



TOMATO SAUCE, KETCHUP AND PUREE

1.0 INTRODUCTION

Tomato is a very popular vegetable throughout the country and it is grown in many states. Apart from use in vegetables, its down stream products like soup, concentrates, sauce, puree, ketchup are also equally popular and they have a longer shelflife unlike fresh tomatoes. Tomato is perishable and needs to be transported carefully to avoid damage during transit. With the advent of new technology, many down the line products are made and are consumed round the year as table enrichers.

2.0 PRODUCTS

2.1 Applications

The products suggested are sauce, ketchup and puree. They are made from tomato juice and many other ingredients and preservatives are added to it to enhance its shelf life and taste. These products are consumed by people of all age groups and demand is going up. These products can be made in states like Maharashtra, Gujarat, Karnataka, UP, HP, North Eastern states and so on, but this note considers Assam as the preferred location in view of the growing market.

2.2 Availability of know-how, Quality Standards and Compliances.

CFTRI, Mysore, has successfully developed the technical know-how. BIS has laid down the quality standards vide IS 3881/2/3:1966. Compliances under FPO and PFA Act are mandatory.

3.0 MARKET POTENTIAL

3.2 Demand and Supply

Tomatoes are available during the season at cheaper rates and prices start shooting up during off-season. But main reason for these products becoming popular is their extensive use as enrichers along with bread and other such preparations, in making some fastfood items like pizza, burger, hot dogs etc. and as additives with many food preparations. Hence, these products are witnessing increase in demand year after year. They have already become popular in urban and semi-urban areas and are now making in-roads in rural markets as well. Thus, there is a good scope for these products especially in semi-urban and rural areas.

3.2 Marketing Strategy

There are many established national as well as regional brands but they have captured mainly the urban and elite markets and for a quality product, there is a vast market which can be penetrated by offering competitive prices. Apart from a growing household market, other lucrative segment is eateries, restaurants, sandwich makers, fastfood joints etc. Marketing would play a crucial role and placement, publicity, commission to retailers etc. are important aspects.

4.0 MANUFACTURING PROCESS

Fully grown or matured and ripe tomatoes are thoroughly washed preferably in running water. Afterwards, they are boiled in the steam jacketed kettles to facilitate pulping. During pulping, juice is extracted and other solid materials are separated. This extracted juice is the basic material from which other products are made. Sauce is made by concentrating juice and during the process; salt, sugar, vinegar, spices, preservatives, onion etc. are added to the extent that the mixture contains not less than 12% tomato solids and 28% total solids. Sauce is passed through sieve to remove fibrous and other materials. In case of ketchup, the process is more or less same, but many spices like ginger, garlic, clove, pepper are added with salt, sugar, vinegar and preservatives. While making puree, juice is concentrated under vacuum with around 9% to 12% solids. Products are then packed in bottles. Depending upon quality of tomatoes, recovery of juice varies from 40% to 45%.

5.0 CAPITAL INPUTS

5.1 Land and Building

A plot of land measuring around 300 sq.mtrs. is suggested. Considering price of Rs. 250/- per sq.mtr, cost of land would be Rs. 75,000/-. Requirement of total constructed area will be about 150 sq.mtrs. A large production hall of around 75 sq.mtrs. is suggested. Raw materials and finished goods godowns may occupy 25 sq.mtrs. Packing room of about 25 sq.mtrs. and office etc. of 25 sq.mtrs. would suffice. Cost of construction is taken at Rs. 2500/- per sq.mtr. Thus, total expenditure on civil work will be Rs. Rs.3.75 lacs.

5.2 Plant and Machinery

Keeping in mind the overall size of the market and the financial viability or economics of the project, it is suggested to have rated production capacity of 300 tonnes per year with 300 working days and working of 2 shift every day. To facilitate installation of this capacity, following set of machineries will be needed:

Item	Qty.	Total Cost (Rs.)
Baby Boiler	1	50,000
Steam Jacketed Kettles	3	90,000
Washing Tanks	2	15,000
Pulper	1	35,000
Stirrers	3	45,000
Vacuum Filling Machines	2	45,000
Bottle Washing Machines	2	30,000
Crown Corking Machines	2	7,000
Concentration Tank	1	20,000
Laboratory Equipments	--	15,000
Precision Weighing Scale	1	10,000
	Total	3,62,000

5.3 Miscellaneous Assets

Expenditure of Rs. 75,000/- is considered for other assets like aluminium top working tables, furniture and fixtures, plastic buckets/tubs, storage rack and bins, SS utensils etc.

