Project profile of fruits & vegetables

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PROJECT PROFILE
DEHYDRATION OF FRUITS & VEGETABLES

1. INTRODUCTION

Fruits & Vegetables are available during specific seasons and they are perishable. Hence, majority of them are not available during off season. To overcome this problem, dehydration technique has been developed by which fruits & vegetables in dehydrated form are preserved for a longer period and are made available during off-season. With this technology, certain high value and popular fruits & vegetables can be profitably sold in the market.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The all-important raw material will obviously be fresh fruits & vegetables. Hence, the location of the project has to be nearer to fruits & vegetable growing areas. Depending upon the availability of vegetables during different seasons, the product mix may change. Likewise the prices of raw material would also change depending upon the exact product mix and crop pattern. Prices of vegetables vary and the product mix may also change according to quantum of crop and consumer preference . Hence, it is not feasible to arrive at variety-wise fruit & vegetable required every month and their

individual prices. Therefore, average price of each vegetable is taken at Rs. 10000/- per ton. The packing materials will be plastic bags made from suitable grades plastic, corrugated boxes, box strapping, labels etc. Total production of fruits in the country is estimated to be 805.57 lacs ton /year whereas total production of fruits in West Bengal is estimated to be 31.36 lacs ton /year.

4. MARKET OPPORTUNITIES

a) Demand and Supply

Food habits of Indians are such that most of the households prepares vegetable every day. Due to climatic condition and types of soil, many fruits & vegetable are cultivated throughout the year. The major limitation of bulk of the green fruits & vegetable is that they are grown only during pre-determined season which lasts for 3-4 months and thus their availability during rest of the months is a major problem. Hence, if they are made available during this period then they command premium. Green house method enables cultivation of any vegetable during any season but call for huge investment which affects the economic viability. Dehydration technique is therefore, preferred. Total export of dehydrated fruits & vegetable from India during the year 2010-11, 2011-12 and 2012-13 is estimated at Rs.51563.00 lacs, Rs. 70232.00 lacs and Rs. 86390.00 lacs respectively.

b) Marketing Strategy

With growing income, changing lifestyles and hectic daily schedule, market for dehydrated vegetables is growing especially in urban areas. Proper placement of products in the departmental stores, super markets, shopping mall etc. backed up by publicity is the key to success . It is also possible to have tie-up with exclusive restaurants, star hotels, renowned caterers etc. for regular supplies.

5. PROJECT DESCRIPTION

a) Product & Its uses

Dehydration technology is well established and proven. Certain products like green peas, cauliflower, carrots, spinach etc. command good price during lean and off-season. Onion and garlic powder also has good demand round the year but these products are generally available throughout the year and powder is somehow not favoured by the Indians.. This project can be set up in many parts of the country but this note considers West Bengal as the preferred location.

b) Capacity

The proposed capacity of the plant is to process 600 MT / annum of fruits & vegetables.

c) Manufacturing process

This note primarily consider dehydration of cabbage, cauliflower, spinach and carrots. Other suitable vegetables can also be thought of. In case of cauliflowers, they are chopped to make small pieces and washed. Then they are blanched and dried in air. Spinach leaves are separated from the stalk, washed and dried in the drier. As regards carrots, they are washed, scrapped and cubed after washing. Cubes are them blanched and dried . These dehydrated vegetables are then packed and stored carefully. Packing is very critical as any fungal growth would damage the product. Process and weight loss varies from vegetable to vegetable, but on an average it is 25 % as the vegetables are dehydrated. In other words, the input-output ration is 4:1.

6. PROJECT COMPONENTS & COST

a) Land & Building

The plot of about 500 sq. mtrs is required. The built up area requirement will be 220 sq. mtrs. Storage of vegetables would require area of 35 sq. mtrs, whereas packing room and finished good godown will occupy about 60 sq. mtrs. Vegetable washing tanks could be constructed adjacent to the raw material godown with asbestos sheets.

Main production hall will be of around 100 sq. mtrs. and balance 25 sq. mtrs could be allotted for office and laboratory. The entire area has to be neat and clean and completely hygienic. Considering price of land @ Rs. 500/- per sq. mtr. the total cost of land would be Rs. 2.50 lacs whereas that of civil work it will be Rs. 13.20 lacs. Construction cost is taken on a higher side as flooring, painting etc. of the building has to be of superior quality to maintain hygienic standards.

b) Plant & Machinery

Easy and regular availability of fresh vegetables during each season and nearby urban markets are the critical aspects for arriving at the installed production capacity for the purpose of this note and with a view to minimizing initial capital investment. The rated capacity is taken at 600 tons and 300 working days. The following machine shall be required.

(Rs. in lacs)

Item	**Qty**	**Price**
Washing tanks with sets of cubers , slicers, etc,	2	1.00
Blanching tank with thermostat control	1	2.50
Stacking trays for vegetables	1	0.50
Pre-cooling facility for vegetables	1	2.50
Vibratory shakers	1	1.20
Fluidized bed dryer to dehydrate vegetables complete with all attachments	1	7.00
Hot water boiler with attachments	1	2.50
Automatic form, fill and seal machines complete with attachments	1	3.75
Pin mill with accessories of 50 kgs /hr. capacity	1	4.25
Testing equipments	1 set	1.25
Electrification		2.00
	Total	**28.45**

c) Miscellaneous Assets

Other assets like storage racks and bins, aluminum top working tables, exhaust fans, furniture and fixtures, electrical, plastic trays/ jars / tubs, office equipment etc. shall be required for which a provision of Rs.3.25 lacs is made.

d) Utilities

Power requirement shall be 30 HP whereas water required for washing of vegetable and for potable and sanitary purposes will be 20000 litrs /day. Total cost of utilities is estimated to be Rs. 3.75 lacs.

e) Prel. & Pre Operative Expenses

There will be many expenses under this category like registration charges, market survey expenses, scrutiny fee of the financial institution, pre production administrative overheads including salaries, travelling, interest during construction and implementation period, trial run expenses and so on. Hence, a provision of Rs. 3.50 lacs is made.

f) Working Capital Assessment

As against rated capacity of 600 tons per year, capacity utilization of 60% is assumed in the first year. At this activity level, the project would require working capital of Rs. 7.09 lacs as worked out here below:

(Rs. in lacs)

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of Raw material & packing materials	½ month	25%	1.61	1.21	0.40
Stock of Finished Goods	½ month	25%	2.48	1.86	0.62
Receivable	½ month	25%	3.00	2.25	0.75
		Total	**7.09**	**5.32**	**1.77**

g) Project cost & Means of Finance

Item	**Amount (Rs. in lacs)**
Land and Building	15.70
Plant and Machinery	28.45
Miscellaneous Assets	3.25
P & P Expenses	3.50
Contingencies @ 10% on Building and plant and machinery	4.16
Working capital margin	1.77
Total	**56.83**
Means of Finance	
Promoters' contribution	22.73
Term loan from Bank / FI	34.10
Total	**56.83**
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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.

7) PROJECTED PROFITABILITY

a) Production Capacity

The rated production capacity of the plant is 600 tons per year whereas actual capacity utilization is expected to be 60% and 75% during 1st year and 2nd year respectively.

b) Sales Revenue at 100%

As explained above, there will not be exact sales mix every month. It will vary according to the availability of vegetables and their prices and consumer demand or

preferences . A firm tie-up with a large buyer may also change the sales mix. Hence, average price realization is taken at Rs. 90,000/- per ton or Rs. 120.00 lacs per year.

c) Raw Material Required at 100%

The total requirement of raw material such as cabbage, cauliflower, spinach and carrots is estimated at 600 MT/ annum.

Product	**Qty (Tons)**	**Rate (Rs. / Ton)**	**Value (Rs. in lacs)**
Vegetable	600	10,000	60.0
Packing Material			4.80
		Total	**64.80**

d) Profitability statement

(Rs. in lacs)

S. No.	Particulars	1st year	2nd year
A.	**Installed capacity**	**600 Tons**	
	Capacity Utilisation	60%	75%
	Sales Realisation	81	101.25
B.	**Cost of Production**		
	Raw & Packing Materials	38.80	48.60
	Utilities	2.25	2.81
	Salaries	11.16	12.27
	Stores and Spares	0.90	1.12
	Repairs and Maintenance	1.20	1.50
	Selling Expenses @ 5%	3.60	4.50
	Administrative Expenses	1.80	2.25
	Total	59.71	73.05
C.	**Profit before Interest & Depreciation**	**21.29**	**28.20**

	Interest on Term Loan	3.41	2.71
	Interest on Working Capital	0.63	0.79
	Depreciation.	4.16	3.74
	Net Profit	13.09	20.96
	Profit after tax	13.09	20.96
	Cash Accruals	14.65	20.60
	Repayment of Term Loan	Nil	7

e) Break Even Point Analysis

S. No.	**Particulars**	**Amount (Rs. in lacs)**	
(A)	**Sales**		**101.25**
(B)	**Variable Costs**		
	Raw Material	48.60	
	Utilities(70%)	**1.96**	
	Salaries (60%)	6.13	
	Stores and Spares	1.12	
	Selling and Distribution Exps (70%)	3.15	
	Admn Expenses (50%)	0.45	
	Interest on WC	0.79	62.20
(C)	**Contribution (A) – (B)**		**39.05**
(D)	**Fixed Costs**		**12.98**
(E)	**Break Even Point**		**34%**

f) Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st year	2nd year	3rd year
Cash Accruals	14.65	20.60	24.71
Interest on TL	3.45	2.71	2.00

Total (A)	**18.05**	**23.31**	**26.71**
Interest on TL	3.41	2.71	2.00
Repayment of TL	-	7.00	7.00
Total (B)	3.41	9.71	9.00
DSCR (A) / (B)	5.32	2.40	2.96
Average DSCR	3.56		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 56.83 lacs **(Rs. in lacs)**

Year	Cash Accruals	24%	28 %
1	18.05	14.54	14.09
2	23.31	15.15	14.21
3	26.71	13.99	12.74
4	26.71	11.29	9.96
5	26.71	9.10	7.71
6		64.07	58.71

The IRR is around 28%.

h) Manpower requirement

Particulars	**Nos.**	**Monthly salary**	**Total Monthly Salary (Rs.)**
Machine operator	2	8500	17,000
Skilled Worker	2	8500	17,000
Semi Skilled Workers	4	6000	24,000
Helpers	3	5000	15000
Laboratory Technician	1	8000	7000
Salesman	1	8000	8000
Clerk	1	7000	7000
		Total	**93,000**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 60% , 75%, 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.
- Price of raw material and selling price of finished products is taken at Rs. 10,000/ ton and Rs. 90,000/ ton respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

1. PENNWALT BERTUZZI
   J-19, Saket New Delhi -17
   Ph .011- 41764186 , 26522650 www.pennwalt.com
2. BAJAJ MASCHINEN PVT. LTD.
   7/20-27, Jai Lakhmi Industrial Estate, Site IV, Sahibabad Indl. Area,
   Distt. Ghaziabad (U.P.)
   120-4639950 -99, 4372848 Email : vp@bajajmachines.com
3. Best Engineering Technologies
   Plot No. 69 – A, No. 5-9-285/ 13, Rajiv Gandhi Nagar, Industrial Estate,
   Kukatpally, Hyderabad – 500037, www.Bestengineeringtechnologies.com
4. Mather and Platt (India) Ltd.,
   805-806, Ansal Bhavan, 16, Kasturba, Gandhi Marg, New Delhi – 110001
   Ph. 23712840 /41

PROJECT PROFILE
FRUIT JUICE

1. INTRODUCTION

Fruits are important source of energy for human-beings but they are perishable items. Hence since many years various products are made from juice of fruits so that they can be consumed during off season as well. Products like jam, jelly, squash etc. are made from fruits since long. With the advent of technology and preservatives, shelf life of such products has gone up and they can be preserved for many months with proper packing . The proposed location of this activity could be many centres in India as number of tropical fruits are grown in the country. However, this note deals with a project in West Bengal as several fruits like pineapples, mango, orange, guava litchi, papaya etc. are cultivated in large quantities. Hence, it is suggested to undertake fruit processing activity.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The all important raw material will be fresh, ripe and matured oranges and pineapples. The Eastern states including WB are famous for horticulture products. The highest fruit crop of WB is pineapple with production of more than 32.13 lacs tons / annum

whereas that of oranges and other citrus fruits is about 10.94 lacs tons/ annum. Thus availability of few hundred tons of fruits will not pose any problem. Other items like sugar, salt additives and preservatives etc. shall be available locally. Packing materials like food grade plastic or glass bottles, labels, corrugated boxes, BOPP tape etc. shall be required for which prior arrangement is advisable. Total production of fruits in West Bengal is estimated to be 313.63 lacs MT/ year.

