

# FRUIT JAM, JELLY AND MARMALADE

QUALITY AND STANDARDS : As per FPO specifications  
PRODUCTION CAPACITY : 100 tpa

## 1.0 PRODUCT AND ITS APPLICATIONS

Among processed fruits, jams, jellies and marmalades enjoy a predominant position. A large number of units are manufacturing these products to cater to the demand of domestic and export markets. The popular varieties are pineapple, mango, mixed fruit, guava, papaya, orange jellies and marmalades.



Jam is prepared from the fruit pulp by boiling with sufficient quantity of sugar to a moderately thick consistency, while the jelly is prepared from clear fruit extract. Marmalade is a fruit jelly wherein the slices of the fruit or peel shreds are suspended. The term is generally associated with products made from citrus fruits like oranges and lemons. The products are used as a bread spread and in bakery items. They can also be taken with chapati, dosa or similar breakfast foods to make them more appealing. The packing

ranges from 25 g, 500 g in bottles to 7 kg tins, depending upon the consumption need or bulk in 20 kg polyethylene-lined tins for commercial establishments. It is also packed in 15 g blister packs or 50 g, 100 g plastic cups.

## 2.0 MARKET POTENTIAL

Jams, jellies and marmalades share 17% of the total production of processed fruits and vegetable products. The demand is constantly increasing. The domestic market comprises defence sector, institutional sector, railways, airlines and regular channels of consumer stores and bakeries.

## 3.0 BASIS AND PRESUMPTIONS

- a) The unit will work for 200 days per annum on single shift basis.
- b) The unit can achieve its full capacity utilization during the 3rd year of operation.
- c) The wages for skilled workers are taken as per prevailing rates in this type of industry.
- d) Interest rate for total capital investment is calculated @ 12% per annum.
- e) The entrepreneur is expected to raise 20-25% of the capital as margin money.
- f) The unit would construct its own building as per F.P.O. specifications.
- g) Costs of machinery and equipment are based on average prices of machinery manufacturers.

## 4.0 IMPLEMENTATION SCHEDULE

Project implementation will take a period of 8 months. Break-up of the activities and relative time for each activity is shown below:

- ❖ Scheme preparation and approval : 01 month
- ❖ SSI provisional registration : 1-2 months
- ❖ Sanction of financial supports etc. : 2-5 months
- ❖ Installation of machinery and power connection : 6-8 months
- ❖ Trial run and production : 01 month



## 5.0 TECHNICAL ASPECTS

### 5.1 Location

The plant should be located in the vicinity of fruit growing/distribution centres keeping in view the marketing outlet. The other factors to be kept in view are ecology of the area and availability of transportation facilities (rail/road), cheap labour and other infrastructure facilities.

### 5.2 Availability of Raw material

Pineapple, passion fruit, grape, orange, ginger, lichi are available in large quantities. Firm, ripe and good quality fruits are to be used for the production. Preserved pulps can also be used. Other raw materials needed are sugar, pectin, citric acid, colour and flavours. Packing materials of different types are also readily available now-a-days. Innovative type of such materials are to be used to make the product more appealing.

### 5.3 Process of Manufacture

Good quality ripe fruits are selected and washed with water. They are peeled by SS knives and cut into small bits. The fruit bits are used directly or are mashed further and strained in a pulper. For jams, mashed fruit/pulp, for jelly, clear fruit aqueous extract and for marmalade, pulp and peel pieces (finely shredded) are to be used.



The cut fruit or pulp or fruit extract, as the case may be, is transferred to the steam jacketted kettle and heated to soften the fruit pieces. Sugar is added to this mass and heated further until it becomes thick in consistency. Colour, flavour and preservative are added at the end of the cooking process. Hot products are packed in bottles or plastic cups and cooled. The manufacturers have to take a licence under FPO.

### 5.4 Quality Control and Standards: As per FPO requirements

## 6.0 POLLUTION CONTROL

There is no major pollution problem associated with this industry except for disposal of waste which should be managed appropriately. The entrepreneurs are advised to take "No Objection Certificate" from the State Pollution Control Board.



## 7.0 ENERGY CONSERVATION

The fuel for the steam generation in the boiler is coal or LDO depending upon the type of boiler. Proper care should be taken while utilising the fuel for the steam production. There should be no leakage of steam in the pipe lines and adequate insulation should be provided.

