MINISTRY OF FOOD PROCESSING INDUSTRIES
GOVERNMENT OF INDIA

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NIFTEM
THANJAVUR

PM Formalisation of
Micro Food Processing Enterprises Scheme

DETAILED PROJECT REPORT FOR
PROCESSING OF SAPOTA JUICE

AATMANIRBHAR BHARAT

National Institute of Food Technology, Entrepreneurship and Management (NIFTEM) - Thanjavur

(an Institute of National Importance under Ministry of Food Processing Industries, Government of India)
Pudukkottai Road, Thanajvur – 613005
https://niftem-t.ac.in/
Ph : 04362-228155, Fax:04632-227971

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1 EXECUTIVE SUMMARY

Sapota is a delicious tropical fruit that belongs to the Sapotaceae family that goes with the scientific name Manilkara zapota. It is a native to Mexico, Central America and the Caribbean island. Sapota is clad by other names such as chickoo, chikoo, lamoot, sapodilla, sapodilla plum, nose berry and sapoti. In India, it is widely grown in Karnataka, Gujarat, Maharashtra, West Bengal, Andhra Pradesh and Tamil Nadu.

Chickoo has a grainy texture and a mildly musky flavour. The soft fleshy fruit is scooped out to make smoothies, jams and delectable desserts.

Sapota is high on calories providing 83 calories per 100 grams. A good source of dietary fibre, the pulp of this fruit functions as an excellent laxative. It is loaded with a rich array of vitamins A, C, niacin, folate and pantothenic acid and minerals iron, potassium and copper. The host of plant compound tannins in sapota possesses strong antioxidant, anti-inflammatory, antiviral, antibacterial and antiparasitic effects. The plethora of essential nutrients in sapota promotes overall health and well-being.

Sapota is an important fruit in India, and is widely grown in the states of Gujarat, Karnataka, Maharashtra, Tamil Nadu, Andhra Pradesh, and West Bengal. Sapota with low shelf life is converted to various value added products such as Sapota beverage, osmotic dehydrated bites, Candy, squash, jam etc.

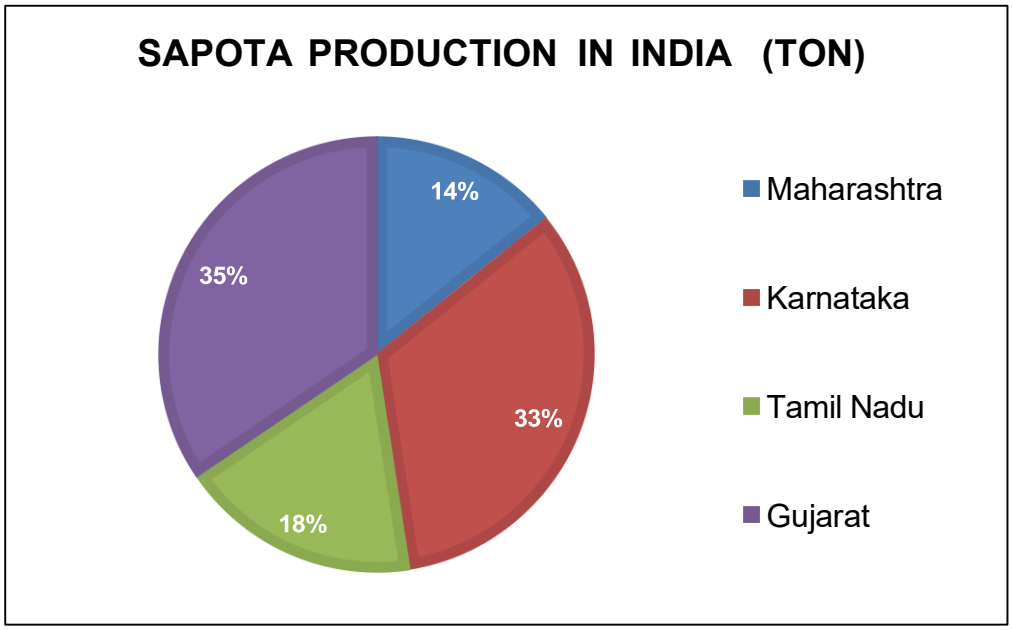


TABLE 1

PROJECT AT GLANCE

1	Name of the proposed project	Sapota Juice Processing Unit
2	Name of the entrepreneur/FPO/SHG/ Cooperative	
3	Nature of proposed project	
4	Registered office	
5	Project site/location	
6	Names of Partner (if partnership)	
7	No of shareholders (if company/FPC)	
8	Technical advisor	
9	Marketing advisor/partners	
10	Proposed project capacity	650 lit/day (60, 70 & 80% capacity utilization in the 2nd, 3rd and 4th years' onwards respectively)
11	Raw materials	Sapota Juice Processing Unit
12	Major product outputs	Sapota Juice
13	Total project cost :	Rs. 28.96 Lakhs
	· Land development, building & civil : construction	Rs. 3.75 Lakh
	· Machinery and Equipment's : (Lakhs)	Rs. 18.60 Lakh
	· Utilities (Power & water facilities) : (Lakhs)	Rs. 0.90 Lakh
	· Miscellaneous fixed assets : (Lakhs)	Rs. 0.8 Lakh
	· Pre-operative expenses : (Lakhs)	Rs. 0.90 Lakh
	· Contingencies : (Lakhs)	Rs. 1.50 Lakh
	· Working capital margin : (Lakhs)	Rs. 2.51 Lakh
14	Working capital requirement	
	· 2nd year (Lakhs)	Rs. 6.01 Lakh
	· 3rd year (Lakhs)	Rs. 7.15 Lakh
	· 4th year (Lakhs)	Rs. 8.26 Lakh
15	Means of Finance	
	· Subsidy grant by MoFPI (max 10 lakhs) : :	Rs. 10.00 Lakhs
	· Promoter's contribution (min 20%)	Rs. 5.79 Lakhs
	· Term loan (45%) :	Rs.13.16 Lakhs
16	Debt-equity ratio	0.49
17	Profit after Depreciation, Interest & Tax	