4. MARKET OPPORTUNITIES

a) Demand and Supply

Fruits are liked by people of all age groups but they are available only during a specific season. Due to high water or juice contents, they are perishable. Certain fruits require very careful and consequently costly transportation. Hence many down- the- line products like squash, fruit-juice concentrates, jam, nectars etc. are made from fruits with preservative which increase their shelf-life substantially. Market for such products has witnessed a quantum jump during last few years and with growing urbanization, increase in disposable incomes and changing life styles, demand for them is steadily going up. Total export of orange juice from India during the year 2010 -11, 2011-12, and 2012-13 is estimated to be Rs. 329.98 lacs, Rs. 99.06 lacs and Rs. 160 .99 lacs respectively. Whereas export of pineapple juice from India during the year 2010 -11, 2011-12, and 2012-13 is estimated to be Rs. 22.16 lacs, Rs. 2.05 lacs and Rs. 25.76 lacs respectively.

b) Marketing Strategy.

There are some established brands available in the market but they are costly and hence people would prefer low cost, good quality products. It is possible to introduce competitive pricing for a small scale unit due to its inherent features. Proper care has to be taken in creating and maintaining adequate network.

5. PROJECT DESCRIPTION

a) Product & Its uses

Fruits are perishable in nature and for their preservation, they need to be processed to make juice, squashes, jams nectars etc. However, this note is restricted to making of orange and pineapple juice.

b) Capacity

The proposed capacity of the plant is to process 300 MT / annum of fruits.

c) Manufacturing process

The manufacturing process for making fruit juice is standardized and not very complicated or time consuming. CFTRI, Mysore, has successfully developed this technology. In the first process, fully ripe and matured fruits are washed, cleaned graded and then peeled. Thereafter juice is extracted from fruits and then it is filtered to remove seeds, fibres etc. This juice is then processed, sterilized and bottled after adding preservatives. In case of squash, syrup of sugar along with preservatives are added to juice and this mixture is stirred till uniform solution is formed and then it is bottled. As regards oranges, recovery of juice is substantial and weight and process loss is 10%. But in case of pineapple, wastages are around 50% . Process loss 5-6% is compensated by addition of 'sugar syrup.

6. PROJECT COMPONENTS & COST

a) Land & Building

Total requirement of built –up area shall be around 300 sq. mtrs. and hence land measuring about 500 sq. mtrs. will be adequate. The built –up area is adequate to have production, storage and packing facilities. Cost of land Rs. 75,000/- and that of civil work Rs. 18.00 lacs. FSSAI provisions about layout of factory building must be adhered too.

b) Plant & Machinery

In view of size of the market and to ensure economic viability of the project, rated production capacity of 300 tons per year and 300 working days is advisable. To install this capacity following machines shall be required:

(Rs. in lacs)

Item	**Qty**	**Price**
Fruit washing tanks	2	0.50
Juice Extractors	2	5.00
Steam Jacketed Kettles- 60 ltrs. capacity	2	1.50
Stirrer	1	0.25
Baby Boiler – 100 kgs/hr	1	3.50
Bottle washing and filling machine	1	3.00
Testing equipments like Refracto Meter Salinometer, pipette, Burette etc.		1.25
	Total	**15.00**

c) Miscellaneous Assets

Many other assets like stainless steel utensils, plastic, tubs exhaust fan, storage racks, furniture & fixtures, etc shall be needed. A provision of Rs. 3.00 lacs is made for the same.

d) Utilities

Power requirement will be 30 HP whereas per day water requirement would be 30000 liters for washing of fruits and for potable and sanitation purposes. Hard coke of around 25 tons will be required annually for boiler. The cost of utilities is estimated at Rs. 2.0 lacs.

e) Prel. & Pre Operative Expenses

There are certain expenses which are incurred prior to the commencement of production such as registration, establishment and other administrative expenses, interest during implementation and so on . A provision of Rs. 2,00,000/- is made towards them.

f) Working Capital Assessment

Against installed production capacity of 300 tons per year, actual capacity utilization in the first year is expected to be 65% . At this level of activity, the working capital needs will be as under :

(Rs. in lacs)

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of packing materials	1 month	30%	0.47	0.33	0.14
Stock of Finished Goods	½ month	25%	1.81	1.36	0.45
Receivable	½ month	25%	2.00	1.50	0.50
Stock of raw material	¼ month	25%	0.55	0.42	0.13
Total			**5.23**	**4.01**	**1.22**

g) Project cost & Means of finance

Item	**Amount (Rs. in lacs)**
Land and Building	18.75
Plant and Machinery	15.00
Miscellaneous Assets	03.00
P & P Expenses	02.00
Contingencies @ 10% on building and plant & machinery	3.30
Working capital margin	1.23
Total	43.28
Means of Finance	
Promoters' contribution	17.31
Term loan from Bank /FI	25.97

Total	43.28
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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.

7) PROJECTED PROFITABILITY

a) Production Capacity

The rated production capacity of the plant is 300 tons per year whereas actual capacity utilization is expected to be 60% and 75% during the 1st year & 2nd year respectively.

b) Sales Revenue at 100%

Product	**Qty (Tons)**	**Selling Price (Rs./Ton)**	**Sales (Rs. in lacs)**
Orange Juice	50	70,000	35.5
Pineapple juice	100	60,000	60.00
	Total		**95.50**

c) Raw Material Required at 100% *(Rs. in lacs)*

Product	**Qty (Tones)**	**Rate (Rs./Ton)**	**Value**
Oranges	100	20,000	20.00
Pineapples	200	12,000	24.00
Sugar	-	-	1.00
Additives, Preservatives, Flavours, etc	-	-	1.00
Packing Material@ Rs. 5000 /Ton	-	-	7.50
	Total		**53.50**

d) Profitability statement **(Rs. in lacs)**

S. No.	Particulars	1st year	2nd year
A.	**Installed capacity**	**300 Tones**	
	Capacity Utilisation	60%	75%
	Sales Realisation	57.00	71.25
B.	**Cost of Production**		
	Raw Materials	26.40	33.00
	Packing Materials	5.70	7.10
	Utilities	1.20	1.50
	Salaries	5.50	6.05
	Stores and Spares	0.60	0.75
	Repairs and Maintenance	0.90	1.12
	Selling Expenses @ 5%	2.40	3.00
	Administrative Expenses	0.90	1.12
	Total	43.60	53.69
C.	**Profit before Interest & Depreciation**	**13.40**	**17.56**
	Interest on Term Loan	2.59	2.09
	Interest on Working Capital	0.48	0.60
	Depreciation.	3.30	2.97
	Net Profit	7.03	14.19
	Profit after tax	7.03	14.19
	Cash Accruals	10.43	17.16
	Repayment of Term Loan	Nil	5.0

e) Break Even Point Analysis

S. No.	Particulars	Amount (Rs. in lacs)	
(A)	**Sales**		**71.25**
(B)	**Variable Costs**		
	Raw &Packing Material	40.10	
	Utilities(70%)	0.97	
	Salaries (60%)	3.93	
	Stores and Spares	0.75	
	Selling and Distribution Exps (70%)	2.25	
	Admn Expenses (50%)	0.56	
	Interest on WC	0.60	49.16
(C)	**Contribution (A) – (B)**		**22.09**
(D)	**Fixed Costs**		**7.15**
(E)	**Break Even Point**		**33 %**

f) Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st year	2nd year	3rd year
Cash Accruals	10.43	17.16	20.59
Interest on TL	2.59	2.09	1.59
Total (A)	**13.02**	**19.25**	**22.18**
Interest on TL	2.59	2.09	1.59
Repayment of TL	-	5.00	5.00
Total (B)	2.59	7.09	6.59
DSCR (A) /(B)	5.02	2.71	3.36
Average DSCR	3.69		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 43.28 lacs

(Rs. in lacs)

Year	**Cash Accruals**	**24%**
1	10.43	8.34
2	17.16	11.15
3	20.59	10.78
4	20.59	8.70
5	20.59	7.02
Total		**45.99**

The IRR is around 24%.

h) Manpower requirement

Particulars	**Nos.**	**Monthly**	**Total Monthly Salary (Rs.)**
Skilled Worker	2	7,500	15,000
Semi Skilled Workers	2	6,000	12,000
Helpers	4	5,000	20,000
Salesman	1	8,000	8,000
		Total	**55,000**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 60% , 75%, 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.
- Price of pineapple and orange is taken at Rs. 12, 000 / ton and Rs, 20,000/ ton respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

1. PENNWALT BERTUZZI
   J-19, Saket New Delhi -17
   Ph .011- 41764186 , 26522650 www.pennwalt.com

2. BAJAJ MASCHINEN PVT. LTD.
   7/20-27, Jai Lakhmi Industrial Estate, Site IV, Sahibabad Indl. Area,
   Distt. Ghaziabad (U.P.)
   120-4639950 -99, 4372848 Email : vp@bajajmachines.com

3. Best Engineering Technologies
   Plot No. 69 – A, No. 5-9-285/ 13, Rajiv Gandhi Nagar, Industrial Estate,
   Kukatpally, Hyderabad – 500037, www.Bestengineeringtechnologies.com

4. Mather and Platt (India) Ltd.,
   805-806, Ansal Bhavan, 16, Kasturba, Gandhi Marg, New Delhi – 110001
   Ph. 23712840 /41

PROJECT PROFILE
INSTANT DRIED PICKLES

1. INTRODUCTION

Pickling is the process by which fresh fruits and vegetables are preserved and with the addition of salt, chilly and spices, a tasty preparation known as pickle is made . Pickles are also good appetizers and digestive agents. There are several varieties of pickles and they are consumed throughout the year by people from all walks of life unimaginable quantities of pickles are consumed round the year. On an average, each family consumes about 2 kgs. of pickles every year. Sensing this potential, CFTRI has successfully developed and standardized a process of making instant pickle mixes. With addition of oil and water, fresh pickles can be made from these mixes.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

Many material like raw mangoes, lemons, green chillies, carrots etc. shall be required. Since except green chillies and lemons, all other products are available only during certain seasons, they should be cured and dehydrated during the season and stored properly for use during off season . Dry spices like red chilies, turmeric, mustard etc.

are available round the year and quantity required is also very small. Printed polythene bags will be required for packing for which proper arrangement has to be made.

4. MARKET OPPORTUNITIES

a) Demand and supply

This is comparatively a new concept and the promoters should have the required background and expertise . Marketing would involve selling of concept at least initially. Proper market research has to be carried out before finalizing the project.

b) Marketing strategy

This concept would appeal to many consumers especially the urban and semi-urban middle, upper middle class and rich families. Apart from neat and clean product and hassle-free packing the consumers can have different varieties at different times without bothering about storage of many varieties of ready pickles. Restaurants, small eateries and road-side dhabas would also prefer it as they need not store their requirement for a longer period, savings in investment and storage space too. Thus, the product would certainly appeal to certain segment of consumers and they need to be approached for market analysis. Initial publicity and placement of products must be planned systematically. A combination of consumer packing and bulk packing may also be thought of.

5. PROJECT DESCRIPTION

a) Product & Its uses

Instant pickle mix is a dry mix which can be converted to pickle with the addition of water and edible oil in the required quantity in about 8-9 hours. Thus, this product is easy to pack, handle and transport. Presently this technology has been developed for mango and lime. This project can be set up in any part of the country but this note considers West Bengal as the location.

b) Capacity

The proposed capacity of the plant is to process 90 MT / annum of Instant pickle mixes.

c) Manufacturing process

Fully grown and fresh raw mangoes, lemon and other fruits and vegetables are washed in water and then cut into the required size . Then they are cured by bringing them for about 7-8 hours and are dehydrated in dryer. Simultaneously, dry spices like red chillies , turmeric, mustard etc. are grounded separately and are mixed with cured and dried pieces of mangoes, lemon or other fruits and vegetables. Finally, they are packed in polythene bags as per pre determined quantity (sales-mix) and sealed. Weight loss due to dehydration would be in the range of 10% to 15%. The consumer has to soak this dry mix with the suggested quantity of water and oil for around 8 hours and the pickle is ready.