5.4 Utilities

Total power requirement shall be 35 HP whereas water requirement per day will be 2,500-3,000 ltrs. for washing of tomatoes and for sanitation and potable purposes. Coal of around 60 tonnes will be required for boiler per year. The total cost of utilities at 100% capacity level is estimated to be Rs. 2,50,000/-.

5.5 Raw Material

The most critical raw material will be fully grown and ripe tomatoes. They are grown almost all over Assam with annual production of more than 1 lac tons. Thus, availability of good quality tomatoes will not be a bottleneck. Other materials like sugar, various types of spices, vinegar, salt will not be required in large quantities and will be available locally. Regarding packing materials, glass bottles of 500 gms and 1 kg. shall be required with caps and corrugated boxes for outer packing. Other items like labels, BOPP tape etc. will also be needed.

6.0 MANPOWER REQUIREMENTS

Particulars	Nos.	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Skilled-workers	6	1,800	10,800
Semi-skilled Workers	4	1,500	6,000
Helpers	6	1,000	6,000
Salesman	2	2,500	5,000
		Total	27,800

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 Land and Building

The total expenditure on land and civil work is estimated to be Rs. 4.50 lacs as explained earlier.

8.2 Plant and Machinery

For the contemplated rated production capacity of 300 tonnes, machinery worth Rs. 3.62 lacs shall be required as detailed earlier.

8.3 Miscellaneous Assets

A provision of Rs.75,000/- is made under this head which is considered to be adequate.

8.4 Preliminary & Pre-operative Expenses

For pre-production expenses like registration and establishment charges, travelling, other administrative expenses, interest during implementation, trial runs etc. an amount of Rs. 60,000/- is set aside.

8.5 Working Capital Requirement

It is envisaged that the plant would operate at 60% in the first year. At this activity level following working capital needs are estimated:

(Rs.in lacs)

Particulars	Period	Margin	Total	Bank	Promoters
Stock of Packing Material	1 Month	30%	1.10	0.80	0.30
Stock of Finished Goods	½ Month	25%	2.25	1.70	0.55
Receivables	1 Month	25%	6.00	4.50	1.50
Working Expenses	1 Month	100%	0.75	–	0.75
		Total	10.10	7.00	3.10

8.6 Cost of the Project and Means of Financing

(Rs. in lacs)

Item	Amount
Land and Building	4.50
Plant and Machinery	3.62
Miscellaneous Assets	0.75
P&P Expenses	0.60
Contingencies @ 10% on Building and Plant and Machinery	0.81
Working Capital Margin	3.10
Total	13.38
Means of Finance	
Promoters' Contribution	3.98
Term Loan from Bank/FI	9.40
Total	13.38
Debt Equity Ratio	2.35 : 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 and Build-up

The rated production capacity of the plant is 300 tonnes per year whereas actual capacity utilisation is expected to be 60% and 75%.

9.2 Sales Revenue at 100%

(Rs. in lacs)

Product	Qty. (Tonnes)	Selling Price (Rs./Ton)	Sales
Tomato Sauce	125	40,000	50.00
Tomato Ketch-up	125	45,000	56.25
Tomato Puree	50	25,000	12.50
		Total	118.75

9.3 Raw Materials Required at 100%

Recovery of juice from tomato is 40-45%. To arrive at the realistic projections, it is taken at 40%. Prices of tomatoes vary from Rs. 3,000/- to Rs. 6,000-7,000 per ton depending upon season. Hence average purchase price is considered to be Rs. 5,000/- per ton.

(Rs. in lacs)

Product	Qty. (Tonnes)	Rate (Rs./Ton)	Value
Tomatoes	750	5,000	37.50
Sugar	20	16,000	3.20
Vinegar, Spices, Salt and preservatives	--	--	2.50
		Total (A)	43.20
Packing Material			
Glass bottles of 500 gms	3,00,000	Rs.2.50	7.50
Glass bottles of 1 kg.	1,50,000	Rs.4.50	6.75
Corrugated Boxes	15,000	Rs.28/-	4.20
Labels, BOPP Tape, etc.	--	--	0.80
		Total (B)	21.75
		Total (A+B)	62.45

9.4 Utilities

As explained earlier, total cost of utilities like power, water and hard coke at 100% capacity shall be Rs. 2.50 lacs per year.

