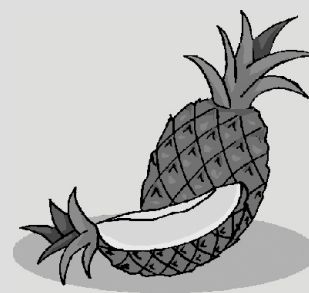


# CANNED PINEAPPLE PRODUCTS



## 1.0 INTRODUCTION

Pineapple is one of the popular fruits and is liked by majority of the people irrespective of their age group. As is the case with most of the fruits and vegetables, their availability is limited during the year. Many techniques have been developed to make available seasonal fruits as well as vegetables even during off-season. Canned pineapple slices and juice are such products. Pineapple is consumed as dessert, in fruit salads, while making cakes and pastries etc. Thus there are large number of consumers who would like to consume pineapple slices or juice.

## 2.0 PRODUCT

### 2.1 Applications

Pineapple products include pineapple slices and juice. In order to increase the shelf life and to make pineapple juice and slices even during off-season, canning is the most popular method. The project can be undertaken in pineapple growing states and the preferred locations are the North Eastern states.

### 2.2 Availability of technology and compliances

CFTRI, Mysore, have developed the process know-how. Certification under FPO and compliances with various provisions therein is compulsory.

## 3.0 MARKET POTENTIAL

### 3.1 Demand and supply

Fruits provide important proteins as well as minerals and they are being consumed by human beings since many centuries. The major drawback of any agriculture/horticulture produce is seasonal availability. Several techniques to preserve these perishable commodities have been developed during last few decades and canning is one such reliable method.

Pineapples are very popular amongst consumers and their availability in the form of juice or slices round the year would enable the consumers to enjoy them whenever they want. Pineapples are grown in large quantity in North Eastern States including Assam. If fresh pineapples are processed and canned, then there is large market scattered throughout the country. There are also very good export prospects if international quality is achieved and sustained. Countries like the USA, UK, Germany, Holland etc. are regular importers of pineapple products.

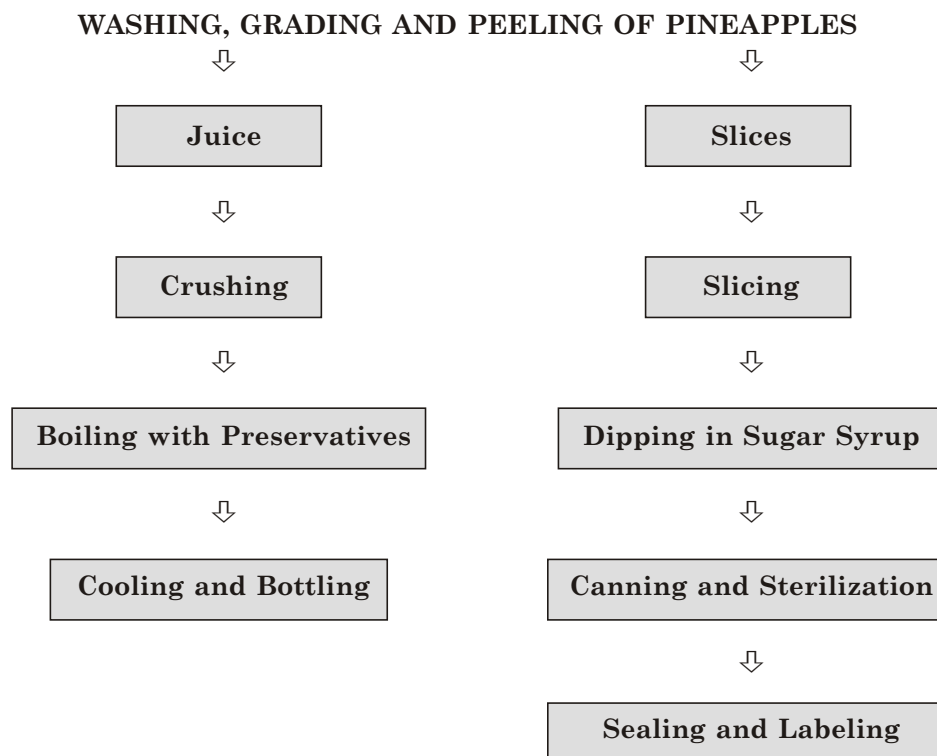
### 3.2 Marketing Strategy

The first generation entrepreneur has to be extra careful while approaching export markets and ideally he should have excellent contacts either with foreign buyers or some intermediaries. India itself is a very large and growing market and once quality of the product is established in the domestic market, efforts can be made to branch out to foreign markets.