6. PROJECT COMPONENTS & COST

a) Land & Building

A building of around 60 sq. mtrs be bought to save on capital cost of land. This may cost Rs. 3.60 lacs. Production area would need around 30 sq. mtrs. and storage and packing area would occupy the remaining space.

b) Plant & Machinery

Proposed production capacity would determine the requirement of machines. Assuming rated capacity of 90 tons per year with 300 working days on single shift per day, the following machines are suggested :

Item	**Qty**	**Price (Rs. in lacs)**
Electrically operated Tray-dryer with 48 trays	1	5.00
Spice grinding mill	1	2.50

Frying pans, SS knives and cutters, SS utensils etc.	-	1.50
Weighing – scales and Heat sealing machines	-	2.00
	Total	11.00

c) Miscellaneous Assets

Some other assets like furniture and fixture, plastic crates & tubs, working tables, storage racks etc. shall also be required for which a provision of Rs. 2.50 lacs is adequate.

d) Utilities

Power requirement shall be 15 HP whereas per day water requirement shall be 1000 ltrs. for washing of fruits or vegetables and for potable and sanitation purposes. The cost of utilities is estimated around Rs. 1.65 lacs.

e) Prel. & Pre Operative Expenses

Many expenses shall have to be incurred prior to commercial production like market survey, registration , establishment and administrative expenses, trial run expenses, interest during implementation, travelling etc. A provision of Rs. 1.50 lacs should be adequate.

f) Working Capital Assessment

Capacity utilization in the first year is assumed to be 50%. To achieve this level, following working funds will be needed.

(Rs. in lacs)

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of Finished Goods	½ month	25%	1.27	0.95	0.32
Receivable	½ month	25%	1.56	1.21	0.35
Raw material	½ month	30%	1.67	1.17	0.50
Total			**4.50**	**3.33**	**1.17**

g) Project cost & Means of finance

Item	**Amount (Rs. in lacs)**
Land and Building	3.60
Plant and Machinery	11.00
Miscellaneous Assets	2.50
P & P Expenses	1.50
Contingencies @ 10% on Building and plant and machinery	1.46
Working capital margin	1.17
Total	21.23
Means of Finance	
Promoters' contribution	8.49
Term loan from Bank FI	12.74
Total	21.23
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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.

7) PROJECTED PROFITABILITY

a) Production Capacity

As against the rated capacity of 90 tons per year , the plant is assumed to operate at 50% in the first year as marketing and product acceptance would take some time. Second year onwards it is assumed to be 70%.

b) Sales Revenue at 100%

Assuming selling prices of Rs. 1.00 lacs per ton sales income for 75 tons would be Rs. 75.00 lacs.

c) Raw Material Required at 100%

Total requirement of raw material such as raw mangoes and lemon is estimated to be 90 tons/ year. In addition to this, other material such as salt, spices and plastic bag would also be required.

(Rs. in lacs)

Product	**Qty (Tones)**	**Rate (Rs./ Ton)**	**Value**
Raw Mangoes	45	25,000	11.25
Raw lemon	45	40,000	18.00
Salt & Spices	-	-	5.00
Plastic Bags Corrugated Boxes etc.	-	-	6.00
	Total		**40.25**

d) Profitability statement

(Rs. in lacs)

S. No.	Particulars	1st year	2nd year
A.	**Installed capacity**	**90 Tones**	
	Capacity Utilisation	50%	70%
	Sales Realisation	37.50	52.50
B.	**Cost of Production**		
	Raw material & packing Materials	20.12	28.17
	Utilities	1.00	1.40
	Salaries	3.66	4.00
	Stores and Spares	0.50	0.70
	Repairs and Maintenance	0.75	1.05
	Selling Expenses @ 10%	3.75	5.25
	Administrative Expenses	0.75	1.05
	Total	30.53	41.62

C.	**Profit before Interest & Depreciation**	**6.97**	**10.88**
	Interest on Term Loan	1.27	0.97
	Interest on Working Capital	0.40	0.56
	Depreciation.	1.46	1.31
	Net Profit	3.84	8.04
	Profit after tax	3.84	8.04
	Cash Accruals	5.3	9.35
	Repayment of Term Loan	NIL	3.0

e) Break Even Point Analysis

S. No.	**Particulars**	**Amount(Rs. in lacs)**	
(A)	**Sales**		**52.50**
(B)	**Variable Costs**		
	Raw material & packing Material	28.17	
	Utilities(70%)	0.98	
	Salaries (60%)	2.80	
	Stores and Spares	0.70	
	Selling and Distribution Exps (70%)	3.67	
	Admn Expenses (50%)	0.52	
	Interest on WC	0.56	
(C)	**Contribution (A) – (B)**		**15.10**
(D)	**Fixed Costs**		**5.73**
(E)	**Break Even Point**		**38%**

f) Debt Service Coverage Ratio (DSCR) *(Rs. in lacs)*

Particulars	**1st year**	**2nd year**	**3rd year**
Cash Accruals	5.30	9.35	12.02
Interest on TL	1.27	0.97	0.67

Total (A)	6.57	10.32	12.69
Interest on TL	1.27	0.97	0.67
Repayment of TL	Nil	3.0	3.00
Total (B)	1.27	3.97	3.67
DSCR (A) / (B)	5.17	2.59	3.45
Average DSCR	3.73		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 21.23 lacs (Rs. in lacs)

Year	**Cash Accruals**	**20%**	**24%**
1	5.30	4.41	4.27
2	9.35	6.40	6.07
3	12.02	6.95	6.29
4	12.02	5.79	5.08
Total		23.55	21.71

The IRR is around 24%.

h) Manpower requirement

Particulars	**Nos.**	**Monthly**	**Total Monthly Salary (Rs.)**
Skilled Worker	1	7,500	7,500
Helpers	3	5,000	15,000
Salesman	1	8,000	8,000
		Total	**30,500**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 50% , 70%, 90 % during 1st year , 2nd year and 3rd year respectively.

- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.
- Price of raw material i.e. mango Rs.25000/ ton and lemon Rs. 40,000/ton and selling price of finished products is taken at Rs. 1,00,000 / ton.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

1. PENNWALT BERTUZZI
   J-19, Saket New Delhi -17
   Ph .011- 41764186 , 26522650 www.pennwalt.com

2. BAJAJ MASCHINEN PVT. LTD.
   7/20-27, Jai Lakhmi Industrial Estate, Site IV, Sahibabad Indl. Area,
   Distt. Ghaziabad (U.P.)
   120-4639950 -99, 4372848 Email : vp@bajajmachines.com

3. Best Engineering Technologies
   Plot No. 69 – A, No. 5-9-285/ 13, Rajiv Gandhi Nagar, Industrial Estate,
   Kukatpally, Hyderabad – 500037, www.Bestengineeringtechnologies.com

4. Mather and Platt (India) Ltd.,
   805-806, Ansal Bhavan, 16, Kasturba, Gandhi Marg, New Delhi – 110001
   Ph. 23712840 / 41

PROJECT PROFILE
JAM / JELLY/MARMALADE

1. INTRODUCTION

Jam / Jelly /marmalade are made from fruits and they are being made since long in different forms. The methods of production were not very sophisticated but these products were made in conventional manner in many homes. Since availability of fruits is only seasonal, mankind had found out various ways to preserve them for consumption during off- season . Thus, jam & jelly were popular, albeit in different forms since long. With fruit processing techniques being modernized, we see them in present day refined version. But this note is about producing these products with conventional methods on a very small scale.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The major raw material required will be fresh fruits. Pineapple, orange and jackfruit are known fruits but there are many other fruits grown in this region like orange, litchi, guava, mango, and so on. Since annual requirement of each fruit will not be more much, no difficulty is envisaged on this front. Other materials like sugar, pectin, citric

acid, food grade colours, flavours etc. are available locally without any difficulty. Production of mango, orange and pineapple in the state is estimated to be 6.90 lacs MT, 10.94 lacs MT and 32.13 lacs MT / annum respectively.

4. MARKET OPPORTUNITIES

a) Demand and supply

Jam & Jelly are used in homes as well as restaurants and other eateries. These items are mainly consumed in urban areas. But these products are very popular in the Eastern region of India and the consumption is increasing year after year. Presently, there are many small units producing these products in the state and there is a wide gap between demand and supply which is met by the manufacturers from outside the region. Export of jam & jelly from India during the year 2010 -11, 2011-12, and 2012-13 is estimated to be Rs. 26560.00 lacs, Rs. 39758.00 lacs and Rs. 46122 lacs respectively.

b) Marketing Strategy

There are many locally grown and popular fruits from which these products can be made but this aspect is still unexplored. Still, few small scale units can certainly be set up. The thrust has to be on the taste palatable to local demand and hence there is a very good scope for imagination. Product mix may have to be changed from time to time. Informal test marketing can also be undertaken to ascertain feedback and accordingly some modifications may have to be done. The objective is filling the gap in terms of consumer preference rather than offering a standard product.

5. PROJECT DESCRIPTION

a) Product & Its uses

Jam & Jelly/ marmalade are made from fruits, fruit pulps or extracts. Jam is boiled fruit pulp with sugar and preservatives and is thick. Jelly is also made by boiling, but is clear, sparkling and transparent. These products are applied to some snacks or bread. They are also used in making certain desserts. They enjoy substantial shelf life and thus

can be made available round the year. These products can be produced in many states of the country. The state of West Bengal is kept in mind while preparing this note as availability of fruits round the year is necessary.

b) Capacity

The proposed capacity of the plant is to process 150 MT / annum of fruits.

c) Manufacturing process

Fresh fruit are washed in water and after removing their skin they are cut or sliced in small pieces. These pieces are boiled with water. Appropriate quantity of sugar is mixed with the pulp. When the temperature is around 60° C, citric acid, colour, essence etc. are added. This mixture is then stirred for a while , cooled and then packed in bottles.

6. PROJECT COMPONENTS & COST

a) Land & Building

The unit is planned on a very moderate scale and hence one should try to obtain constructed area of around 75 sq. mtrs . However, to ascertain the exact viability of the project, investment of Rs. 4,50,000/- is estimated for own building.

b) Plant & Machinery

It is envisaged that the conventional production techniques will be employed and hence there is no need to install a modern plant. Recommended installed production capacity is 150 tonnes per year on single shift working and 300 working days for which following machines / equipments need to be installed.

Item	**Qty**	**Price (Rs.)**
Pulper – 90 Kgs	1	2,50,000
Juice Extractors 150 ltrs.	2	3,00,000
Mixer / Grinder-50 kgs	2	1,00,000

Cap sealing machine	2	50,000
Slicers	4	50,000
Bottle washing machine	1	25,000
Total		**7,75,000**

c) Miscellaneous Assets

There will be requirement of some other assets like weighing scale, glassware, working table, canteen burners, stainless steel utensils. Hand gloves, cutters and graters, storage racks etc. for which a provision of Rs. 2,00,000/- is adequate. Testing equipment like jell meter, refractometer etc. would cost an additional amount of Rs. 50,000/-

d) Utilities

Power requirement would be 15 HP whereas daily requirement of water will be around 10,000 ltrs. In addition to this cooking gas shall be required : At 100% activity level per year, cost of utilities is estimated to be Rs. 4.25 lacs.

e) Prel. & Pre Operative Expenses

A provision of Rs. 1.50 lacs is made which can take care of expenses like establishment charges, interest during implementation, trial runs etc.

f) Working Capital Assessment

Against annual capacity of 150 tonnes, the plant is expected to be operated at 60% in the first year. To achieve this capacity utilization, the working capital needs would be as under :

(Rs. in lacs)

Particulars	Period	Margin	Total	Bank	Promoters
Stock of packing raw materials	½ month	30%	1.22	0.86	0.36
Stock of Finished Goods	½ month	25%	1.82	1.37	0.45
Receivable	1 month	25%	4.39	3.27	1.08
	Total		7.39	5.50	1.89

g) Project cost & Means of finance

Item	Amount (Rs. in lacs)
Land and Building	4.50
Plant and Machinery	7.75
Miscellaneous Assets	2.50
P & P Expenses	1.50
Contingencies @ 10% on Building and plant and machinery	1.22
Working capital margin	1.89
Total	19.36
Means of Finance	
Promoters' contribution	7.77
Term loan from Bank/ FI	11.59
Total	19.36
Debt Equity Ratio	1.5:1
Promoters contribution	40

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.

7) PROJECTED PROFITABILITY

a) Production Capacity

The installed production capacity at 100% shall be 60 tons of jam & jelly considering single shift working every day and 300 working days every year. The plant is envisaged to be operated at 60% in the first year and 75% thereafter.

b) Sales Revenue at 100%

As explained earlier, jam & jelly from different fruits including some locally grown and popular fruits shall be prepared and hence it is not feasible to arrive at the exact sales mix. This in turn, means that the selling price has to be worked out on an average basis. Therefore, the average selling price is assumed to be Rs. 145 / per .kg or Rs. 145000 / MT per ton. In other words, annual turnover at 100% could be Rs. 87 lacs.

c) Raw Material Required at 100%

It is suggested that jam & jelly should be made from some local fruits as this may be very well accepted by the natives. Hence, apart from fruits like pineapple, orange and guava, some other fruits shall also be required e.g mango, papaya , jackfruit etc. Fruits are grown during respective seasons and their prices vary depending upon the availability. Hence, average price per ton is taken @ Rs. 20,000. Juice and pulp contents also vary from fruit to fruit. Hence, it is assumed to be 40 %. Other material like sugar , essence, pectin, citric acid shall be available locally. Packing materials like food grade plastic/ glass bottle, polythene bags, corrugated boxes etc. shall be procured locally. Thus, at 100% activity level, the raw materials requirement shall be as under.