## 8.0 PRODUCTION CAPACITY

Quantity	:	100 tpa
Installed capacity	:	700 kg/day
Optimum capacity utilization	:	70%
Working days	:	200/annum
Manpower	:	18

### Utilities

Motive Power	:	20 kW
Water	:	10 kL/day
Coal/LD oil	:	250 kg/ 60 L/day

## 9.0 FINANCIAL ASPECTS

### 9.1 Fixed Capital

#### 9.1.1 Land & Building

Amount (Rs. lakh)

Land 500 sq.mtr	:	0.75
Built up Area 150 sq. mtr.	:	4.50
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Total cost of Land and Building	:	5.25

#### 9.1.2 Machinery and Equipment

##### Description

Amount (Rs. lakh)

Pulper, SS kettle, fruit mill, bottle washing machine, bottle drier, plastic jar sealing machine, boiler, fruit washing tank, weighing scales, sauce pan, plastic cups, aluminium topped tables, SS knives, storage tanks.	:	6.00
Erection and electrification @ 10% of machinery cost		0.60
Office furniture & fixtures	:	0.80
Total :		-----
		7.40

#### 9.1.3 Pre-operative Expenses

Consultancy fee, project report, deposits with electricity department etc.	:	0.85
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**9.1.4 Total Fixed Capital** : **13.50**  
(9.1.1+9.1.2+9.1.3)

**9.2 Recurring expenses per annum**

**9.2.1 Personnel**

<b>Designation</b>	<b>No.</b>	<b>Salary Per month</b>	<b>Amount (Rs.lakh)</b>
Factory Manager	1	10,000	1.20
Supervisor	2	6,000	1.44
Office Assistant	2	5,000	1.20
Technician	2	4,500	1.08
Skilled workers	3	3,000	1.08
Unskilled workers (10 months)	8	1,500	1.44
			7.44
Perquisites @ 15%			1.12
			-----
<b>Total :</b>	<b>18</b>		<b>8.56</b>

**9.2.2 Raw Material including packaging materials**

<b>Particulars</b>	<b>Qty.(MT)</b>	<b>Rate Per mt.</b>	<b>Amount (Rs. lakh)</b>
Fruit	80	06	4.80
Sugar	65	16	10.40
Citric Acid,Pectin	01	120	01.20
Colour, flavour	LS	LS	00.60
Jars/caps (500 g)	2 lakh	8	16.00
			-----
<b>Total:</b>			<b>33.00</b>

**9.2.3 Utilities**

	<b>Amount (Rs. lakh)</b>
Power	0.80
Water	0.01
Coal	0.19
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<b>Total:</b>	<b>1.00</b>

<b>9.2.4 Other Contingent Expenses</b>	<b>Amount (Rs. lakh)</b>
Repairs and maintenance @10%	0.80
Consumables & spares	0.50
Transport & Travel	
Publicity	0.68
Postage & stationery	
Telephone	
Insurance	0.12
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Total:	2.10
<b>9.2.5 Total Recurring Expenditure</b>	<b>Amount (Rs. lakh)</b>
(9.2.1+9.2.2+9.2.3+9.2.4)	44.66
<b>9.3 Working Capital</b>	
Recurring Expenditure for 3 months	11.10
<b>9.4 Total Capital Investment</b>	<b>Amount (Rs. lakh)</b>
Fixed capital (Refer 9.1.4)	13.50
Working capital (Refer 9.3)	11.10
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Total:	24.60

## 10.0 FINANCIAL ANALYSIS

<b>10.1 Cost of Production (per annum)</b>				<b>Amount (Rs. lakh)</b>
Recurring expenses (Refer 9.2.5)				44.66
Depreciation on building @5%				00.22
Depreciation on machinery @10%				00.66
Depreciation on furniture @20%				00.16
Interest on Capital Investment @12%				02.96
				-----
Total:				48.66
<b>10.2 Sale Proceeds / Annual turnover</b>				
<b>Item</b>	<b>Qty. (MT)</b>	<b>Rate per jar</b>	<b>Amount (Rs.lakh)</b>	
Fruit jam, jelly packed in 500 g glass jar	100	30	60.00	