## 4.0 MANUFACTURING PROCESS

CFTRI, Mysore has developed technology for these products.

The manufacturing process of the proposed pineapple products viz. Slices and Juice involves many steps and different sub-processes. Ripe and matured pineapples are washed, graded and peeled. Then they are crushed in the crusher to obtain juice. In case of slices, after peeling, uniform slices are made on the slicer. Juice is then taken to vessels and boiled and certain preservatives are added. It is finally taken to storage tanks and packed in bottles on vacuum filling machine. In case of slices, they are dipped in sugar syrup for about 3 to 4 hours. Then the slices are taken to lacquered cans and cans are sterilized. While canning, sugar syrup is added. Cans are cooled quickly and after sealing and labeling, they are stored. The average yield is around 80%. The Process Flow Chart is as under:



## 5.0 CAPITAL INPUTS

### 5.1 Land and Buildings

A plot of land of around 1000 sq.mtrs. with built up area of 600 sq.mtrs. would be required. The main factory operations would need around 350 sq.mtrs. of built up area whereas balance area will be needed for washing, storage of raw materials and finished goods and packing. 5000 ltrs. capacity water storage tank shall also be needed. Cost of land is estimated Rs.3.00 lacs whereas that of civil work Rs.16.50 lacs.

### 5.2 Plant and Machinery

The requirement of plant and machinery for the project could be divided into five lines as under.

1. Washing and preparation
2. Slice line
3. Juice line.
4. Syrup line.
5. Packing line.

It is suggested to have installed processing capacity of 3600 tonnes per year considering double shift working and 300 working days. This would require following machinery.

No.	Particulars	Quantity/ No
<b>1</b>	<b>Washing and preparation</b>	
	(a) Channel system for unloading and washing pineapples	1 No.
	(b) Discharge Elevator	1 No.
	(c) Graders	1 No.
	(d) Belt Conveyors	2 No.
	(e) Chutes	2 No.
	(f) Pineapple Peelers	2 No.
<b>2</b>	<b>Slice Line</b>	
	(a) Single Knife Slicers	1 No.
	(b) Corner and Can Loaders	2 No.
	(c) Resizer/Corners	2 No.
	(d) Can Loaders	1 No.
	(e) Pieces Cutting Machines	2 No.
	(f) Vaccum Filling Machine	1 No.
	(g) Seaming Machine	1 No.
	(i) Tunnel Pasteurizer/Cooler	1 No.
	(j) Can Dryer	1 No.
	(k) Belt Conveyors	2 No.

<b>3</b>	<b>Juice Line</b>	
	(a) Disintegrator	1 No.
	(b) Vessels	2 No.
	(c) Pumps	2 No.
	(d) Packing Press	1 No.
	(e) Tubular Preheater	1 No.
	(f) Separator	1 No.
	(g) Vacuum Filling Machine	1 No.
	(h) Seaming Machine	1 No.
	(i) Tunnel Pasteurizer/cooler	1 No.
	(j) Can Dryer	1 No.
	(k) Belt Conveyors	1 No.
<b>4.</b>	<b>Syrup Line</b>	1 No.
<b>5</b>	<b>Labeling and Packing Line</b>	1 No.
<b>6</b>	<b>Miscellaneous Equipment and Accessories</b>	-

The total cost of machinery and equipments would be Rs.100.00 lacs.

### **5.3 Miscellaneous Assets:**

Other assets like belts, pulleys, pumps, furniture and fixtures, storage racks and bins, plastic crates and tubs, etc would cost Rs.8.00 lacs.

### **5.4 Utilities**

The power requirement shall be 100 HP whereas water requirement will be 10,000 ltrs. every day. The total cost of power and water would be Rs.12.00 lacs per year.

### **5.5 Raw and Packing Materials**

Yearly requirement of pineapples will be 3600 tonnes. The states of Assam, Manipur, Arunachal Pradesh etc. grow more than 75,000 tonnes of pineapple every year and availability of 300 tonnes every month will not be a problem. Other materials like preservatives, sugar etc. shall be available locally. Packing materials shall be lacquered tins, labels, corrugated boxes, BOPP tape etc. for which it is advisable to have confirmed prior arrangements.