(Rs. in lacs)

Product	**Qty (Tones)**	**Rate (Rs./ Ton)**	**Value**
Fruits	150	20,000	30.00
Sugar	30	28,000	8.40
Pectin, Citric Acid etc.	-	-	1.50
Packing Material	-	-	9.00
Total			**48.90**

d) Profitability statement **(Rs. in lacs)**

S. No.	Particulars	1st year	2nd year
A.	**Installed capacity**	**150 Tones**	
	Capacity Utilisation	60%	70%
	Sales Realisation	52.20	65.25
B.	**Cost of Production**		
	Raw & Packing Materials	29.34	36.67
	Utilities	2. 55	3.18
	Salaries	4.50	4.95
	Repairs and Maintenance	0.90	1.12
	Selling Expenses @ 10%	5.22	6.52
	Administrative Expenses	1.20	1.50
	Total	43.71	53.94
C.	**Profit before Interest & Depreciation**	**8.49**	**11.31**
	Interest on Term Loan	1.15	0.90
	Interest on Working Capital	0.66	0.83
	Depreciation.	1.22	1.10
	Net Profit	5.46	8.48
	Profit after tax	5.46	8.48
	Cash Accruals	6.68	9.58
	Repayment of Term Loan	Nil	2.5

e) Break Even Point Analysis

S. No.	**Particulars**	**Amount (Rs. in lacs)**	
(A)	**Sales**		**65.25**
(B)	**Variable Costs**		
	Raw & Packing Material	36.67	

	Utilities(70%)	2.22	
	Salaries (75%)	3.71	
	Selling and Distribution Exps (80%)	5.21	
	Admn Expenses (50%)	0.75	
	Interest on WC	0.83	**49.39**
(C)	**Contribution (A) – (B)**		**15.86**
(D)	**Fixed Costs**		**6.25**
(E)	**Break Even Point**		**40%**

f) Debt Service Coverage Ratio (DSCR) ***(Rs. in lacs)***

Particulars	1st year	2nd year	3rd year
Cash Accruals	6.68	9.58	11.49
Interest on TL	1.15	0.90	0.65
Total (A)	7.83	10.48	12.14
Interest on TL	1.15	0.90	0.65
Repayment of TL	Nil	2.50	2.50
Total (B)	1.15	3.40	3.15
DSCR (A) / (B)	6.80	3.08	3.85
Average DSCR	4.57		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 19.31 lacs **(Rs. in lacs)**

Year	Cash Accruals	20%	28%
1	6.68	5.56	5.21
2	9.56	6.63	5.83
3	11.49	6.65	5.48
4	11.49	5.53	4.28
Total		**25.37**	**20.80**

The IRR is around 28%.

h) Manpower requirement

Particulars	Nos.	Monthly	Total Monthly Salary (Rs.)
Supervisor	1	8,000	8,000
Semi Skilled Worker	2	6,000	12,000
Helpers	2	5,000	10,000
Technician	1	7,000	7,000
Salesman	1	8,000	8,000
		Total	**45,000/-**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 60% , 75%, 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.
- Price of raw material and selling price of finished products is taken at Rs. 20,000 / ton and Rs. 1,45,000 / ton respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

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   Ph. 23712840 / 41

PROJECT PROFILE
SQUASH (NATURAL & SYNTHETIC)

1. INTRODUCTION

Fruits are an important source of energy for human-beings. But their availability is seasonal and they are perishable. Hence, they need to be processed and preserved which also results in value- addition. India produces many varieties of citrus fruit and the project can be set up in states like Maharashtra, Uttaranchal, HP and the Eastern states. The state of West Bengal is not an exception and many fruits like pineapple, orange, lemon, mango etc. are grown in large quantities. Hence fruit squash making activity on small scale is suggested.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The all-important raw material will be fresh fruit. The North-East region grows many fruits. West Bengal also has many varieties of fruits like pineapple, orange, jack-fruit, guava etc. There are some special varieties of fruits like mango, lemon, guava, litchi etc. and squash of these fruits could be very popular with the locals. Other materials required will be sugar, additives, preservatives etc. Packing materials like food grade plastic / glass bottles, polythene bags and corrugated boxes shall also be required.

4. MARKET OPPORTUNITIES

a) Demand and supply

Fruits are popular amongst all age groups but their availability is limited during season only which lasts for a period of 3-4 months for most of the fruits. Hence, squashes are becoming popular. They are sold at many places like provision and departmental stores, cold drink centres, restaurants etc. and since they have a longer shelf life, consumers prefer them. Yet another feature is that they are very easy to make . Only required quantity of water is to be added. . Total export of orange squash from India during the year 2010 -11, 2011-12, and 2012-13 is estimated to be Rs. 133.80 lacs, Rs. 258.95 lacs and Rs. 59.98 lacs respectively. Whereas export of pineapple squash from India during the year 2010 -11, 2011-12, and 2012-13 is estimated to be Rs.31.21 lacs, Rs. 59.87 lacs and Rs. 33.61 lacs respectively.

b) Marketing strategy

With changing life styles and increase in disposable income, this product is gaining more and more popularity. Squashes of some conventional and selected fruits are available in the market but it is worth trying some fruits grown in West Bengal as their tastes are palatable to local population. This would also provide an edge over other competitors.

5. PROJECT DESCRIPTION

a) Product & Its uses

Squashes are sweetened juice of fruits containing some pulp. They contain at least 25% (by volume) of fruit juice and are consumed after dilution. Squashes also contain added flavours. Since preservatives are added in adequate quantities, the shelf life of squashes is fairly longer.

b) Capacity

The proposed capacity of the plant is to process 100 MT / annum of fruits.

d) Manufacturing process

The process is not very complicated. Good quality ripe fruits are washed, peeled and cleaned. Then juice is extracted from fruits and it is filtered to remove seeds and fibres. Then juice is processed and sterilized and then syrup of sugar, preservatives etc. are added and this mixture is stirred till uniform solution is formed. In the final process, bottling and packing is done. The process flow chart is as under :

6. PROJECT COMPONENTS & COST

a) Land & Building

Total requirement of built –up area shall be around 300 sq. mtrs. and hence land measuring about 500 sq. mtrs. will be adequate. The built –up area is adequate to have production, storage and packing facilities. Cost of land Rs. 75,000/- and that of civil work Rs. 18,75,000/- FSSAI provisions about layout of factory building must be adhered too.

b) Plant & Machinery

It is desirable to install production capacity of 100 tons per year of fruits and around 300 days in a year. Installation of the following equipments would be necessary to do this.

(Rs. in lacs)

Item	**Qty**	**Price**
Fruit washing tanks	3	0.50
Juice Extractors	2	5.00
Steam Jacketed Kettles- 30 ltrs. capacity	2	1.50
Stirrer	1	0.25
Baby Boiler –	1	3.50

Bottle washing and filling machine	1	3.00
Testing equipments	-	1.25
Mixing Tank	2	1.00
Total		**16.00**

c) Miscellaneous Assets

The project would require other assets like furniture & fixtures, storage racks, exhaust fans, SS utensils, etc for which a provision of Rs. 3.00 lacs is made.

d) Utilities

Total power requirement shall be 30 HP whereas water requirement will be 10,000 litres per day. Annual expenditure under this head at 100% capacity utilization would be around Rs. 2.50 lacs.

e) Prel. & Pre Operative Expenses

There will be certain expenses like administrative, interest, trial runs, etc. before commencing the production . A provision of Rs. 2.00 lacs is adequate to take care of them**.**

f) Working Capital Assessment

Capacity utilization in the first year is expected to be 60%. To achieve this level, working capital of Rs. 7.26 lacs shall be required as worked out hereunder :

(Rs. in lacs)

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of Finished Goods	½ month	25%	2.01	1.51	0.50
Receivable	½ month	25%	2.50	1.88	0.62
Raw material	½ month	25%	2.75	2.07	0.68
Total			7.26	5.46	1.80

f) Project cost & Means of finance

Item	**Amount (Rs. in lacs)**
Land and Building	18.75
Plant and Machinery	16.00
Miscellaneous Assets	03.00
P & P Expenses	02.00
Contingencies @ 10% on building and plant and machinery	03.40
Working capital margin	1.80
Total	**44.95**
Means of Finance	
Promoters' contribution	17.98
Term loan from Bank FI	26.97
Total	44.95
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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.

7) PROJECTED PROFITABILITY

a) Production Capacity

Installed capacity of the plant shall be 100 tons per year of fruit processing. Capacity utilization in the first year is assumed to be 60% and second year onwards 75%.

b) Sales Revenue at 100%

It is recommended to make squashes from different fruit like Pineapple & Orange and selling price may vary from product to product . Hence, average sales realization of Rs.

50,000/- per ton or Rs. 50/kg is considered. With this assumption, the annual sales at 100% would be Rs. 100.00 lacs.

Product	**Qty (Tones)**	**Selling Price (Rs. / Ton)**	**Sales (Rs. in lacs)**
Orange Squash	100	55,000	55.00
Pineapple Squash	100	55,000	55.00
Total			110.00 lacs

c) Raw Material Required at 100%

Quantity of juice in each category of fruit varies substantially. In case of pineapple or jackfruit, there are considerable wastages due to their thick skin. Hence, it is assumed that the average recovery or availability of juice shall be 50% . Likewise prices of fruits also vary. Hence, average price of fruits is taken at 16,000/ ton. Accordingly following calculation are made :

(Rs. in lacs)

Product	**Qty (Tones)**	**Rate (Rs./ Ton)**	**Value**
Fruits (orange and pineapple)	100	16,000	16.00
Sugar	90	30,000	27.00
Preservatives etc	-		02.00
Packing Material	-		10.00
Total			**55.00**

d) Profitability statements

(Rs. in lacs)

S. No.	**Particulars**	**1st year**	**2nd year**
A.	**Installed capacity**	**100 Tones**	
	Capacity Utilisation	60%	75%
	Sales Realisation	66.00	82.50

B.	**Cost of Production**		
	Raw material & Packing Materials	33.00	41.25
	Utilities	1.50	1.87
	Salaries	5.50	6.05
	Stores and Spares	0.60	0.75
	Repairs and Maintenance	0.90	1.12
	Selling Expenses @ 25%	6.00	7.50
	Administrative Expenses	0.90	1.12
	Total	48.40	59.66
C.	**Profit before Interest & Depreciation**	**17.60**	**22.84**
	Interest on Term Loan	2.69	02.19
	Interest on Working Capital	0.65	0.81
	Depreciation.	3.40	3.06
	Net Profit	10.86	16.78
	Profit after tax	10.86	16.78
	Cash Accruals	14.36	19.84
	Repayment of Term Loan	nil	5.00

e) Break Even Point Analysis

S. No.	**Particulars**	**Amount (Rs. in lacs)**	
(A)	**Sales**		**82.50**
(B)	**Variable Costs**		
	Raw material & Packing Material	41.25	
	Utilities(70%)	1.30	
	Salaries (70%)	4.23	
	Stores & spares	0.18	
	Selling and Distribution Exps (70%)	0.75	
	Admn Expenses (50%)	6.00	

	Interest on WC	0.56	**54.90**
(C)	**Contribution (A) – (B)**		**27.60**
(D)	**Fixed Costs**		**7.74**
(E)	**Break Even Point**		**28%**

f) Debt Service Coverage Ratio (DSCR) ***(Rs. in lacs)***

Particulars	1st year	2nd year	3rd year
Cash Accruals	14.36	19.84	23.80
Interest on TL	2.69	2.19	1.69
Total (A)	17.05	21.03	25.49
Interest on TL	2.69	2.19	1.69
Repayment of TL	Nil	5.00	5.00
Total (B)	2.69	7.19	6.69
DSCR (A) / (B)	6.33	2.92	3.81
Average DSCR	4.35		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 44.95 lacs

(Rs. in lacs)

Year	**Cash Accruals**	**32%**
1	14.36	10.77
2	19.84	11.38
3	23.80	10.35
4	23.80	7.83
5	23.80	5.95
	Total	46.28

The IRR is around 32%.

h) Manpower requirement

Particulars	Nos.	Monthly	Total Monthly Salary (Rs.)
Skilled workers	2	7,500	15,000
Semi Skilled Workers	2	5,000	12,000
Helpers		5,000	20,000
Salesman	1	8,000	8,000
		Total	**55,000**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 60% , 75%, 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.
- Price of raw material and selling price of finished products is taken at Rs. 16,000 / ton and Rs. 55,000 / ton respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

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   120-4639950 -99, 4372848 Email : vp@bajajmachines.com

3. Best Engineering Technologies
   Plot No. 69 – A, No. 5-9-285/ 13, Rajiv Gandhi Nagar, Industrial Estate,
   Kukatpally, Hyderabad – 500037, www.bestengineeringtechnologies.com

4. Mather and Platt (India) Ltd.,
   805-806, Ansal Bhavan, 16, Kasturba, Gandhi Marg, New Delhi – 110001
   Ph. 23712840 / 41

PROJECT PROFILE
TOMATO PRODUCTS

1. INTRODUCTION

Tomato is a very popular vegetable throughout the country and it is grown in many states. Apart from use in vegetables its downstream products like soup, concentrates, sauce, puree, ketchup are also equally popular and they have a longer shelf life unlike fresh tomatoes. Tomato is perishable and needs to be transported carefully to avoid damage during transit. With the advent of new technology, many down the line products are made and are consumed round the year as table enriches.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The most critical raw material will be fully grown and ripe tomatoes. They are grown almost all over West Bengal with annual production of more than 11.00 lacs tons. Thus, availability of good quality tomatoes will not be a bottleneck . Other materials like sugar, various types of spices, vinegar, salt will not be required in large quantities and will be available locally. Regarding packing materials, glass bottles of 500 gms and 1 kg. shall be required with caps and corrugated boxes for outer packing. Other items like labels, BOPP tape etc. will also be needed.