	· 2nd year (Lakhs)	Rs. 21.54 Lakh
	· 3nd year (Lakhs)	Rs. 25.11 Lakh
	· 4nd year (Lakhs)	Rs. 30.13 Lakh
18	Average DSCR	5.89
19	Benefit-Cost Ratio	1.31
20	Term loan repayment	7 Years with 1year grace period
21	Payback period for investment	1 years 5 Month

2 OBJECTIVE OF THE PROJECT

The Prime Objective of the Report is to present a Viable Bankable Model of **"Sapota Juice Processing Unit"** through adoption of appropriate technology, utilization of resources, quality production and suitable market strategy.

Some important objectives behind setup of "Sapota Juice Processing Unit" are:

- ✓ The prime objective is to setup this unit is to produce & make available quality product in most hygienic conditions with good packaging, untouched & with very less human interference during entire operations till market.

- ✓ To produce & market safe, quality-assured products with highest nutrient value than existing one.

- ✓ Improve customer's nutrition by allowing them to consume quality processed product.

- ✓ Empowering the lifestyle of promoter by adopting proper techniques in production and marketing of final product.

- ✓ Proper utilization of land, water, labour & other resources for better plant economics.

- ✓ Employment generation for youth and women in surrounding areas.

3 PROJECT PROFILE

TABLE 2

PROJECT DESCRIPTION

PARTICULARS	DESCRIPTION
Project Name	**"SET UP OF SAPOTA JUICE PROCESSING UNIT"**
Project Location	
Project Area	5000 Sq Ft
Project Proposed Economic Activities	Setup of Sapota Juice Processing Unit
Project Capacity	**Sapota Juice Processing Unit** ✓ 650 kg / Day Capacity

4 GENERAL OVERVIEW OF SAPOTA PRODUCTION, CLUSTERS, PHM AND VALUE ADDITION IN INDIA

4.1 Introduction

Sapota (Manilkara achras Forb.) is an evergreen tropical tree, the fruit of which is used fresh and processed. Sapota, also known as sapodilla, contains high levels of ascorbic acid and phenolic compounds which contribute to its numerous purported human health benefits. The fruit is characterized by a climacteric ripening behavior with a short postharvest life at ambient temperature. The main limitation of postharvest shelf life is decay. Although low-temperature storage prolongs the postharvest life of sapota fruit, chilling injury can develop if the storage temperature is less than 14 °C. The storage life of sapota fruit can also be extended with the use of modified and controlled atmospheres and the use of other postharvest treatments. Sapota is an important fruit in India, and is widely grown in the states of Gujarat, Karnataka, Maharashtra, Tamil Nadu, Andhra Pradesh, and West Bengal. Sapota with low shelf life is converted to various value added products such as Sapota beverage, osmotic dehydrated bites, Candy, squash, jam etc.

The global fruit beverages market size was valued at USD 33.92 billion in 2018 and is projected to expand further at a CAGR of 6.2% from 2019 to 2025. Rising importance of leading a healthy lifestyle is expected to boost the product demand. Rising concerns regarding various health issues including obesity and nutritional deficiencies are anticipated to boost the demand for these products, thereby supporting market growth. The Indian Food and Beverage industry is expected to be ~Rs. 4,00,000 Crores market as on 2019 and projected to grow by 2.5x to ~Rs. 10,00,000 Crores by 2025 (CAGR of 16%) – leveraging India's favorable demographic (1.4 Billion strong population, rising income levels and higher urbanization). Indian beverage Industry is approx 10%+ of the Global Beverage consumption today.

4.2 Origin, Distribution And Production Of Sapota

Sapota [Manilkara acharas (Mill) Fosberg] is one of the major tropical fruit crops in India and belongs to sapotaceae family. Although this crop originated from tropical South America yet it has so well acclimatized in the coastal tropics of India which sometimes is considered to be an indigenous crop to this country (Shirol etal., 2009). Probably, the first seedling plantation of sapota in India was evident in Gholwad village of Dahnu taluk, Thane district, Maharashtra in 1898 (Chundawat,1998). Today, the area under this crop has been extended to several part of the country including Punjab in the North,Tamil Nadu in the South, Rajasthan in the West and West Bengal in the East, a worth mentioning of Tripura and Assam in the North Eastern states and Andaman and Nicobar Island too. The quick spread of its cultivation in the country may be attributed to its greater adaptability to a wide agro-climatic conditions and its continuous cropping ability. White latex from the trunk of the tree is the source of 'chicle which is the principle ingredient in chewing gum. In most of the tropical American countries sapota is grown for producing chicle. Over a period, the area under this crop has extended from 52,000 ha (2001-02) to 1.6 lak ha (2010-11). Similarly, the production showed the same trend from 5.9 Lakh MT in 1990-92 to 14.2 lakh MT in 2010-11 (NHB, 2011). Today, Sapota has attained the status of commercial crop in many states with Maharashtra occupied the first place both in area and production

followed by Karnataka, Gujarat and Tamil Nadu (NHB, 2011)

