge quantities of very sumptuous dates in Sindh, there is only a negligible quantity of dates which is processed, packaged and sold in the local and international markets. It gives attractive opportunities of business for any enterprising entrepreneur with absolutely no competition. Establishment of such an entity would drastically change the business horizon in Khairpur. This facility will encourage many direct stakeholders to venture new options of selling their produce on a better price. This will also encourage existing traders, middle men and international trading houses for securing more orders from high end markets.

#### **Government's support**

In consonance with various policy initiatives taken at the federal and provincial levels to attract investments in the agricultural sector and to boost up economic activity in the province, with a focus on agro based rural economies in Sindh, the Government of Sindh has formulated aggressive plans. These plans encompass facilitation of a number of input resources to the interested investors in the form of one window operation, subsidized land availability, provision of utilities, tax exemptions and ensuring the security of the investors and their properties.

#### **Availability of Land**

The Sindh government is establishing the Special Economic Zones (SEZs) in different districts including Larkana, Benazirabad, Khairpur, Tharparkar, Hala, Thatta and Badin districts to promote rapid industrialization to attract the Foreign Direct Investment (FDI). District Government Khairpur, consequent to this initiative, is in the process of developing Khairpur Special Economic Zone. Plots of multiple sizes would be available to the local and international investors, joint ventures and other entrepreneurs on subsidized rates.

#### **Availability of Product**

Since Khairpur and Sukkur are the prime date producing areas, the quantum of the crop would ensure the continuous availability of the product and consequently would create dates processing requirements. Therefore, a DPP plant in the area would be extremely beneficial for growers & farmers. Only a nominal transportation charges would be incurred for transporting the product to the location due to proximity. This is also advantageous for saving time and would contribute to a high paced business activity.

## **Tax Exemptions**

Government is very extensively planning to create an attractive economic environment for all the export processing zones and special economic zones. The entrepreneurs investing in these special zones will be granted miscellaneous tax exemptions such as tax free import of machinery, tax exemptions on utilities, tax exemptions on revenues etc. These tax exemptions would certainly add to the profitability of the project and will provide a reason for investment. Sindh Board of Investment's web site presents the following incentives to the investors in different sectors:

- Reducing minimum foreign equity requirement for a project from US\$ 0.5 million to US\$ 0.3 million
- Repatriation of 100% capital, profits and royalty, technology and franchise fees allowed.
- Zero import duties on capital goods, plant and machinery and equipment not manufactured locally.
- Enhanced First Year Allowance for depreciation from 50% to 75% of plant, machinery & equipment for infrastructure and agriculture projects
- Zero-rated import tariff on agriculture machinery (not manufactured locally) for registered corporate agricultural projects.
- Zero import duties on raw materials used in the production of exports.
- Sindh Development Fund (SDF) for agro-based industries
- Subsidizes 100% KIBOR (Karachi Inter Bank Offer Rate) on Capital Cost
- 50% KIBOR on Working Capital

## **Infrastructure Facilities**

Government has made aggressive plans to support interested investor in a meaningful way to facilitate them with all the required infrastructure facilities. The Khairpur Special Economic Zone is being equipped with solid infrastructure facilities which would include properly planned pieces of land along with a road network connecting the area with rest of the city, adequate piped water network for industrial use, piped gas network to support industrial consumption, efficient sewerage system, and most of all the supply of electricity to the upcoming industrial units.

## **Safety & Security**

Having a peculiar history of safety & security issues in the region, the District Government of Khairpur is making special arrangements for safety and security of the men and material. These efforts will eliminate not only the sense of insecurity but will also portray seriousness of the Government towards making KSEZ a success.

### **Establishment of New Dates Market**

To fully capitalize on the enormous business potential available in Khairpur, the District Government is working on a plan to establish a new dates market as per international standards to attract international buyers. As per initial plans, this new market would be established near the outer periphery of the district to avoid congestion of traffic and to facilitate the visitors with an open and clean environment. If constructed, this market will definitely be a catalyst in the promotion of dates business in the region.