4. MARKET OPPORTUNITIES

a) Demand and supply

Tomatoes are available during the season at cheaper rates and prices start shooting up during off-season. But main reason for these products becoming popular is their extensive use as enriches along with bread and other such preparations in making some fast food items like pizza, burger, hot dogs etc. and as additives with many food preparations. Hence, these products are witnessing increase in demand year after year. They have already become popular in urban and semi-urban areas and are now making in- roads in rural markets as well. Thus, there is a good scope for these products especially in semi –urban and rural areas. Export of tomato products from India during the year 2010 -11, 2011-12, and 2012-13 is estimated to be Rs. 2913.87 lacs, Rs.1792.67 lacs and Rs. 2204.14 lacs respectively.

b) Marketing Strategy

There are many established national as well as regional brands but they have captured mainly the urban and elite markets and for a quality product, there is a vast market which can be penetrated by offering competitive prices. Apart from a growing household market, other lucrative segment is eateries, restaurants, sandwich makers, fast food joints etc. Marketing would play a crucial role and placement, publicity, commission to retailers etc. are important aspects.

5. PROJECT DESCRIPTION

a) Product & Its uses

The products suggested are sauce, ketchup and puree. They are made from tomato juice and many other ingredients and preservatives are added to it to enhance its shelf life and taste. These products are consumed by people of all age groups and demand is going up. These products can be made in states like Maharashtra, Gujarat, Karnataka,

UP, HP, North Eastern states and so on but this note considers West Bengal as the preferred location in view of the growing market.

b) Capacity

The proposed capacity of the plant is to process 750 MT / annum of Tomatoes.

c) Manufacturing process

Fully grown or matured and ripe tomatoes are thoroughly washed preferably in running water. Afterwards, they are boiled in the steam jacketed kettles to facilitate pulping. During pulping juice is extracted and other solid material are separated. This extracted juice is the basic material from which other products are made. Sauce is made by concentrating juice and during the process; salt, sugar, vinegar, spices, preservatives, onion etc. are added to the extent that the mixture contains not less than 12% tomato solids and 28% total solids. Sauce is passed through sieve to remove fibrous and other materials. In case of ketchup, the process is more or less same, but many spices like ginger, garlic, clove, pepper are added with salt, sugar, vinegar and preservatives. While making puree, juice is concentrated under vacuum with around 9% to 12% solids. Products are then packed in bottles. Depending upon quality of tomatoes, recovery of juice varies from 45% to 50.%.

6. PROJECT COMPONENTS & COST

a) Land & Building

A plot of land measuring 300sq.mtrs. is suggested. Considering the price as Rs. 500/- per sq. mtrs. the cost of land would be Rs. 1,50,000/- Requirement of total constructed area will be about 150 sq. mtrs. A large production hall of around 75 sq. mtrs. packing room of about 25 sq. mtrs. and office etc. of 25sq. mtrs, would suffice. Cost of construction is taken at Rs. 6000/- per sq. mtrs. Thus, total expenditure on civil work will be Rs.9.00 lacs

b) Plant & Machinery

Keeping in mind the overall size of the market and the financial viability or economics of the project , it is suggested to have rated production capacity of 750 tons per year with 300 working days. To facilitate installation of this capacity, following set of machineries will be needed.

Item	**Qty**	**Price (Rs.)**
Baby Boiler	1	3,50,000
Steam jacketed kettles	3	2,25,000
Fruit washing tanks	2	40,000
Pulper	1	2,50,000
Stirrer	3	25,000
Vacuum filling machines	2	2,50,000
Bottle washing machine	2	2,00,000
Crown corking machine	2	20,000
Concentration tank	1	50,000
Laboratory equipments	1 set	50,000
Precision weighing scale	1	40,000
	Total	15.00 lacs

c) Miscellaneous Assets

Expenditure of Rs. 2.50 lacs is considered for other assets like aluminum top working tables, furniture and fixtures, plastic buckets / tubs, storage rack and bins, SS utensils etc.

d) Utilities

Total power requirement shall be 35HP whereas water requirement per day will be 10,000 ltrs. for washing of tomatoes and for sanitation and potable purposes. Coal will be required for boiler . The total cost of utilities at 100% capacity level is estimated to be Rs. 4,50,000/-

e) Prel. & Pre Operative Expenses

For pre-production expenses like registration and establishment charges, travelling , other administrative expenses, interest during implementation, trial runs etc. an amount of Rs. 1.50 lacs is set aside.

f) Working Capital Assessment

It is envisaged that the plant would operate at 60% in the first year. At this activity level the following working capital needs are estimated :

(Rs. in lacs)

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of packing Material	½ month	30%	0.75	0.53	0.22
Stock of Finished Goods	½ month	25%	5.00	3.75	1.25
Receivable	½ month	25%	5.40	4.05	1.35
Stock of Raw material	¼ month	25%	1.53	1.18	0.35
Total			**12.68**	**9.51**	**3.17**

g) Project cost & Means of Finance

Item	**Amount (Rs. in lacs)**
Land and Building	10.50
Plant and Machinery	15.00
Miscellaneous Assets	2.50
P & P Expenses	1.50
Contingencies @ 10% on building and plant & machinery	2.40
Working capital margin	3.17

Total	35.07
Means of Finance	
Promoters' contribution	14.02
Term loan from Bank FI	21.05
Total	35.07
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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.

7) PROJECTED PROFITABILITY

a) Production Capacity

The rated production capacity of the plant is to process 750 tons per year of tomatoes whereas actual capacity utilization is expected to be 60% and 75% during 1st year & 2nd year respectively.

b) Sales Revenue at 100%

Product	**Qty (Tones)**	**Selling Price (Rs./Ton)**	**Sales (Rs. in lacs)**
Tomato Sauce	125	65,000	81.25
Tomato Ketch-up	125	70,000	87.50
Tomato Puree	50	1,00,000	50.00
	Total		**218.75**

c) Raw Material Required at 100%

Recovery of juice from tomato is 45-50%. To arrive at the realistic projection, it is taken at 40%. Prices of tomatoes vary from Rs. 10,000/- to Rs. 20,000/- per ton depending upon season. Hence average purchase price is considered to be Rs. 15,000/- per ton.

(Rs. in Lacs)

Product	**Qty (Tones)**	**Rate (Rs./ Ton)**	**Value**
Tomatoes	750	15,000	112.50
Sugar	20	28,000	5.60
Vinegar, spices, salt and preservatives	-		4.50
Glass bottle of 500 gms.	3,00,000	4.00	12.00
Glass bottle of 1 kg.	1,50,000	7.00	10.50
Corrugated Boxes	15,000	4.00	6.00
Labels, BOPP Tape etc.	-	-	1.50
		Total	**152.60**

d) Profitability statement

(Rs. in lacs)

S. No.	Particulars	1st year	2nd year
A.	**Installed capacity**	**750 Tones**	
	Capacity Utilisation	60%	75%
	Sales Realisation	130.80	163.50
B.	**Cost of Production**		
	Raw Materials	73.58	91.95
	Packing Materials	18.00	22.50
	Utilities	2.70	3.37
	Salaries	9.00	9.90
	Stores and Spares	1.20	1.50
	Repairs and Maintenance	1.20	1.50
	Selling Expenses @ 10%	13.00	16.00
	Administrative Expenses	1.80	2.25
	Total	120.48	148.97

C.	**Profit before Interest & Depreciation**	**10.32**	**14.57**
	Interest on Term Loan	2.10	1.61
	Interest on Working Capital	1.14	1.42
	Depreciation.	2.40	2.16
	Net Profit	4.68	9.38
	Profit after tax	4.60	9.38
	Cash Accruals	7.00	11.54
	Repayment of Term Loan	Nil	4.0

e) Break Even Point Analysis

S. No.	**Particulars**	**Amount (Rs. in lacs)**	
(A)	**Sales**		**163.50**
(B)	**Variable Costs**		
	Raw Material	91.95	
	Packing Material	22.50	
	Utilities(70%)	2.35	
	Salaries (60%)	5.94	
	Stores and Spares	1.50	
	Selling Exps (70%)	11.20	
	Admn Expenses (50%)	1.12	
	Interest on WC	1.42	**137.98**
(C)	**Contribution (A) – (B)**		**25.50**
(D)	**Fixed Costs**		**14.00**
(E)	**Break Even Point**		**55%**

f) Debt Service Coverage Ratio (DSCR) **(Rs. in lacs)**

Particulars	**1st year**	**2nd year**	**3rd year**
Cash Accruals	7.00	11.54	13.84
Interest on TL	2.10	1.61	1.30
Total (A)	8.10	13.15	15.14
Interest on TL	2.10	1.61	1.30
Repayment of TL	Nil	4.00	4.00
Total (B)	2.10	5.61	5.30
DSCR (A) / (B)	3.85	2.34	2.85
Average DSCR	3.01		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 37.07 lacs **(Rs. in lacs)**

Year	**Cash Accruals**	**18%**
1	7.0	5.92
2	11.54	8.20
3	13.84	8.42
4	13.84	7.14
5	13.84	6.04
		35.72

The IRR is around 18%.

h) Manpower requirement

Particulars	**Nos.**	**Monthly**	**Total Monthly Salary (Rs.)**
Skilled workers	4	7,500	30,000
Semi Skilled Workers	4	6,000	24,000
Helpers	4	5,000	20,000
Salesman	2	8,000	16,000
		Total	**90,000**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 60% , 75%, 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.
- Price of raw material i.e. tomato is taken at Rs. 15,000/- ton and selling price of finished products is i.e. sauce, ketch-up and puree is taken at Rs. 65,000 / ton , Rs. 70,000 / ton and Rs 1,00,000 / per ton respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

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   Ph. 23712840 / 41

PROJECT PROFILE
TAMARIND POWDER & CONCENTRATE

1. INTRODUCTION

Tamarind trees are grown in almost all parts of the country and India is a leading producer of tamarind fruits. Due to some peculiar food habits of the Indians, juice of tamarind fruit is used regularly in many food as well as snack preparations. Tamarind fruits are rarely used directly. Instead, they are soaked in water for some time and then juice is extracted manually . This process is not only clumsy but unhygienic as well. Hence, tamarind powder has become popular. It is available in compact form , very convenient to use and there is no need to bother about disposal of residue as is the case when dry tamarind is soaked in water.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

Dried tamarind fruits is the only raw material . Tamarind trees are grown throughout the West Bengal and the nearby states of Bihar and Orissa are leading producers. Good quality plastic bags of 100 gms. capacity with aluminium foil lining and cartons

and BOPP tape shall be the packing material . Production of tamarind in West Bengal is negligible and a proper tie-up is required before starting the project.

4. MARKET OPPORTUNITIES

Dried tamarind fruits are an integral part of Indian cuisine and is extensively used in many food and snack preparations. It is a mass consumption item used round the year . Apart from individual households, it is used in large quantities in restaurants, dhabas road-side eateries, hotels and canteens and many such places. But the conventional method of soaking dry tamarind in water and then squeezing it by hand is unhygienic and inconvenient. Hence tamarind concentrate and powder have become acceptable. Tamarind in powder form is easily soluble, is in compact form and very convenient to transport. With increasing health awareness and improved standard of living, tamarind power had good market potential. There is a distinct possibility of exports to countries where Indians are settled like gulf and African countries, the USA, Australia etc.

