

## **FRUIT JAMS, SQUASHES & COCKTAIL**

### **1. INTRODUCTION:**

Jam, Jelly, Juice & squash are made from fruits and these are food items. This food processing industry has thus far developed as a demand – based industry and hence only about 1.5 percent of fruits of the country are processed so far. If promoted as a local resource based industry its growth may be much larger especially because of fast increase in export. India is second to only Brazil in fruit production. In fruit and vegetable production India can boast of not only the quantity but also variety. Besides, the country is getting to exploit large part of horticultural land in the form of hill slopes. Transport, storage and processing are the needs for fruit and vegetable, production in the country. At present about 40 percent of Indian horticultural produces go waste due to lack of these facilities. Fruits can be processed to produce juice squash Jam, Jelly and Marmalades. Jam jelly making is simply a profitable business. In addition, you can initiate the business as a small scale with low capital investment. Food processing industry has started receiving a great deal of attention from the policy makers. The current industrial policy in food processing is also favorable for food processing industry. India is the 2nd largest producer of fruits and vegetables in the world, and the food processing sector in the country is expected to double in the next decade. The ever-growing consumer demands have opened up huge investment opportunities for foreign and private entities in the food processing industry currently.

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

Generally, jam and jelly from almost every type of fruit and some vegetables. Fruit jam contains rich fruit pulp and available in mango, apple, mixed fruit, pineapple and orange flavors. Jelly is a clear, bright mixture made from fruit juice, sugar and sometimes pectin. Generally, people use jelly and jam as the bread spread and as a filling for some cakes and cookies.

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

Anyone can start this project. Successful running of this project does not require any specific qualification. Promoter should have knowledge of ingredients, recipe, production process, packaging etc.

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

Generally, domestic households, restaurants, and other eateries are the major consumers of these items. It is estimated that the total production of processed fruit & vegetable in India is about 15.0 lakh ton. Out of various products fruit juices and fruit pulp accounts for 27 percent, followed by jams & jellies only 10 percent and synthetics 8 percent. This is obvious that the processed products of fruit & vegetable business will remain a growth industry for a long time. One of the main reasons for the expectation of growth is that the consumption of jam jelly is gaining popularity day by day owing to the growing change in the food habits and increased consumption of bread and other convenient snack foods. Apart from Pickles & Chatneys, preserved fruits are consumed primarily by urban and tourist oriented markets in India. The limited domestic market for preserved fruits has been the primary cause of slow progress of fruit preservation industry.

### **5. RAW MATERIAL REQUIREMENTS:**

The major raw materials required for the production of mixed fruit jam & jelly, marmalade is different fruits and vegetables. These are orange, pineapple, guava, papaya, jackfruit and banana. The consumables are sugar, citric acid, preservatives, food grade colors, chemicals, pectin, flavors, common salt etc. Additionally, you will need to procure the packaging consumables. First of all, you have to pack the product glass bottle or jars. And finally in cartons. The unit shall use locally available fruits like pineapple, orange, Banana, Lime & Lemon, Lichi and Guava, etc. are major fruits. It will need Sugar, Citric Acid, Potassium-Meta-Bi-Sulphate, Benzoic Acid, Sodium Benzoate, Bottles & Crown/ PP Caps.

## **6. MANUFACTURING PROCESS:**

First of all, wash the fruits in water and remove the skins. After peeling, cut or slice them into small pieces. Then, boil these pieces with water. Add an appropriate quantity of sugar with the pulp. When the temperature is around 60 C; citric acid, color, essence etc. are added. This mixture is then stirred for a while, cooled and then packed in bottles. The process flow chart is: Washing, peeling and slicing of fruits → Boiling → mixing of sugar with pulp → Cooling → packing. Jelly: Washed and peeled fruits are fed to the hopper of a juice extractor and the juice so obtained is filtered. Certain fruits like Rosella or guava need to be boiled in water before extracting juice. Sugar is added to juice and then this mixture is boiled to convert it in jelly form and pectin, citric acid, color etc. are added in the required quantity. Boiling is done till jelly-like formation is obtained. Packing is done on cooling. The process flow chart is: Washing and peeling of fruits → Addition of sugar in juice → boiling → Cooling and Packing. Fruits are washed manually. Bottles are washed by using Brushing, Rinsing, and Washing Machine. Washed Bottles are kept in Wire-Mesh Racks and Dried in Tray Capacity sterilizing Dryer. Fruits are then manually packed sliced, Trained and Cored by using knives and kept in stainless Steel Trays. Citrous fruits are halved and juices are extracted by using screw-type juice extractor. Juices are allowed to settle, filtered and pasteurized. Juices are than mixed with preservatives juices are the principal inputs for squashes cordial and jelly. For squashes Sugar & Citric Acid are heated with water. After Sugar Syrup is made, it is cooled and filtered. Clear Syrup is mixed with fruit juice, essence and permitted colors. In case of cordial Lime juice is first clarified by using gelatin and Tannin. After testing Juice and Squashes are filled in clean sterilized bottles by using filling machine. Bottles are capped by using P.P. cap sealing machine. Bottles are then wiped dry, Labeled and filled in Corrugated Cardboard boxes. Jams are prepared by open pan boiling of fruit pulp with sugar so that Gelatinous set of fruit & sugar is obtained by inviting about 40 percent of sugar. Pectin is added towards the end of the boiling process. Some fruits like Orange & plum need pre-cooking to soften fruit tissues. Jelly is prepared by boiling clear fruit juice with sugar, color, pectin and citric acid so that a clear, sparkling, translucent fluid is obtained. Jam & Jelly are packed hot in glass jars and sealed when Jam or Jelly is hot.

