CLUSTER PROFILE

Dates Cluster, Muzaffargarh

Turn Potential into Profit

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1 Introduction – Muzaffargarh

District Muzaffargarh lies in the form of strip between the river Chenab and Indus, which passes along the Eastern and Western boundaries respectively of the district and form a triangle at Alipur tehsil of the district. The district is bounded on the North by newly created district Layyah, on the South by Bahawalpur and Rahimyar Khan Districts across the river Chenab. Districts Multan and Khanewal are on the Eastern side of district Muzaffargarh, across the river Chenab. District Jung also touches on North-East. While D.G Khan and Rajanpur districts lie on the Western side across the river Indus. District Muzaffargarh has extreme hot and cold climate through out its area. A large area of the district consists of sand dunes and barren land. Wheat, Sugarcane and Cotton are the main crops while Mangoes, Dates, Citrus and Pomegranate are main fruits grown in the district.

District Muzaffargarh is spread over an area of 8,249 square kilometers and comprises of four tehsils namely Muzaffargarh, Alipur, Kot Addu and Jatoi. The total population of the district is approximately 2.6 million.

2 Description of Cluster

2.1 Dates Farming

Pakistan falls in an agro-ecological region where dates can be produced on a large scale with the chances of setting up a viable industry like other countries. Pakistan is the fifth largest date producers in the world after Egypt, Iran, Saudi Arabia and Iraq. Dates are grown on commercial scale in Khairpur and Sakher in Sindh; Kalat, Turbat and Punjgoor in Balochistan; D.I. Khan and Bannu in the NWFP and some parts of Southern Punjab including Multan, Jung, Muzaffargarh and D.G. Khan. Some good varieties are Aseel, Begum Jangi, Muzawati, Dhakki, and Kharbala, etc. Dates are grown in Pakistan over an area of 74.5 million hectares with a production of 550 tons. Sindh is the largest, while the NWFP is the smallest date producing province.

Table 1: Dates Production in Pakistan

Production "000" Tones

Year	Punjab	Sindh	NWFP	Balochistan	Total Avg. Production
1990-1995	90.4	80.7	5.8	216.2	393.1
1995-2000	92.5	111.5	6.3	370.9	581.2
2000-2005	67.7	268.4	7.9	238.5	583.4
2005-2006	42.6	192.8	8.9	252.3	496.6
2006-2007	43.2	201.0	10.0	172.1	426.3

District Muzaffargarh is an important date producing area in South Punjab and is famous for best quality dates. Best growing verities in Muzaffargarh are Halavi, Zaidi, Zaire, shamram and Khudravi. With the passage of time Sugarcane and mango trees have taken place of date orchards at large.

2.2 Defining the Product

The date palm is the oldest tree known and cultivated by man. Dates are nutritive foods that are most assimilative. The real importance of dates could be imagined from the fact that it is referred over 20 times in the Holy Quran. Dates are cultivated mainly in warmer regions of Asia and Africa.

Dates are rich in carbohydrates, minerals and vitamins. There is no cholesterol and no fat in dates. Dates have a great importance as a staple food as well as a dessert fruit. The fruit is generally associated with health foods. Date is well known for its nutritional and therapeutic qualities. It has very high fruit contents of carbohydrates (about 65-75 per cent). On the basis of nutritive value, it may yield three times more food per unit area than wheat. One kilogram of date can supply human body with 2500-3000 calories of energy. In addition, the fruit is easily digestible, promotes more blood formation and also possesses protein, fat, salts, carbohydrates and vitamins in an easily assimilative form the fruit is a good source of vitamin A, B and C and has high mineral contents. According to a bulletin on food composition issued by the US Department of Agriculture, dried date contains 1.9 per cent protein, 70.6 per cent carbohydrates, 2.5 per cent fat, 13 per cent water, 1.2 per cent minerals and 10 per cent fiber.

