

FRUIT PRESERVE



1.0 INTRODUCTION

Fresh fruits are very popular among all age groups. But fresh fruits are available only during certain seasons and thus cannot be enjoyed round the year. Technological advancements have now made it possible to enjoy fruits or vegetables even during off-season by different techniques like dehydration, canning, fruit bars, essences and fruit or vegetable preserves. The North-East states of India produce many fruits like papaya, strawberry, raspberry, pear, guava, pineapple etc. A fruit preserve making activity in the region can run round the year as several fruits are grown.

2.0 PRODUCT

There are many techniques available for preservation of seasonal fruits and fruit preserve is a comparatively simple technique and does not require very large investment or specialised skills. Availability of fruits even during off-season would have ready market.

2.1 Compliance under FPO is necessary

3.0 MARKET POTENTIAL

3.1 Demand and Supply

Human beings like fresh vegetables and fruits but since their availability is limited to a few months every year, some conventional ways were found out to enjoy fruits even during off-season and fruit preserve is one of them. Even today, many households prepare mango preserve every year and same is the case with amla.

3.2 Marketing Strategy

Easy availability of fruit preserves round the year has induced many consumers and fruit preserve making has become a major industry. The North-Eastern states produce several fruits which are not produced in many other states of India. With proper marketing network a vast market can be captured for fruit preserves of peach, litchi, pear, cherry and some of the special local varieties.

4.0 MANUFACTURING PROCESS

It is simple and standardised. Fruits are washed and cut into small pieces. Then they are slowly impregnated with sugar by the process of cooking and storage (holding) till the consistency is raised to minimum 68 brix. Then they are packed in glass or food grade plastic bottles along with sugar syrup. The yield varies from fruit to fruit and there is some weight gain on account of sugar syrup. On an average the yield is 85%.

5.0 CAPITAL INPUTS

5.1 Land and Building

A readymade shed of around 100 sq.mtrs. can accommodate production, storage and packing area. Fruit washing tank can be constructed outside the main building. Total cost is assumed to be Rs. 2.75 lacs.

5.2 Machinery

Rated annual capacity of 200 tonnes with 2 shift working and 300 working days would need the following equipments:

Item	Qty.	Price (Rs.)
Fruit Cubing Machine	1	30,000
SS Jacketed Kettles- 60 Ltrs. Capacity	2	30,000
Sugar Grinder- 10 Kgs Capacity	1	20,000
Tray Drier with 48 Trays	1	80,000
Baby Boiler- 100 Kgs.capacity	1	75,000
Weighing scale, SS utensils, SS knives and cutters, cap sealing machine etc.	--	1,00,000
	Total	3,35,000

5.3 Miscellaneous Assets

Other assets like furniture and fixtures, packing tables, plastic tubs, storage facilities etc. would need Rs.0.75 lacs.

5.4 Utilities

Total power requirement would be 20 HP whereas coal or LDO will be needed for boiler. Around 5000 ltrs. of water shall be required every day.

5.5 Raw and Packing Materials

The most critical raw material would be fresh fruits like strawberry, mango, raspberry, pear, litchi, guava and some of the local specialities. Since individual quantity of each fruit will not be more than 25-30 tonnes during the season, procurement would not be difficult. Sugar and preservatives shall also be available locally. Prior arrangements for packing materials like plastic jars, labels, corrugated boxes, BOPP tape etc. are advisable.

6.0 MANPOWER REQUIREMENTS

Particulars	Nos.	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Skilled Workers	2	2,500	5,000
Semi-skilled Workers	2	1,750	3,500
Helpers	8	1,250	10,000
Salesman	1	2,500	2,500
		Total	21,000

7.0 TENTATIVE IMPLEMENTATION SCHEDULE

Activity	Period (in months)
Application and sanction of loan	2
Site selection and commencement of civil work	1
Completion of civil work and placement of orders for machinery	4
Erection, installation and trial runs	1

8.0 DETAILS OF THE PROPOSED PROJECT

8.1 Building

A readymade shed of around 100 sq.mtrs. would cost Rs. 2.75 lacs as stated before.

8.2 Machinery

Total cost of machinery is expected to be Rs. 3.35 lacs as explained earlier.

8.3 Miscellaneous Assets

A provision of Rs. 0.75 lacs under this head is adequate as stated before.

8.4 Preliminary & Pre-operative Expenses

Pre-production expenses like registration, establishment, administrative and travelling expenses, interest during implementation, trial runs etc. would need around Rs.1.00 lac.

8.5 Working Capital Requirements

In the first year at 60% activity level, the working capital needs would be as under.

(Rs. in lacs)

Particulars	Period	Margin	Total	Bank	Promoters
Stock of Packing Materials & Sugar	½ Month	30%	0.70	0.50	0.20
Stock of Finished Goods	1 Month	25%	2.80	2.10	0.70
Receivables	½ Month	25%	2.00	1.50	0.50
Working Expenses	1 Month	100%	0.50	--	0.50
		Total	6.00	4.10	1.90

8.6 Cost of the Project & Means of Financing

(Rs. in lacs)

Item	Amount
Building	2.75
Machinery	3.35
Miscellaneous Assets	0.75
P&P Expenses	1.00
Contingencies @ 10% on Building and Plant & Machinery	0.60
Working Capital Margin	1.90
Total	10.35
Means of Finance	
Promoters' Contribution	3.20
Term Loan from Bank/FI	7.15
Total	10.35
Debt Equity Ratio	2.20 : 1
Promoters' Contribution	31%

Financial assistance in the form of grant is available from the Ministry of Food Processing Industries, Govt. of India, towards expenditure on technical civil works and plant and machinery for eligible projects subject to certain terms and conditions.