4.3 Health Benefits and Nutritional Importance

Sapota has a high amount of dietary fiber, which makes for an excellent bulk laxative. The high fiber content provides relief from constipation and also supports the colons' membrane and makes it resistant to infections. According to the International Journal of Food Science and Nutrition, the high content of tannins makes sapota or chikoo an important anti-inflammatory agent, which helps in improving the condition of the digestive tract through prevention of diseases like esophagitis, enteritis, irritable bowel syndrome, and gastritis. It also reduces inflammation by reducing any swelling and pain. It has also been found that the chemical compounds present in Chikoo help in keeping congestion and chronic coughs at bay by removing the phlegm and mucus from the nasal passage and respiratory tract. This powerhouse of minerals has additional amounts of calcium, phosphorus, and iron which are key sources required by bones to increase their endurance. Being rich in calcium, iron and phosphorus, sapota greatly helps in enhancing and strengthening the bones. Copper is essential for the growth of bones, connective tissue, and muscles. The deficiency of copper increases the chances of osteoporosis, muscle weakness, low strength, breakage, and weak joints. The studies show that the intake of copper with manganese, zinc, calcium slows the loss of bone in older women.

Sapota is high on calories providing 83 calories per 100 grams. A good source of dietary fibre, the pulp of this fruit functions as an excellent laxative. It is loaded with a rich array of vitamins A, C, niacin, folate and pantothenic acid and minerals iron, potassium and copper. The host of plant compound tannins in sapota possesses strong antioxidant, anti-inflammatory, antiviral, antibacterial and antiparasitic effects.

4.4 Cultivation, Bearing and Post-Harvest Managements

Harvesting is done when the pods are well ripened and partially withered in the plant itself. The harvested pods are kept in heaps either indoor or in shade away fromdirect sun light for 2 or 3 days so as to develop uniform red colour and then dried in the sun by spreading them on clean dry polythene sheets, cemented / concrete drying yards etc. Pods are spread out in thin layers for uniform drying with frequent stirring to prevent mold growth and discolouration. The dried pods are heaped and covered by clean gunny bags / polythene sheets. The moisture content of dry pods are kept at 8- 10 %. Improved drying system could be used to ensure cleanliness and uniform colour of the product.

FIGURE 1
SAPOTA CROP

Climate Requirement for Sapota Farming

It is a tropical crop and can be grown up to an altitude of 1000 meters. It can be grown in all types of soils.

Harvesting: -

A mature fruit is dull brown in colour and the colour immediately below the skin when scratched is of lighter shade, while in the immature fruits it is green. The mature fruits are harvested by hand picking.

4.5 Processing And Value Addition In India

Fruit beverages and drinks are one of the popular categories of beverages that are consumed across the globe. The fruit beverages and drinks are easily digestible, highly refreshing, thirst quenching, appetizing and nutritionally far superior to most of the synthetic and aerated drinks. In recent past the consumption of fruit based beverages and drinks has increased at a fast rate. Fruit juices or pulp used for the preparation of these products are subjected to minimal processing operations like filtration, clarification and pasteurization. The fruit juice or pulp, are mixed with ingredients like sugar, acid, stabilizers, micronutrients and preservative to develop beverages and drinks. There are various categories of fruit juice or pulp based beverages and drinks which are listed below.

Natural fruit juices, sweetened juices, ready-to-serve beverages, nectar, cordial, squash, crush, syrup, fruit juice concentrate and fruit juice powder belong to the category of non-alcoholic and non-carbonated beverages.

5 MODEL SAPOTA JUICE PROCESSING UNDER FME SCHEME

5.1 location of Proposed Project and Land

The entrepreneur must provide description of the proposed location, site of the project, distance from the targeted local and distant markets; and the reasons/advantages there of i.e. in terms of raw materials availability, market accessibility, logistics support, basic infrastructure availability etc.

The ideal locations for establishment of exclusive Sapota Juice processing unit are in the production clusters of Sapota growing states/Areas such as Andhra Pradesh, Karnataka, Gujrat, Tamil Nadu and Maharashtra where adequate quantities of surplus raw materials can be available for processing.

