

FRUIT BARS



1.0 INTRODUCTION

Fruits are generally liked by majority of the people from all age groups. But fruits are available only during specific season. There are many ways of preserving fruits and making fruit bars is one such method. Consumption of fruits is very important as they are nutritious and supply vitamins and minerals. Pulp fruits like banana, mango, guava, apple etc. are best suited for making fruit bars. Assam and nearby states of North-East region produce many fresh fruits round the year and thus availability of the all important raw material shall not be a problem. This product can also be manufactured in some other states like Uttaranchal, HP, Punjab, UP, Maharashtra and so on.

2.0 PRODUCT

2.1 Applications

Fruit bar is a concentrated fruit product with good nutritive value. It is classified as a confectionary product with longer shelf life. Fruit bars are considered to be hygienic as they are produced mechanically. They are attractively packed and consumed readily.

2.2 Availability of technology and compliances

CFTRI and DFRL have developed the necessary technical know-how. Compliance with the provisions of FPO is compulsory.

3.0 MARKET POTENTIAL

Demand and Supply

Fruits are consumed by human beings since time immemorial and with the advent of technology, fruits can now be preserved for a longer period or their pulp can be processed to make some products with considerable shelf life. Fruit bars are also produced from the pulp

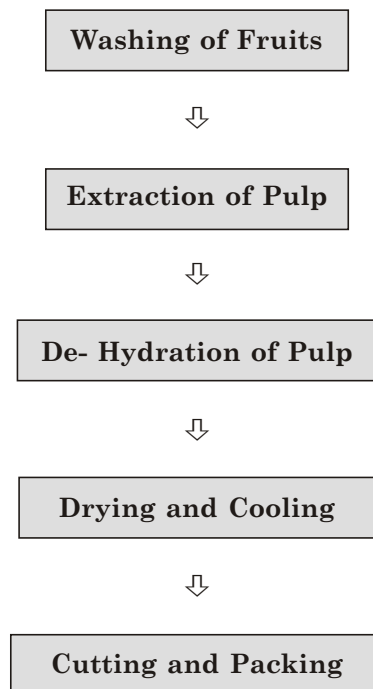
of fresh fruits. They are manufactured hygienically, are attractively packed and are easy to transport.

Marketing Strategy

There are some established brands in the market but majority of the market is controlled by the regional manufacturers. Fruit bars have gained consumer acceptance due to their flavour, shelf life and nutritive values. With adequate marketing network, publicity in local media and proper placement of the products, a new entrant can make in-roads in this ever increasing market.

4.0 MANUFACTURING PROCESS

The process of manufacture is standardised and simple. Fresh and ripe fruits are thoroughly washed and then pulp is extracted from them. Pulp is then mixed with the required quantity of sugar to raise the brix to 25. This blend is then dehydrated in tray dryer and drying time is around 18-20 hours. On cooling, slabs are cut in pre-determined sizes and are packed in BOPP or other food grade printed film. These packs are packed in cardboard or duplex board boxes for onward distribution. The average yield is around 75%. CFTRI, Mysore has successfully commercialised the production process. The process flow chart is as follows:



5.0 CAPITAL INPUTS

5.1 Land and Building

A readymade shed of 100 sq.mtrs. may be bought to limit capital cost and to save time. Shed would cost around Rs. 2.50 lacs.

5.2 Machinery

Annual rated production capacity of 60 tonnes with 2 shift working and 300 working days would need following equipments.

Item	Qty.	Price (Rs.)
Fruit washing tanks	2	12,000
Pulp Extractors	1	70,000
Steam jacketed Kettles- 100 Ltrs.	2	30,000
Baby Boiler- 100 Kgs.	1	75,000
Fruit Mill	1	80,000
Tray drier with 48 trays	1	1,00,000
Weighing scale, SS utensils, testing instruments etc	--	65,000
	Total	4,32,000

5.3 Miscellaneous Assets

Other assets like furniture and fixtures, storage racks, packing tables, HDPE barrels etc. would cost Rs. 1.25 lacs.

5.4 Utilities

Total power requirement would be 25 HP whereas water requirement would be 4000 ltrs. every day. Coal shall be required for boiler.

5.5 Raw and Packing Materials

The all important raw material would be fresh, ripe and good quality fruits. Assam cultivates many fruits like banana, jack fruit, guava, pineapple and so on. Thus, availability round the year will not be a bottleneck. Adequate prior arrangements for packing materials like BOPP printed film for wrapping, corrugated boxes, box strapping etc. shall have to be made.

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	6	1,250	7,500
Salesman	1	2,500	2,500
		Total	18,500

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 100 sq.mtrs. would cost around Rs. 2.50 lacs as stated before.

8.2 Machinery

Expenditure on machinery is estimated to be around Rs. 4.32 lacs as explained earlier.

8.3 Miscellaneous Assets

A provision of Rs. 1.25 lacs is sufficient under this head as stated earlier.

8.4 Preliminary & Pre-operative Expenses

A provision of Rs.2.00 lacs would take care of pre-production expenses like registration, establishment, administrative and travelling expenses, interest during implementation, trial runs etc.

