

# **RAISIN MANUFACTURING UNIT**

## **1. INTRODUCTION:**

The project of establishing Raisin Manufacturing unit has to be developed in an area where grapes production is high. Raisins are highly acceptable product and have huge market if established in selective environment. Export market is even good in terms of profitability, if produced with international standard quality. Initially project should be focused on developing credibility in domestic market and then after maturity, there should be focus on export market. The main feature of the project would include hygienically produced raisins (dehydrated grapes up to 80-85%). Value addition will be done in form of quality processing, i.e. washing, drying, sorting & standardized packaging.

## **2. PRODUCT & ITS APPLICATION:**

Sweet, tasty and delicious raisins are a great snack just as they are or can add flavor to almost any favorite recipe, can be eaten by hand & mixed with other dishes and fruits. It is used in various traditional dishes i.e. Pulao, Halwa etc. and also consumed in modern shapes as pulp, juices, paste, cereals, and snacks etc. Raisins as a part of the daily diet provide essential nutrients, soluble & insoluble fiber and health protective bioactive compounds. Raisins have proven its effectiveness for the health aspects. Raisins reduce the risk of developing various diseases i.e. constipation, heart disease, diabetes, colon cancer and obesity. Raisins add a touch of sunshine to breads, muffins, cookies, cakes, pies, tarts and puddings etc. As bakery products are one of the major highlights of food industry, it makes the commercial importance of raisin even higher. Raisins are also used in a variety of dishes. In many places raisins are used in place of sugar.

## **3. DESIRED QUALIFICATIONS FOR PROMOTER:**

Successful running this project does not require any specific qualification.

#### **4. INDUSTRY LOOKOUT AND TRENDS**

In years of oversupply, the RAC can also implement the Raisin Industry Diversion Program, in which growers voluntarily participate in programs aimed at reducing supply. Program participants are reimbursed for either removing vines or spur pruning to reduce fruit production (due to a recent U.S. Supreme Court decision, these provisions are currently suspended, being reviewed, and will be amended) (Raisin Administrative Committee, 2015) (USDA - AMS, 2015).

Green grapes have about 24 percent sugar. However, by reducing water in grapes, the proportion of sugar increases to roughly 60 percent by weight in raisins. It takes between 4 to 4.5 pounds of green grapes to make a pound of raisins (Martin & Mason, 2009).

One way to add value to raisins is to remind customers of their versatility. Raisins can be substituted in many recipes that call for other dried fruit. They can also be added to savory dishes, creating a more balanced flavor profile (California Raisin Marketing Board - Recipes, 2015).

Fresh raisins can be used in baked goods as a natural sweetener and flavor enhancer. They can be used in trail mix, cereals, and granola, and can provide moisture for soft and chewy cookies, as well as control breakage in crisp cookies (California Raisin Marketing Board - Products, 2015).

Another way to add value to your raisins is by processing them. Raisin paste can be used as a binder in fruit bars in place of other, more expensive fruit pastes, such as date paste (Fuentes, 2014). Raisin paste can add healthy fiber to baked goods, and its rich deep colour can add visual appeal. Raisin juice concentrate can be used as a natural colouring agent and can add flavor to sauces and marinades, as well as be used as syrup for yogurts, ice cream and chocolate milk. Raisins also have antimicrobial properties, thus adding value to products in which they're used by extending the shelf life (California Raisin Marketing Board - Products, 2015).

## **5. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY:**

The project is highly dependent upon the availability of Grapes. So keeping in view the seasonal production of grapes, it is suggested that the project may be initiated between July and September. However, value addition can be done through this facility by utilizing round the year production of other varieties of grapes. The target customers for processed raisins would primarily be individuals, dry fruit whole sellers & retailers, confectionary and medicine industry. After certain period of operations and market capture, project can be expanded into tackling export market with international quality production of raisins and packaging.

## **6. RAW MATERIAL REQUIREMENTS:**

The primary raw material for making raisins is grapes. These grapes must have certain qualities in order to produce quality raisins i.e. they must ripen early. Additionally, they must be clean, have a soft texture, not stick together when stored, and have a pleasing flavor. For food grade packaging, it requires food quality HDPE/cardboard boxes.