5.2 Installed Capacity of Processing Plant

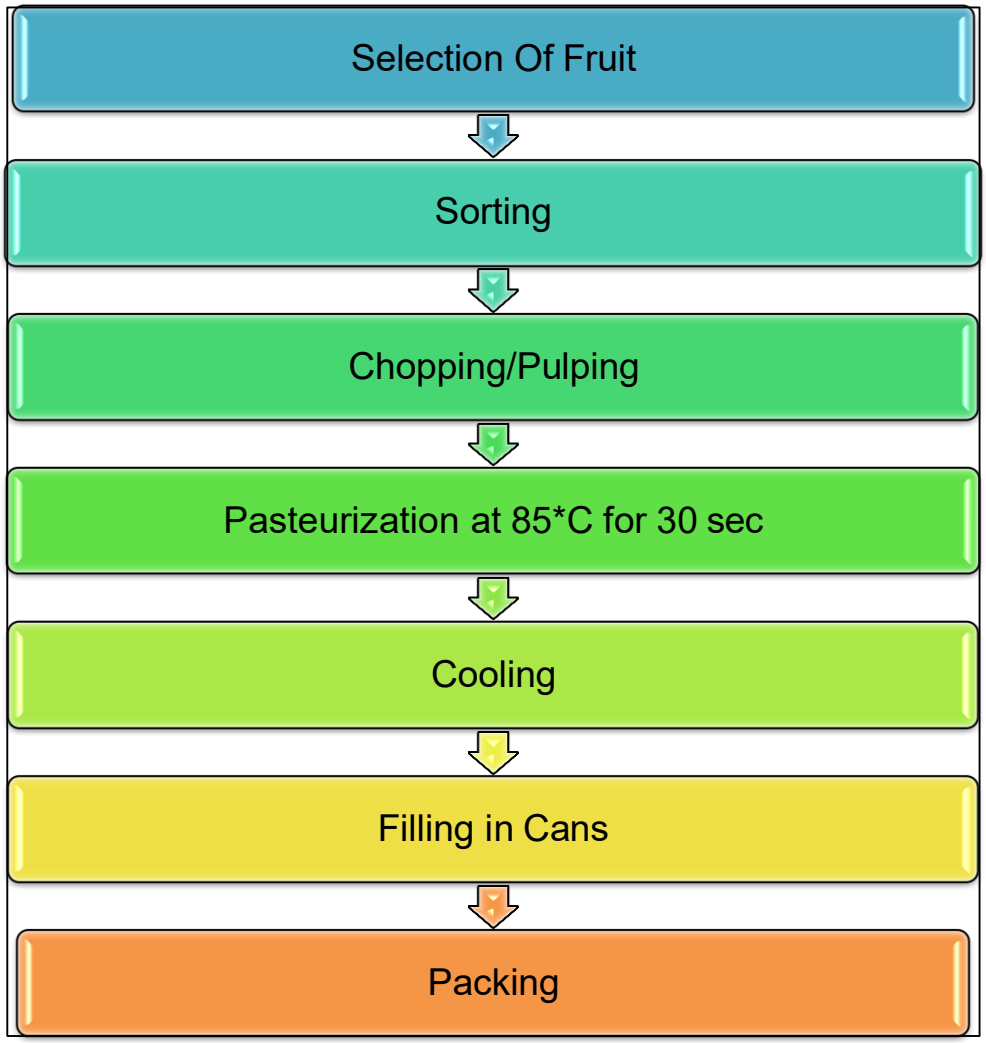
The maximum installed capacity of the Processing unit in the present model project is proposed as 1000 kg/day input capacity of Sapota. The unit is assumed to operate 300 days/annum @ 8-10 hrs/day. The 1st year is assumed to be construction/expansion period of the project; and in the 2nd year 60 percent capacity, 3rd year 70 percent capacity and 4th year onwards 80 percent capacity utilization is assumed in this model project.

5.3 Raw Material Requriment for The Unit

A sustainable food processing unit must ensure maximum capacity utilization and thus requires an operation of minimum 300 days per year to get reasonable profit. Therefore, ensuring uninterrupted raw materials supply requires maintenance of adequate raw material inventory. The processor must have linkage with producer organizations preferably FPCs through legal contract to get adequate quantity and quality of raw materials which otherwise get spoiled.

FIGURE 2

SAPOTA JUICE PROCESS FLOWCHART



Selection Of Fruits:-

- The fruits were inspected thoroughly to avoid any damaged and spoiled fruits.
- They were ripened at ambient temperature.
- The variety and maturity of the fruit should be taken as a priority.

Sorting:-

- Sorting to remove decayed and moldy fruit is necessary to make sure that the final juice will not have a high microbial load, undesirable flavors, or mycotoxin contamination and discolouration.

- Wet cleaning will be carried out with 10-100 ppm chlorine water to remove sand and other dirt compounds

Chopping:-

- The aim of this step is to smash, cut the fruit, increase its surface, and launch cell-fluid elimination.
- Chopping can lead to enzymatic reactions damaging valuable components.
- The fruit has to be processed immediately after chopping.
- If this step is done appropriately, the fruit is not pulpy but consists of homogenous, irregular-shaped, few-millimetre-sized particles, which tend to form channels to drain the liquid when pressed

Pulping:-

- Pulping is process that performed by the extraction or pulper equipment which crush the food products and separate the pulp, seed and skin of fruits and vegetable.
- Pulper may be either mechanically or electrical operated to forces the feed in the machine.
- Ripened fruits were washed in tap water, peeled and sliced into small pieces. The sliced fruits were ground into pulp using mixer.
- The sapota pulp was treated with 70ppm of potassium meta bisulphate, as pretreatments are necessary to prevent discoloration and microbial growth during processing.
- The ground pulp was kept under refrigeration (4ºC) condition before use.

Pasteurization

- Pasteurization is a sterilization technology used to eliminate harmful microbes without damaging the raw material quality.
- Thermal pasteurization of fruit juices is related to heating at 85°C for 30 secs to destroy target microorganisms or enzymes.
- In order to produce safe fruit juice that is free of pathogens, is of high quality, meets consumer expectations, and minimizes commercial losses, thermal pasteurization must be effective

Filling:-

- Hot filling should carry out to prevent the contamination
- Aseptic filling can also be carried out to result in high quality products
- The process of filling the cooled pasteurised juice to the cans and stored at refrigeration

temperature

Packing:-

- Sapota juice concentrate was packed in (P1) Low density polyethylene pouches (LDPE), (P2) High density poly ethylene pouches (HDPE) and (P3) PET bottles.

Storage:-

- Sapota juice concentrate was packed in (p1) low density polyethylene pouches (ldpe), (p2) high density polyethelene pouches (hdpe) and (p3) pet bottles.