### **Quantum of Business Opportunity**

Dates production in Sindh was around 329,900 tons in 2009-10. Yet, there is not a single proper dates processing facility for the public use in the region. Immense untapped opportunities are available for any investor. As the native experts and intellectuals of the field have mentioned during various face to face interactions, the psyche of the target district will also contribute to the steady business as the concerned stake holders first observe the benefits of any innovation closely, when felt satisfactory, they gradually switch onto it.

Besides this, DPP was originally conceived by the stakeholders of the area for creating enabling infrastructural facilities for over all elevation of the sector so that the economic conditions of the general populace are improved.

## ***5.2. Project Brief***

The proposed project is about establishing a Dates Processing Plant (DPP) for the use of various stakeholders including growers, farmers, middle men, traders, exporters, whole sellers and all the people who want to add some quality and processing to their produce / crop before selling for better prices.

The capacity of this plant would be around 520 ton a month. This will be a labor intensive plant having manual and mechanical processes. The plant would be consisted of a washing unit, conveyor systems, metal detection systems, shrink wrapping operations, packaging or cartooning operations.

By utilizing this facility, the stakeholders will be able to have a high level of consistency in terms of grades (Sizes) and improved quality. Having appropriate machineries, this will offer a fast processing opportunity for all who want their product properly graded, processed and packaged. This facility will drastically change the image of Pakistani dates from mainly an industrial product to a fresh table fruit. This processed product will certainly bag a better price due to improved quality.

## ***5.3. Process Description***

The purpose of this processing facility is to provide the stakeholders with appropriate means dates processing. The following would be the procedures for the processing operations.

**Dates Receiving**

The product / dates would be brought to the facility and properly received by the staff noting the time and date of arrival.

**Weighing**

These dates would go into a weighing process. The necessary recording regarding types and total weight will be made.

**Process Requirement**

The customer would inform the staff regarding needed processes and the extent for example; processing only or processing and packaging in different size packaging options.

**Fumigation**

Fumigation will be the first step. It might take ten days before processing the fruit. Fumigation would prevent the fruit from infestation.

**Grading or Sizing**

In this stage, dates are graded according to the set formula. There are six different grades of dates. They are; Extra Class, Select A, Select B, Good Average Quality (GAQ), Fair Average Quality (FAQ) and the last is Industrial Dates. This process is done with the conveyor system.

**Washing, Curing & Drying**

Here dates would be washed in a circular washer with sprinklers and would be cured and dried with the help of a hot air blow system in a hygienic environment.

**Metal Detection**

This process is also carried out simultaneously with the grading or sorting. This is done for the sake of identifying any out side metal particle or item that could have been picked up with the crop. Since metals could prove to be highly injurious during chewing of dates, it is highly recommended for dates to pass through a metal detector.

**Weighing & Packaging**

At this stage, these cleaned and graded dates are weighed and packaged according to the requirements. Generally, these packaging could be 5 Kg, 10 Kg, 20 Kg or a 25 Kg for local or international requirements.

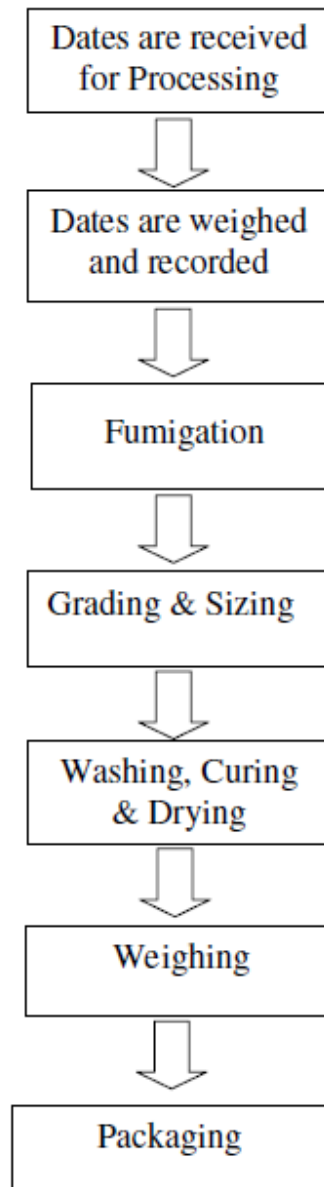
**Quality Checks**

Necessary quality checks are carried out during each and every process and random sample are tested for cleaning, grading or sizing etc.



