SUGARCANE JUICE MAKING PLANT

1. INTRODUCTION:

There has been increasing demand for soft drinks and fruit based beverages. Sugarcane juices can be one such drink which can be available for consumers in tetra pack or glass bottles or plastic bottles. Sugarcane is widely used in variety of products such as making *gur and khandsari.*India is among top five producers of Sugarcane. Sugarcane itself has lot of medicinal and curative properties.

2. PRODUCT & ITS APPLICATION:

Bottled or Tetra-Packed sugarcane juices can be very useful to consumers as it can be carried, store anywhere easily. 200 ml package can be useful for single person to consume easily and s/he can get good amount of nutrition compared to other beverages. It contains natural sugars, minerals like iron, magnesium, phosphorous, calcium and organic acids e.g. malic acid, succinic acid, acotinic acid, amino acid, protein, starch, gums, waxes, non-sugar phosphatides.

3. DESIRED QUALIFICATIONS FOR PROMOTER:

Successful running this project does not require any specific qualification.

4. INDUSTRY LOOKOUT AND TRENDS

Sugarcane juice is traditionally sold in India by roadside vendors, often in unhygienic conditions. That's why a few entrepreneurs have taken the initiative venturing into the marketing of branded sugarcane juice through a chain of franchised outlets. Initial indications are that this model is headed for success. Pune, Kolhapur, more known for its

leather chappals, has also been blessed with an abundance of milk, water and sugar, which has made the region the nation's kitchen for many years. The Warana milk producers' cooperative located here has lived up to this reputation. It has been a contract manufacturer for products such as Cadbury's Bourn vita, butter for Britannia Industries and Soya milk for Ruchi Soya. Now, the cooperative is preparing to assert its own identity through the launch of Warana Joy, its national brand. Among its new products is sugarcane juice in aseptic packs (Tetra Pak). This article outlines the development of this business; the opportunities and threats faced and also offer suggestions for the growth in this market.

5. MARKET POTENTIAL AND MARKETING ISSUES, IF ANY:

Currently, street vendors crush sugarcane and prepare juice and serve in unhygienic way. There is great market potential for bottled or tetra-packed sugarcane juice like any other fruit based beverages or soft drink.

6. RAW MATERIAL REQUIREMENTS:

Sugarcane is the basic raw material required. For packaging, business owner can use glass bottles or tetra-pack as per customer’s preference and acceptance in market.

7. MANUFACTURING PROCESS:

Fresh, juicy and fully mature sugarcane, which is free from insect and fungal attack or any other blemish, is taken for extracting the juice. The juice so obtained is clarified and filtered to get a clear solution. Required quantities of permitted preservatives, additives and flavours are added. The process should be carried out under hygienic conditions. The sugarcane juice beverage is stored in 200 mL bottles and crown corked. The bottles and crown cork closures should conform to ISI standards.

Typical Process Flow:

Sugarcane → Cleaning → Soaking → Washing → Crushing → Filtering → Homogenization → Bottling → Pasteurization → Cooling →Storage

8. MANPOWER REQUIREMENT:

The enterprise requires 10employees as detailed below**:**

Sr. No.	Designation of Employees	Salary Per Person	Monthly Salary ₹	Number of employees required				
				Year-1	Year-2	Year-3	Year-4	Year-5
	Variable Labour: Workers							
1	Operator	₹ 10,000.00	₹ 20,000.00	2	2	2	2	2
2	Un Skilled Workers	₹ 8,000.00	₹ 48,000.00	6	6	6	8	8
	sub-total		₹ 68,000.00	8	8	8	10	10
	Fixed Staff:							
1	Accountant	₹ 12,000.00	₹ 12,000.00	1	1	1	1	1
2	Store Keeper	₹ 8,000.00	₹ 8,000.00	1	1	1	1	1
3	Sales Staff	₹ 12,000.00	₹ 36,000.00	3	3	3	4	4
	sub-total		₹ 56,000.00	5	5	5	6	6
	Total		₹ 1,24,000.00	13	13	13	16	16

9. IMPLEMENTATION SCHEDULE:

The project can be implemented in 8months' time as detailed below:

Sr. No.	Activity	Time Required *(in months)*
1	Acquisition of premises	1.00

2	Construction (if applicable)	2.00
3	Procurement & installation of Plant & Machinery	2.00
4	Arrangement of Finance	1.50
5	Recruitment of required manpower	1.50
	Total time required *(some activities shall run concurrently)*	8.00

10. COST OF PROJECT:

The project shall cost ₹ 79.64 lacs as detailed below:

Sr. No.	Particulars	₹ in Lacs
1	Land	2.00
2	Building	2.00
3	Plant & Machinery	10.35
4	Furniture, other Misc Equipments	0.50
5	Other Assets including Preliminary / Pre-operative expenses	1.04
6	Margin for Working Capital	63.75
	Total	**79.64**

11. MEANS OF FINANCE:

Bank term loans are assumed @ 75% of project cost. The proposed funding pattern is as under:

Sr. No.	Particulars	₹ in Lacs
1	Promoter's contribution	19.91
2	Bank Finance	59.73
	Total	**79.64**