## **7. MANUFACTURING PROCESS:**

Typical process of manufacturing raisins requires following steps. First step to producing good raisins is growing quality grapes. Grape farming is a year-round commitment and includes the practices of pruning, irrigation, fertilization, and pest control. Then, the grapes are harvested. Depending on the weather, the grapes are allowed to dry on the trays for two to four weeks. During this time, the moisture content of the grape is reduced from 75% to under 15% and the color of the fruit changes to a brownish purple. After the fruit is dried, the paper trays are rolled up around the raisins to form a package. The rolls are gathered and stored in boxes or bins before being transported by truck to a processing plant. When the rolls of fruit arrive at the manufacturing plant, they are emptied out onto wire screens and shaken to remove dirt and other unwanted debris. The dried grapes

are moved from the storage bins to the processing plant. Here they are emptied out onto a conveyor line and mechanically modified. The residual sand and other debris are first removed by running the raisins on a fine mesh screen while air is blown on them. Immature fruit is removed by suction devices. Next, the raisins are separated from the bunch stem by shaking. The cap stems on each raisin are removed by being passed through two rotating conical surfaces. If there are seeds in the raisins, they are mechanically removed. When all these processing steps are completed, the raisins are run through a series of mesh screens to sort them according to size. At this point the raisins can be put into a variety of packaging. They are packed onto trucks and shipped to customers. Quality control is an important part of each step in the raisin making process. They are also subjected to a variety of laboratory analyses to ensure the production of a consistent, high quality product.

## 8. MANPOWER REQUIREMENT:

The enterprise requires 14 employees as detailed below:

Sr. No.	Designation of Employees	Salary Per Person	Monthly Salary ₹	Number of employees required				
				Year-1	Year-2	Year-3	Year-4	Year-5
	<b>Variable Labour: Workers</b>							
1	Operator	₹ 10,000.00	₹ 10,000.00	2	2	2	3	3
2	Un Skilled Workers	₹ 8,000.00	₹ 24,000.00	5	5	5	8	8
	<i>sub-total</i>		₹ 34,000.00	7	7	7	11	11
	<b>Fixed Staff:</b>							
1	Accountant	₹ 12,000.00	₹ 12,000.00	1	1	1	1	1
2	Store Keeper	₹ 8,000.00	₹ 8,000.00	2	2	2	4	4
3	Sales Staff	₹ 12,000.00	₹ 24,000.00	4	4	4	5	5

	<i>sub-total</i>		₹ 44,000.00	7	7	7	10	10
	<b>Total</b>		₹ 78,000.00	14	14	14	21	21

## 9. IMPLEMENTATION SCHEDULE:

The project can be implemented in 6 - 8 months' time as detailed below:

Sr. No.	Activity	Time Required (in months)
1	Acquisition of premises	1.00
2	Construction (if applicable)	2.50
3	Procurement & installation of Plant & Machinery	2.50
4	Arrangement of Finance	1.00
5	Recruitment of required manpower	1.00
	Total time required ( <i>some activities shall run concurrently</i> )	6.00 - 8.00

## 10. COST OF PROJECT:

The project shall cost ₹ 93.18 lacs as detailed below:

Sr. No.	Particulars	₹ in Lacs
1	Land	8.70
2	Building	6.50
3	Plant & Machinery	14.89
4	Furniture, other Misc. Equipments	0.85
5	Other Assets including Preliminary / Pre-operative expenses	1.49
6	Margin for Working Capital	60.75
	<b>Total</b>	<b>93.18</b>

## 11. MEANS OF FINANCE:

Bank term loans are assumed @ 60% of fixed assets. The proposed funding pattern is as under:

Sr. No.	Particulars	₹ in Lacs
1	Promoter's contribution	23.29
2	Bank Finance	69.88
	<b>Total</b>	<b>93.18</b>

## 12. WORKING CAPITAL CALCULATION:

The project requires working capital of ₹60.75 lacs as detailed below:

Sr. No.	Particulars	Gross Amt	Margin %	Margin Amt	Bank Finance
1	Inventories	30.38	0.25	7.59	22.78
2	Receivables	15.19	0.25	3.80	11.39
3	Overheads	15.19	100%	15.19	0.00
4	Creditors	-		0.00	0.00
	<b>Total</b>	<b>60.75</b>		<b>26.58</b>	<b>34.17</b>

## 13. LIST OF MACHINERY REQUIRED:

A detail of important machinery is given below:

Sr. No.	Particulars	UOM	Qty	Rate (₹ in Lacs)	Value (₹ in Lacs)
	<b>Plant &amp; Machinery / equipments</b>				
<b>a)</b>	<b>Main Machinery</b>				
1	Fruit Washer and Dryer	Nos	1	₹ 4.75	₹ 4.75
2	Sorting and Grading Machine	Nos	1	₹ 2.80	₹ 2.80
3	Packaging Machine	Nos	1	₹ 1.65	₹ 1.65
<b>Sr. No.</b>	<b>Particulars</b>	<b>UOM</b>	<b>Qty</b>	<b>Rate</b>	<b>Value</b>