2.3 History and Background of Cluster

Folk beliefs that date palm were introduced by the Arabians in district Muzaffargarh, where they threw date seeds at camping places and introduced the date palm in this area. Government encouraged to setup date farms in district Muzaffargarh that's the reason District Government has one of the largest date farm in Muzaffargarh. In ancient time date trees were a main source of income to the Government of Muzaffargarh.

Rich soil, water, abundant of sunshine, availability of cheap labor, raw material and four distinct seasons make Muzaffargarh an ideal place for cultivating variety of dates in this area. The above factors help in creating a very special taste in Muzaffargarh farm produce dates.

2.4 Core Cluster Actors

2.4.1 Size of Cluster

Farmers who are involved in growing date trees are the core cluster actors. Statistics on date production in district Muzaffargarh are as follow

Table 2: Dates Production in Muzaffargarh

Total Cultivated Area	8,100 Acres
Total Production	24,791 Tons
Growers Detail	
Big	20 (Above 250 trees)
Medium	40 (Between 250-100 trees)
Small	200 (Less than 100 trees)

2.4.2 Employment Generation

Currently, low skilled labor is a main issue for Muzaffargarh date cluster. People have enormous area of land to grow date orchards but lack of skilled labor and absence of processing facilities makes it low profitable business, resulted people are not much

interested to grow dates at commercial level. If we provide trainings to local labor in dates planting, pollination, picking, curing from diseases, packing and preserving techniques and also provide or introduce dates processing facilities then we may generate huge employment opportunities in this cluster.

2.4.3 Total production

District Muzaffargarh is a main dates producing area in Punjab and is famous for best quality dates. Rich soil, abundant sunshine and distinct season is an ideal place for cultivating this fruit. District Muzaffargarh is producing 5% of total date production and 56% of Punjab in this area. In spite of having such huge production in district Muzaffargarh there is no single date processing plant for this area.

Following table shows dates production and cultivating area in Muzaffargarh.

Table 3: Dates Production and Cultivated

Year	Cultivated Area (Acre)	Production (Tons)
2002-03	7,650	21,107
2003-04	7,659	9,214
2004-05	7,800	9,317
2005-06	8,000	22,360
2006-07	8,000	24,186
2007-08	8,100	24,791

2.5 Other Cluster Actors

Entrepreneurs normally sub-contract/out-source the products like Wooden/Corrugated Box, Sheets, Used Newspaper, Plastic Bin, Fresh fruit, Cold Storage Services, logistics from support firms to reduce cost. Support firms engage in price based competition to get subcontracting orders. There is a continuous growth of support firms in the cluster. Support firms have developed a niche in a product/service.

2.6 Geographical Location

District Muzaffargarh consider as one of the largest date growing area in Punjab where more than 56% date production is from district Muzaffargarh.District Muzaffargarh is spread over an agriculture area of 1,155,960 Acres. Dates are cultivated almost in entire region but major date growing areas in District Muzaffargarh are

- Khan Garh
- Murad abad
- Khudai
- Rang-pur
- Ali-pur
- Wandar
- Maher-pur
- Liaqatabad
- Muzaffargarh Khas

2.7 Current Cluster Scenario

Date Palm is considered as a long term profitable business only if it has skilled workforce and proper processing facilities. District Muzaffargarh is a main date producing area in Punjab but lack of following facilities makes it low profitable business.

- Technical expertise
- Non-availability of skilled labor
- Less interaction with market
- Poor knowledge on cultivation & post harvest techniques
- Non-availability of financing facility
- Sudden death of plants
- No cure of diseases,
- Adverse climate changes
- Non-availability of processing facilitates (washing, drying, grading & packing)

Only few people are producing dates on commercial basis. Dates produced in district Muzaffargarh have reasonable demand in all over Punjab. Main commercial verities of district Muzaffargarh are Hillavi, Khudravi, shamram & Zaidi.

Non-availability of skilled workforce is a main reason of lower date production in this area. Every year more than 30% production spoiled only due to non-availability of skilled workforce. Still Growers are using old methods/techniques for preserving and drying this fruit which actually reduce its quality and taste. We may increase date production at large with just providing basic trainings on planting, procuring from diseases, fruit picking, drying & preserving methods. Growers are not complying proper procedure and time frame in planting and picking this fruit.