The process flow would be as follow:

### Sketch Process Flow for Dates Processing Plant

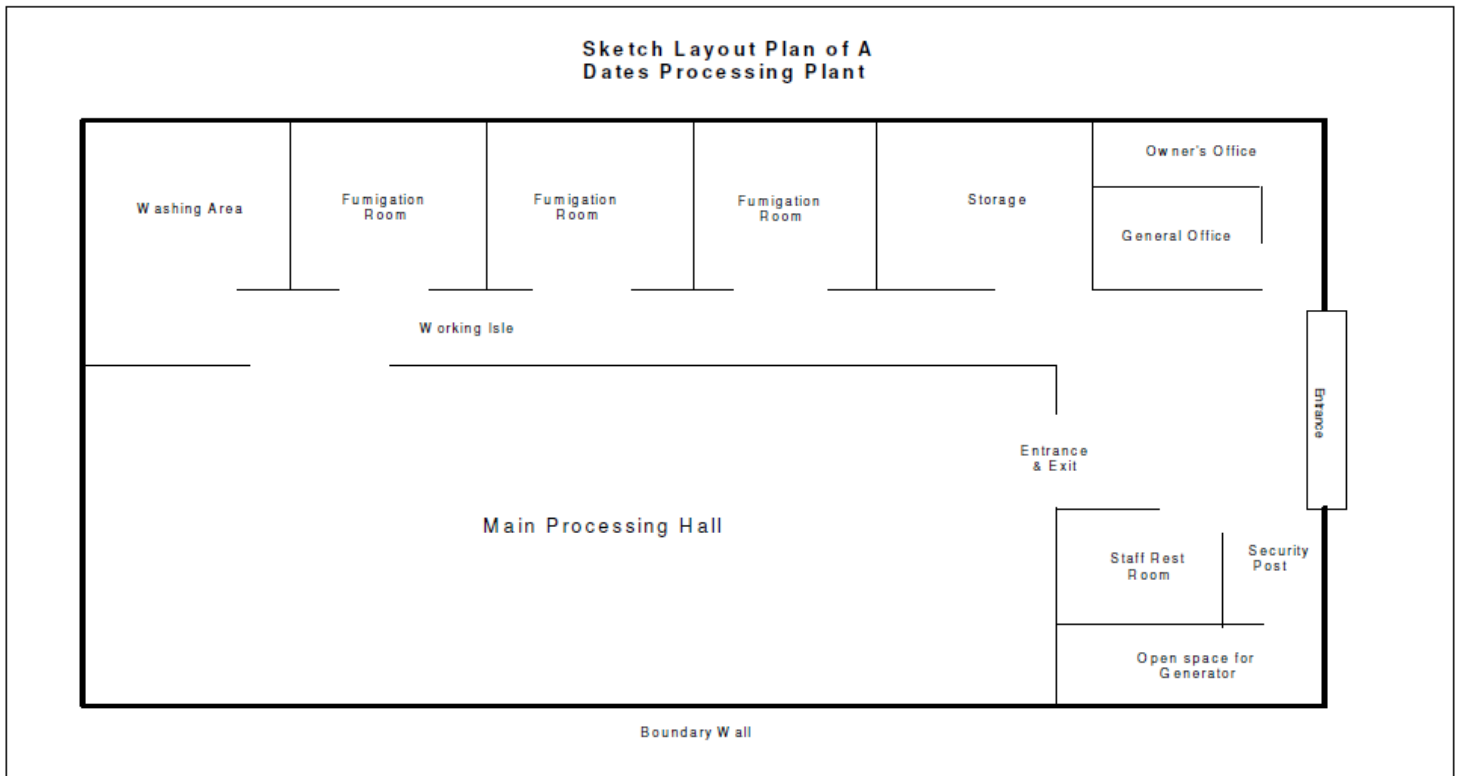


#### ***5.4. Land & Building Requirement***

The total land requirement for the DPP has been estimated at around 9,000 square feet which is around 1,000 square yard plot. This land will house the following building infrastructure:

- Fumigation Rooms
- Main Processing Area
- Owners' Office
- General Office
- Staff Rest Room
- Staff Wash Rooms
- Stores
- Guard Room

### 5.5. *Layout Plan of DPP*



### 5.6. *Key Success Factors*

Dates Processing Plant would play a very pertinent role on the agricultural horizon of Khairpur Mirs. This plant would be making significant difference in the way dates business is conducted in Khairpur.

As evident, dry dates form a major part of the exports and yet fetch a very humble price from the international markets. Whereas, fresh table dates fetch the highest price in dollar terms. Presence of a Processing Plant would open the avenues to economic prosperity for the local population involved in the date cultivation, harvesting and trading activities.

There seem no issues of scarcity of raw materials as around 85% dates are grown in and around Khairpur and Sukkur. As mentioned earlier, during the last season, Khairpur/Sindh has experienced a bumper date production nearing 329,900 tons. This year (2009-10) also, rains started after the harvesting season and it is expected (estimations not yet made) that this year also, it was a superb production.

One major component favoring the potential investors is the presence of totally monopolistic opportunity present in the area as there are no dedicated dates processing plants where every body can take his product and get it processed at his will. A few existing setups are privately owned and are dedicated to exports only. Establishment of this facility will promote trading of processed dates by all those small or large business entities who want to get a better price. This gives an open field for any incoming investor for a secured and profitable venturing.