5. PROJECT DESCRIPTION

a) Product & Its uses

Tamarind fruits are used in all parts of the country round the year. Tamarind powder is a hygienically prepared item and is a substitute for home-made tamarind paste or liquid. Powder is easily soluble and exact quantity is used. This project can be set up in many states of the country but this note considers West Bengal as the preferred location.

b) Capacity

The proposed capacity of the plant is to process 250 MT / annum of Tamarind.

c) Manufacturing process

It is easy and well-established. Dried tamarind fruits are cleaned and after soaking them in water they are boiled in steam jacketed kettle for about 40-45 minutes. Then pulp is

extracted in pulper and dried in drum type drier and on cooling, the final product is packed. Recovery or yield is around 45%.

6. PROJECT COMPONENTS & COST

a) Land & Building

A readymade building of about 80 sq. mtrs. can accommodate the main production area, storage and packing. Cost of building is envisaged to be Rs. 4.80 lacs.

b) Plant & Machinery

Annual rated processing capacity of 250 tonnes with 300 working days would need the following machines :

(Rs. in lacs)

Item	**Qty**	**Price**
SS Jacketed Kettle	1	3.00
Pulper	1	1.70
Baby Boiler	1	3.00
Drum Type Dryer	1	6.00
Laboratory equipments, Weighing Scales, SS Tank and Utensils, Bag-sealing machine etc.	1	2.10
	Total	**15.80**

c) Miscellaneous Assets

The project would require other assets like exhaust fans, stainless steel vessels for storage, furniture, racks etc. for which a provision of Rs. 1.70 lacs is necessary.

d) Utilities

Total power requirement shall be 30 HP whereas daily water requirement would be 5000 ltrs. The cost of utilities is estimated to be 1.80 lacs / Annum.

e) Prel. & Pre Operative Expenses

Pre-production expenses like registration, establishment, travelling and administrative charges, interest during implementation, trial runs etc. would cost Rs. 1.75 lacs.

f) Working Capital Assessment

At 60% capacity utilization in the first year the working capital needs would be as under : **(Rs. in lacs)**

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of Raw material & Packing Material	½ month	30%	2.0	1.40	0.60
Stock of Finished Goods	½ month	25%	2.76	2.07	0.69
Receivable	½ month	25%	3.17	2.38	0.79
Total			**7.94**	**5.86**	**2.08**

g) Project cost & Means of finance **(Rs. in lacs)**

Item	**Amount**
Land and Building	4.80
Plant and Machinery	15.80
Miscellaneous Assets	1.70
P & P Expenses	1.75
Contingencies @ 10% on building and plant & machinery	2.06
Working capital margin	2.08
Total	28.15
Means of Finance	
Promoters' contribution	11.26
Term loan from Bank / FI	16.89

Total	**28.15**
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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.

7) PROJECTED PROFITABILITY

a) Sales Revenue at 100%

Assuming selling price of Rs. 113 and yield of 45%, the annual sales at 100% would be Rs. 127.12 lacs.

b) Raw Material Required at 100%

Product	**Qty (Tones)**	**Selling Price (Rs. / Ton)**	**Sales (Rs. in lacs)**
Dried Tamarind Fruits	250	30,000	75.00
Packing material	-	-	5.00
		Total	**80.00**

c) Profitability statements

(Rs. in lacs)

S. No.	**Particulars**	**1st year**	**2nd year**
A.	**Installed capacity**	**250 Tones**	
	Capacity Utilisation	60%	75%
	Sales Realisation	76.27	95.34
B.	**Cost of Production**		

	Raw & packing Materials	48.00	60.00
	Utilities	1.08	1.35
	Salaries	5.16	5.67
	Stores and Spares	1.20	1.50
	Repairs and Maintenance	1.50	1.87
	Selling Expenses @ 10%	7.62	9.53
	Administrative Expenses	1.80	2.25
	Total	66.36	82.17
C.	**Profit before Interest & Depreciation**	**9.91**	**13.17**
	Interest on Term Loan	1.68	1.38
	Interest on Working Capital	0.70	0.87
	Depreciation.	2.06	1.85
	Net Profit	5.47	9.07
	Profit after tax	5.47	9.07
	Cash Accruals	7.53	10.92
	Repayment of Term Loan	Nil	3.00

d) Break Even Point Analysis

S. No.	**Particulars**	**Amount (Rs. in lacs)**	
(A)	**Sales**		**76.27**
(B)	**Variable Costs**		
	Raw & packing Material	48.00	
	Utilities(70%)	0.76	
	Salaries (60%)	3.61	
	Stores and Spares	1.20	
	Selling and Distribution Exps (70%)	5.33	
	Admn Expenses (50%)	0.90	
	Interest on WC	0.70	60.50

(C)	**Contribution (A) – (B)**		**15.77**
(D)	**Fixed Costs**		**8.22**
(E)	**Break Even Point**		**52%**

e) Debt Service Coverage Ratio (DSCR) *(Rs. in lacs)*

Particulars	**1st year**	**2nd year**	**3rd year**
Cash Accruals	7.53	10.92	13.10
Interest on TL	1.68	1.38	1.08
Total (A)	9.21	12.30	14.13
Interest on TL	1.68	1.38	1.08
Repayment of TL	Nil	3.00	3.00
Total (B)	1.68	4.38	4.08
DSCR (A) / (B)	5.48	2.80	3.47
Average DSCR	3.91		

f) Internal Rate of Return (IRR)

Cost of the project is Rs. 28.15 lacs **(Rs. in lacs)**

Year	Cash Accruals	24%	18%
1	7.53	6.02	6.32
2	10.92	7.09	7.84
3	13.10	6.86	7.97
4	13.10	5.50	6.75
Total	**25.47**	**25.47**	**28.88**

The IRR is 18%

g) Manpower requirement

Particulars	**Nos.**	**Monthly**	**Total Monthly Salary (Rs.)**
Skilled Workers	2	7,500	15,000

Helpers	4	5,000	20,000
Salesman	1	8,000	8,000
		Total	**43,000**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 60% , 75%, 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.
- Price of raw material and selling price of finished products is taken at Rs. 30,000 / ton and Rs. 1,13,000/ ton respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

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   7/20-27, Jai Lakhmi Industrial Estate, Site IV, Sahibabad Indl. Area,
   Distt. Ghaziabad (U.P.)
   120-4639950 -99, 4372848 Email : vp@bajajmachines.com
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   Plot No. 69 – A, No. 5-9-285/ 13, Rajiv Gandhi Nagar, Industrial Estate,
   Kukatpally, Hyderabad – 500037, www.bestengineeringtechnologies.com

PROJECT PROFILE
POTATO PROCESSING

1. INTRODUCTION

Potato is probably the most popular food item in the Indian diet. It is grown all over the country with Uttar Pradesh growing the maximum quantity. Potato is a very rich source of starch. It also contains phosphorus, calcium, iron and some vitamins. Apart from the use of fresh potatoes for the purpose of making vegetables and gravy, they are dehydrated in the forms of slices, sticks, cubes or powder to impart better shelf life. Yet another popular use is to make wafers or chips.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The all-important raw material is good quality potatoes. Potatoes have high water content. Hence total process loss shall be almost 30%. The state of West Bengal produces around 100.00 lacs tons of potatoes every year. Thus, procurement of the required quantity shall not be a bottleneck. Other materials like salt, spices, preservatives etc. are easily available.

4. MARKET OPPORTUNITIES

a) Demand and supply

Rapid urbanization and improving standards of living have seen manifold increase in the demand of potato chips. Easy availability, convenient packaging, affordable prices and nutritious values are some other reasons for their popularity even in far flung rural areas. There exists consumer as well as bulk markets. Export of dried potato from India during the year 2010 -11, 2011-12, and 2012-13 is estimated to be Rs. 231.45 lacs, Rs.161.69 lacs and Rs. 499.72 lacs respectively.

b) Marketing Strategy

There are some international as well as national brands but majority of the market is penetrated by local manufactures due to competitive pricing , easy availability at many outlets and very efficient and timely supply as well as replacement. With proper strategy and network, it is possible to penetrate the market.

5. PROJECT DESCRIPTION

a) Product & Its uses

Potatoes are grown and used in the Indian culinary since centuries with many end – uses as explained above. However, this note deals with making of potato chips as this product is very popular all over the country and can be manufactured even on a small scale. Potatoes are grown in many parts of the country and thus this is not a location – specific product.

b) Capacity

The proposed capacity of the plant is to process 58 MT / annum of potato.

c) Manufacturing process

Fully grown and ripe potatoes are thoroughly washed before peeling them. Then these potatoes are trimmed and put in brine water for 30-35 minutes to prevent browning. They are afterwards cut in the required sizes on slicing machine. These slices are blanched in boiling water and are then placed on drying trays which are then put in the drying machine. Temperature of dryer is maintained in the range of 140 to 150° F. After drying, they are fried in edible oil to make them crisp and brown and then they are packed in polythene bags . The chips could be salty or spicy. Some other flavours which are locally popular can also be tried.

6. PROJECT COMPONENTS & COST

a) Land & Building

Land of 200 sq. mtrs. with built up area of 100 sq. mtrs. would be adequate. Equipments would occupy around 60 sq. mtrs and rest of the area can be utilized for storage. The land would cost Rs. 1,00,000/- whereas cost of building is estimated to be Rs. 6.00 lacs.

b) Plant & Machinery

Keeping in mind the potential market and economic viability, it is suggested to install production capacity of 40 tons of potato chips per year and 300 working days each year. To achieve this capacity, following equipments are required :

(Rs. in lacs)

Item	**Qty**	**Price**
Slicer made of SS with attachments and electric motor	1	1.75
Electrically operated dryer with trolleys and 98 trays	1	5.00
Coal-fired furnace	1	2.00
Motorised potato peeling machine	1	0.50
Automatic sealing machine	1	0.75
Cutting and peeling knives, aluminium utensils	1	2.50
	Total	12.50

c) Miscellaneous Assets

A provision of Rs. 2.25 lacs would take care of furniture, storage facilities, tables, exhaust fans etc.

d) Utilities

Power requirement shall be 10 HP whereas per day water requirement will be 2,000 ltrs. Coal requirement for furnace shall be about 1 ton every month. Total cost of utilities is estimated to be Rs. 2.25 lacs /year.

e) Prel. & Pre Operative Expenses

Expenditure like registration and administrative charges, pre-production expenses, trial run expenses etc. is estimated to be Rs. 1.50 lacs

f) Working Capital Assessment

At 60% capacity utilization in the first year, the total working capital needs will be Rs. 2.13 lacs consisting of bank finance of Rs.1.67 lacs and margin of Rs. 2.52 lacs. The detailed calculations are as under:

(Rs. in lacs)

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of Raw material & packing Material	½ month	25%	0.38	0.29	0.09
Stock of Finished Goods	½ month	25%	0.75	5.7	0.18
Receivable	½ month	25%	1.0	0.75	0.25
Total			**2.13**	**1.61**	**0.52**

g) Project cost & Means of finance

(Rs. in lacs)

Item	**Amount**
Land and Building	7.00
Plant and Machinery	12.50
Miscellaneous Assets	2.25
P & P Expenses	1.50
Contingencies @ 10% on Building and plant and machinery	1.85
Working capital margin	0.52
Total	**25.62**
Means of Finance	
Promoters' contribution	10.24
Term loan from Bank / FI	15.38
Total	25.62
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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.