With the passage of time sugarcane and mango trees have taken place of date orchards at large due to low profitability in dates growing business. High labor cost, non-availability of processing facilities makes it low profitable business. Only few people are growing dates on commercial basis. At large people are not interested to produce dates for commercial purpose; main reason is the absence of value addition facilities. There is no single date processing facility available in MG. If we provide drying, washing, grading and packing facilities to progressive growers subsequently we may attract people at large to grow dates for commercial purpose. Muzaffargarh dates are sold in all over Punjab. Jung, Duniya Pur, Multan, Lahore & Faisalabad are main markets where dates are sold in bulk quantity at very lower rates without any value addition.

Climate changes in last 20 to 30 years have also adversely effected date production in this area. In past, floods in district Muzaffargarh destroyed large number of date farms which actually affected date production in this area. Sudden climate changes also affect date productivity in this area. Due to ideal climate and rich soil district Muzaffargarh is still good place to produce high quality dates.

Production of dates in district Muzaffargarh has often not been accompanied by better post-harvest management and appropriate modernization of the processing techniques. Dates from Muzaffargarh can be exported only if we process it on standardized basis.

People have abundance of free land in district Muzaffargarh but don't have much money to purchase high yield date plants. Financing is the basic requirement of those people who are interested to establish date orchard and go for processing facilities. Non-

availability of financing facility is a main hurdle in establishing new date orchards and investing in processing facilities.

Pakistan is exporting fresh dates to various countries including India and Bangladesh. But in spite of having big date cluster in Muzaffargarh, it has zero percent shares in dates export market.

3 Analysis of Business Operations

3.1 Production Operation

3.1.1 Climate

Suitable ecological conditions for date cultivation include elevation of trees ranging from 100-200 feet and temperature range from 35 to 50C. Date palms like a warm climate where summers are considerably longer than winters. It is generally said that its feet should be in water and its head in the fire

3.1.2 Sowing, Planting and Growth

Propagation is done by means of suckers, i.e. shoots arising from the base of the tree. To separate the suckers from the tree first remove the earth from the base and then separate very carefully from the trunk in a manner that the rudimentary roots at the base of the sucker are not injured otherwise chances for success will be very low.

Table 4: Sowing and Planting of Date Trees

Suitable age of suckers for transplanting	2-3 Years
Time of transplanting	Spring: Feb to Mar, Autumn: Sept/Oct
Time to start bearing	4-5 years
Time to full production	6-8 years
Normal economic bearing life	50 years
Time of flowering	Feb to March
Time of harvest	Aug to Oct

Pits are prepared one month before transplanting in Jan/Feb for a spring planting and Aug/Sep for an autumn planting. Normal pit size is 75 x 75 x 75 cm. The suckers are placed in the pit in the same position as it was attached with the mother tree. Date palm is a unisexual tree. Pollination in date is therefore absolutely essential. In wild plantation, there are already male trees growing in abundance that can supply pollen for fruit formation. In commercial orchards, plant male trees in the ratio of 1 male to 20 females for better yield, otherwise artificial pollination by hand will be necessary to obtain good production.

Dates orchards are planted on a square system and trees are spaced as 6 x 6 m or 20 x 20 feet or 112 trees / acre. Date trees provide enough space for intercropping even if they are fully grown as they do not cover much area being a very tall tree. It is possible to grow a mixed fruit orchard, such as date intercropped with citrus. Field crops, such as fodders and vegetables may also be grown together with date palms.

3.1.3 Pest and Diseases

Borer

Borers enter into the trunk of the tree and make tunnels. The tree appears green but gradually it bends over and breaks. Use any recommended emulsion or carbon disulphide granules which should be dropped into the holes and plugged with cotton wool and plastic.

Scales:

All the recommended varieties are attacked by this insect. It sucks the sap from the leaves and small brown spots appear on the leaves. Use Folidol or Metasystox at the rate of 1 liter in 450 liters of water per acres for its control

There are no major diseases of date palm observed in Pakistan.