9.0 PROFITABILITY CALCULATIONS

9.1 Production Capacity & Build-up

As against the rated production capacity of 200 tonnes, actual utilisation in the first year is expected to be 60% and thereafter 75%.

9.2 Sales Revenue at 100%

Assuming selling price of Rs. 40,000/- per ton, annual income at 100% would be Rs.80.00 lacs.

9.3 Raw and Packing Materials Required at 100%

(Rs. in lacs)

Product	Qty. (Tons)	Price/Ton (Rs.)	Value
Assorted Fruits	240	11,000	26.40
Sugar	50	18,000	9.00
Packing Materials @ Rs.4000/Ton	--	--	8.00
Preservatives etc.	--	--	2.00
		Total	45.40

9.4 Utilities

Annual expenditure on power, water and coal or LDO at 100% would be Rs. 1.50 lacs.

9.5 Selling Expenses

A provision of 22.5% of sales income every year would be enough to take care of selling commission, transportation, free sampling, publicity etc.

9.6 Interest

Interest on term loan of Rs. 7.15 lacs is calculated @ 12% per annum assuming complete repayment in 5 years including a moratorium period of 1 year whereas on bank loan for working capital it is computed @ 14% per annum.

9.7 Depreciation

It is calculated @ 10% on building and 20% on machinery and miscellaneous assets on WDV basis.

10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No.	Particulars	1st Year	2nd Year
A	Installed Capacity	--- 200 Tonnes ---	
	Capacity Utilisation	60%	75%
	Sales Realisation	48.00	60.00
B	Cost of Production		
	Raw and Packing Materials	27.24	34.05
	Utilities	0.90	1.12
	Salaries	2.52	3.20
	Stores and Spares	0.48	0.70
	Repairs & Maintenance	0.72	0.95
	Selling Expenses @ 22.5%	10.80	13.50
	Administrative Expenses	0.72	1.00
	Total	43.38	54.52
C	Profit before Interest & Depreciation	4.62	5.48
	Interest on Term Loan	0.80	0.65
	Interest on Working Capital	0.57	0.72
	Depreciation	1.10	0.90
	Profit before Tax	2.15	3.21
	Income-tax @ 20%	0.43	0.64
	Profit after Tax	1.72	2.57
	Cash Accruals	2.82	3.47
	Repayment of Term Loan	--	1.65

11.0 BREAK-EVEN ANALYSIS

(Rs. in lacs)

No	Particulars	Amount	
[A]	Sales		60.00
[B]	Variable Costs		
	Raw and Packing Materials	34.05	
	Utilities (70%)	0.78	
	Salaries (70%)	2.25	
	Stores & Spares	0.70	
	Selling Expenses (70%)	9.45	
	Admn Expenses (50%)	0.50	
	Interest on WC	0.72	48.45
[C]	Contribution [A] - [B]		11.55
[D]	Fixed Cost		7.04
[E]	Break-Even Point [D] ÷ [C]		60%

12.0 [A] LEVERAGES

Financial Leverage

$$= \text{EBIT/EBT}$$

$$= 3.52 \div 2.15$$

$$= 1.64$$

Operating Leverage

$$= \text{Contribution/EBT}$$

$$= 9.40 \div 2.15$$

$$= 4.37$$

Degree of Total Leverage

$$= \text{FL/OL}$$

$$= 1.64 \div 4.37$$

$$= 0.38$$

[B] Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr
Cash Accruals	2.82	3.47	3.66	3.84	4.05
Interest on TL	0.80	0.65	0.46	0.26	0.15
Total [A]	3.62	4.12	4.12	4.10	4.20
Interest on TL	0.80	0.65	0.46	0.26	0.15
Repayment of TL	--	1.90	1.90	1.90	1.90
Total [B]	0.80	2.45	2.26	2.06	2.05
DSCR [A] ÷ [B]	4.53	1.74	1.90	2.10	2.16
Average DSCR	----- 2.48 -----				

[C] Internal Rate of Return (IRR)

Cost of the project is Rs. 10.35 lacs.

(Rs. in lacs)

Year	Cash Accruals	16%	18%	20%
1	2.82	2.43	2.39	2.35
2	3.47	2.58	2.49	2.41
3	3.66	2.35	2.23	2.12
4	3.84	2.12	1.98	1.85
5	4.05	1.93	1.77	1.63
	17.84	11.41	10.86	10.36

The IRR is around 20%.

Some of the machinery suppliers are

1. Industrial Equipments, Guwahati
2. Engineers' (Overseas) Corpn Pvt Ltd, Raja Santosh Road, Kolkata
3. Archana Machinery Stores, Guwahati
4. Flavourite Foods and Services Pvt. Ltd. Manas Bhavan 11 RNT Marg, Indore-452008.
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