

JAM, JELLY AND PICKLE



1.0 INTRODUCTION

The food processing industry offers a great potential for development in our country. Though India is the third largest producer of fruits and vegetables in the world annually only one to two percent produce is processed. This is more or less the case with many foods also. By setting up of small scale food processing industries, the result would be doubly beneficial: utilizing available produce thereby avoiding wastage and running a viable unit. Fruits are an important source of energy for human-beings but they are perishable items. Hence since many years various products are made from juice of fruits so that they can be consumed during off season as well. Products like jam, jelly, pickles etc. are made from fruits since long. With the advent of technology and preservatives, shelf life of such products has gone up and they can be preserved for many months with proper packing.

This project profile is for setting up of a Jam, Jelly and Pickles making unit based on 300 working days per annum and 8 working hours per day. The installed production capacity of the unit per annum is as follows;

Jam	-	15 Tons
Jelly	-	15 Tons
Pickles	-	15 Tons

2.0 MARKET POTENTIAL

Jam, Jelly and Pickles are important food products as they enhance palatability of food due to its taste and flavour. They are prepared from fruits, contains rich vitamins and minerals. There are many types of pickles

available in India. These products have very good market potential as they are consumed in most of the households, restaurants, other eateries, clubs, hostels etc. They are sold through many outlets like grocery shops, departmental stores etc. But these products are very popular in the North-East region of India and the consumption is increasing year after year. Presently, there are limited numbers of small units producing these products in the region and there is a wide gap between demand and supply which is met by the manufacturers from outside the region.

3.0 PROCESS DETAILS

The major raw materials required for Jam and Jelly are fresh fruits. Pineapple, orange and jackfruit are known fruits but there are many other fruits grown in this region like carambola, rozelle, narabogori, guava and so on. Other materials like sugar, pectin, citric acid, food grade colours, flavours etc. are available locally without any difficulty.

The exact product-mix for pickle is difficult to suggest as number of imaginative combinations palatable to local population can be made. But it is assumed that pickles shall be produced from mango, ginger, jack-fruit, mushroom, bamboo shoot, Assam lemon, olive, chilly and carambola. Depending upon the availability of these products (season - off-season) the product mix needs to be determined. Other raw materials required are edible oil, free flowing salt, spices, preservatives etc. are available locally. Glass/food grade plastic bottles shall be required for packing:

Jam- Fresh fruits are washed in water and after removing

their skin, they are cut or sliced in small pieces. These pieces are boiled with water. Appropriate quantity of sugar is mixed with the pulp. When the temperature is around 60 C; citric acid, colour, essence etc. are added. This mixture is then stirred for a while, cooled and then packed in bottles. The process flow chart is as under:

- 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, colour 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 as under:

- Washing and peeling of fruits
- Addition of sugar in juice
- Boiling
- Cooling and packing

Pickles- Unripe fruits or vegetables are thoroughly washed and then are cut into small pieces. Then these

pieces are cured with salt, mixed with oil & spices and are finally packed. The process more or less remains the same in case of all pickles. In case of chutney, fruits or vegetables are washed, cleaned and peeled. After slicing them, they are boiled wherever required. Then this boiled mass is mixed with onion, garlic, ginger, sugar, salt, some other spices etc. and finally chutney is packed. The process flow chart is as under:

- Washing and slicing of unripe fruits and vegetables
- Curing in salt
- Mixing of ingredients
- Packing

4.0 COST OF THE PROJECT

The estimated project cost is given below:

(Rs. in lacs)	
Particulars	Amount (Rs)
Land & site development	Own Land/On Lease
Building & civil works	2.64
Plant & Machinery	3.03
Misc. Fixed assets	0.89
Preliminary & pre-operative expenses	0.64
Contingencies & escalation @ 3%	0.20
Working capital	1.24
TOTAL	8.64

4.1 Land & Site Development: Nil. Total Land: 3,000 Sq. Ft.: Covered Area: 800 Sq. Ft.

4.2 Building & Civil Works: Details of building & civil works are given below.

Particulars	Area (Sqft)	Rate (Rs)	Amount (Rs)
Factory Shed, Store cum Office	800	275	220000
Sub total			220000
Add: Electrification, water supply and sanitation @ 20%			44000
TOTAL			264000
Say (Rs. in lacs)			2.64