3.1.4 Water Management

Table 5: Water Management

Annual Crop water demand:	900-1300 mm
Rooting depth:	1.5 to 2.5 m
Allowable depletion of soil water from the root zone:	50%
Range of suitable gross application depths of water:	75-90 mm
Irrigation intervals:	15-25 days

Dates will also tolerate a longer irrigation interval of 30-40 days with gross applications of 130-140 mm. Irrigation depths and intervals will depend on the water requirements of the intercross grown with the date palm.

3.1.4 Fertilizers and Manures

Apply farm yard manure (FYM) 15-20 days before flowering in January at the rate of 30-40 kg per tree. At the same time, also apply 2 kg of single super phosphate (SSP) sand 1 - 1.5 kg of Urea per tree. At fruit setting in Mar/Apr, apply a further 1 - 1.5 kg per tree of Urea.

3.1.5 Harvesting

The dates are picked at three stages:

I. Doka stage when the fruit is 50% ripe fruit and yellowish in color,
II. Dang stage when the fruit is fully developed and the tip of the fruit begins to soften.
III. Pind stage when the fruit is fully ripe and dark reddish and the fruit is soft

Expected yield is about 100-150 kg per tree

3.2 Technology Status

Having no processing facility is a dilemma for district Muzaffargarh dates cluster. There is a dire need to introduce washing, drying, grading and packing technologies to uplift this cluster.

In 1982-83 Ayub Agriculture Research Institute Faisalabad started technology demonstration and date research centre with budget of Rs.10 million in Muzaffargarh. The heavy machinery comprising of washing cum dryer unit, grading & packing machines, elevator, rapid moisture tester, refractor meter etc. were installed. The project was close after three years due to administrative and political issues. The installed machineries have been transferred to food technology department of Ayub Agriculture Research Institute Faisalabad. Small machinery is still installed but in non operational condition and all staff has also been transferred to other cities.

Pakistan Council of Renewable Energy Technology (PCRET) under the Ministry of Science & Technology (MoST) started a project on "solar dryer for drying of dates" under this project PCRET have provided five solar dryer plants in district Muzaffargarh. This plant is basically use for drying dates with solar energy. These plants are provided to only those aggressive date growers who offered their land to install this plant as "Common Facility Centre" for others.

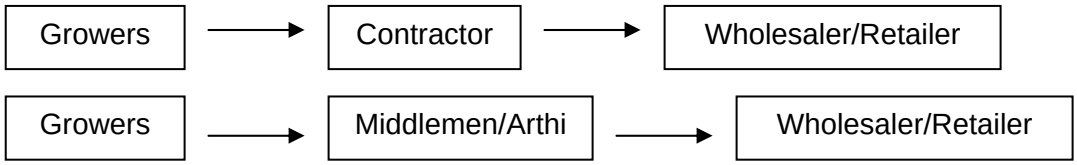
Currently there are no dates processing facilities (washing, grading, and packing) available (govt/private) in district Muzaffargarh. Manual picking, washing, drying and packing methods, spoiled more than 30% fruit. People are selling dates in bulk quantity at very cheap rates without any processing or value addition. They are using old preserving methods which spoiled dates at large quantity.

3.3 Quality Control

In district Muzaffargarh, date growers are not following any formal or standardized quality assurance methods. They assure the quality of this fruit at different levels by using their self created traditional methods which are not effective in getting high yield and quality. In pollination people use good quality pollens to make sure the quality of dates. They remove weak bunches to improve the size and quality of remaining bunches.There is no latest preserving facilities/techniques available in this area. Growers are using pitchers (Gharra) to increase dates shelf life. Some people are using harmful chemicals to get early mature production which is dangerous for health and causes many diseases.

