

FRUIT SQUASH



1.0 INTRODUCTION

Fruits are an important source of energy for human-beings. But their availability is seasonal and they are perishable. Hence, they need to be processed and preserved which also results in value-addition. India produces many varieties of citrus fruits and the project can be set up in states like Maharashtra, Uttranachal, HP and the North-Eastern states. The state of Assam is not an exception and many fruits like pineapple, orange, lemon, mango etc. are grown in large quantities. Hence fruit squash making activity on a small scale is suggested.

2.0 PRODUCTS

2.1 Applications

Squashes are sweetened juice of fruits containing some pulp. They contain at least 25% (by volume) of fruit juice and are consumed after dilution. Squashes also contain added flavours. Since preservatives are added in adequate quantities, the shelf life of squashes is fairly longer.

2.2 Availability of technology and compliances

CFTRI, Mysore, has successfully developed the technical know-how. Compliance with PFA Act and FPO is necessary.

3.0 MARKET POTENTIAL

3.1 Demand and Supply

Fruits are popular amongst all age groups but their availability is limited during season only which lasts for a period of 3-4 months for most of the fruits. Hence, squashes are becoming popular. They are sold at many places like provision and departmental stores, cold drink

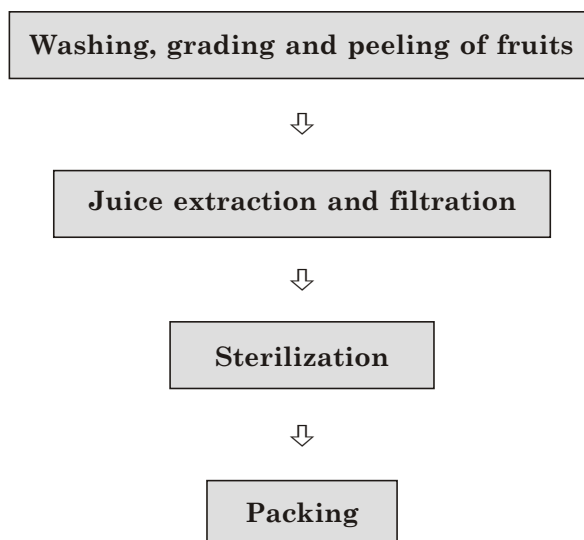
centres, restaurants, etc. and since they have a longer shelf life, consumers prefer them. Yet another feature is that they are very easy to make. Only required quantity of water is to be added.

3.2 Marketing Strategy

With changing life styles and increase in disposable incomes, this product is gaining more and more popularity. Squashes of some conventional and selected fruits are available in the market but it is worth trying some fruits grown in Assam as their tastes are palatable to local population. This would also provide an edge over other competitors.

4.0 MANUFACTURING PROCESS

The process is not very complicated. Good quality ripe fruits are washed, peeled and cleaned. Then juice is extracted from fruits and it is filtered to remove seeds and fibres. Then juice is processed and sterilised and then syrup of sugar, preservatives etc. are added and this mixture is stirred till uniform solution is formed. In the final process, bottling and packing is done. The process flow chart is as under:



5.0 CAPITAL INPUTS

5.1 Land and Building

There is no need to buy a piece of land and then undertake construction. Instead, a readymade shed of around 125 sq.mtrs. shall be adequate. Apart from production hall, some space for storage and packing will be required. The total cost could be Rs.2.00 lacs. Regulations under FPO must be adhered to.

5.2 Plant and Machinery

It is desirable to install production capacity of 80 tonnes per year considering around 300 days and 2 shifts per day. Installation of the following equipments would be necessary to do this.

Item	Qty.	Price (Rs.)
Fruit Washing Tanks	3	15,000
Juice Extractors- 50 Ltrs.	2	85,000
Steam Jacketed Kettles- 30Ltrs Capacity	2	40,000
Stirrer	1	15,000
Baby Boiler- 30 kgs capacity	1	60,000
Bottle Washing and Filling Machine	1	75,000
Testing Equipments	--	30,000
	Total	3,20,000

5.3 Miscellaneous Assets

The project would require other assets like furniture & fixtures, storage racks, exhaust fans, SS utensils, etc. for which a provision of Rs. 50,000/- is made.

5.4 Utilities

Total power requirement shall be 30 HP whereas water requirement will be 1500 litres per day. Annual expenditure under this head at 100% capacity utilisation would be around Rs. 90,000/-.

5.5 Raw Material

The all-important raw materials will be fresh fruits. The North-East region grows many fruits. Assam also has many varieties of fruits like pineapple, orange, jack-fruit, guava etc. There are some special varieties like carambola, rozelle, narabogori, litchi, etc. and squash of these fruits could be very popular with the locals. Other materials required will be sugar, additives, preservatives etc. Packing materials like food grade plastic/glass bottles, polythene bags and corrugated boxes shall also be required.

6.0 MANPOWER REQUIREMENTS

Particulars	Nos.	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Skilled Workers	2	1,800	3,600
Semi-skilled Workers	2	1,500	3,000
Helpers	2	1,200	2,400
Salesman	1	2,000	2,000
		Total	11,000

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 constructed area of around 125 sq.mtrs. costing approximately Rs. 2.00 lacs would be adequate.

8.2 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/- for various assets as explained earlier is adequate.

8.4 Preliminary & Pre-operative Expenses

There will be certain expenses like administrative, interest, trial runs, etc. before commencing the production. A provision of Rs.40, 000/- is adequate to take care of them.