4.3 Plant & Machinery: Details of plant & machinery are given below.

Particulars	Qty	Amount (Rs)
Pulper- 30 Kg per hour	1	212000
Juice Extractor- 50 Lites	2	
Steam Jacketed Kettle- 60 Litrs	1	
Slicer	4	
Mixer/Grinder	2	
Stirrer		
Baby Boiler- 100 Kg per hour	1	
Bottle Washing and Filling Machine	1	
Cap Sealing Machine	1	
S S Utensils, Weighing Scales, Glassware, Burner, Hand Gloves, Cutter and Graters and Testing equipments	LS	63000
Sub total		275000
Add: Installation, transportation, etc @ 10%		27500
TOTAL		302500
Say (Rs. in lacs)		3.03

4.4 Misc. Fixed assets: Details of miscellaneous fixed assets are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Furniture's including Working Tables & Fixtures	LS	--	36000
Tools and equipment	LS	--	30000
Miscellaneous items	LS	--	15000
Sub total			81000
Add: Installation, transportation, etc @ 10%			8100
TOTAL			89100
Say (Rs. in lacs)			0.89

4.5 Contingencies & escalation: Contingencies & escalation has been assumed at 3% of the cost of land & site development, building & civil works, plant & machinery and miscellaneous fixed assets.

4.6 Preliminary & pre-operative expenses: Details of preliminary & pre-operative expenses are given below.

Particulars	Amount (Rs)
Travelling expenses	10000
Professional & other fees	16000
Interest during implementation	18392
Miscellaneous expenses	20000
TOTAL	64392
Say (Rs. in lacs)	0.64

4.7 Working capital: Details of working capital are given below.

(Rs. in lacs)

	Period (Days)	Total Current Assets		
		Year 1	Year 2	Year 3
Raw materials	10	0.47	0.54	0.62
Power & utility	30	0.06	0.07	0.08
Salary	30	0.49	0.50	0.50
Finished Goods	15	1.00	1.13	1.25
Receivables	15	1.07	1.25	1.43
Total		3.09	3.49	3.89
Working capital margin in Year 1 (40%)	1.24			

5.0 MEANS OF FINANCE

The means of finance for the project is estimated as below.

(Rs. in lacs)

Particulars	Percent	Amount
<u>EQUITY</u>		
A. Equity from Promoters	40%	3.46
B. Subsidy from Central/ State Govt.	-	
<u>DEBT</u>		
Term Loan from Banks/ Financial Institutions	60%	5.18
TOTAL	100%	8.64

6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<u>A. INCOME</u>					
Production capacity (Ton/annum)	45	45	45	45	45
Capacity utilisation	60%	70%	80%	80%	80%
Production/annum at capacity utilisation	27	32	36	36	36
Total income/annum	26.10	30.45	34.80	34.80	34.80
<u>B. OPERATING EXPENSES</u>					
Raw materials	16.98	19.81	22.64	22.64	22.64
Power & Utility	0.76	0.88	1.01	1.01	1.01
Salary	6.00	6.03	6.06	6.09	6.12
Repair & Maintenance	0.10	0.10	0.10	0.11	0.11
Other Expenses	0.52	0.61	0.70	0.70	0.70
Total Operating Expenses	24.36	27.44	30.51	30.54	30.58
Operating profit	1.74	3.01	4.29	4.26	4.22
<u>C. FINANCIAL EXPENSES</u>					
Depreciation	0.30	0.30	0.30	0.30	0.30
Interest on Term Loan	0.41	0.33	0.23	0.14	0.05
Interest on Working Capital Loan	0.15	0.17	0.19	0.19	0.19
Net Profit	0.88	2.22	3.56	3.62	3.68
Net cash accruals	1.19	2.52	3.87	3.93	3.99
Principal Repayment	0.58	1.15	1.15	1.15	1.15

6.1 Production capacity and Sales Realisation: Total production of spice powder at 100% capacity utilization is estimated as below.