5.4 Market Demand And Supply For Fruit Juice

The global fruit beverages market size was valued at usd 33.92 billion in 2018 and is projected to expand further at a cagr of 6.2% from 2019 to 2025. Rising importance of leading a healthy lifestyle is expected to boost the product demand. Rising concerns regarding various health issues including obesity and nutritional deficiencies are anticipated to boost the demand for these products, thereby supporting market growth. The indian food and beverage industry is expected to be ~rs. 4,00,000 crores market as on 2019 and projected to grow by 2.5x to ~rs. 10,00,000 crores by 2025 (cagr of 16%) – leveraging india's favorable demographic (1.4 billion strong population, rising income levels and higher urbanization). Indian beverage industry is approx 10%+ of the global beverage consumption today.

5.5 Detail Project Assumptions

This model DPR for Sapota juice unit is basically prepared as a template based on certain assumptions that may vary with capacity, location, raw materials availability etc. An entrepreneur can use this model DPR format and modify as per requirement and suitability. The assumptions made in preparation of this particular DPR are given in This DPR assumes expansion of existing Sapota Processing unit by adding Sapota juice Processing line. Therefore, land and civil infrastructures are assumed as already available with the entrepreneurs.

Herewith in this DPR, we have considered the assumptions as listed below in the tables of different costs, which may vary as per region, seasons and machinery designs and supplier.

TABLE 3

PROJECT DETAILS

Detailed Project Assumptions		
Sr.No	**Parameter**	**Value**
1	Capacity of the processing unit	1000 Kg/Day Sapota
2	Utilization of capacity	1st year implementation, 60% in 2nd year, 70% in 3rd year and 80% in 4th year onwards.
3	Working days per year	300 days
4	Working hours per day	8 hrs.
5	Interest on term and working capital loan	12%
6	Repayment period	Seven years with one year grace period is considered.
7	Average prices of raw material	Rs. 30/Kg.
8	Average sale prices (Rs.)	Rs. 100/kg
9	Recovery rate	65%

TABLE 4

FIXED CAPITAL INVESTMENT

Sr. No.	Particulars	Size/ Dimensions / Specification	Quantity (No)	Total Area (Sq ft)	Unit Cost (Rs)	Amount (Rs)	Amount (Lakh)
A	**Capital Investment**		**1 Plot**			3,75,000	3.75
	Capital Investment					**3,75,000**	**3.75**
B	**Machinery & Equipment's**						
1	Fruit Washer	5 kg/hr	1		250000	2,50,000	2.50
2	Inspection Belt Conveyor		1		270000	2,70,000	2.70
3	Flight Elevator		1		300000	3,00,000	3.00
4	Pulper		1		260000	2,60,000	2.60

5	Pasteurizer		1		600000	6,00,000	6.00
6	Packaging Machinery		1		180000	1,80,000	1.80
	Machinery & Equipment's					**18,60,000**	**18.60**
C	**Other Costs**						
C1	**Utilities & Fittings**						
1	Water					90,000	0.90
2	Power						
	Total					**90,000**	**0.90**
C2	**Other Fixed Assets**						
1	Furniture & Fixtures					80,000	0.80
2	Electrical Fittings						
	Total					**80,000**	**0.80**
C3	**Pre-operative Expenses**						
1	Legal Expenses, Start - up Expenses, Establishment Cost, Consultancy fees, Trials and others					90,000	0.90
2	Plastic Tray Capacity						
3	Electrical Fittings						
	Total					**90,000**	**0.90**
C4	**Contingency**					**1,50,000**	**1.50**
	Total					**1,50,000**	**1.50**
C	**Total Cost (C1+C2+C3+C4)**					**4,10,000**	**4.10**
II	**Total Cost**					**26,45,000**	**26.45**

TABLE 5

WORKING CAPITAL REQUIRMENTS

Sr. No.	Description	Quantity	Unit Rate/ Kg	Total Cost (Rs) /Day	Total Cost (Rs) / Month	Total Cost (Rs) / Year
1	Sapota	1000	30	30,000	7.50	75.00
2	Preservatives			5,000	1.25	12.50
3	Packaging Material (1 Lit)	650	4	2,600	0.65	6.50
4	Labour	20	300/day	6,000	1.50	15.00
5	Supervisor / Manager	2	1000/ day	2,000.00	0.50	5.00
6	Technical Expert		2000	0.02	0.50	
7	Electricity			1,000	0.25	2.50
8	Transportation			1,000	0.25	2.50
9	Miscellaneous			500.00	0.13	1.25
	Total Cost			**48,100.02**	**12.53**	**120.25**
	Margin for Working Capital 20%			**0.10**	**2.51**	**24**

TABLE 6

TOTAL PROJECT COST

Sr. No.	Particulars	Amount In Lakhs
i	Land Development & Building Structure	3.75
ii	Plant & Machinery	18.60
iii	Other Fixed Assets	2.60
iv	Working Capital Margin	2.51
v	Contingency	1.50
vi	Total Project Cost	28.96

TABLE 7

MEANS OF FINANCE

Sr. No.	Particulars	Amount In Lakhs
i	Subsidy	10.00
ii	Promoters Contribution	5.79
iii	Term Loan	13.16
	Total Means of Finance (1 to 3)	28.96