Since both, federal and provincial Governments are making all out efforts in creating a favorable and enabling investment environment with special reference to agro based industries all across the country, they are also working hard to facilitate the investors with better dispensation of utility services, tax exemptions, duty free imports of machinery, provision of safety and security, guarantees and assurances etc.

Better and feasible financial assistance, guaranties and risk coverage options can be worked out with institutions such as Sindh Board of Investment for higher viability and success of the project. It can be safely said that if established, this DPP would add high value on various accounts for the date's sector of Khairpur and Sukkur:

1. Fast processing
2. Improved quality as a result of a consistent & hygienic process
3. Surety of getting higher price in the local and international markets
4. Entry into new and high end markets due to product quality
5. Further strengthened market monopoly in dates and dry dates
6. Improved economic strength of all the stake holders
7. Employment opportunities for the locals
8. High commercial activity is envisaged to take place

## 6. PROJECT INPUTS

### 6.1. Proposed Processing Capacity of the Date Processing Plant (DPP)

This DPP will be installed with a view to cater to the needs of a diverse base of customers from big farm owners to the smallest date grower & farmer or from a small trader to large scale traders. The daily processing capacity for this project has been assumed at 20 tons per day. Keeping a month of 26 working days, this facility would process around 520 tons of dates in a month.

### 6.2. Plant Machinery & Equipment

This plant has been envisaged as a manual & mechanical plant. Some simpler machinery would be installed.