Marmalades are Jam or Jelly with pieces of fruits & peels with slightly higher percentages of pectin & Citric Acid.

## 7. MANPOWER REQUIREMENT :

The enterprise requires 11 employees as detailed below:

Sr. No.	Designation	Salary	Salary ₹	Number of Employees				
				Year-1	Year-2	Year-3	Year-4	Year-5
1	Production Manager	18000	18000	1	1	1	1	1
2	Operators	12000	12000	1	1	1	1	1
3	Helpers	10000	40000	4	4	5	5	6
4	Admin Manager	15000	15000	1	1	1	1	1
5	Accounts/Stores Assistant	12500	12500	1	1	1	1	1
6	Office Boy	9000	9000	1	1	1	1	1
	Total		106500	9	9	10	10	11

## 8. IMPLEMENTATION SCHEDULE:

The project can be implemented in 4 months' time as detailed below:

Sr. No.	Activity	Time Required (in months)
1	Acquisition of premises	2.00
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>	4.00

## 9. COST OF PROJECT:

The project shall cost ₹ 36.30 lacs as detailed below:

Sr. No.	Particulars	₹ in Lacs
1	Land	0.00
2	Building	0.00
3	Plant & Machinery	12.00
4	Furniture, other Misc. Equipments	1.50
5	Other Assets including Preliminary / Pre-operative expenses	1.20
6	Margin for Working Capital	21.60
	<b>Total</b>	<b>36.30</b>

## 10. MEANS OF FINANCE:

Bank term loans are assumed @ 75 % of fixed assets.

Sr. No.	Particulars	₹ in Lacs
1	Promoter's contribution	9.08
2	Bank Finance	27.23
	<b>Total</b>	<b>36.30</b>

## 11. WORKING CAPITAL CALCULATION:

The project requires working capital of ₹ 21.60 lacs as detailed below:

Sr. No.	Particulars	Gross Amt	Margin %	Margin Amt	Bank Finance
1	Inventories	10.80	0.25	2.70	8.10
2	Receivables	5.40	0.25	1.35	4.05
3	Overheads	5.40	100%	5.40	0.00
4	Creditors	-		0.00	0.00
	<b>Total</b>	21.60		9.45	12.15

## 12. LIST OF MACHINERY REQUIRED:

For a small scale conventional production process oriented unit you will need to have the following machinery. Pulper, Juice Extractor, Mixer, Grinder, Slicer, Cap Sealing Machine, Bottle Washing Machine and Carton Sealing Machine. From this type of unit, you can expect 30 tons production output per year on 2 shift working and 300 working days. If you want to establish a large scale production unit you will need to establish a fully automatic production unit. According to the desired production output requirement, you can establish customized plant. Additionally, you will need to procure some other equipment and tools. The list includes weighing scale, glassware, working tables, canteen burners, stainless steel utensils, hand-gloves, cutters and graters, storage racks etc. Also, you will need to have Testing equipment like jell meter, refractometer etc.

Sr. No.	Particulars	UOM	Qty	Rate (₹)	Value (₹ in Lacs)
	<b>Plant &amp; Machinery / equipments</b>				
<i>a)</i>	<b>Main Machinery</b>				
1	Pulp division	NOS	1	1.00	1.00
2	Mixer, grinder, slicer	NOS	1	2.50	2.50
3	Cooling chilling processing	NOS	1	1.50	1.50
4	Testing, Packing	L.S.	1	2.00	2.00
5	Utility Equipments	L.S.	1	3.00	3.00
	Installation, Taxes and Transportation	L.S.		2.00	2.00
	<i>sub-total</i>				<b>12.00</b>
	<b>Furniture / Electrical installations</b>				
a)	Office furniture	LS	1	50000	0.00
b)	Stores Cupboard	LS	1	50,000	0.50
c)	Computer & Printer	LS	1	50000	0.50
	<i>sub total</i>				<b>1.50</b>
	<b>Other Assets</b>				
a)	Preliminary and preoperative				1.20
	<i>sub-total Other Assets</i>				1.20
	<b>Total</b>				<b>14.70</b>

### 13. 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	64.80	75.60	86.40	97.20	108.00
3	Raw Materials & Other direct inputs	₹. In Lacs	44.64	52.08	59.52	66.96	74.40
4	Gross Margin	₹. In Lacs	20.16	23.52	26.88	30.24	33.60
5	Overheads except interest	₹. In Lacs	3.90	4.15	4.64	4.78	4.88
6	Interest @ 10 %	₹. In Lacs	2.72	2.72	1.82	1.36	1.09
7	Depreciation @ 30 %	₹. In Lacs	3.60	2.52	1.84	1.44	1.08
8	<b>Net Profit before tax</b>	₹. In Lacs	<b>9.93</b>	<b>14.13</b>	<b>18.59</b>	<b>22.66</b>	<b>26.55</b>

### 14. BREAKEVEN ANALYSIS:

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

Sr. No.	Particulars	UOM	Value
1	Sales at full capacity	₹. In Lacs	108.00
2	Variable costs	₹. In Lacs	74.40
3	Fixed costs incl. interest	₹. In Lacs	5.97
4	$BEP = FC/(SR-VC) \times 100 =$	% of capacity	17.77%