

PINEAPPLE AND ORANGE PRODUCTS



1.0 INTRODUCTION

Fruits are an important source of energy. However their availability is seasonal and they are perishable. Hence, they need to be processed and preserved which also results in value-addition. India is endowed with many varieties of citrus fruits. Amongst these fruits, pineapples and oranges are very popular and number of processed products like juices, squashes, jams, marmalades etc. can be made from them.

2.0 PRODUCTS

2.1 Applications

Oranges and pineapples are grown in large quantities in many parts of the country including the North-East region. Fruits are perishable in nature and for their preservation, they need to be processed to make juices, squashes, jams etc. This product note is confined to making orange juice and squash and pineapple juice. The preferred location is any of the North-East states of India.

2.2 Availability of know-how and compliances

CFTRI, Mysore, has successfully developed the technical know-how. Provisions under the FPO must be adhered to.

3.0 MARKET POTENTIAL

Fruits are popular amongst all age groups. But fresh fruits are available only during specific season and that too for 2-3 months every year. Hence, downstream products made from fresh fruits have become popular especially in urban and semi-urban areas. But off-late demand from rural areas is also going up. Apart from households, they are sold at many places like restaurants, clubs, railway stations and bus-stops, cold drink houses, picnic or tourist spots

and many such places. With growing disposable incomes and changing lifestyles, such products have witnessed increase in demand.

4.0 MANUFACTURING PROCESS

The important steps involved in making fruit juice and squash are

- a. Washing, cleaning, grading and peeling of fruits.
- b. Juice extraction and filtration for removal of seeds and fibres.
- c. Juice processing, sterilisation and mixing of preservatives.
- d. In case of squashes, juice is mixed with syrup of sugar, citric acid and water and this mixture is stirred till uniform solution is formed.

CFTRI, Mysore, has successfully developed the process know- how.

5.0 CAPITAL INPUTS

5.1 Land and Building

Built up area of about 125 sq.mtrs. shall be adequate. A readymade shed of this size could cost around Rs. 2.00 lacs. About 75 sq.mtrs. would constitute production area whereas balance space can be utilised for packing and storage.

5.2 Plant and Machinery

To ensure financial viability of the project, it is desirable to install production capacity of 120 tonnes per year considering around 250 working days due to non-availability of fruits during about 3 months. To have this production capacity, following equipments are required:

Item	Qty.	Price (Rs.)
Fruit Washing tanks	2	10,000
Juice Extractors	2	1,00,000
Steam Jacketed Kettles (60ltrs. Capa.)	2	40,000
Stirrer	1	20,000
Bottle Washing and Filling Machine	1	75,000
Baby Boiler (100 kgs. capacity)	1	60,000
Testing Equipments	--	15,000
	Total	3,20,000

5.3 Miscellaneous Assets

The project would require other assets like exhaust fans, stainless steel vessels for storage, furniture, storage racks etc. for which a provision of Rs. 50,000/- is necessary.

5.4 Utilities

Total power requirement shall be 40 HP whereas water requirement per day shall be 1500 ltrs. Annual expenditure under this head at 100% capacity utilisation would be around Rs. 90,000/-.

5.5 Raw Material

The all-important raw materials shall be fresh oranges and pineapples. It is estimated that around 80,000 hectares are covered in the North-East region for orange and pineapple cultivation of which Meghalaya accounts for 17,000 hectares with average production of 80,000 tonnes per year. Oranges are available from November to March and pineapples from August to October and December to February. Even at 100% capacity utilisation, the project would require 55 tonnes of oranges and 110-115 tonnes of pineapples due to wastage of almost 90%. Hence availability will not be a bottleneck. Other items like additives, preservatives, sugar etc. shall also be required in small quantities. Packing materials like food grade plastic bottles or glass bottles shall also be required in large quantities for which proper supply arrangements shall have to be made.

6.0 MANPOWER REQUIREMENTS

Particulars	Nos.	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Skilled Workers	4	1,800	7,200
Semi-skilled Workers	3	1,500	4,500
Salesman	1	1,500	1,500
		Total	13,200

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

Built-up area of approximately 125 sq.mtrs. can accommodate all machines leaving ample space for other facilities. A provision of Rs. 2.00 lacs is adequate.

8.2 Plant and Machinery

The total cost is estimated to be Rs.3.20 lacs as explained earlier.

8.3 Miscellaneous Assets

A provision of Rs.50,000/- should take care of all requirements.

8.4 Preliminary & Pre-operative Expenses

Expenses like registration and establishment charges, trial run expenses, interest during implementation period etc. are expected to be Rs. 50,000/-.

8.5 Working Capital Requirement

At 60% activity level in the first year, bank finance for working capital shall be Rs. 3.05 lacs whereas margin to be brought in by the promoters Rs. 1.35 lacs totalling to Rs.4.40 lacs. The exact calculations are as under:

(Rs. in lacs)

Particulars	Period	Margin	Total	Bank	Promoters
Stock of RMs	½ Month	30%	1.15	0.80	0.35
Stock of Finished Goods	½ Month	25%	2.00	1.50	0.50
Receivables	½ Month	25%	1.00	0.75	0.25
Other Expenses	1 Month	100%	0.25	--	0.25
		Total	4.40	3.05	1.35

8.6 Cost of the Project and Means of Financing

(Rs. in lacs)

Item	Amount
Building	2.00
Plant and Machinery	3.20
Miscellaneous Assets	0.50
P&P Expenses	0.50
Contingencies @ 10% on Building and Plant and Machinery	0.52
Working Capital Margin	1.35
Total	8.07
Means of Finance	
Promoters' Contribution	2.42
Term Loan from Bank/FI	5.65
Total	8.07
Debt Equity Ratio	2.33 : 1
Promoters' Contribution	30%

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 installed production capacity would be 120 tonnes per year and the actual capacity utilisation is assumed to be 60% in the first year and 75% in second year.