TABLE 8

EXPENDITURE, REVENUE AND PROFITABILITY

PARTICULARS	YEAR							
	1st yr	2nd yr	3rd yr	4th yr	5th yr	6th yr	7th yr	8th yr
Capacity %	0	60	70	80	90	100	100	100
A. INCOME								
Sales of Sapota Juice	-	98.48	116.04	133.94	152.19	170.79	172.50	174.22
Total	**-**	**98.48**	**116.04**	**133.94**	**152.19**	**170.79**	**172.50**	**174.22**
B.EXPENSES								
Raw Material	-	45.00	53.55	61.80	70.20	78.75	78.75	78.75
Consumables	-	7.50	-	-	-	-	-	-
Packing cost	-	3.90	4.64	5.36	6.08	6.83	6.83	6.83
Transportation cost	-	1.50	1.79	2.06	2.34	2.63	2.63	2.63
Direct employee cost	-	12.00	14.28	16.48	18.72	21.00	21.00	21.00
Depreciation	-	3.58	3.08	2.65	2.29	1.97	1.70	1.38
Office Rent								
Plant Electricity Cost	-	1.50	1.79	2.06	2.34	2.63	2.63	2.63
Miscellaneous	-	0.75	0.89	1.03	1.17	1.31	1.31	1.31

Office Expenses	-	0.66	0.73	0.80	0.88	0.97	1.06	1.17
Telephonic Expences	-	0.06	0.60	0.66	0.73	0.80	0.88	0.97
Indirect Employee	-	0.50	0.50	0.50	0.50	0.50	1.00	1.00
Repair & Maintenance	-	0.50	1.50	1.65	1.82	2.00	2.20	2.42
Audit, Accounts & Compliance	-	0.44	0.44	0.48	0.53	0.59	0.64	0.71
Insurance		0.5	1	1	1	1	1	2
Total Cost	**-**	**78.39**	**84.78**	**96.63**	**108.80**	**121.29**	**122.08**	**122.39**
Add :- Opening Stock		-	8.49	10.04	11.58	13.16	14.77	14.86
Less :- Closing Stock	-	8.49	10.04	11.58	13.16	14.77	14.86	14.95
Cost of Sales	**-**	**69.90**	**83.23**	**95.08**	**107.22**	**119.68**	**121.99**	**122.29**
GROSS PROFIT	**-**	**28.58**	**32.81**	**38.86**	**44.96**	**51.11**	**50.51**	**51.93**
	-	29.02%	28.27%	29.01%	29.54%	29.92%	29.28%	29.81 %
FINANCE EXPENSES								
Interest on Term Loan	1.58	1.46	1.23	1.01	0.78	0.55	0.33	0.10
Interest On CC		0.19	0.19	0.19	0.19	0.19	0.19	0.12
Total Interest	**1.58**	**1.65**	**1.42**	**1.20**	**0.97**	**0.75**	**0.52**	**0.22**
PROFIT BEFORE TAX	**-1.58**	**26.93**	**31.39**	**37.66**	**43.99**	**50.36**	**49.99**	**51.71**

INCOME TAX (20%)	-0.32	5.39	6.28	7.53	8.80	10.07	10.00	10.34
PROFIT AFTER TAX	**-1.26**	**21.54**	**25.11**	**30.13**	**35.19**	**40.29**	**39.99**	**41.37**

TABLE 9

REPAYMENT SCHEDULE

Year	Outstanding loan at start of yr.	Disbur se-ment	Total outstanding Loan	Surplus for repayment	Interest payment	Repayment of principal	Total outgo	o/s Loan at the end of the yr.	Balance left
1	-0.00	13.16	13.16	1.24	1.58	0	1.58	13.16	-0.34
2	13.16		13.16	10.48	1.46	1.88	3.34	11.28	7.14
3	11.28		11.28	21.18	1.23	1.88	3.11	9.40	18.07
4	9.40		9.40	25.76	1.01	1.88	2.89	7.52	22.87
5	7.52		7.52	30.66	0.78	1.88	2.66	5.64	28.00
6	5.64		5.64	35.19	0.55	1.88	2.44	3.76	32.75
7	3.76		3.76	36.65	0.33	1.88	2.21	1.88	34.44
8	1.88		1.88	37.70	0.10	1.88	1.98	-	35.72

TABLE 10

ASSETS DEPRECIATION

PARTICULARS	YEAR							
	1st yr	2nd yr	3rd yr	4th yr	5th yr	6th yr	7th yr	8th yr
Land & Building Structure								

Opening Bal.		3.75	3.38	3.04	2.73	2.46	2.21	1.99
Additions	3.75							
Less :- Depreciation @ 10%		0.38	0.34	0.30	0.27	0.25	0.22	0.20
Closing Bal.	3.75	3.38	3.04	2.73	2.46	2.21	1.99	1.79
PARTICULARS	**YEAR**							
	1st yr	**2nd yr**	**3rd yr**	**4th yr**	**5th yr**	**6th yr**	**7th yr**	**8th yr**
Plant & Machinery								
Opening Bal.		18.60	15.81	13.44	11.42	9.71	8.25	7.01
Additions	18.60							
Less :- Depreciation @ 15%		2.79	2.37	2.02	1.71	1.46	1.24	1.05
Closing Bal.	18.60	15.81	13.44	11.42	9.71	8.25	7.01	5.96
PARTICULARS	**YEAR**							
	1st yr	**2nd yr**	**3rd yr**	**4th yr**	**5th yr**	**6th yr**	**7th yr**	**8th yr**
Other Required Material & Accessories								
Opening Bal.		4.10	3.69	3.32	2.99	2.69	2.42	2.18
Additions	4.10							
Less :- Depreciation @ 10%		0.41	0.37	0.33	0.30	0.27	0.24	0.13
Closing Bal.	4.10	3.69	3.32	2.99	2.69	2.42	2.18	2.05
TOTAL DEPRECIATION	-							

