

PROJECT PROFILE

ON

CASHEW APPLE PROCESSING
(Tiny scale for Women SHG)

Month & Year
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**PREPARED BY
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1. Introduction

Cashew apple is a fruit that is normally used for brewing alcoholic beverages after separation of the nut. However, it can be processed to produce titbits in sugar syrup, jams and pulp in honey. The project aims to produce cashew apple bits in sugar syrup, cashew apple jam, and pulp in honey on a small scale.

2. Market

The major market outlets are the “ A” and “B” class stores. The product also finds placement in self service counters and departmental stores.

3. Packaging

Cashew apple products are packed in weights of 200 grams, 400 grams and 500 grams and multiples thereof.

4. Production capacity

- The plant will be in operation for one shift a day.
- It would process cashew apples to produce 500 kilograms of the final product with the following product mix.
 - a) Cashew apple in sugar syrup - 200 kilograms
 - b) Cashew apple jam - 200 kilograms
 - c) Cashew apple pulp in honey -100 kilograms
- The total quantity of products produced per month and annum are as follows:

	<u>Total production in kgs per</u>	
	<i>(month)</i>	<i>(annum)</i>
I. Cashew apple in sugar syrup	5000	60000
II. Cashew apple jam	5000	60000
III. Cashew apple pulp in honey	2500	30000
• Total	12500	150000

- The time period required for achieving full capacity utilization is one year.

5. Sales revenue

- With an ex-factory selling price at Rs. 60 per bottle of 500 grams of each variety, or Rs. 120 per kilogram, the total sales realisation will be Rs. 180 lakhs on full capacity utilization.

6. Production process outline.

The cashew apple received from farms must first be immediately stored under refrigerated conditions failing which they would wilt. From the storage chamber, they are taken for processing as and when required.

Three types of products are proposed to be produced and they include:

- Cashew apple in sugar syrup
- Cashew apple jam
- Cashew apple in honey

Cashew apple in sugar syrup

The fruit is washed, cut into cubes and kept separately. In the kettle, sugar is converted into syrup and boiled to around 75 degrees brix. The cubes are added to the sugar syrup and boiled for a few minutes. The syrup is cooled and then transferred into bottles. Each bottle of 500 grams will contain 250 grams of cashew apples in 250 ml of sugar syrup. Necessary preservatives and colours are added in the kettle at the time of cooking.

Cashew apple jam

The cashew apple after washing is passed through the pulper when the pulp and juice are extracted. The extracted mass is taken to the kettle where it is cooked under the influence of jacketed steam for ten minutes.

Sugar is then added in desired quantities and the mass further cooked with constant stirring till a thick mass is formed with a reading of 65 to 70 degrees brix on the brix meter. After cooking, the required quantities of citric acid, pectin, flavours and colours are added and the mass stirred thoroughly. The mass after mixing is emptied into steel containers from where they are poured into bottles of 400 grams capacity. On cooling the jam sets. The bottle is capped after placing a foil paper at its top. The bottles are placed in cartons, strapped and dispatched.

Cashew apple in honey

The cashew apple after washing is passed through the pulper when the pulp and juice are extracted. The extracted mass is taken to the kettle where it is cooked under jacketed steam to form a thick mass and almost all the water has

evaporated. The steam is switched off and the mass cooled. Honey is then added to the desired extent and the contents mixed till a homogenous mass is formed. Finally the desired quantities of powdered cardamom and preservatives are added, stirred and the final product packed.

7. Quality specifications

Cashew apple in sugar syrup

- The minimum fruit content shall be 45%.
- Mold and fungal growth should be absent.
- The product should be prepared under hygienic conditions and should be free from coliforms, salmonella, and streptococci species of bacteria.
- It shall be free from fermented odour.
- No artificial sweetening agents are to be used. Only sugar, dextrose, liquid glucose can be used either singly or in combination.