Machines & Equipments for the plant	
Machinery /Equipment	
1	Dates Washing Equipment (Sprinkler type)
2	Conveyor System for Manual Sorting
3	Sizing & Sorting Tables
4	Blower for Drying up
5	Plastic Crates
6	Weighing Scales
7	Metal Detector
8	Shrink Wrap Machines

### 6.3. Land & Location Requirements

Khairpur is a big district having five talukas. This DPP can be established in any taluka or in the Khairpur Special Economic Zone (KSEZ). The estimated land requirement is 1000 square yards. According to the current prices, this plot would cost around Rs. 500,000/-

### 6.4. Office Equipment

The following office equipment would be required for the operations

Office Equipment			
	Items	Quantity	Total Cost
1	Desk top computer	03	Rs. 120,000
2	Lap top computer	02	Rs. 130,000
3	Generator 50 kv	01	Rs. 1,000,000
4	Transformer 100 kva	01	Rs. 1,500,000
5	Printer, Fax. Etc.	--	Rs. 200,000
		<b>Total Cost</b>	Rs. 2,950,000

## 6.5. Human Resources

The following human resources would be utilized for the DPP operations. This resource would be semi skilled and unskilled except Manager Production & Accountant. A 10% benefits would also be added to the salaries every year.

Monthly Salaries - Year 1			
1	Business Owner	1	Rs. 82,500
2	Manager Production/Food Technologist	1	Rs. 27,500
3	Skilled Workers	3	Rs. 11,000
4	Semi Skilled Workers	6	Rs. 8250
5	Semi Skilled Workers	1	Rs. 11,000
6	Watchman	1	Rs. 8250
7	Sweeper	1	Rs. 4,400
	<b>Total Salaries</b>	14	Rs. 152,900
	(Salaries include 10% benefits)		

## 6.6. Infrastructure Requirements

The following important infrastructure resources would be required for the successful plant operations.

- Water
- Phone Lines
- Electricity
- Road network
- Natural Gas
- Security Support

## 7. PROJECT ECONOMICS

### 7.1. Project Cost

Computation of Project Cost	
Fixed Capital Investment	Amount
Land (10,000 Sq. Ft)	500,000
Construction of Plant & Building	6,750,000
<b>Fixed Assets</b>	
Machinery & Equipment	10,478,000
Generator	1,500,000
Furniture & Fixture	540,000
Computer & Accessories	1,450,000
<b>Working Capital Required</b>	<b>Amount</b>
3 months Utilities Expense	247,500
3 months Staff Salaries	648,450
<b>Total Working Capital Required</b>	<b>895,950</b>
<b>Total Investment</b>	<b>22,113,950</b>

### 7.2. Project Returns

Project Returns	
IRR	19%
Payback	3.5 years

### 7.3. Capital Structure of the Project

<b>Total Investment</b>		<b>35,445,600</b>
Equity Ratio	75%	16,585,463
Debt Ratio	25%	5,528,488

## 8. PROJECT FINANCIAL STATEMENTS

### 8.1. Project Income Statement

<b>Income Statement</b>					
	<b>Year 1</b>	<b>Year 2</b>	<b>Year 3</b>	<b>Year 4</b>	<b>Year 5</b>
Revenue	17,472,000	19,219,200	23,783,760	29,069,040	31,975,944
<b>Cost of Goods Sold</b>					
Processing Cost	8,112,000	8,517,600	10,061,415	11,738,318	12,325,233
Manpower Salaries	2,593,800	3,216,180	3,601,686	5,191,699	5,710,868
Utilities expense	990,000	1,069,500	1,155,975	1,250,074	1,352,507
Office expenses (Printing & stationery, etc.)	240,000	264,000	290,400	319,440	351,384
Advertising & Promotional expense	174,720	192,192	237,838	290,690	319,759
Insurance expense	432,940	401,333	406,828	439,765	495,398
Depreciation expense	3,319,600	2,644,100	2,121,696	1,715,122	1,396,794
Miscellaneous expense	120,000	132,000	145,200	159,720	175,692
<b>Total Cost of Goods Sold</b>	<b>15,983,060</b>	<b>16,436,905</b>	<b>18,021,038</b>	<b>21,104,828</b>	<b>22,127,636</b>
<b>Gross Profit</b>	<b>1,488,940</b>	<b>2,782,295</b>	<b>5,762,722</b>	<b>7,964,212</b>	<b>9,848,308</b>
Financial Charges	775,573	646,536	496,756	322,898	121,091
Earnings Before Tax	713,368	2,135,759	5,265,966	7,641,315	9,727,217
Income Tax	249,679	747,516	1,843,088	2,674,460	3,404,526
<b>NET PROFIT/(LOSS) AFTER TAX</b>	<b>463,689</b>	<b>1,388,243</b>	<b>3,422,878</b>	<b>4,966,855</b>	<b>6,322,691</b>