PARTICULARS	YEAR							
	1st yr	2nd yr	3rd yr	4th yr	5th yr	6th yr	7th yr	8th yr
Land & Building Structure	-	0.38	0.34	0.30	0.27	0.25	0.22	0.20
Plant & Machinery	-	2.79	2.37	2.02	1.71	1.46	1.24	1.05
-	-							
Other Required Material & Accessories	-	0.41	0.37	0.33	0.30	0.27	0.24	0.13
TOTAL DEPRECIATION	-	3.58	3.08	2.65	2.29	1.97	1.70	1.38

TABLE 11

FINANCIAL ASSESSMENT OF PROJECT

	YEAR								
	1st yr	2nd yr	3rd yr	4th yr	5th yr	6th yr	7th yr	8th yr	9th yr
Cost	26.45	78.39	84.78	96.63	108.80	121.29	122.08	122.39	-
Benefit	-	98.48	116.04	133.94	152.19	170.79	172.50	174.22	-
Discounting Rate	0.91	0.83	0.75	0.68	0.62	0.56	0.51	0.47	1.00
P.V Cost	24.05	64.78	63.69	66.00	67.56	68.46	62.65	57.09	-
P.V Benefit	-	81.38	87.18	91.48	94.50	96.41	88.52	81.28	-

Total P.V Cost	474.28
Total P.V Benefit	620.74
Benefit Cost Ratio	**1.31**

TABLE 12

BREAK EVEN ANALYSIS

PARTICULARS	Year							
	1st yr	2nd yr	3rd yr	4th yr	5th yr	6th yr	7th yr	8th yr
Annual Production in Kg	-	97,500	1,13,750	1,30,000	1,46,250	1,62,500	1,62,500	1,62,500
Revenue	-	98.48	116.04	133.94	152.19	170.79	172.50	174.22
Selling Cost Per Kg	-	101.00	102.01	103.03	104.06	105.10	106.15	107.21
Office & General Expenses	-	1.16	1.77	1.94	2.14	2.35	2.59	2.84
Depreciation	-	3.58	3.08	2.65	2.29	1.97	1.70	1.38
Total Fixed Cost	-	4.74	4.84	4.59	4.42	4.32	4.29	4.22
Total Fixed Cost Per Kg	-	4.86	4.26	3.53	3.02	2.66	2.64	2.60
Total Variable Cost	-	69.90	74.26	85.70	97.34	109.20	109.20	109.20
Variable Cost Per Kg	-	71.69	65.28	65.92	66.56	67.20	67.20	67.20
Contribution	-	28.58	41.78	48.24	54.84	61.59	63.30	65.02
Contribution per Unit	-	29.31	36.73	37.11	37.50	37.90	38.95	40.01
Contribution in %	-	29%	36%	36%	36%	36%	37%	37%
Break Even Point kg	-	0	0	0	0	0	0	0
Break Even Point Rs	-	4.03	4.20	3.95	3.78	3.68	3.65	3.60
Break Even In %	-	16.57	11.59	9.52	8.06	7.02	6.77	6.49
Margin Of Safty	-	94.45	111.83	129.98	148.41	167.11	168.84	170.63

FIGURE 3

PIA CHART FOR BETTER UNDERSTANDING OF EXPENCES

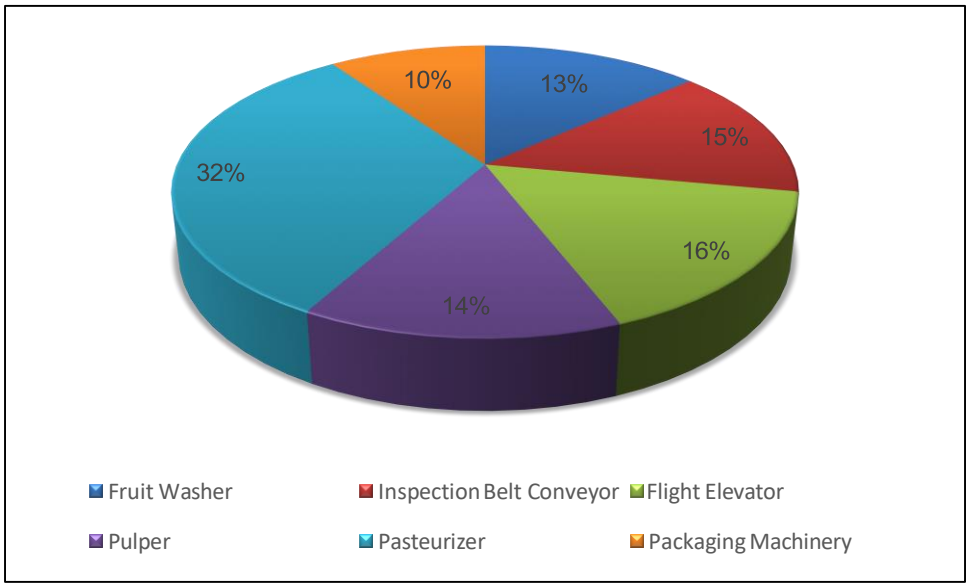
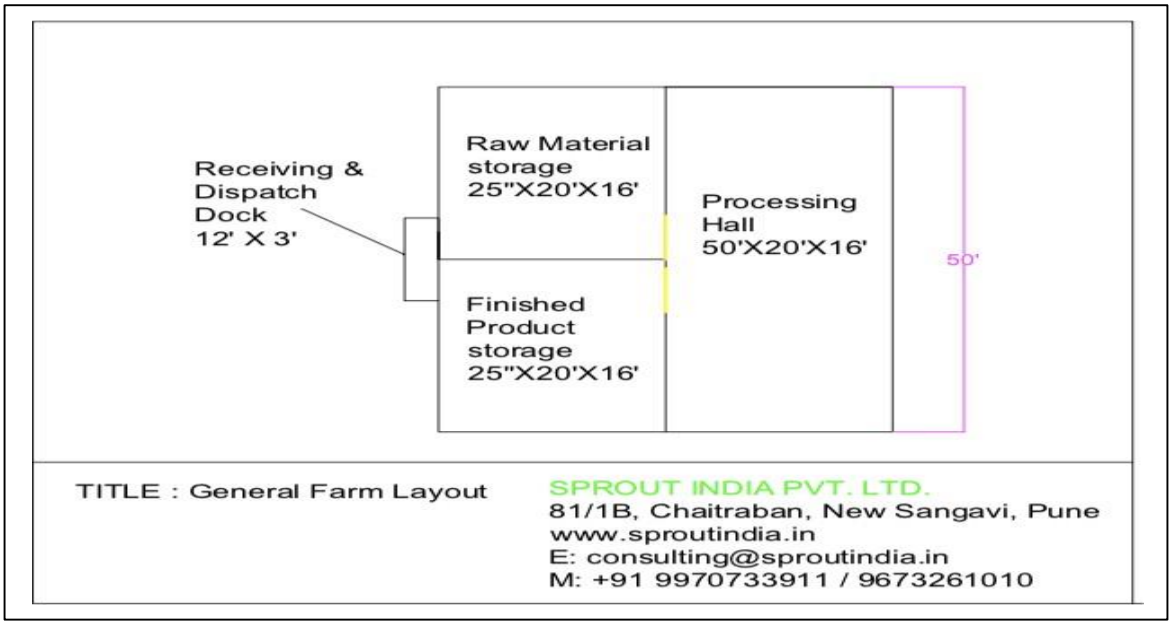