Jam	15 Ton
Jelly	15 Ton
Pickles	15 Ton
Total production per annum at 100% capacity	45 Ton

Products	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Jam	15 Ton	105000	1575000
Jelly	15 Ton	105000	1575000
Pickles	15 Ton	80000	1200000
Total Sales per annum at 100% capacity			4350000

6.2 Raw materials: Total expenses on raw materials at 100% capacity utilization are estimated as below.

Particulars	Qty	Average Rate Per Unit (Rs.)	Amount (Rs)
Fruits	160 Ton	10000	1600000
Sugar	15 Ton	26000	390000
Edible Oil	2 Ton	75000	150000
Pectin, Citirc Acid and other Preservatives	LS	LS	60000
Salt and Spices	LS	LS	60000
Packaging Materials	90000 Nos.	5	450000
Secondary Packaging (Cartons)	8000 Nos.	15	120000
Expenses on raw material at 100% capacity (Rs)			2830000

6.3 Power & Utility: Total expenses on power & utility at 100% capacity utilization is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)
Plant & machinery (Total 15 HP)	--	11.19	11.19
General Lighting	10	0.10	1.00
Total power requirement/ day (Kw)			12.19
No. of hrs/day	8		
No of days/annum	300		
Annual power requirement (kwh)	29256		
Rate per unit (Rs)	3.50		
Expenses on power (Rs)	102396		
Expenses on Water/Gas Cylinder/Other Utility (Rs)	24000		
Expenses on power & utility at 100% capacity (Rs)	126396		

6.4 Salary: Total expenses on salary in the 1st year are estimated as given below. It is assumed that salary expenses will increase @ 0.5% every subsequent year.

Particulars of Employees	Numbers	Salary/ Month (Rs)	Cost/ annum (Rs)
Manager	1	7000	84000
Store In charge cum Accountant	1	6000	72000
Sales Personnel	3	6000	216000
Machine Operator/Skilled Workers	2	5000	120000
Unskilled workers	3	3000	108000
Expenses on salary in the 1st year (Rs)			600000

6.5 Repair & Maintenance: Total expenses on repair & maintenance in the 1st year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 2% every subsequent year.

(Rs. in lacs)			
Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & civil works	2.64	1.00%	0.03
Plant & Machinery	3.03	2.00%	0.06
Misc. Fixed assets	0.89	1.50%	0.01
Expenses on repair & maintenance in year 1			0.10

6.6 Other Expenses: Other expenses have been assumed at 2% of sales realisation.

6.7 Depreciation: Depreciation has been calculated by straight line method. The details of calculation are given below.

(Rs in lacs)			
Description	Cost (Rs)	Rate	Amount/annum (Rs)
Building & civil works	2.64	3.34%	0.09
Plant & Machinery	3.03	5.28%	0.16
Misc. Fixed assets	0.89	6.33%	0.06
TOTAL			0.30

6.8 Interest on term loan & principal repayment: Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 5 years including moratorium period of 6 months with equal monthly instalments. The details of calculation are given below.

(Rs in lacs)						
Month	Year	1	2	3	4	5
Month 1	Opening balance	5.18	4.61	3.46	2.30	1.15
	Repayment	0.00	0.10	0.10	0.10	0.10
	Interest (8.00%)	0.03	0.03	0.02	0.02	0.01
	Closing balance	5.18	4.51	3.36	2.21	1.06
Month 2	Opening balance	5.18	4.51	3.36	2.21	1.06
	Repayment	0.00	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.01
	Closing balance	5.18	4.42	3.26	2.11	0.96
Month 3	Opening balance	5.18	4.42	3.26	2.11	0.96
	Repayment	0.00	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.01
	Closing balance	5.18	4.32	3.17	2.02	0.86
Month 4	Opening balance	5.18	4.32	3.17	2.02	0.86
	Repayment	0.00	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.01
	Closing balance	5.18	4.22	3.07	1.92	0.77
Month 5	Opening balance	5.18	4.22	3.07	1.92	0.77
	Repayment	0.00	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.01
	Closing balance	5.18	4.13	2.98	1.82	0.67
Month 6	Opening balance	5.18	4.13	2.98	1.82	0.67
	Repayment	0.00	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.00
	Closing balance	5.18	4.03	2.88	1.73	0.58
Month 7	Opening balance	5.18	4.03	2.88	1.73	0.58
	Repayment	0.10	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.00
	Closing balance	5.09	3.94	2.78	1.63	0.48