Cashew apple jam

- The minimum fruit content shall be 55%.
- Mold and fungal growth should be absent.
- The product should be prepared under hygienic conditions and should be free from coliforms, salmonella, and streptococci species of bacteria.
- It shall be free from fermented odour.
- No artificial sweetening agents are to be used. Only sugar, dextrose, liquid glucose can be used either singly or in combination.
- It can contain pectin derived from any fruit.
- It can also contain permitted preservatives, colours and emulsifying and stabilising agents.

8. Pollution control measures

Not necessary as there are no pollutants or effluents. However waste residues obtained after pulping have to be disposed off carefully failing which it could pollute the surrounding area on fermentation, thereby yielding a foul odour.

9. Energy conservation measures

Common measures will do.

10. Land and construction cost for the proposed unit

The proposed unit is to be set up in a leased area. The total area required is 1800 square feet as described below:

SI	Description	Sq. feet
1	Processing area	500
2	Raw material store	200
3	Washing area	200
4	Packing material store room	100
5	Finished goods store room	200
6	Laboratory space	100
7	Machinery spares room	100
8	Administrative office	100
9	Toilet space	200
10	Miscellaneous space	100
11	Total	1800

Lease rentals – Rs. 6.00 per square foot

Total rent per month – Rs. 10800

Lease advance – Rs. 75000

11. Costing of machinery and equipment

SI	Description	Rs. lakhs
1	Fruit washing tank	0.047
2	Super pulper	0.353
3	Autoclave	0.330
4	Steam jacketed cooking kettle	0.373
5	Stainless steel stirrer	0.121
6	Bottle washing machine	0.206
7	Working tools	0.100
8	Baby boiler and accessories	1.250
9	Water softener	0.500
10	Stainless steel working tables	0.600
11	Gumming machine	0.060
12	Total	3.940
13	Laboratory equipment	0.500
14	Grand total machinery and equipment	4.440

12. Project cost

SI	Description	Rs. lakhs
1	Land	On lease
2	Civil works	On lease
3	Plant machinery	3.940
4	Laboratory equipment	0.600
5	Transport vehicle (1 Tata Ace)	3.600
6	Pollution control equipment	0.000
7	Energy conservation equipment	0.000
8	Cost of power connection	0.100
9	Cost of electrification	0.100
10	Erection and commissioning	0.400
11	Cost of machinery spares	0.050
12	Cost of office equipment	1.000
13	Deposits if any	0.360
14	Company formation expenses	0.100
15	Gestation period expenses	0.500
16	Sales tax registration expenses	0.100
17	Initial advertisement and publicity	5.000
18	Contingencies	0.500
19	Working capital margin money	5.080
20	Total	21.430

13. Working capital requirements per month

a. Salaries and wages

SI	Description	No of persons	Total salary / month (Rs. lakhs)
1	Production Supervisor	1	0.150
2	Chemist	1	0.100
3	Skilled workers	2	0.120
4	Unskilled workers	4	0.120
5	Packing workers	2	0.060
6	Van driver	1	0.060
7	Administrative staff	1	0.060
8	Total	12	0.670

b. Raw material requirement per month

SI	Description	Qty (kgs)	Rate / kg (Rs)	Value (Rs. lakhs)
1	<u>Cashew apple in sugar syrup</u>			
A	Cashew apple	7500	3.00	0.225
B	Sugar	3200	27.00	0.864
C	Citric acid, flavours, preservatives	150	150.00	0.225
D	Total	10850		1.314
2	<u>Cashew apple jam</u>			
A	Cashew apple	13200	3.00	0.396
B	Sugar	2200	27.00	0.594
C	Citric acid, flavours, preservatives	150	150.00	0.225
D	Total	15550		1.215
3	<u>Cashew apple pulp in honey</u>			
A	Cashew apple	7000	3.00	0.210
B	Sugar	800	27.00	0.216
C	Honey	1250	120.00	1.500
D	Flavours, preservatives	75	150.00	0.113
E	Total	9125		2.039
4	Grand Total Raw Material	35525		4.568