FIGURE 4

PLANT LAYOUT



5.8 Machinery Suppliers

There are many machinery suppliers available within India for processing machineries and equipment. Some of the suppliers are:

- Stellar Food Tech. Pune, Maharashtra, India
- Proveg Engineering & Food Processing Private Limited Near Swad Kolhapur Restaurant, Chikhli, Pune
- Lithotech Food & Spice Machinery Vasai East, Mumbai
- Varahi Industries GIDC Vatwa, Ahmedabad
- Srinidhi Industries17.Bommasandra, Bengaluru

6 LIMITATIONS OF MODEL DPR AND GUIDELINES FOR ENTREPRENEURS

6.1 Limitations Of Model DPR

i. This DPR has provided only the basic standard components and methodology to be adopted by an entrepreneur while submitting a proposal under the Formalization of Micro Food Processing Enterprises Scheme of MoFPI.

ii. This DPR is made to provide general methodological structure not for specific entrepreneur/crops/location. Therefore, information on the entrepreneur, forms and structure (proprietorship/partnership/cooperative/ FPC/joint stock company) of business, background of proposed project, location, raw material base/contract sourcing, entrepreneur's own SWOT analysis, market research, rationale of the project for specific location, community advantage/benefit, employment generation etc are not given in detail.

iii. The present DPR is based on certain assumptions on cost, prices, interest, capacity utilization, output recovery rate and so on. However, these assumptions in reality may vary across places, markets and situations; thus the resultant calculations will also change accordingly.

6.2 Guidelines For Entrepreneurs

i. The success of any prospective food processing project depends on how closer the assumptions made in the initial stage are with the reality of the targeted market/place/situation. Therefore, the entrepreneurs must do its homework as realistic as possible on the assumed parameters.

ii. This model DPR must be made more comprehensive by the entrepreneur by including information on the entrepreneur, forms and structure (proprietorship/partnership/cooperative/ FPC/joint stock company) of entrepreneur's business, project location, raw material costing base/contract sourcing, detailed market research, comprehensive dehydrated product mix based on demand, rationale of the project for specific location, community advantage/benefit from the project, employment generation, production/availability of the raw materials/crops in the targeted area/clusters and many more relevant aspects for acceptance and approval of the competent authority.

iii. The entrepreneur must be efficient in managing the strategic, financial, operational, material and marketing aspects of a business. In spite of the assumed parameter being closely realistic, a project may become unsustainable if the entrepreneur does not possess the required efficiency in managing different aspects of the business and respond effectively in changing situations.

iv. The machineries should be purchased after thorough market research and satisfactory demonstration.

v. The entrepreneur must ensure uninterrupted quality raw materials' supply and maintain optimum inventory levels for smooth operations management.

vi. The entrepreneur must possess a strategic look to steer the business in upward trajectory.

vii. The entrepreneur must maintain optimum (not more or less) inventory, current assets. Selecting optimum source of finance, not too high debt-equity ratio, proper capital budgeting and judicious utilization of surplus profit for expansion is must.

viii. The entrepreneur must explore prospective markets through extensive research, find innovative marketing strategy, and maintain quality, adjust product mix to demand.

ix. The entrepreneur must provide required documents on land, financial transaction, balance sheet, further project analysis as required by the competent authority for approval.

x. The entrepreneur must be hopeful and remain positive in attitude while all situations.

- END OF REPORT -

Contact Us

National Institute of Food Technology, Entrepreneurship and Management (NIFTEM) - Thanjavur

(an Institute of National Importance under Ministry of Food Processing Industries, Government of India)

Pudukkottai Road, Thanjavur – 613005, Tamil Nadu,India

Ph: 04362-228155, Fax:04362-227971

Email: director@iifpt.edu.in Web: https://niftem-t.ac.in/