				(₹ in Lacs)	(₹ in Lacs)
4	Generator	Nos	1	₹ 2.30	₹ 2.30
5	SS Storage tanks	Nos	5	₹ 0.35	₹ 1.75
6	Weighing Scale	Nos	3	₹ 0.25	₹ 0.75
7	Material Handling Equipment	Nos	LS	₹ 0.52	₹ 0.52
8	Misc. Tools	Nos	LS	₹ 0.37	₹ 0.37
	<i>sub-total Plant &amp; Machinery</i>				<b>₹ 14.89</b>
	<b>Furniture / Electrical installations</b>				
1	Office furniture and Electrification	LS	1	₹ 0.85	₹ 0.85
	<i>sub total</i>				<b>₹ 0.85</b>
	<b>Other Assets</b>				
1	preliminary and preoperative	LS		1.49	₹ 1.49
	<i>sub-total Other Assets</i>				<b>₹ 1.49</b>
	<b>Total</b>				<b>₹ 17.23</b>

All the machines and equipments are available from local manufacturers. The entrepreneur needs to ensure proper selection of product mix and proper type of machines and tooling to have modern and flexible designs. It may be worthwhile to look at reconditioned imported machines, dies and tooling. Some of the machinery and dies and tooling suppliers are listed here below:

1. Fry-Tech Food Equipments Private Limited  
S. No. 4, Raviraj Industrial Estate,  
Bhikhubhai Mukhi Ka Kuwa Bharwadvash,  
Ramol, Ahmedabad - 380024,  
Gujarat, India
2. Hindustan Vibrotech Pvt. Ltd.  
Office No. 2, Ground Floor,  
Vrindavan Building, Vile Parle East,  
Mumbai - 400057,  
Maharashtra, India
3. Electrons cooling systems Pvt. Ltd.

S-27, SIDCO Industrial Estate  
Kakkalur Industrial Estate  
Tiruvallur - 602003,  
Tamil Nadu, India

4. Springboard Enterprises India Ltd.

1st, 2nd & 3rd Floor,  
Plot No. 7, 8 & 9,  
Garg Shopping Mall,  
Service Centre, Rohini Sector 2  
New Delhi - 110085,  
Delhi, India

5. Flour Tech Engineers Private Limited

Plot No. 182, Sector 24,  
Faridabad - 121005,  
Haryana, India

6. P Square Technologies

3, Swami Mahal,  
Gurunanak Nagar,  
Off. Shankarsheth Road Bhavani Peth,  
Pune - 411002,  
Maharashtra, India

7. Ricon Engineers

10 To 13, Bhagwati Estate,  
Near Amraiwadi Torrent Power,  
Behind Uttam Dairy,  
Rakhial, Ahmedabad - 380023,  
Gujarat, India

**14. PROFITABILITY CALCULATIONS:**

Sr. No.	Particulars	UOM	Year-1	Year-2	Year-3	Year-4	Year-5
1	Capacity Utilization	%	60%	70%	80%	90%	100%
2	Sales	₹. In Lacs	194.40	226.80	259.20	291.60	324.00
3	Raw Materials & Other direct inputs	₹. In Lacs	152.43	177.84	203.24	228.65	254.05
4	Gross Margin	₹. In Lacs	41.97	48.97	55.96	62.96	69.95
5	Overheads except interest	₹. In Lacs	17.34	18.42	20.59	21.24	21.67
6	Interest @ 10 %	₹. In Lacs	6.99	6.99	4.66	3.49	2.80
7	Depreciation @ 30 %	₹. In Lacs	10.42	7.45	5.21	3.72	3.35
8	<b>Net Profit before tax</b>	₹. In Lacs	<b>7.22</b>	<b>16.11</b>	<b>25.50</b>	<b>34.50</b>	<b>42.13</b>

The basis of profitability calculation:

This unit will have 220-240 MT/Annum capacity. The growth of selling capacity will be increased 10% per year. (This is assumed by various analysis and study; it can be increased according to the selling strategy.)

Energy Costs are considered at Rs 7 per Kwh and fuel cost is considered at Rs. 65 per litre. The depreciation of plant is taken at 10-12 % and Interest costs are taken at 14 -15 % depending on type of industry.

## 15. BREAKEVEN ANALYSIS:

The project shall reach cash break-even at 34.98% of projected capacity as detailed below:

Sr. No.	Particulars	UOM	Value
1	Sales at full capacity	₹. In Lacs	324.00
2	Variable costs	₹. In Lacs	254.05
3	Fixed costs incl. interest	₹. In Lacs	24.47
4	BEP = $FC/(SR-VC) \times 100 =$	% of capacity	34.98%

## **16. STATUTORY / GOVERNMENT APPROVALS**

The Ministry of Food Processing Industries has been operating several plan schemes for the development of processed food sector in the country during the 10th Plan. One of the schemes relates to the Technology Up-gradation/ Establishment/ Modernization of food processing industries.