3.4 Market Analysis

Peak season for date consumption is during the month of Ramadan. Entire Muslim community around the world-currently numbering 1.6 billion people is loyal consumer of dates. Dates consumption is also quite high during Christmas and Devali and such festivals in other religions. Usual sales of dates are spread to a period from October to April. Being fifth largest country in export, Muzaffargarh has zero% shares in date export market. Date produced in Muzaffargarh is sold domestically in Multan, Jaung, Faisalabad and Lahore in bulk quantity without any value addition.



3.5 Human Resource

Cheap labor force is available for date cluster. Labor working in this cluster is highly unprofessional and untrained. More than 30% fruit spoiled only due to

unskilled/untrained labor force. There is a dire need of series of training programs for date growers and workforce which will definitely increase date production in this area.

4 Institutional Setup

4.1 Entrepreneurs Associations

No formal trade association or group exist in the cluster

4.2 Government/Semi Government Support Institutions

Following Government/Semi Government institutes exists in the cluster.

4.2.1 EDO Agriculture (Muzaffargarh)

Muzaffargarh Agriculture department have no support or guidance for date growers at any level.

4.2.2 Pakistan Council for Renewable Energy Technologies (PCRET)

Pakistan Council for Renewable Energy Technologies (PCRET) start a project of “solar dryer for drying of dates” under this project PCRET has provided five solar dryer plants in Muzaffargarh. These plants are use for drying dates.

4.2.3 Ayub Agriculture Research Institute, Faisalabad (Food Technology Department)

In 1982-83 Ayub Agriculture Research Institute Faisalabad started technology demonstration and date research centre with budget of Rs.10 million in Muzaffargarh. The heavy machinery comprising of washing cum dryer unit, grading & packing machines, elevator, rapid moisture tester, refractor meter etc. were installed. The project was close after three years due to administrative and political issues. Currently this centre is not providing any kind of help to the cluster.

5 SWOT ANALYSIS

5.1 Strengths

- Availability of cheap labor.
- Suitable environment for date cultivation.
- Availability of abundance of land at cheap rates for date farming.
- High demanded fruit in the month of holy Ramadan
- Availability of best dates verities
- Low cost cultivation fruit

5.2 Weaknesses

- Non-availability of trained/skilled labor
- Uses of old techniques/methods in planting, pollination & drying, storage
- High spoilage rate
- No formal education and vocational courses for date farming
- Non-availability of Govt/Private business support institutions.
- No washing, grading and packing, facilities for date growers (No value addition facilities)
- Does not exist any date growers association in district Muzaffargarh

5.3 Opportunities

- No competition in date processing facilities in this area.
- Investment in date processing facilities (e.g. washing, drying, grading and packing)
- High Demand of dates processed products in local and international market.
- Introducing value added products like syrup, jam, Chouwara and wide range of sweet products
- New date verities can be introduce in district Muzaffargarh. (Dakki, Assil, Begum, Mazawati etc)
- Availability of abundance of land which can be utilize for date farming.
- Huge local and international market due to high nutrition and religious point of view

5.4 Threats

- Due to non-availability of processing facilities and environment changes sugarcane & mango orchards are taking place of date farming at large.
- Productivity is very low due to non-availability of skilled/trained labor
- Rising under ground water level is a serious threat for date orchards.
- Non-availability of processing and technical facilities dates growing is becoming low profitable business.

6 Investment Opportunities in Cluster

- There is huge production of dates in district Muzaffargarh but all them are sold in different cities without any processing (washing, grading and packing) at very low price. There is a dire need to add some value in this product which will definitely increase its sales price multiple times. So investment in drying, washing, grading and packing plants provides an ample opportunity for business community.
- Export of Dates from Muzaffargarh
- Investment in Dates Plant Nurseries
- At small level investment in following projects could be highly profitable
  - Dates Paste
  - Chopped Dates
  - Dates Syrup
  - Dates Jam
  - Wide Range of Sweets
  - Enrobed Chocolate
  - Powdered Dates Stones
- Chowara is the largest exported dry fruit product from Pakistan in different countries including big share of India. Chouwara making in district Muzaffargarh can be high profitable investment. Already no one is involved in chowara making business in district Muzaffargarh.