**10.3 Net Profit per year**

= Sales - Cost of production

= 60.00 - 48.66

= Rs. 11.34 lakh

**10.4 Net Profit Ratio**

=  $\frac{\text{Net profit} \times 100}{\text{Sales}}$

=  $\frac{11.43 \times 100}{60}$

= 19.05 %

**10.5 Rate of Return on Investment**

=  $\frac{\text{Net profit} \times 100}{\text{Capital Investment}}$

=  $\frac{11.43 \times 100}{24.60}$

= 46.46 %

**10.6 Annual Fixed Cost****Amount (Rs. Lakh)**

All depreciation 1.04

Interest 2.96

40% of salary, wages, utility, contingency 4.52

Insurance 0.12

Total: 8.64

**10.7 Break even Point**

=  $\frac{\text{Annual Fixed Cost} \times 100}{\text{Annual Fixed Cost} + \text{Profit}}$

=  $\frac{8.64 \times 100}{8.64 + 11.43}$

= 43.05%

## 11.0 ADDRESSES OF MACHINERY AND EQUIPMENT SUPPLIERS

Batliboi Engineers (Bangalore) Pvt. Ltd.  
99/2&3, N.R.Road  
Bangalore – 560 002

B.Sen Barry & Co.  
65/11, New Rohtak Road  
New Delhi – 110 005

Gardners Corporation  
158 Golf Links,  
New Delhi – 110 003

Narene Tulaman Manufacturers Pvt.  
Ltd.  
Balanagar  
Hyderabad – 500 037

Raylon Metal Works  
Kondivitta Lane  
Post Box 17426  
J.B.Nagar, Andheri (E)  
Mumbai – 400 059

Bajaj Maschinen Pvt. Ltd.  
7/20-7/27 Jai Laxmi Industrial Estate,  
Site IV  
Sahibabad Industrial Area - 201010  
Dist.Ghaziabad, UP

SSP (Pvt) Ltd.  
13<sup>th</sup> Milestone, Mathura Road  
Faridabad – 121003, Haryana

Narangs Corporation  
P-25/90 Connaught Place  
New Delhi – 110001

Nirmal Services  
2254/23 Rajguru Road, Chuna Mandi  
Paharganj  
New Delhi – 110055

Ganson Ltd.  
645 Anna Salai  
Chennai – 600006

Grovers Pvt. Ltd.  
223, Kaliandas Udyog Bhavan  
Prabhadevi  
Mumbai – 400 025

Macneill and Magor Ltd.  
4, Mangoe Lane  
Kolkata – 700 001

D.P.Pulverisers,  
Nagindas Master Road, Behind Museum,  
Fort  
Mumbai – 400 001

Sri Venkateswara Industries,  
Yadavgiri Industrial Estate,  
Mysore – 570 002

Mather & Platt (India) Ltd.,  
805-806, Ansal Bhawan  
16, Kasturba Gandhi Marg,  
New Delhi – 110 001

Somani International Corporation,  
1510, Market Chamber V,  
Nariman Point  
Mumbai- 400 021

K.S.J. Foods & Services (P) Ltd.,  
7/87, Vishnu Prasad Mahant Road  
Vile Parle  
Mumbai – 400057

Cowel Can Ltd.,  
Industrial Area  
Barotiwala, Solan, H.P.

Diwecha Glass Industries,  
249, Bal Rajeshwar Road,  
LBS Marg, Mulund (W),  
Mumbai – 400 080

Larson & Toubro Ltd.  
Ballard Estate, Douggel Road  
Mumbai – 400 001

Techno Equipments,  
31, Parekh Street, Girgaon  
Mumbai – 400 004

International Food Machinery Corporation,  
Krishna, Opposite Deep Bhawan,  
Pandit Nehru Marg,  
Jamnagar-361 008 (Gujarat)

Master Mechanical Works Pvt. Ltd.  
75, Link Road, Ist Floor  
Adjacent to Moolchand Hospital,  
Lajpat Nagar-III,  
New Delhi – 110 024

Gladwyn & Co.  
Poonawala Building  
251, Dr. Dadabhai Nauroji Road,  
Mumbai – 400 001

## **12.0 OTHER SPECIAL FEATURES**

A careful selection of product mix is necessary based on the local market demand and availability of raw materials. The facilities can also be utilised to manufacture toffees, fruit bars, tomato products, osmo-dried fruits for fuller utilisation of capacity.