The Indian food processing industry is regulated by several laws which govern the aspects of sanitation, licensing and other necessary permits that are required to start up and run a food business. The legislation that dealt with food safety in India was the Prevention of Food Adulteration Act, 1954 (hereinafter referred to as "**PFA**"). The PFA had been in place for over five decades and there was a need for change due to varied reasons which include the changing requirements of our food industry. The act brought into force in place of the PFA is the Food Safety and Standards Act, 2006 (hereinafter referred to as "**FSSA**") that overrides all other food related laws.

FSSA initiates harmonization of India's food regulations as per international standards. It establishes a new national regulatory body, the Food Safety and Standards Authority of India (hereinafter referred to as "**FSSAI**"), to develop science based standards for food and to regulate and monitor the manufacture, processing, storage, distribution, sale and import of food so as to ensure the availability of safe and wholesome food for human consumption. Entrepreneur may contact State Pollution Control Board where ever it is applicable.

**All food imports will therefore be subject to the provisions of the FSSA and rules and regulations which as notified by the Government on 5th of August 2011 will be applicable.**

### **Key Regulations of FSSA**

- A. Packaging and Labeling
- B. Signage and Customer Notices
- C. Licensing Registration and Health and Sanitary Permits

## **17. BACKWARD AND FORWARD INTEGRATIONS**

The objective of the scheme is to provide effective and seamless backward and forward integration for processed food industry by plugging the gaps in supply chain in terms of availability of raw material and linkages with the market. Under the scheme, financial assistance is provided for setting up of primary processing centers/ collection centers at farm gate and modern retail outlets at the front end along with connectivity through insulated/ refrigerated transport.

The Scheme is applicable to perishable horticulture and non-horticulture produce such as, fruits, vegetables, dairy products, meat, poultry, fish, Ready to Cook Food Products, Honey, Coconut, Spices, Mushroom, Retail Shops for Perishable Food Products etc. The Scheme would enable linking of farmers to processors and the market for ensuring remunerative prices for agri produce.

The scheme is implemented by agencies/ organizations such as Govt. / PSUs/ Joint Ventures/ NGOs/ Cooperatives/ SHGs / FPOs / Private Sector / individuals etc.

### **Backward Linkage:**

- Integrated Pack-house(s) (with mechanized sorting & grading line/ packing line/ waxing line/ staging cold rooms/cold storage, etc.)
- Pre Cooling Unit(s)/ Chillers
- Reefer boats
- Machinery & equipment for minimal processing and/or value addition such as cutting, dicing, slicing, pickling, drying, pulping, canning, waxing, etc.
- Machinery & equipment for packing/ packaging.

### **Forward Linkage:**

- Retail chain of outlets including facilities such as frozen storage/ deep freezers/ refrigerated display cabinets/cold room/ chillers/ packing/ packaging, etc.
- Distribution center associated with the retail chain of outlets with facilities like cold room/ cold storage/ ripening chamber.

## **18. TRAINING CENTERS AND COURSES**

There are few specialized Institutes provide degree certification in Food Technology, few most famous and authenticate Institutions are as follows:

1. Indian Institute of Food Science & Technology,  
Plot No.1, Near Maa-Baap ki Dargah,Opp to Nath Seeds,  
Paithan Road Aurangabad  
Aurangabad - 431005  
Maharashtra, India
2. MIT College of Food Technology, Pune  
Gate.No.140, Raj Baugh Educational Complex,  
Pune Solapur Highway,  
Loni Kalbhor, Pune - 412201  
Maharashtra, India
3. CSIR - Central Food Technological Research Institute (CFTRI)  
Cheluvamba Mansion, Opp. Railway Museum,  
Devaraja Mohalla, CFTRI Campus, Kajjihundi, Mysuru  
Karnataka - 570020

Udyamimitra portal ( link : [www.udyamimitra.in](http://www.udyamimitra.in) ) can also be accessed for handholding services viz. application filling / project report preparation, EDP, financial Training, Skill Development, mentoring etc.

Entrepreneurship program helps to run business successfully is also available from Institutes like Entrepreneurship Development Institute of India (EDII) and its affiliates all over India.

**Disclaimer:**

Only few machine manufacturers are mentioned in the profile, although many machine manufacturers are available in the market. The addresses given for machinery manufacturers have been taken from reliable sources, to the best of knowledge and contacts. However, no responsibility is admitted, in case any inadvertent error or incorrectness is noticed therein. Further the same have been given by way of information only and do not carry any recommendation.

Source:- Udyami Mitra/Sidbi