## 8.2. Project Balance Statement

Balance Sheet						
Projected Balance Sheet (Rs.)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Assets</b>						
<b>Current Assets</b>						
Cash & Bank Balance	895,950	3,876,544	6,977,155	11,440,217	16,866,823	23,129,131
<b>Total Current Assets</b>	<b>895,950</b>	<b>3,876,544</b>	<b>6,977,155</b>	<b>11,440,217</b>	<b>16,866,823</b>	<b>23,129,131</b>
<b>Fixed Assets</b>						
Land	500,000	500,000	500,000	500,000	500,000	500,000
Building & Plant Construction Cost	6,750,000	6,412,500	6,091,875	5,787,281	5,497,917	5,223,021
Machinery & Equipment	10,478,000	8,382,400	6,705,920	5,364,736	4,291,789	3,433,431
Generator	1,500,000	1,200,000	960,000	768,000	614,400	491,520
Furniture & Fixture	540,000	432,000	345,600	276,480	221,184	176,947
Computer & Accessories	1,450,000	971,500	650,905	436,106	292,191	195,768
Office Vehicle	0	0	0	0	0	0
<b>Total Fixed Assets</b>	<b>21,218,000</b>	<b>17,898,400</b>	<b>15,254,300</b>	<b>13,132,604</b>	<b>11,417,481</b>	<b>10,020,688</b>
<b>Total Assets</b>	<b>22,113,950</b>	<b>21,774,944</b>	<b>22,231,455</b>	<b>24,572,820</b>	<b>28,284,304</b>	<b>33,149,819</b>
Owner's Equity	16,585,463	17,049,152	18,437,395	21,860,273	26,827,127	33,149,819
Long Term Liability	5,528,488	4,725,792	3,794,060	2,712,547	1,457,177	0
<b>Total Equity &amp; Liabilities</b>	<b>22,113,950</b>	<b>21,774,944</b>	<b>22,231,455</b>	<b>24,572,820</b>	<b>28,284,304</b>	<b>33,149,819</b>

### 8.3. Project Cash Flow Statement

Cash Flow Statement						
Projected Statement of Cash Flows (Rs.)	Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
<b>Cash Flow From Operating Activities</b>						
Net income Before Taxation	0	713,368	2,135,759	5,265,966	7,641,315	9,727,217
Adjustments for Depreciation Expense	0	3,319,600	2,644,100	2,121,696	1,715,122	1,396,794
Finance Cost		775,573	646,536	496,756	322,898	121,091
<b>Cash (used in)/generated from operations</b>		4,808,540	5,426,395	7,884,418	9,679,335	11,245,102
Interest Paid		(775,573)	(646,536)	(496,756)	(322,898)	(121,091)
Income Tax Paid		(249,679)	(747,516)	(1,843,088)	(2,674,460)	(3,404,526)
<b>Net Cash Flow From Operations</b>	<b>0</b>	<b>3,783,289</b>	<b>4,032,343</b>	<b>5,544,574</b>	<b>6,681,977</b>	<b>7,719,485</b>
<b>Cash Flow From Financing Activities</b>						
Repayment of Long Term Debt		(802,695)	(931,732)	(1,081,512)	(1,255,370)	(1,457,177)
Owner's Equity	16,585,463					
<b>Net Cash Flow From Financing Activities</b>	<b>22,113,950</b>	<b>(802,695)</b>	<b>(931,732)</b>	<b>(1,081,512)</b>	<b>(1,255,370)</b>	<b>(1,457,177)</b>
<b>Cash Flow From Investing Activities</b>						
Purchase of Land	(500,000)					
Construction of Plant & Building	(6,750,000)					
Machinery & Equipment	(10,478,000)					
Generator	(1,500,000)					
Furniture & Fixture	(540,000)					
Computer & Accessories	(1,450,000)					
Office Vehicle	0					
<b>Net Cash Flow From Investing Activities</b>	<b>(21,218,000)</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>NET CASH FLOW</b>	<b>895,950</b>	<b>2,980,594</b>	<b>3,100,611</b>	<b>4,463,062</b>	<b>5,426,606</b>	<b>6,262,308</b>
Cash at the Beginning of the Period	0	895,950	3,876,544	6,977,155	11,440,217	16,866,823
Cash at the End of the Period	895,950	3,876,544	6,977,155	11,440,217	16,866,823	23,129,131