c. Packaging material requirement per month

SI	Description	Qty	Rate / unit (Rs)	Value (Rs. lakhs)
1	<u>Cashew apple in sugar syrup</u>			
A	Glass bottles	10200 nos	8.00	0.816
B	Cartons and straps	1000 nos	50.00	0.500
C	Total			1.316
2	<u>Cashew apple jam</u>			
A	Glass bottles	10200 nos	8.00	0.816
B	Cartons and straps	1000 nos	50.00	0.500
C	Total			1.316
3	<u>Cashew apple pulp in honey</u>			
A	Glass bottles	5100 nos	8.00	0.408
B	Cartons and straps	1300 nos	50.00	0.650
C	Total			1.058
4	Grand Total Packaging Material			3.690

Grand total Raw + Packaging Material- Rs. 8.258 lakhs

d. Utilities per month

SI	Description	Rs. lakhs
1	Power 750 kwh @ Rs. 5.50 per unit	0.041
2	Water	0.050
3	Boiler fuel	0.100
4	Total utilities	0.191

e. Contingent expenses per month

SI	Description	Rs. lakhs
1	Rent for processing shed	0.108
2	Postage and stationery	0.010
3	Telephones, fax etc.	0.050
4	Consumable stores	0.020
5	Repairs and maintenance	0.036
6	Local transports, loading and unloading	0.100
7	Advertisement and publicity @10% of sales	1.800
8	Insurance	0.018
9	Sales expenses @ 1% of sales	0.180
10	Miscellaneous expenses @ 1% of sales	0.180
11	Trade incentives @ 2% of sales	0.360
12	Taxes @ 4%	0.720
13	Total contingent expenses	3.582

f. Total working capital requirement per month

SI	Description	Rs. lakhs
1	Salaries and wages	0.670
2	Raw material and packaging material	8.258
3	Utilities	0.191
4	Contingent expenses	3.582
5	Total	12.701

14. Means of finance

SI	Description	Rs. lakhs
1	Total Project Cost	21.430
2	Equity	7.072
3	Debt	14.358
4	Working capital margin money	5.080

15. Financial analysis

SI	Description	Rs. lakhs
1	Total recurring cost per year	152.412
2	Depreciation on land and building	0.000
3	Depreciation on machinery and vehicle	0.810
4	Depreciation on furnaces	0.000
5	Depreciation on moulds and fixtures	0.010
6	Depreciation on office equipment	0.100
7	Interest on long term loan @ 13.5%	1.938
8	Interest on short term borrowings@ 13.5%	1.029
9	Total cost of production	156.299

16. Turnover per year

SI	Item	Qty	Rate/unit (Rs)	Total Rs. lakhs
1	Cashew apple tidbits	60000 kgs	120.00	72.00
2	Cashew apple jam	60000 kgs	120.00	72.00
3	Cashew apple pulp in honey	30000 kgs	120.00	36.00
4	Total	150000 kgs		180.00

17. Viability analysis

SI	Description	Value
1	Net profit before income tax (Rs. lakhs)	23.701
2	Net profit ratio	13.1%
3	Internal rate of return	33.6%
4	Break even percentage	33%
5	Debt service coverage ratio	2.234

List of machinery suppliers

1. Geeta Food Engineering, Plot No. C - 7 / 1, TTC Industrial Area, Pawana MIDC, Thane - Belapur Road, Behind Savita Chemicals, Navi Mumbai 400705. Maharashtra.; Tel: 022 - 56101973; Fax: 022 - 55906450
2. Royal Scientific Industries, T.S.74A, SIDCO Industrial Estate, Ekkatuthangal, Chennai. 600097., Tel: 044-22254749
3. Navinchandra and Co., 308, Thambu Chetty Street, Chennai. 600001; Tel: 044-25228675