7) PROJECTED PROFITABILITY

a) Production Capacity

The rated final product capacity of the plant is 40 tons per year and it is anticipated that it shall be operated at 60 % and 75% during 1st year and 2nd year respectively.

b) Sales Revenue at 100%

For a new entrant, it becomes very difficult to capture the market. Hence, it is assumed that the net selling price will be Rs. 100/ kg or Rs. 1,25,000 per ton. Thus, the total sales realization will be Rs. 50.00 lacs.

c) Raw Material Required at 100% (Rs. in lacs)

Product	**Qty (Tones)**	**Rate (Rs./ Ton)**	**Value**
Potatoes	58	15,000	8.70
Salt, spice, Preservatives, edible oil etc	-	-	3.00
Hard coke	12	5,000	0.60
Packing materials	-	-	3.20
Total			**15.50**

d) Profitability statement

(Rs. in lacs)

S. No.	**Particulars**	**1st year**	**2nd year**
A.	**Installed capacity**	**40 Tons**	
	Capacity Utilisation	60%	75%
	Sales Realisation	30.00	37.50
B.	**Cost of Production**		
	Raw & Packing Materials	9.30	11.62
	Utilities	1.35	1.68
	Salaries	3.25	3.57
	Stores and Spares	0.60	0.75
	Repairs and Maintenance	0.60	0.75
	Selling Expenses @ 10%	2.40	3.00
	Administrative Expenses	0.90	112.00
	Total	17.90	22.49
C.	**Profit before Interest & Depreciation**	**12.10**	**15.01**
	Interest on Term Loan	1.53	1.23
	Interest on Working Capital	0.19	0.24
	Depreciation.	1.85	1.66

	Net Profit	8.53	11.88
	Profit after tax	8.53	11.88
	Cash Accruals	10.38	13.54
	Repayment of Term Loan	Nil	3.00

e) Break Even Point Analysis

S. No.	Particulars	Amount (Rs. in lacs)	
(A)	**Sales**		**37.50**
(B)	**Variable Costs**		
	Raw & Packing Material	11.62	
	Utilities(70%)	1.17	
	Salaries (60%)	2.49	
	Stores and Spares	0.75	
	Selling and Distribution Exps (70%)	2.10	
	Admn Expenses (50%)	0.56	
	Interest on WC	0.24	**18.93**
(C)	**Contribution (A) – (B)**		**18.57**
(D)	**Fixed Costs**		**5.01**
(E)	**Break Even Point**		**27%**

f) Debt Service Coverage Ratio (DSCR) *(Rs. in lacs)*

Particulars	1st year	2nd year	3rd year
Cash Accruals	10.38	13.54	16.24
Interest on TL	1.85	1.66	1.25
Total (A)	12.23	15.20	17.49
Interest on TL	1.85	1.66	1.25
Repayment of TL	Nil	3.00	3.00
Total (B)	1.85	4.66	4.25

DSCR (A) / (B)	6.61	3.26	4.11
Average DSCR	4.66		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 25.62 lacs

(Rs. in lacs)

Year	**Cash Accruals**	**32%**	**36%**
1	10.38	7.78	7.57
2	13.54	7.71	7.31
3	16.24	6.98	6.33
4	16.24	5.19	4.70
5	16.24	4.06	3.41
		31.72	**29.24**

The IRR is 36%

h) Manpower requirement

Particulars	**Nos.**	**Monthly**	**Total Monthly Salary (Rs.)**
Skilled workers	2	7,500	7,500
Semi Skilled Workers	2	6,000	12,000
Helpers	1	5,000	5,000
Salesman	1	8000	8,000
		Total	**32,500**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 60% , 75%, 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.

- Price of raw material and selling price of finish products is taken at Rs. 15,000 / ton and Rs. 1,25,000 / ton respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

1. PENNWALT BERTUZZI
   J-19, Saket New Delhi -17
   Ph .011- 41764186 , 26522650 www.pennwalt.com

2. BAJAJ MASCHINEN PVT. LTD.
   7/20-27, Jai Lakhmi Industrial Estate, Site IV, Sahibabad Indl. Area,
   Distt. Ghaziabad (U.P.)
   120-4639950 -99, 4372848 Email : vp@bajajmachines.com

3. Best Engineering Technologies
   Plot No. 69 – A, No. 5-9-285/ 13, Rajiv Gandhi Nagar, Industrial Estate,
   Kukatpally, Hyderabad – 500037, www.bestengineeringtechnologies.com

4. Mather and Platt (India) Ltd.,
   805-806, Ansal Bhavan, 16, Kasturba, Gandhi Marg, New Delhi – 110001
   Ph. 23712840 / 41

PROJECT PROFILE
PAPAYA CANDY

1. INTRODUCTION

Papaya candy is an item of mass consumption and is mainly used in after-mint or mukhvas and chewing paan or masala. Other user segment is certain bakery products and some sweet preparation. But bulk of the consumption is by paan/masala selling shops round the year across the country. It is made from unripe or green papaya fruits and contains substantial quantum of sugar. Since the customers are scattered vary widely, it necessary to have proper marketing arrangements.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The most critical material will be unripe but fully grown papaya and sugar . Since quantity required of these items every month will not be much, no difficulty is envisaged in their procurement. The process weight loss is around 30% which is to some extent compensated by absorption of sugar syrup and the net loss is around 25%. Other materials like food grade colours, flavours, citric acid etc. shall be available

locally. Polythene bags shall be required for packing. Production of papaya in West Bengal is estimated to be 3.31 lacs ton /year.

4. MARKET OPPORTUNITIES

Papaya candy is an item of mass consumption and used while making chewing paan or masala and preparing mukhwas or after-mint. It is not consumed alone (except by children) but invariably mixed with other ingredients. Its sweet taste and flavour is liked by many. Market is controlled by very small no. of manufacturers as it is sold to hundreds of paan-shops and servicing them is very difficult . Reportedly, bulk of the supply to West Bengal is from outside the state and there are good prospects for a local manufacturer. Appointment of area-wise distributors or stockiest and regular supplies are the key elements.

5. PROJECT DESCRIPTION

a) Product & Its uses

Cherry or tutty-fruity is consumed by many people along with chewing paan or masala or mukhwas or after mint. It is also used in some bakery products and sweets. It is made from unripe papaya fruits, it is sweet in taste and is of pinkish colour. This product can be made in many states of the country but this profile considers West Bengal as the contemplated location**.**

b) Capacity

The proposed capacity of the plant is to process 90 MT / annum of papaya.

c) Manufacturing process

It is standard and simple. Big unripe papaya are washed and peeled. They are cut length-wise and seeds and fibres are removed. These pieces are blanched in boiling water for about 10 minutes and are pricked with forks to ensure proper absorption of sugar syrup. Sugar syrup is made and small quantity of citric acid and flavours are

added to it. Pieces of papaya are soaked in this syrup for about 10 minutes and then taken out and kept for seasoning for around 8-10 hours and then cut into smaller square pieces and wiped with wet cloth to remove any dirt and excessive coating of sugar. Finally , they are dried in a dryer at around 60° C temperature for 10-12 minutes, cooled and packed in polythene bags. The weight loss on account of removal of skin, seeds etc. from papaya is around 25%.

6. PROJECT COMPONENTS & COST

a) Land & Building

A large hall of around 100 sq.mtrs. could be enough. It can accommodate production as well as storage and packing activities . Total investment in building is estimated to be Rs. 6.00 lacs . Land of 200 s.qm will cost Rs. 1.00 lac.

b) Plant & Machinery

For an annual installed capacity of 90 tonnes with 1 shift working and 300 working days, the following machine shall be required.

Item	**Qty.**	**Price (Rs.)**
Papaya peeling machine with SS Body and all Accessories	1	1.50
Papaya slicing and cubing machine of SS with double rollers, hopper and electric motor	1	2.00
LPG furnace (Bhatti) with burners, blower etc.	1	1.50
Electrically operated dryer with aluminium trays – 48 trays	1	5.00
Heat sealing machine and weighing scales	-	2.00
Total		12.0

c) Miscellaneous Assets

An amount of Rs. 1.50 lacs is provided towards furniture and fixtures, packing tables, storage racks etc.

d) Utilities

Power requirement will be 10 HP and around 5000 ltrs. of water shall be required every day for washing of papaya, sanitation and potable purposes. 5 LPG cylinders shall be required every month. Total cost of utilities is estimated at Rs. 3.50 lacs.

e) Prel. & Pre Operative Expenses

A provision of 1,50,000/- is made towards pre-production expenses like registration, establishment and administrative expenses, travelling, interest on loan during implementation , trial run expenses etc.

f) Working Capital Assessment

Major raw material is papaya which will not be stored for more than 2-3 days. Process time is hardly 12 hours and stock of finished goods will be kept for about a week. Hence, it is assumed that bank would sanction working capital facilities of Rs. 2.31 lacs and the promoters would bring in Rs.0.98 lacs by way of margin.

(Rs. in lacs)

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of Raw material & packing material	¼ month	30%	0.40	0.28	0.12
Stock of Finished Goods	½ month	30%	1.33	0.93	0.40
Receivable	½ month	30%	1.56	1.10	0.46
Total			**3.29**	**2.31**	**0.98**

g) Project cost & Means of Finance *(Rs. in lacs)*

Item	**Amount**
Land and Building	7.00
Plant and Machinery	12.00

Miscellaneous Assets	1.50
P & P Expenses	1.50
Contingencies @ 10% on Building and plant and machinery	1.80
Working capital margin	0.98
Total	**24.78**
Means of Finance	
Promoters' contribution	10.00
Term loan from Bank FI	14.78
Total	24.78
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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.

7) PROJECTED PROFITABILITY

a) Production Capacity

The rated production capacity of the plant is 90 tonnes per year whereas actual capacity utilization is expected to be 60% in the first year and 75% thereafter.

b) Sales Revenue at 100%

Assuming selling price of Rs. 80,000/- per ton, the annual sales at 100% would be Rs. 72.00 lacs.

c) Raw Material Required at 100%

(Rs. in lacs)

Product	**Qty (Tones)**	**Rate (Rs./ Ton)**	**Value**
Unripe Papaya	90	20,000/-	18.00
Sugar	30	30,000	9.00

Citric Acid, Food grade colour, Flavours etc.	-	-	1.60
Packing material	-	-	3.60
	Total		**32.20**

d) Projected Profitability

(Rs. in lacs)

S. No.	**Particulars**	**1st year**	**2nd year**
A.	**Installed capacity**	**90 Tones**	
	Capacity Utilisation	65%	75%
	Sales Realisation	46.80	54.00
B.	**Cost of Production**		
	Raw and Packing Materials	19.32	24.15
	Utilities	2.10	2.62
	Salaries	4.02	4.42
	Stores and Spares	0.90	1.12
	Repairs and Maintenance	1.20	1.50
	Selling Expenses @ 10%	3.70	4.72
	Administrative Expenses	0.90	1.12
	Total	32.14	39.69
C.	**Profit before Interest & Depreciation**	**14.66**	**14.31**
	Interest on Term Loan	1.47	1.17
	Interest on Working Capital	0.28	0.33
	Depreciation.	1.80	1.62
	Net Profit	11.11	11.19
	Profit after tax	11.11	11.19
	Cash Accruals	12.91	12.81
	Repayment of Term Loan	Nil	3.00

e) Break Even Point Analysis *(Rs. in lacs)*

S. No.	Particulars	Amount	
(A)	**Sales**		**54.00**
(B)	**Variable Costs**		
	Raw and Packing Material	24.15	
	Utilities(70%)	1.83	
	Salaries (60%)	3.09	
	Stores and Spares	1.12	
	Selling and Distribution Exps (70%)	3.30	
	Admn Expenses (50%)	0.56	
	Interest on WC	0.33	**34.38**
(C)	**Contribution (A) – (B)**		**19.64**
(D)	**Fixed Costs**		**6.74**
(E)	**Break Even Point**		**35%**

f) Debt Service Coverage Ratio (DSCR) *(Rs. in lacs)*

Particulars	1st year	2nd year	3rd year
Cash Accruals	12.91	12.81	15.37
Interest on TL	1.47	1.17	0.87
Total (A)	14.38	19.98	16.24
Interest on TL	1.47	1.17	0.87
Repayment of TL	Nil	3.00	3.00
Total (B)	1.47	4.17	3.87
DSCR (A) / (B)	9.78	4.79	4.19
Average DSCR	6.25		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 24.78 lacs *(Rs. in lacs)*

Year	**Cash Accruals**	**40%**
1	12.91	9.16
2	12.81	6.53
3	15.37	5.53
4	15.37	3.99
	Total	**25.21**

The IRR is 40%

h) Manpower requirement

Particulars	**Nos.**	**Monthly**	**Total Monthly Salary (Rs.)**
Skilled workers	1	7,500	7,500
Semi Skilled Workers	6	6,000	18,000
Salesman	1	8,000	8,000
		Total	**33,500**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 65% , 75% & 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.
- Price of raw material and selling price of finished products is taken at Rs. 20,000 / ton and Rs. 80,000 respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

1. PENNWALT BERTUZZI
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   805-806, Ansal Bhavan, 16, Kasturba, Gandhi Marg, New Delhi – 110001
   Ph. 23712840 / 41

PROJECT PROFILE
WATERMELON JUICE

1. INTRODUCTION

Fruits are important source of energy for human-beings but they are perishable items. Hence since many years various products are made from juice of fruits so that they can be consumed during off season as well. Products like jam, jelly, squash etc. are made from fruits since long. With the advent of technology and preservatives, shelf life of such products has gone up and they can be preserved for many months with proper packing . The proposed location of this activity could be many centres in India as number of tropical fruits and fruit like watermelon are grown in the country. However, this note deals with a project in West Bengal as several fruits like pineapples, mango, orange, guava litchi, papaya, watermelon etc. are cultivated there in large quantities. Hence, it is suggested to undertake a fruit processing activity.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The all important raw material will be fresh, ripe and matured watermelon. The Eastern states including WB are famous for horticulture products. Availability of a few hundred tons of watermelon will not pose any problem. Other items like sugar, salt

additives and preservatives etc. shall be available locally. Packing materials like food grade plastic or glass bottles, labels, corrugated boxes, BOPP tape etc. shall be required for which prior arrangement is advisable.