9.5 Selling Expenses

Since the unit will be entering the market for the first time, it has to offer attractive selling commission of 15%-17.5% to dealers and retailers. Necessary back-up support by way of hoardings, advertisement on local TV-channel, free-sampling etc. has to be undertaken. A provision of 25% of sales income is made every year which is slightly on the higher side.

9.6 Interest

Interest on term loan of Rs. 9.40 lacs is taken at 12% per annum considering full repayment in 4 years including a moratorium period of 1 year. Interest on working capital loan from bank is calculated at the rate of 14% per annum.

9.7 Depreciation

The method applied is WDV with and rates @ 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	-- 300 Tonnes --	
	Capacity Utilisation	60%	75%
	Sales Realisation	71.25	89.05
B	Cost of Production		
	Raw Materials	24.42	30.52
	Packing Materials	13.05	16.30
	Utilities	1.50	1.88
	Salaries	3.34	3.90
	Stores and Spares	0.24	0.36
	Repairs and Maintenance	0.42	0.60
	Selling Expenses @ 25%	17.81	22.26
	Administrative Expenses	0.72	1.20
	Total	61.50	77.02
C	Profit before Interest & Depreciation	9.75	12.03
	Interest on Term Loan	1.05	0.79
	Interest on Working Capital	0.98	1.22
	Depreciation	1.17	0.98
	Net Profit	6.55	9.04
	Income-tax @ 20%	1.30	1.80
	Profit after Tax	5.25	7.24
	Cash Accruals	6.42	8.22
	Repayment of Term Loan	--	2.90

11.0 BREAK-EVEN ANALYSIS

(Rs. in lacs)

No	Particulars	Amount	
[A]	Sales		71.25
[B]	Variable Costs		
	Raw Material	24.42	
	Packing Material	13.05	
	Utilities (70%)	0.90	
	Salaries (60%)	2.00	
	Stores and Spares	0.24	
	Selling and Distribution Exps.(70%)	12.47	
	Admn Expenses (50%)	0.36	
	Interest on WC	0.98	54.42
[C]	Contribution [A] - [B]		16.83
[D]	Fixed Costs		10.28
[E]	Break-Even Point [D] ÷ [C]		61%

12.0 [A] LEVERAGES

Financial Leverage

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

$$= 8.58 \div 6.55$$

$$= 1.31$$

Operating Leverage

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

$$= 16.83 \div 6.55$$

$$= 2.57$$

Degree of Total Leverage

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

$$= 1.31 \div 2.57$$

$$= 0.51$$

[B] Debt Service Coverage Ratio (DSCR)

(Rs. In lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr
Cash Accruals	6.42	8.22	8.53	8.72
Interest on TL	1.05	0.79	0.38	0.21
Total [A]	7.47	9.01	8.91	8.93
Interest on TL	1.05	0.79	0.38	0.21
Repayment of TL	--	3.10	3.10	3.20
Total [B]	1.05	3.89	3.48	3.41
DSCR [A] ÷ [B]	7.11	2.24	2.52	2.67
Average DSCR	----- 3.63 -----			

[C] Internal Rate of Return (IRR)

Cost of the project is Rs. 13.38 lacs.

(Rs. In lacs)

Year	Cash Accruals	24%	28%	32%
1	6.42	5.17	5.01	4.87
2	8.22	5.34	5.01	4.72
3	8.53	4.47	4.07	3.71
4	8.72	3.69	3.25	2.87
	31.89	18.67	17.34	16.17

The IRR is around 40%.

The machines would be available with

1. M/s. Industrial Equipments
2. M/s. Archana Machinery Stores located at Guwahati, Assam
3. East END Engg. Company, 173/1, Goplarai Thakur Rd., Kolkata-700035
Tel No. 25773416/6324
4. Punjab Engg. Works, 32, Ramakrishna Samadhi Rd., Kolkata-700054