## 6.0 MANPOWER REQUIREMENT

(Rs. in lacs)

No.	Particulars	No	Monthly Salary (Rs.)	Total Monthly
1.	Plant Operators	4	3,500	14,000
2.	Skilled Workers	6	2,500	15,000
3.	Semi-skilled Workers	4	1,750	7,000
4.	Helpers	6	1,250	7,500
5.	Clerk	1	2,500	2,500
6.	Salesman	2	2,500	5,000
			<b>Total</b>	<b>51,000</b>

## 7.0 TENTATIVE IMPLEMENTATION SCHEDULE

Activity	Period (in months)
Application and sanction of loan	2
Site selection and commencement of civil work	2
Completion of civil work and placement of orders for machinery	6
Erection, installation and trial runs	2

## 8.0 DETAILS OF THE PROPOSED PROJECT

### 8.1 Land and Building

(Rs. in lacs)

Particulars	Area (Sq.Mtrs)	Cost
Land	1,000	3.00
Building	600	16.50
	<b>Total</b>	<b>19.50</b>

### 8.2 Plant and Machinery

The total cost is estimated to be Rs. 100 lacs, as explained earlier.

### 8.3 Miscellaneous Assets

The provision for miscellaneous assets has been made to the extent of Rs. 8.00 lacs. The details are furnished earlier.

### 8.4 Preliminary and Pre-operative Expenses:

The registration charges, establishment expenses, trial run expenses, interest during implementation etc would be around Rs. 10.00 lacs.

## 8.5 Working Capital Requirement

At 60% utilization in the first year, the total working capital needs shall be as under:

(Rs. in lacs)

Particulars	Period	Margin	Total	Bank	Promoters
Stock of Raw and Packing Materials	½ Month	30%	6.30	4.40	1.90
Stock of Finished Goods	½ Month	25%	7.40	5.55	1.85
Receivables	½ Month	25%	9.00	6.75	2.25
Working Expenses	1 Month	100%	2.00	--	2.00
		<b>Total</b>	<b>24.70</b>	<b>16.70</b>	<b>8.00</b>

## 8.6 Cost of the Project and Means of Financing:

(Rs. in lacs)

Items	Amount
Land and Building	19.50
Plant and Machinery	100.00
Miscellaneous Assets	8.00
Preliminary and Pre-operative Expenses	10.00
Contingencies @ 10% on land and building and machinery	12.00
Working Capital Margin	8.00
<b>Total</b>	<b>157.50</b>
<b>Means of Finance</b>	
Promoter's Contribution	47.50
Bank Loan/ Financial Institutions	110.00
<b>Total</b>	<b>157.50</b>
Debt Equity Ratio	2.37 : 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 of canned pineapple products would be 3600 MTA. The capacity utilization of 60% and 70% is planned during the first two years.

## 9.2 Sales Revenue at 100%

(Rs. in lacs)

Product	Qty (Tonnes)	Selling Price Per Ton.	Value
Pineapple Slices	1350	11,000	148.50
Pineapple Juice	1550	14,000	217.00
		<b>Total</b>	<b>365.50</b>

## 9.3 Raw and Packing Materials Required at 100%

(Rs. in lacs)

Products	Quantity (Tonnes)	Rate per Ton	Value
Pineapples	3600	2,000	72.00
Sugar	-	-	45.00
Preservatives, essence, etc.	--	--	6.00
Packing materials@Rs.3000/Ton	--	--	87.00
		<b>Total</b>	<b>210.00</b>

## 9.4 Utilities

The annual cost of utilities at 100% capacity level would be Rs. 12 lacs.

## 9.5 Interest

Interest on term loan of Rs. 110.00 lacs is calculated @ 14% per annum assuming repayment in 6 years including a moratorium period of one year, whereas on bank finance for working capital, it is taken @ 14% per annum.

## 9.6 Depreciation

It is calculated on WDV method and rates considered are 10% on buildings and 20% on plant and machinery and other assets.