## Annex A

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### FINANCIAL ASSUMPTIONS

#### Production assumption

Proposed unit is feasible to process 20 ton dates per day including Fumigation, Washing, Cleaning, Sorting, Weighing, Shrink Wrapping and Packaging in different pack sizes.

#### Capacity Assumption

Initially, it is speculated that the plant would run at around 80% of its capacity. This is also expected that the plant will reach its full capacity after at least two years. This would be due to gradual increase in plant utilization by majority growers, farmers, and traders. As a general tendency of the area populace, there is an air of conservatism and people are reluctantly open to experimentation. During the initial two years, the staff would also gain a certain level of expertise and it is envisaged that the plant would reach full capacity in the third year onwards.

Capacity Assumption					
Description	Year 1	Year 2	Year 3	Year 4	Year 5
Capacity Utilized	80%	80%	90%	100%	100%

#### Rate Assumption

This feasibility is based on processing of dates around the year. Through this processing plant the stakeholders will be facilitated in achieving a good quality standard for the product through hygienic and systematic manual and mechanical processes from fumigation to packaging. Due to the standardized processing, stakeholders would be able to sell their products on a higher price in the local and international markets. Keeping this advantage in mind and the viability, a processing fee of Rs. 140/- is assumed for every 40 kg of product. This could also be enhanced upto Rs. 150/-.

#### Cost of Land

The average tentative price of a 1000 sq yard plot in Khairpur's outer edges is around Rs. 500,000. This facility will be house a preparation area, weighing section, storage area, administration block and some open space.

### Construction Cost Assumption

According to the present rate of construction at local market, the total cost expected to be incurred on the plot will be Rs. 6,750,000 as follows:-

Construction Cost Assumption		
Construction	Covered Area Sq. Ft	Rate - Rs./Sq. Ft
Fumigation Rooms	9,000	750/-
Processing Hall		
Store (30' x 60')		
Administration Building (15' x 30') * 3 Rooms		

### Plant & Machinery

Following plant and Machinery has to be installed in the proposed unit to achieve the required processing output on daily basis. The cost incurred is to the tune of Rs. 10,478,000/-. The following chart shows the details:

Plant & Machinery		
Plant & Machinery	Quantity	Rate
Plastic Crates	800	150
Washing Cleaner Machine (Showering type)	2	1,275,000
Sorting Conveyor / Inspection Tables	2	1,054,000
Shrink Wrap Machine	4	425,000
Installation Cost		1,000,000
Transportation Cost		500,000
Other Support Machinery Equipment (Lump sum)		2,500,000

### Other Fixed Assets

Following equipments would be required

- One Generator of 100 KVA Rs.1,500,000
- Two Laptop Computers Rs. 130,000
- Three Desktop Computers Rs. 120,000
- One Transformer 50 KVA Rs.1,000,000
- Other equipments (Printer, Fax and networking) Rs. 200,000

### Other Variable Charges

For the processing purpose, following charges will also be incurred on the fruit during processing:-

Processing Charges	Rate	Rate Desc.
Fumigation	15	Rs. / Mound
Packing Material	50	Rs. / Mound