12. WORKING CAPITAL CALCULATION:

The project requires working capital of ₹ 63.75 lacs as detailed below:

Sr. No.	Particulars	Gross Amt	Margin %	Margin Amt	Bank Finance
1	Inventories	31.88	0.25	7.97	23.91
2	Receivables	15.94	0.25	3.98	11.95
3	Overheads	15.94	100%	15.94	0.00
4	Creditors	-		0.00	0.00
	Total	63.75		27.89	35.86

13. LIST OF MACHINERY REQUIRED:

A detail of important machinery is given below:

Sr. No.	Particulars	UOM	Qtty	Rate (₹ in Lacs)	Value (₹ in Lacs)
	Plant & Machinery / equipments				
a)	***Main Machinery***				
1	Sugarcane juice making machine includes cutting, peeling, crushing and juice making	Nos	1	₹ 7.50	₹ 7.50
2	Bottle/Tetra pack Filling	Nos	1	₹ 2.00	₹ 2.00
3	Material Handling Equipments	Nos	1	₹ 0.50	₹ 0.50
4	Weighing Scale	Nos	1	₹ 0.20	₹ 0.20
5	Misc Tools	LS		₹ 0.15	₹ 0.15
	sub-total Plant & Machinery				**₹ 10.35**
	Furniture / Electrical installations				
Sr. No.	**Particulars**	**UOM**	**Qtty**	**Rate (₹ in Lacs)**	**Value (₹ in Lacs)**
1	Office furniture and Electrification	LS	1	₹ 0.50	₹ 0.50
	sub total				**₹ 0.50**
	Other Assets				
1	preliminary and preoperative	LS		1.04	₹ 1.04
	sub-total Other Assets				**₹ 1.04**
	Total				**₹ 11.89**

All the machines and equipments are available from local manufacturers. The entrepreneur needs to ensure proper selection of product mix and proper type of machines and tooling to have modern and flexible designs. It may be worthwhile to look at reconditioned imported machines, dies and tooling. Some of the machinery and dies and tooling suppliers are listed here below:

1. Fry-Tech Food Equipments Private Limited
   S. No. 4, Raviraj Industrial Estate,
   Bhikhubhai Mukhi Ka Kuwa Bharwadvash,
   Ramol, Ahmedabad - 380024,
   Gujarat, India

2. Hindustan Vibrotech Pvt. Ltd.
Office No. 2, Ground Floor,
   Vrindavan Building, Vile Parle East,
Mumbai – 400057,
   Maharashtra, India

3. Electrons cooling systems Pvt. Ltd.
   S-27, SIDCO Industrial Estate
   Kakkalur Industrial Estate
   Tiruvallur – 602003,
   Tamil Nadu, India

4. Springboard Enterprises India Ltd.
1st, 2nd & 3rd Floor,
   Plot No. 7, 8 & 9,
   Garg Shopping Mall,
   Service Centre, Rohini Sector 2
   New Delhi – 110085,
   Delhi, India

5. Flour Tech Engineers Private Limited
   Plot No. 182, Sector 24,
   Faridabad - 121005,
   Haryana, India

6. P Square Technologies
   3, Swami Mahal,
   Gurunanak Nagar,
   Off. Shankarsheth Road Bhavani Peth,
   Pune - 411002,
   Maharashtra, India

7. Ricon Engineers
   10 To 13, Bhagwati Estate,
   Near Amraiwadi Torrent Power,
   Behind Uttam Dairy,
   Rakhial, Ahmedabad - 380023,
   Gujarat, India

8. Kamdhenu Agro Machinery
   Plot No. 6, Near Power House,
   Wathoda Road Wathoda,
   Nagpur - 440035,
   Maharashtra, India

14. PROFITABILITY CALCULATIONS:

Sr. No.	Particulars	UOM	Year-1	Year-2	Year-3	Year-4	Year-5
1	Capacity Utilization	%	60%	70%	80%	90%	100%
2	Sales	₹. In Lacs	180.00	210.00	240.00	270.00	300.00
3	Raw Materials & Other direct inputs	₹. In Lacs	160.45	187.19	213.93	240.67	267.41

4	Gross Margin	₹. In Lacs	19.55	22.81	26.07	29.33	32.59
5	Overheads except interest	₹. In Lacs	15.94	16.94	18.93	19.53	19.93
6	Interest @ 10 %	₹. In Lacs	5.97	5.97	3.98	2.99	2.39
7	Depreciation @ 30 %	₹. In Lacs	7.25	5.18	3.62	2.59	2.33
8	**Net Profit before tax**	₹. In Lacs	**-9.61**	**-5.28**	**-0.47**	**4.23**	**7.94**

The basis of profitability calculation:
This unit will have capacity of 6 Lacs - Bottles/Packs per Annum. The growth of selling capacity will be increased 10% per year. (This is assumed by various analysis and study, it can be increased according to the selling strategy.)

Energy Costs are considered at Rs 7 per Kwh and fuel cost is considered at Rs. 65 per litre. The depreciation of plant is taken at 10-12 % and Interest costs are taken at 14 -15 % depending on type of industry.