## 10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No.	Particulars	1st Year	2nd Year
<b>A</b>	<b>Installed Capacity</b>	----- 3600 MTA-----	
	Capacity Utilization %	60%	70%
	Sales Realization (Rs.Lacs)	219.30	255.85
<b>B</b>	<b>Cost of Production</b>		
	Raw and Packing Materials	126.00	147.00
	Utilities	7.20	8.40
	Salaries	6.12	7.25
	Stores and Spares	2.40	3.60
	Repairs and Maintenance	3.60	4.80
	Selling Expenses @ 10%	21.90	25.60
	Administrative Expenses	3.60	4.80
	<b>Total</b>	<b>170.82</b>	<b>201.45</b>
<b>C</b>	<b>Profit before Interest &amp; Depreciation</b>	<b>48.48</b>	<b>54.40</b>
	Interest on Term Loan	14.00	11.90
	Interest on Working Capital	2.35	2.95
	Depreciation	17.85	15.25
	Net Profit	14.28	24.30
	Income Tax @ 20%	2.25	4.85
	Profit after Tax	12.03	19.45
	Cash Accruals	29.88	34.70
	Repayment of Term Loan	--	20.00

## 11.00 BREAK EVEN POINT ANALYSIS

(Rs. in lacs)

No.	Particulars	Amount
<b>A</b>	<b>Sales</b>	<b>219.30</b>
<b>B</b>	<b>Variable Cost</b>	
	Raw and Packing Materials	126.00
	Utilities (70%)	5.04
	Salaries (70%)	4.28
	Stores and Spares	2.40
	Administrative Expenses (50%)	1.80
	Selling Expenses (70%)	15.33
	Interest on Working Capital	2.35
	<b>Total</b>	<b>157.20</b>
<b>C</b>	<b>Contribution</b>	<b>62.10</b>
<b>D</b>	<b>Fixed Cost</b>	<b>37.82</b>
<b>E</b>	<b>Break Even Point (D ÷ C)</b>	<b>61%</b>



## 12.0 (A) LEVERAGES

### Financial Leverage

EBIT/EBT

$$= 30.63 \div 14.28$$

$$= 2.14$$

### Operating Leverage

Contribution / EBT

$$= 62.10 \div 14.28$$

$$= 4.35$$

### Degree of Total Leverage

FL / OL

$$= 2.14 \div 4.35$$

$$= 0.49$$

## [B] Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr	6th Yr
Cash Accruals	29.88	34.70	38.64	43.19	47.02	50.28
Interest on Term Loan	14.00	11.90	9.10	6.30	3.50	1.90
<b>Total (A)</b>	<b>43.88</b>	<b>46.60</b>	<b>47.74</b>	<b>49.49</b>	<b>50.52</b>	<b>52.18</b>
Interest on Term Loan	14.00	11.90	9.10	6.30	3.50	1.90
Repayment of Term Loan	--	22.00	22.00	22.00	22.00	22.00
<b>Total (B)</b>	<b>14.00</b>	<b>33.90</b>	<b>31.10</b>	<b>28.30</b>	<b>25.50</b>	<b>23.90</b>
<b>DSCR (A) ÷ (B)</b>	<b>3.13</b>	<b>1.37</b>	<b>1.53</b>	<b>1.74</b>	<b>2.02</b>	<b>2.18</b>
<b>Av. DSCR</b>	----- <b>2.00</b> -----					

**[C] Internal Rate of Return (IRR)**

Cost of the project is Rs. 157.50 lacs.

(Rs. in lacs)

Year	Cash Accruals	16%	18%	20%
1	29.88	25.76	25.31	24.89
2	34.70	25.78	24.91	24.08
3	38.64	24.77	23.53	22.37
4	43.19	23.84	22.29	20.82
5	47.02	22.38	20.55	18.90
6	50.28	20.61	18.60	16.84
7	52.73	18.67	16.56	14.71
	<b>296.44</b>	<b>161.81</b>	<b>151.75</b>	<b>142.61</b>

The IRR is around 17%.

**Some of the machinery suppliers are**

1. B. Sen. Berry and Co,65/11, Rohatak Road, Karol Baugh, New Delhi- 110005
2. Raylon Metal Works, PB NO. 17426, JB Nagar,Andheri (E), Mumbai 400 059
3. Metal Box (I) Ltd, 17, Parliament street, New Delhi-110001
4. Auric Techno Services Pvt. Ltd. C-101, Shrinath Hermitage, Baner Road, Pune -411008.  
Tel No. 25898072/25899113, Fax: 25899113
5. Buhler (India) Pvt. Ltd., 13-D, KAIDB Industrial Area, Attibele, Bangalore- 562107.  
Tel No. 27820000, Fax: 27820001