8.5 Working Capital Requirement

Capacity utilisation in the first year is expected to be 60%. To achieve this level, working capital of Rs. 2.35 lacs shall be required as worked out hereunder:

(Rs. in lacs)

Particulars	Period	Margin	Total	Bank	Promoters
Stock of Finished Goods	½ Month	25%	0.50	0.38	0.12
Receivables	1 Month	25%	1.60	1.20	0.40
Working Expenses	1 Month	100%	0.25	--	0.25
		Total	2.35	1.58	0.77

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	0.40
Contingencies @ 10% on Building and Plant & Machinery	0.52
Working Capital Margin	0.77
Total	7.39
Means of Finance	
Promoters' Contribution	2.20
Term Loan from Bank/FI	5.19
Total	7.39
Debt Equity Ratio	2.36 : 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

Installed capacity of the plant shall be 80 tonnes per year. Capacity utilisation in the first year is assumed to be 60% and second year onwards 75%.

9.2 Sales Revenue at 100%

It is recommended to make squashes from different fruits and selling price may vary from product to product. Hence, average sales realisation of Rs.40, 000/- per ton or Rs.40/kg is considered. With this assumption, the annual sales at 100% would be Rs.32.00 lacs.

9.3 Raw Materials Required at 100%

Quantity of juice in each category of fruit varies substantially. In case of pineapple or jackfruit, there are considerable wastages due to their thick skin. Hence, it is assumed that the average recovery or availability of juice shall be 75%. Likewise prices of fruits also vary. Hence, average price of fruits is taken at Rs.8,000/- per ton. Accordingly following calculations are made:

(Rs. in lacs)

Product	Qty. (Tonnes)	Price/Ton (Rs.)	Value
Fruits	105	8,000	8.40
Sugar	-	-	2.55
Preservatives etc.	--	--	0.60
Packing Materials	--	--	4.50
		Total	16.05

9.4 Utilities

Annual expenditure under this head at 100% activity level is projected to be Rs. 90,000/-.

9.5 Selling Expenses

There are some varieties of squashes already available in the market and this new unit has to compete in the market place. There will be expenses on selling commission, publicity, on free sampling/replacements which are considered under this head.

9.6 Interest

Interest on term loan of Rs.5.19 lacs is computed @ 12% per annum assuming repayment in 5 years inclusive of a moratorium period of 1 year. Interest on bank finance for working capital is taken at 14% per annum.

9.7 Depreciation

The method adopted is WDV and rates assumed are:

Building	10%
Machinery and Misc. Assets	20%

10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No.	Particulars	1st Year	2nd Year
A	Installed Capacity	-- 80 Tonnes --	
	Capacity Utilisation	60%	75%
	Sales Realisation	19.20	24.00
B	Cost of Production		
	Raw Materials	9.63	12.04
	Utilities	0.54	0.68
	Salaries	1.32	1.50
	Stores & Spares	0.18	0.21
	Repairs & Maintenance	0.24	0.30
	Selling and Distribution @ 17.5%	3.36	4.20
	Administrative Expenses	0.27	0.36
	Total	15.54	19.29
C	Profit before Interest & Depreciation	3.66	4.71
	Interest on Term Loan	0.58	0.43
	Interest on Working Capital	0.22	0.28
	Depreciation	0.94	0.78
	Net Profit	1.92	3.22
	Income-tax @ 20%	0.42	0.62
	Profit after Tax	1.50	2.60
	Cash Accruals	2.44	3.38
	Repayment of Term Loan	--	1.20

11.0 BREAK-EVEN ANALYSIS

(Rs. in lacs)

No	Particulars	Amount	
[A]	Sales	19.20	
[B]	Variable Costs		
	Raw & Packing Materials	9.63	
	Utilities (70%)	0.38	
	Salaries (70%)	0.92	
	Stores & Spares	0.18	
	Selling Expenses (80%)	2.69	
	Admn. Expenses (50%)	0.14	
	Interest on Working Capital	0.22	14.16
[C]	Contribution [A] - [B]		5.04
[D]	Fixed Cost		3.12
[E]	Break-Even Point (D ÷ C)		62%

12.0 [A] LEVERAGES

Financial Leverage

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

$$= 2.72 \div 1.92$$

$$= 1.42$$

Operating Leverage

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

$$= 5.04 \div 1.92$$

$$= 2.63$$

Degree of Total Leverage

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

$$= 1.42 \div 2.63$$

$$= 0.54$$

[B] Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr
Cash Accruals	2.44	3.38	3.69	4.04	4.39
Interest on TL	0.58	0.43	0.32	0.18	0.08
Total [A]	3.02	3.81	4.01	4.22	4.47
Interest on TL	0.58	0.43	0.32	0.18	0.08
Repayment of TL	--	1.30	1.30	1.30	1.29
Total [B]	0.58	1.73	1.62	1.48	1.37
DSCR [A] ÷ [B]	5.21	2.20	2.41	2.75	3.06
Average DSCR	----- 3.12 -----				

[C] Internal Rate of Return (IRR)

Cost of the project is Rs. 7.39 lacs.

(Rs. in lacs)

Year	Cash Accruals	24%	28%	32%
1	2.44	1.97	1.91	1.85
2	3.38	2.20	2.06	1.94
3	3.69	1.93	1.76	1.61
4	4.04	1.71	1.51	1.33
5	4.39	1.50	1.28	1.10
	17.94	9.31	8.52	7.83

The IRR is around 34%.

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

1. M/s. Engineers' (Overseas) Corpn. Pvt. Ltd, Raja Santosh Road, Kolkata
2. M/s. Archana Machinery Stores, Guwahati.
3. Bhuler (India) Pvt Ltd. 13-D KAIDB Industrial Area, Attibele, Bangalore-562107.
Tel No. 27820000
4. FMC Technologies, Hong Kong Ltd. 2 Bhubhaneshwar Housing Soc., Pashan Road,
Pune- 411008. Tel No. 25893700.
5. Divecha Glass Industries 249, Balrajeshwar Rd., LBS Marg, Mulund (W), Mumbai-400080