### Utilities

Following utility expenses are expected to incur on monthly basis

Utilities Expenses (Rs./Month)	
Electricity	50,000
Water	5,000
Telephone	2,500
Gas	25,000

### Salary/Remuneration Assumption

The following salary expenses are estimated for the owner and staff. Initially, a team of 13 members will be deployed. This team strength will gradually reach at 23 in the 5th year of plant operation. The details are as under:

Salary & Remuneration Assumptions		
Description	Monthly Salary	Other Benefits %
Business Owner	75,000	10%
<b>Production Staff</b>		
Manager Production cum Food Technologist	25,000	10%
Skilled Worker	10,000	10%
Semi Skilled Worker	7,500	10%
<b>Administration / Accounts Staff</b>		
Accountant	10,000	10%
Watchman	7,500	10%
Sweeper	4,000	10%

An annual increment for staff has been assumed at 10% of Gross Salary.

### Furniture and Fixture Assumption

The unit has to incurred onetime cost on furniture and fixture for admin block and office block the details of which are as follows:-

Item	Quantity In Nos.	Unit Price	Total Amount
<b>OFFICE FURNITURE</b>			
Executive Table	1	35,000	35,000
Computer Tables	2	10,000	20,000
Sofa Sets	1	50,000	50,000
Chairs	15	2,500	37,500
Carpet, Curtain	1	25,000	25,000
<b>ELECTRICAL WORK</b>			
Fans & Lights	20	3,000	60,000
Air Conditioner (1.5 Ton)	3	50,000	150,000
<b>WOODEN WORK</b>			
Store, Racks & Shelves	5	25,000	125,000
Fire Extinguisher	5	7,500	37,500

### Repair & Maintenance

We assume that expenses against repair and maintenance on all fixed assets will occur annually on their book value at the following rates:-

Repair & Maintenance	
Description	Rates
Plant & Machinery	3.0%
Building Construction	1.0%
Other Fixed Assets – Generator	5.0%
Furniture & Fixture	1.0%
Computer & Accessories	2.0%

### Insurance Expenses

It is assumed that insurance expense will be incurred on cash for security of cash available at plant at the rate of 1.5% of the available cash, whereas other office furniture and fixed assets will be covered as per details in the following chart.

Repair & Maintenance	
Description	Rates
Cash in Hand on Present cash	1.5% on Present cash
Plant & Machinery	3.5% on WDV
Other Fixed Assets - Generator	3.5% on WDV
Furniture & Fixture	3.5% on WDV
Computer & Accessories	2.5% on WDV

### Promotional Expenses

We assume that for newly introduced facility in Khairpur, the plant management should promote the benefits of using the plant to growers, farmers and other concerned business quarters of the area. For this purpose 1% of revenue must be allocated for the promotion of this facility.

### Printing, Stationary & Miscellaneous Expenses

For printing, stationary & miscellaneous expenses, Rs.20,000/- and for other miscellaneous expenses on refreshments and unavoidable circumstance, Rs.10,000/- per month are being assumed.

### Financial Results

On the basis of above assumptions the plant will produce following financial results on yearly basis during the next five years.

Financial Results					
Description	Year 1	Year 2	Year 3	Year 4	Year 5
Net revenues	17,472,000	19,219,200	23,783,760	29,069,040	31,975,944
Cost of goods	15,983,060	16,436,905	18,021,038	21,104,828	22,127,636
Gross margin	1,488,940	2,782,295	5,762,722	7,964,212	9,848,308
Financial charges	775,573	646,536	496,756	322,898	121,091
Profit before tax	713,368	2,135,759	5,265,966	7,641,315	9,727,217
Profit after tax	463,689	1,388,243	3,422,878	4,966,855	6,322,691
Key ratios					
Gross margin %	8.52%	14.48%	24.23%	27.40%	30.80%
Net margin %	2.65%	7.22%	14.39%	17.09%	19.77%

## IMPORTANT CONTACTS

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