15. BREAKEVEN ANALYSIS:

The project shall reach cash break-even at 68.48 % of projected capacity as detailed below:

Sr. No.	Particulars	UOM	Value
1	Sales at full capacity	₹. In Lacs	300.00
2	Variable costs	₹. In Lacs	267.41
3	Fixed costs incl. interest	₹. In Lacs	22.32
4	BEP = FC/(SR-VC) x 100 =	% of capacity	68.48%

16. STATUTORY / GOVERNMENT APPROVALS

The Ministry of Food Processing Industries has been operating several plan schemes for the development of processed food sector in the country during the 10th Plan. One of the schemes relates to the Technology Up-gradation/ Establishment/ Modernization of food processing industries.

The Indian food processing industry is regulated by several laws which govern the aspects of sanitation, licensing and other necessary permits that are required to start up and run a food business. The legislation that dealt with food safety in India was the Prevention of Food Adulteration Act, 1954 (hereinafter referred to as "**PFA**"). The PFA had been in place for over five decades and there was a need for change due to varied reasons which include the changing requirements of our food industry. The act brought into force in place of the PFA is the Food Safety and Standards Act, 2006 (hereinafter referred to as "**FSSA**") that overrides all other food related laws.

FSSA initiates harmonization of India's food regulations as per international standards. It establishes a new national regulatory body, the Food Safety and Standards Authority of India (hereinafter referred to as "**FSSAI**"), to develop science based standards for food and to regulate and monitor the manufacture, processing, storage, distribution, sale and import of food so as to ensure the availability of safe and wholesome food for human consumption. Entrepreneur may contact State Pollution Control Board where ever it is applicable.

All food imports will therefore be subject to the provisions of the FSSA and rules and regulations which as notified by the Government on 5th of August 2011 will be applicable.

Key Regulations of FSSA

A. Packaging and Labeling

B. Signage and Customer Notices

C. Licensing Registration and Health and Sanitary Permits

17. BACKWARD AND FORWARD INTEGRATIONS

The objective of the scheme is to provide effective and seamless backward and forward integration for processed food industry by plugging the gaps in supply chain in terms of availability of raw material and linkages with the market. Under the scheme, financial assistance is provided for setting up of primary processing centres/ collection centres at farm gate and modern retail outlets at the front end along with connectivity through insulated/ refrigerated transport.

The Scheme is applicable to perishable horticulture and non-horticulture produce such as, fruits, vegetables, dairy products,meat,poultry,fish,Ready to Cook Food Products,Honey,Coconut,Spices,Mushroom,Retails Shops for Perishable Food Products etc.The Scheme would enable linking of farmers to processors and the market for ensuring remunerative prices for agri produce.

The scheme is implemented by agencies/ organizations such as Govt. / PSUs/ Joint Ventures/ NGOs/ Cooperatives/ SHGs / FPOs / Private Sector / individuals etc.

Backward Linkage:

- Integrated Pack-house(s) (with mechanized sorting & grading line/ packing line/ waxing line/ staging cold rooms/cold storage, etc.)
- Pre Cooling Unit(s)/ Chillers
- Reefer boats
- Machinery & equipment for minimal processing and/or value addition such as cutting, dicing, slicing, pickling, drying, pulping, canning, waxing, etc.
- Machinery & equipment for packing/ packaging.

Forward Linkage:

- Retail chain of outlets including facilities such as frozen storage/ deep freezers/ refrigerated display cabinets/cold room/ chillers/ packing/ packaging, etc.
- Distribution center associated with the retail chain of outlets with facilities like cold room/ cold storage/ ripening chamber.

18. TRAINING CENTERS AND COURSES

There are few specialized Institutes provide degree certification in Food Technology, few most famous and authenticate Institutions are as follows:

1. Indian Institute of Food Science & Technology,

Plot No.1, Near Maa-Baap ki Dargah,Opp to Nath Seeds,
Paithan Road Aurangabad
Aurangabad - 431005
Maharashtra, India

2. MIT College of Food Technology, Pune
   Gate.No.140, Raj Baugh Educational Complex,
   Pune Solapur Highway,
   Loni Kalbhor, Pune – 412201
   Maharashtra, India

3. CSIR - Central Food Technological Research Institute (CFTRI)
   Cheluvamba Mansion, Opp. Railway Museum,
   Devaraja Mohalla, CFTRI Campus, Kajjihundi, Mysuru
   Karnataka – 570020

Udyamimitra portal (link : www.udyamimitra.in) can also be accessed for handholding services viz. application filling / project report preparation, EDP, financial Training, Skill Development, mentoring etc.

Entrepreneurship program helps to run business successfully is also available from Institutes like Entrepreneurship Development Institute of India (EDII) and its affiliates all over India.

Disclaimer:

Only few machine manufacturers are mentioned in the profile, although many machine manufacturers are available in the market. The addresses given for machinery manufacturers have been taken from reliable sources, to the best of knowledge and contacts. However, no responsibility is admitted, in case any inadvertent error or incorrectness is noticed therein. Further the same have been given by way of information only and do not carry any recommendation.