Month 8	Opening balance	5.09	3.94	2.78	1.63	0.48
	Repayment	0.10	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.00
	Closing balance	4.99	3.84	2.69	1.54	0.38
Month 9	Opening balance	4.99	3.84	2.69	1.54	0.38
	Repayment	0.10	0.10	0.10	0.10	0.10
	Interest	0.03	0.03	0.02	0.01	0.00
	Closing balance	4.90	3.74	2.59	1.44	0.29
Month 10	Opening balance	4.90	3.74	2.59	1.44	0.29
	Repayment	0.10	0.10	0.10	0.10	0.10
	Interest	0.03	0.02	0.02	0.01	0.00
	Closing balance	4.80	3.65	2.50	1.34	0.19
Month 11	Opening balance	4.80	3.65	2.50	1.34	0.19
	Repayment	0.10	0.10	0.10	0.10	0.10
	Interest	0.03	0.02	0.02	0.01	0.00
	Closing balance	4.70	3.55	2.40	1.25	0.10
Month 12	Opening balance	4.70	3.55	2.40	1.25	0.10
	Repayment	0.10	0.10	0.10	0.10	0.10
	Interest	0.03	0.02	0.02	0.01	0.00
	Closing balance	4.61	3.46	2.30	1.15	0.00
Principal Repayment		0.58	1.15	1.15	1.15	1.15
Interest		0.41	0.33	0.23	0.14	0.05

7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5
Profit After Tax (Net Profit)	0.88	2.22	3.56	3.62	3.68
Depreciation	0.30	0.30	0.30	0.30	0.30
Interest	0.41	0.33	0.23	0.14	0.05
Total	1.59	2.85	4.10	4.07	4.04
Interest	0.41	0.33	0.23	0.14	0.05
Loan repayment	0.58	1.15	1.15	1.15	1.15
Total	0.98	1.48	1.39	1.29	1.20
DSCR	1.62	1.93	2.96	3.14	3.36

Average DSCR = 2.46

8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales	26.10	30.45	34.80
B. Variable cost			
Raw materials	16.98	19.81	22.64
Power & utility	0.76	0.88	1.01
Other expenses	0.52	0.61	0.70
Interest on Working Capital Loan	0.15	0.17	0.19
Total variable cost	18.41	21.47	24.53
C. Contribution (A-B)	7.69	8.98	10.27
D. Fixed & Semi-fixed Costs			
Salary	6.00	6.03	6.06
Repair & maintenance	0.10	0.10	0.10

Interest on Term Loan	0.41	0.33	0.23
Depreciation	0.30	0.30	0.30
Total fixed cost	6.81	6.76	6.70
E. BREAK EVEN POINT	88.54%	75.33%	65.29%
F. BEP at operating capacity	53.13%	52.73%	52.24%
G. Cash BEP	50.75%	50.35%	49.86%

9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)

Year	0	1	2	3	4	5
CASH OUTFLOW						
Capital Expenditure	6.76	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	3.09	0.40	0.40	0.00	0.00
Total (A)	6.76	3.09	0.40	0.40	0.00	0.00
CASH INFLOW						
Profit After Tax		0.88	2.22	3.56	3.62	3.68
Add: Depreciation		0.30	0.30	0.30	0.30	0.30
Add: Interest		0.41	0.33	0.23	0.14	0.05
Add: Salvage Value						
Total (B)	0.00	1.59	2.85	4.10	4.07	4.04
NET FLOW (B-A)	-6.76	-1.50	2.45	3.71	4.07	4.04

IRR = 25%

Sl. No.	Name of the Machinery Suppliers	Communication Address
1.	M/s B. Sen Barry & Co	65/11, Rohtak Road, Karol Bagh, New Delhi, Pin-110 005.
2.	M/s J C Das & Brothers	33/8, Ananth Nath Dev Lane, Belgachia, Kolkata, Pin- 700 003.
3.	M/s Suan Scientific Instruments and Equipments	P-814, Ground Floor, Block-A Lake Town Kolkata,