8.5 Working Capital Requirements

At 60% capacity utilisation in the first year, the working capital needs would be as under:

(Rs. in lacs)

Particulars	Period	Margin	Total	Bank	Promoters
Stock of Raw and Packing Materials except fruits	½ Month	30%	0.30	0.20	0.10
Stock of Finished Goods	½ Month	25%	0.70	0.55	0.15
Receivables	1 Month	25%	2.10	1.55	0.55
Working Expenses	1 Month	100%	0.60	--	0.60
		Total	3.70	2.30	1.40

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

Item	Amount
Land and Building	2.50
Machinery	4.32
Miscellaneous Assets	1.25
P&P Expenses	2.00
Contingencies @ 10% on Building and Plant & Machinery	0.68
Working Capital Margin	1.40
Total	12.15
Means of Finance	
Promoters' Contribution	3.65
Term Loan from Bank/FI	8.50
Total	12.15
Debt Equity Ratio	2.32 : 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 & Build-up

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

9.2 Sales Revenue at 100%

Assuming selling price of Rs. 70,000/- per ton, total sales value of 60 tonnes would be Rs. 42.00 lacs.

9.3 Raw and Packing Materials Required at 100% (Rs. in lacs)

Product	Qty. (Tonnes)	Price/Ton (Rs.)	Value
Ripe Fruits	80	7,000	5.60
Sugar	30	18,000	5.40
Flavours, Preservatives etc.	--	--	0.60
Packing Materials @ Rs.10,000/Ton	--	--	6.00
		Total	17.60

9.4 Utilities

Cost of electricity, water and coal at 100% activity level would be Rs. 1.50 lacs.

9.5 Selling Expenses

A provision of 20% of sales income every year would take care of selling expenses like transportation, selling commission, advertisement etc.

9.6 Interest

Interest on term loan of Rs. 8.50 lacs is calculated @ 12% per annum assuming repayment in 5 years including a moratorium period of 1 year whereas on bank finance for working capital, it is taken @ 14% per annum.

9.7 Depreciation

It is computed on WDV @ 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	--- 60 Tonnes ---	
	Capacity Utilisation	60%	75%
	Sales Realisation	25.20	31.50
B	Cost of Production		
	Raw and Packing Materials	10.56	13.20
	Utilities	0.90	1.13
	Salaries	2.22	2.60
	Stores and Spares	0.60	0.72
	Repairs & Maintenance	0.75	1.00
	Selling Expenses @ 20%	5.04	6.30
	Administrative Expenses	0.72	0.84
	Total	20.79	25.79
C	Profit before Interest & Depreciation	4.41	5.71
	Interest on Term Loan	0.93	0.76
	Interest on Working Capital	0.32	0.40
	Depreciation	1.36	1.12
	Profit before Tax	1.80	3.43
	Income-tax @ 20%	0.36	0.69
	Profit after Tax	1.44	2.74
	Cash Accruals	2.80	3.86
	Repayment of Term Loan	--	1.90

11.0 BREAK EVEN ANALYSIS

(Rs. in lacs)

No	Particulars	Amount	
[A]	Sales		31.50
[B]	Variable Costs		
	Raw and Packing Materials	13.20	
	Utilities (70%)	0.80	
	Salaries (70%)	1.82	
	Stores & Spares	0.72	
	Selling Expenses (70%)	4.41	
	Admn Expenses (50%)	0.42	
	Interest on WC	0.32	21.69
[C]	Contribution [A] - [B]		9.81
[D]	Fixed Cost		6.38
[E]	Break-Even Point [D] ÷ [C]		65%

12.0 [A] LEVERAGES**Financial Leverage**

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

$$= 3.05 \div 1.80$$

$$= 1.69$$

Operating Leverage

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

$$= 7.65 \div 1.80$$

$$= 4.25$$

Degree of Total Leverage

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

$$= 1.69 \div 4.25$$

$$= 0.40$$

[B] Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr
Cash Accruals	2.80	3.86	4.24	4.58	4.81
Interest on TL	0.93	0.76	0.53	0.31	0.17
Total [A]	3.73	4.62	4.77	4.89	4.98
Interest on TL	0.93	0.76	0.53	0.31	0.17
Repayment of TL	--	1.90	1.90	1.90	2.05
Total [B]	0.93	2.66	2.43	2.21	2.22
DSCR [A] [B]	4.01	1.74	1.96	2.21	2.24
Average DSCR	----- 2.43 -----				

[C] Internal Rate of Return (IRR)

Cost of the project is Rs. 12.15 lacs.

(Rs. in lacs)

Year	Cash Accruals	16%	18%
1	2.80	2.41	2.37
2	3.86	2.87	2.77
3	4.24	2.72	2.58
4	4.58	2.53	2.36
5	4.81	2.29	2.10
	20.29	12.82	12.18

The IRR is around 18%.

Some of the machinery suppliers are

1. Industrial Equipments, Guwahati
2. Archana Machinery Stores, Guwahati
3. Dhiman Systems (India) Pvt. Ltd., Kapurthala Rd., Nakodar, 144040.
Tel. No. 220707/222707
4. Gaziabad Printing and Packing Industries Pvt. Ltd. Nr. DPS, Meerut Rd., Gaziabad.
5. Delight Engg. Works, Lane No. 8, Aslaltapura, Moradabad-244001. Tel No. 2498398/2491687