9.2 Sales Revenue at 100%

(Rs. in lacs)

Product	Qty. (Tonnes)	Selling Price (Rs.)	Sales (Rs. lacs)
Orange Juice	25	30,000	7.5
Orange Squash	35	40,000	14.00
Pineapple Juice	25	30,000	7.50
Pineapple Squash	35	40,000	14.00
		Total	43.00

9.3 Raw Materials Required at 100%

(Rs. in lacs)

Product	Qty. (Tonnes)	Selling Price (Rs.)	Value (Rs. lacs)
Oranges	55	15,000	8.25
Pineapples	110	10,000	11.00
Sugar	-	-	1.70
Additives, Preservatives, Flavours, etc.	--	--	0.75
Packing Materials	--	--	6.00
		Total	27.70

9.4 Utilities

Yearly expenditure under this head at 100% capacity utilisation is expected to be Rs. 90,000/-

9.5 Selling Expenses

A provision of 10% of the sales value will take care of transportation and discount to the retailers.

9.6 Interest

Interest on term loan is computed @ 12% per annum considering repayment in 4 years inclusive of grace period of 1 year and interest on working capital finance is taken @ 14% per annum.

9.7 Depreciation

It is computed on WDV basis and rates assumed are 10% for building and 20% in case of plant & machinery and miscellaneous assets.

10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No.	Particulars	1st Year	2nd Year
A	Installed Capacity	--- 120 Tonnes ---	
	Capacity Utilisation	60%	75%
	Sales Realisation	25.80	32.25
B	Cost of Production		
	Raw and packing Materials	16.60	20.75
	Utilities	0.54	0.68
	Salaries	1.58	1.75
	Stores & Spares	0.21	0.27
	Repairs & Maintenance	0.30	0.42
	Selling and Distribution @ 18%	2.58	3.23
	Administrative Expenses	0.30	0.39
	Total	22.11	27.49
C	Profit before Interest & Depreciation	3.69	4.76
	Interest on Term Loan	0.64	0.52
	Interest on Working Capital	0.42	0.53
	Depreciation	0.94	0.78
	Net Profit	1.69	2.93
	Income-tax @ 20%	0.34	0.60
	Profit after Tax	1.35	2.33
	Cash Accruals	2.29	3.11
	Repayment of Term Loan	--	1.75

11.0 BREAK-EVEN ANALYSIS

(Rs. in lacs)

No	Particulars	Amount	
[A]	Sales		32.25
[B]	Variable Costs		
	Raw and Packing Materials	20.75	
	Utilities (70%)	0.48	
	Salaries (70%)	1.22	
	Stores & Spares	0.27	
	Selling Expenses (70%)	2.26	
	Admn Expenses (50%)	0.20	
	Interest on Working Capital	0.53	25.71
[C]	Contribution [A] - [B]		6.54
[D]	Fixed Costs		3.61
[E]	Break-Even Point [D] ÷ [C]		56%

12.0 [A] LEVERAGES

Financial Leverage

= EBIT/EBT

= 4.63 ÷ 1.69

= 2.74

Operating Leverage

= Contribution/EBT

= 5.45 ÷ 1.69

= 3.22

Degree of Total Leverage

= FL/OL

= 2.74 ÷ 3.22

= 0.85

[B] Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr
Cash Accruals	2.29	3.11	3.38	3.77
Interest on TL	0.64	0.52	0.27	0.13
Total [A]	2.93	3.63	3.65	3.90
Interest on TL	0.64	0.52	0.27	0.13
Repayment of TL	--	1.90	1.90	1.85
Total [B]	0.64	2.42	2.17	1.98
DSCR [A] ÷ [B]	4.58	1.50	1.68	1.97
Average DSCR	----- 2.78 -----			

[C] Internal Rate of Return (IRR)

Cost of the project is Rs. 8.07 lacs.

(Rs. in lacs)

Year	Cash Accruals	16%	18%	20%
1	2.29	1.97	1.94	1.91
2	3.11	2.31	2.23	2.16
3	3.38	2.17	2.06	1.96
4	3.77	2.08	1.95	1.82
	12.55	8.53	8.18	7.85

The IRR is around 18%.

Some of the equipment and packing machinery suppliers are as under:

1. M/s. Industrial Equipments
2. M/s. Archana Machinery Stores of Guwahati (Assam)
3. DK Barry and Company Pvt. Ltd., 11/35, West Punjabi Baug, New Delhi-110026.
Tel No. 25160363
4. FMC Technologies Hong Knog Ltd., 2 Bhubhaneshwar Housing Soc., Pashan Rd.,
Pune-411008. Tel No. 25893700
5. PRS Technologies Pvt. Ltd., D-26, NDSE, Part II, New Delhi- 110049.
Tel No. 26252176/177, Fax : 2540789