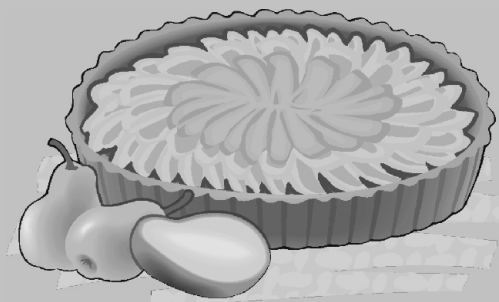


MANGO PROCESSING



1.0 INTRODUCTION

Mango is a fruit which has many varieties and is grown in majority of the states of the country. Pulp or juice of ripe mangoes is consumed along with main course. Many taste enrichers are made from unripe mangoes and their shelf life is enhanced either by processing them or by using preservatives. Pickles, chutneys and many sweet preparations like murabba are made from unripe or semi-ripe mangoes. This fruit is available only during 4-5 months every year and is generally liked by every one. Mangoes are grown all over the country and Bihar and Jharkhand states have ample production of mangoes and thus mango processing can be started after assessing the market.

2.0 PRODUCT

Mango processing is a traditional activity and products like pickle, chutney, murabba are consumed throughout the year. Every region has its own taste or liking and a care has to be taken to understand it and accordingly the recipe has to be finalised.

2.1 Compliance with FPO and PFA Act is necessary.

3.0 MARKET POTENTIAL

Indians are fond of table enrichers, which are regularly used along with the main course as well as snacks. Apart from individual households, restaurants, eateries, roadside dhabas, clubs, hostels, caterers etc. are the bulk consumers. There are some branded products available in the market but they are costly. The real competition would be from the age-old practice of making pickles or chutneys or murabba domestically. Many Indian households make these items during the season. But this practice is gradually disappearing due to

changing lifestyles, hassles of making these items and their availability throughout the year from market. There are many variants of these products and with certain change in the ingredients, taste differs. Hence, it is imperative to cater to the regional palate.

4.0 MANUFACTURING PROCESS

It is very well standardised. In case of pickles, unripe mangoes are washed and cut into small pieces and then salt and turmeric powder is applied on it and then these pieces are sun-dried for couple of hours. Then mango pieces and other ingredients like methi powder, spices etc. are thoroughly mixed with edible oil and finally packing is undertaken. Mango chutney is prepared after washing mangoes and cutting them into small pieces. Then they are cooked with spices and after adding sugar and vinegar, it is packed. Murabba is prepared from pieces of mango. These pieces are soaked in lemon water for couple of hours and then washed. Then they are cooked with sugar syrup at around 60-65° C and packed. along with sugar syrup after cooling. Removal of seed and process waste account for 35% loss.

5.0 CAPITAL INPUTS

5.1 Land and Building

There is no need to undertake construction by purchasing land. Instead, a readymade premise of around 100 sq.mtrs. with 2 or 3 rooms would be sufficient for production, storage and packing. A provision of Rs. 2.50 lacs is made.

5.2 Machinery

Majority of the operations are manual and therefore, production capacity is primarily determined by market. Processing of 6 tonnes per month for a period of 8 months would require following facilities:

Item	Qty.	Price (Rs.)
Gas furnace with burners	1	20,000
Cutting & Peeling Equipments	--	2,000
Plastic sealing machine, PP Cap sealer, weighing scales etc.	--	25,000
Stainless Steel Utensils, Plastic Jars & Tubs and other tools	--	20,000
Bottle Washing Machine	--	15,000
Mixer Grinder	--	15,000
	Total	97,000

5.3 Miscellaneous Assets

Other items like furniture and fixtures, storage racks, packing tables etc. shall be required for which a provision of Rs.35, 000/- is made

5.4 Utilities

Total power requirement shall be 2 HP whereas water required for washing of mangoes and potable and sanitation purposes shall be about 800-900 ltrs. per day. Around 3 gas cylinders shall be required every month.

5.5 Raw Materials

The most important raw material will be good quality unripe mangoes. Most of the areas of Bihar & Jharkhand produce mangoes and procuring around 6 tonnes every month is very easy. Mangoes will be available for about 5 months and stock for remaining 3 months shall have to be maintained. Pieces of mangoes should be kept in salt and lime water during the fag-end and after drying them, they should be preserved for 3 months to make pickle and chutney. Murabba can be manufactured during season only and stock of finished goods should be kept. Other materials like salt, spices, edible oil, sugar etc. shall be available from local market. The standard packing could be 500 gms. for each product and preferably food grade plastic bottles should be used. Other materials like labels, corrugated boxes, box strapping etc. shall be required. Proper arrangements should be made for packing materials.

6.0 MANPOWER REQUIREMENTS

Particulars	Nos.	Salary/ Month	Total Salary (Rs.)
Semi-skilled Workers	2	1,750	3,500
Helpers	5	1,250	6,250
Salesman	1	2,250	2,250
		Total	12,000

7.0 TENTATIVE IMPLEMENTATION SCHEDULE

Activity	Period (in months)
Application and sanction of loan	1.5
Site selection and commencement of civil work	0.5
Completion of civil work and placement of orders for machinery	1.5
Erection, installation and trial runs	0.5

8.0 DETAILS OF THE PROPOSED PROJECT

8.1 Building

A readymade premise of around 100 sq.mtrs. may be bought. The price is taken as Rs. 2.50 lacs.

8.2 Machinery

An expenditure of Rs. 97,000/- is expected as explained earlier.

8.3 Miscellaneous Assets

A provision of Rs.35, 000/- is made under this head as narrated earlier.

8.4 Preliminary & Pre-operative Expenses

There will be certain pre-production expenses on travelling, registration, establishment and administrative expenses, interest during implementation, trial run expenses etc. A provision of Rs.40, 000/- would take care of these expenses.

8.5 Working Capital Requirements

There will not be much stock during season whereas during off-season, there will be stock of finished goods. Retailing will be done with the help of small retailers. Bank may find it difficult to finance as per standard norms. Hence, it is assumed that the bank would extend combined pre and post sales facilities of Rs. 50,000/- and promoters would contribute Rs.50, 000/- towards margin money.

8.6 Cost of the Project & Means of Financing (Rs. in lacs)

Item	Amount
Building	2.50
Machinery	0.97
Miscellaneous Assets	0.35
P&P Expenses	0.40
Contingencies @ 10% on Land and Building & Machinery	0.35
Working Capital Margin	0.50
Total	5.07
Means of Finance	
Promoters' Contribution	1.47
Term Loan from Bank/FI	3.60
Total	5.07
Debt Equity Ratio	2.45 : 1
Promoters' Contribution	29%

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 processing capacity of 6 tonnes per month, the actual utilisation is assumed to be 65% in the first year and 75% thereafter.

9.2 Sales Revenue at 100%

Processing of 6 tonnes every month would result in production of about 4 tonnes. Assuming selling price of Rs. 50,000/- per ton for each product, total sales will be Rs. 16.00 lacs during a period of 8 months.

9.3 Raw & Packing Materials required at 100%

(Rs. in lacs)

Product	Qty. (Tonnes)	Price/Ton (Rs.)	Value
Mangoes	48	5,500	2.64
Edible Oil	2	60,000	1.20
Sugar	-	-	0.72
Salt, Spices, Vinegar etc.	--	--	0.80
Packing Materials @ Rs.7,000/Ton	--	--	2.24
		Total	7.60

9.4 Utilities

Total cost of utilities at 100% activity level for a period of 8 months will be Rs. 20,000/-.

9.5 Selling Expenses

A provision of 15% of total sales is made towards selling commission, transportation, publicity, free sampling, etc.

9.6 Interest

Interest on term loan of Rs. 3.60 lacs is calculated @ 12% per year assuming total repayment in 4 years including a moratorium period of 1 year whereas interest on working capital loan is computed @ 14% every year.

9.7 Depreciation

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

10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No.	Particulars	1st Year	2nd Year
A	Installed Capacity	--- 48 Tonnes ---	
	Capacity Utilisation	65%	75%
	Sales Income	10.40	12.00
B	Cost of Production		
	Raw and Packing Materials	4.94	5.70
	Utilities	0.13	0.15
	Salaries	0.96	1.10
	Repairs & Maintenance	0.24	0.36
	Selling Expenses @ 15%	1.56	1.80
	Administrative Expenses	0.30	0.36
	Total	8.13	9.47
C	Profit before Interest & Depreciation	2.27	2.53
	Interest on Term Loan	0.38	0.29
	Interest on Working Capital	0.07	0.09
	Depreciation	0.51	0.44
	Profit before Tax	1.31	1.71
	Income-tax @ 20%	0.26	0.34
	Profit after Tax	1.05	1.37
	Cash Accruals	1.56	1.81
	Repayment of Term Loan	--	1.05

11.0 BREAK-EVEN ANALYSIS

(Rs. in lacs)

No	Particulars	Amount	
[A]	Sales		10.40
[B]	Variable Costs		
	Raw and Packing Materials	4.94	
	Utilities (80%)	0.10	
	Salaries (75%)	0.74	
	Selling Expenses (70%)	0.09	
	Interest on WC	0.07	
	Adm. Expenses (50%)	0.15	7.09
[C]	Contribution [A] - [B]		3.31
[D]	Fixed Cost		2.00
[E]	Break-Even Point [D] ÷ [C]		60%

12.0 [A] LEVERAGES

Financial Leverage

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

$$= 1.76 \div 1.31$$

$$= 1.34$$

Operating Leverage

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

$$= 3.31 \div 1.31$$

$$= 2.53$$

Degree of Total Leverage

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

$$= 1.34 \div 2.53$$

$$= 0.53$$

[B] Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr
Cash Accruals	1.56	1.81	2.01	2.25
Interest on TL	0.38	0.29	0.17	0.08
Total [A]	1.94	2.10	2.18	2.33
Interest on TL	0.38	0.29	0.17	0.08
Repayment of TL	--	1.20	1.20	1.20
Total [B]	0.38	1.49	1.37	1.28
DSCR [A] ÷ [B]	5.11	1.41	1.59	1.82
Average DSCR	----- 2.48 -----			

[C] Internal Rate of Return (IRR)

Cost of the project is Rs. 5.07 lacs.

(Rs. in lacs)

Year	Cash Accruals	16%	18%	20%
1	1.56	1.34	1.32	1.30
2	1.81	1.34	1.30	1.26
3	2.01	1.29	1.22	1.16
4	2.25	1.24	1.16	1.08
	7.63	5.21	5.00	4.80

The IRR is around 17%.

Some of the machinery suppliers are

1. Delight Engg. Works, Lane no. 8, Asalat Pura, Moradabad-244001.
Tel No. 2498398/1687, Fax: 2194378
2. Nagpal Bros., C-127, Phase II, Mayapuri Industrial Area, New Delhi-110064.
Tel No. 25400407/02631
3. Flora Engg. Corporation, 28 A, Phool Baug, Rampura, New Delhi-110035.
Tel No. 25415335/920
4. Eastend Engg. Company, 173/1, Gopal lai thakur Rd., Kolkata-700035.
Tel No. 25773416/6324