4. MARKET OPPORTUNITIES

a) Demand and Supply

Fruits are liked by people of all age groups but they are available only during a specific season. Due to high water or juice contents, they are perishable. Certain fruits require very careful and consequently costly transportation. Hence many down- the- line products like squash, fruit-juice concentrates, jam, nectars etc. are made from fruits with preservatives which increase their shelf-life substantially. Market for such products has witnessed a quantum jump during last few years and with growing urbanization, increase in disposable incomes and changing life styles, demand for them is steadily going up.

b) Marketing Strategy.

Some established brands of fruit juice are available in the market but they are costly and hence people would prefer low cost, good quality products . It is possible to introduce competitive pricing for a small scale unit due to its inherent features. Proper care has to be taken in creating and maintaining adequate network.

5. PROJECT DESCRIPTION

a) Product & Its uses

Fruits are perishable in nature and for their preservation, they need to be processed to make juice, squashes, jams nectars etc. However, this note is restricted to the processing of water melon juice.

b) Capacity

The proposed capacity of the plant is to process 300 MT / annum of watermelon.

c) Manufacturing process

The manufacturing process for making fruit juice is standardized and not very complicated or time consuming. CFTRI, Mysore, has successfully developed this technology. In the first process, fully ripe and matured fruits are washed, cleaned graded and then peeled. Thereafter, juice is extracted from fruits and then it is filtered to remove seeds, fibres etc. This juice is then processed, sterilized and bottled after adding preservatives.

6. PROJECT COMPONENTS & COST

a) Land & Building

Total requirement of built –up area shall be around 300 sq. mtrs. and hence land measuring about 500 sq. mtrs. will be adequate. The built –up area is adequate to have production, storage and packing facilities. Cost of land Rs. 75,000/- and that of of civil work Rs. 18.00 lacs. FSSAI provisions about layout of factory building must be adhered too.

b) Plant & Machinery

In view of size of the market and to ensure economic viability of the project, rated production capacity of 300 tonnes per year with single shift working and 300 working days is advisable. To install this capacity following machines shall be required:

(Rs. in lacs)

Item	**Qty**	**Price**
Fruit washing tanks	2	0.50
Juice Extractors	2	5.00
Steam Jacketed Kettles- 60 ltrs. capacity	2	1.50
Stirrer	1	0.25

Baby Boiler – 100 kgs/hr	1	3.50
Bottle washing and filling machine	1	3.00
Testing equipments like Refracto Meter Salinometer, pipette, Burette etc.		1.25
	Total	15.00

c) Miscellaneous Assets

Many other assets like stainless steel utensils, plastic, tubs exhaust fan, storage racks, furniture & fixtures, etc shall be needed. A provision of Rs. 3.00 lacs is made for the same.

d) Utilities

Power requirement will be 30 HP whereas per day water requirement would be 30000 liters for washing of fruits and for potable and sanitation purposes. Hard coke of around 25 tonnes will be required annually for boiler. The cost of utilities is estimated at Rs. 2.0 lacs.

e) Prel. & Pre Operative Expenses

There are certain expenses which are incurred prior to the commencement of production such as registration, establishment and other administrative expenses, interest during implementation and so on. A provision of Rs. 2,00,000/- is made towards them.

f) Working Capital Assessment

Against installed production capacity of 300 tonnes per year, actual capacity utilization in the first year is expected to be 65% . At this level of activity, the working capital needs will be as under :

(Rs. in lacs)

Particulars	Period	Margin	Total	Bank	Promoters
Stock of packing materials	1 month	30%	0.47	0.33	0.14
Stock of Finished Goods	½ month	25%	1.81	1.36	0.45
Receivable	½ month	25%	2.00	1.50	0.50
Stock of raw material	½ month	25%	0.55	0.42	0.13
Total			**5.23**	**4.01**	**1.22**

g) Project cost & Means of finance

Item	Amount (Rs. in lacs)
Land and Building	18.75
Plant and Machinery	15.00
Miscellaneous Assets	03.00
P & P Expenses	02.00
Contingencies @ 10% on building and plant and machinery	3.30
Working capital margin	1.23
Total	43.28
Means of Finance	
Promoters' contribution	17.31
Term loan from Bank /FI	25.97
Total	43.28
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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.

7) PROJECTED PROFITABILITY

a) Production Capacity

The rated production capacity of the plant is 300 tonnes per year whereas actual capacity utilization is expected to be 60% and 75% during the 1st year & 2nd year respectively.

b) Sales Revenue at 100%

Product	**Qty (Tones)**	**Selling Price (Rs./Ton)**	**Sales (Rs. in lacs)**
Watermelon juice	150	63,300/-	95.00
	Total		**95.00**

c) Raw Material Required at 100% *(Rs. in lacs)*

Product	**Qty (Tones)**	**Rate (Rs./Ton)**	**Value**
Watermelon	300	14700	44.00
Sugar	-	-	1.00
Additives, Preservatives, Flavours, etc	-	-	1.00
Packing Material@ Rs. 5000 /Ton	-	-	7.50
	Total		**53.50**

d) Profitability statement

(Rs. in lacs)

S. No.	**Particulars**	**1st year**	**2nd year**
A.	**Installed capacity**	**300 Tons**	
	Capacity Utilisation	60%	75%
	Sales Realisation	57.50	71.25
B.	**Cost of Production**		
	Raw Materials	26.40	33.00

	Packing Materials	5.70	7.10
	Utilities	1.20	1.50
	Salaries	5.50	6.05
	Stores and Spares	0.60	0.75
	Repairs and Maintenance	0.90	1.12
	Selling Expenses @ 25%	2.40	3.00
	Administrative Expenses	0.90	1.12
	Total	43.60	53.69
C.	**Profit before Interest & Depreciation**	**13.40**	**17.56**
	Interest on Term Loan	2.59	2.09
	Interest on Working Capital	0.48	0.60
	Depreciation.	3.30	2.97
	Net Profit	7.03	14.19
	Profit after tax	7.03	14.19
	Cash Accruals	10.43	17.16
	Repayment of Term Loan	Nil	5.0

e) Break Even Point Analysis

S. No.	**Particulars**	**Amount (Rs. in lacs)**	
(A)	**Sales**		**71.25**
(B)	**Variable Costs**		
	Raw &Packing Material	40.10	
	Utilities(70%)	0.97	
	Salaries (60%)	3.93	
	Stores and Spares	0.75	
	Selling and Distribution Exps (70%)	2.25	
	Admn Expenses (50%)	0.56	
	Interest on WC	0.60	49.16

(C)	**Contribution (A) – (B)**		**22.09**
(D)	**Fixed Costs**		**7.15**
(E)	**Break Even Point**		**33 %**

f) Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	**1st year**	**2nd year**	**3rd year**
Cash Accruals	10.43	17.16	20.59
Interest on TL	2.59	2.09	1.59
Total (A)	**13.02**	**19.25**	**22.18**
Interest on TL	2.59	2.09	1.59
Repayment of TL	-	5.00	5.00
Total (B)	2.59	7.09	6.59
DSCR (A) /(B)	5.02	2.71	3.36
Average DSCR	3.69		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 43.28 lacs

(Rs. in lacs)

Year	Cash Accruals	24%
1	10.43	8.34
2	17.16	11.15
3	20.59	10.78
4	20.59	8.70
5	20.59	7.02
Total		**45.99**

The IRR is around 24%.

h) Manpower requirement

Particulars	Nos.	Monthly	Total Monthly Salary (Rs.)
Skilled Worker	2	7,500	15,000
Semi Skilled Workers	2	6,000	12,000
Helpers	4	5,000	20,000
Salesman	1	8,000	8,000
		Total	**55,000**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 60% , 75%, 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.
- Price of watermelon is taken at Rs. 14,700 / ton and the selling price of juice at Rs. 63,300/ton.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

1. PENNWALT BERTUZZI
   J-19, Saket New Delhi -17
   Ph .011- 41764186 , 26522650 www.pennwalt.com
2. BAJAJ MASCHINEN PVT. LTD.
   7/20-27, Jai Lakhmi Industrial Estate, Site IV, Sahibabad Indl. Area,
   Distt. Ghaziabad (U.P.)
   120-4639950 -99, 4372848 Email : vp@bajajmachines.com

3. Best Engineering Technologies

   Plot No. 69 – A, No. 5-9-285/ 13, Rajiv Gandhi Nagar, Industrial Estate, Kukatpally, Hyderabad – 500037, www.bestengineeringtechnologies.com

4. Mather and Platt (India) Ltd.,

   805-806, Ansal Bhavan, 16, Kasturba, Gandhi Marg, New Delhi – 110001

   Ph. 23712840 / 41

PROJECT PROFILE
DESICCATED COCONUT POWDER

1. INTRODUCTION

India is one of the leading producers of coconuts in the world. About 55-60% of the total production of the country is used for various food preparations whereas balance quantity goes for oil extraction. Coconut oil is used as a cooking medium in certain parts of the country and it is also a popular hair oil. Coastal areas of Kerala, Tamil Nadu, Karnataka, Orissa, Andhra Pradesh, Goa, Maharashtra and West Bengal grow large quantities of coconut trees and this project can be set up in any of these states. For food preparations, fresh coconuts are used in small quantities but copra and desiccated coconut are very popular with several applications round the year.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The only raw material would be fully grown good quality coconuts. Adequate prior arrangements should be made. Polythene bags, plywood boxes, labels and box strapping shall be the packing materials. Total production of coconut in West Bengal is estimated to be 326.30 million nuts / year.

4. MARKET OPPORTUNITIES

Indians have been using coconuts in food and snack preparations since time immemorial. Fresh coconuts have limited availability as well as shelf life once their shells are removed. Hence, dried coconuts in the form of copra or coconut powder have become mass consumption items due to their availability round the year across the country. Longer shelf life, reduction in wastage and convenience in transporting give freedom to the consumers to buy the required quantity. Desiccated coconut is not used in large quantities in individual household but its main consumers are confectionary and biscuit industry. It is also used in the preparation of sweets, curry, many varieties of chutney, farsan and chikkies and many other food and snack preparations. Thus, restaurants, dhabas, canteens, sweet, farsan and chikki manufacturers, certain food processing units and caterers are bulk and regular consumers of the coconut products.

5. PROJECT DESCRIPTION

a) Product & Its uses

Desiccated coconut, also known as coconut powder, is in dry form and has many applications. Its shelf life is longer and it is easy to transport. Availability of fresh coconuts is limited to coastal areas only and hence desiccated coconut is popular in all other regions.

b) Capacity

The proposed capacity of the plant is to process 16.00 lacs coconut/ annum .

c) Manufacturing process

It is simple and well established fully grown and matured coconuts of around 1 year are stored with husk for about a month to facilitate absorption of water and separation of coconut kernels from shell walls. After de-husking, their shells are

removed and brown portion (also known as tasta) is removed by scrapping it off and in this process around 12 -15% of the kernel goes as paring which is further processed to obtain oil, and thus there is a ready market for this byproduct. Subsequently, de-shelled coconuts are broken into pieces, washed and disintegrated in powder form. This powder is then dried in tray drier at about 70-80° C and powder is stirred occasionally to ensure uniform drying . On cooling, it is passed through vibratory screen with different mesh sizes to segregate the powder according to mesh size. Finally, it is packed in moisture and oil-proof polythene-lined plywood boxes of 10,25 or 50 kgs. Retail sales is not much but for that packing of 200 or 400 gams is advisable. Recovery of desiccated coconut largely depends upon quality of coconuts. But on an average, processing of 100 coconuts gives around 12-13 kgs. of coconut powder. Byproducts like parings and shell can be sold in the market.

6. PROJECT COMPONENTS & COST

a) Land & Building

Land measuring about 300 sq. mtrs. with built-up area of 100 sq. mtrs. will be adequate. Storage of coconuts with husk can be undertaken adjacent to the main building under asbestos roofing. Land may cost Rs. 1.50 lacs whereas cost of main factory building along with drying area is assumed to be Rs. 6.00 lacs

b) Plant & Machinery

For annual rated capacity the following machines shall be required :

Item	**Qty**	**Price (Rs. in lacs)**
Hot air drier with blower and other accessories	1	5.00
Disintegrator with accessories and electric motor	1	2.60
Vibratory screen with wire mesh and electric motor	1	1.40
Aluminum trays	15	0.60
Weighing Scales, Bag-sealing machine, aluminum	-	2.20

vessels, scrapping knives, plastic tubs, laboratory instruments etc.		
	Total	**11.80**

c) Miscellaneous Assets

Other assets like furniture & fixtures, working tables, electrical etc. would need Rs. 1.70

d) Utilities

Total power requirement shall be 25 HP and per day water requirement would be 5000 ltrs. The cost of utilities is estimated at Rs. 1.80 lacs.

e) Prel. & Pre Operative Expenses

An amount of Rs. 2.00 lacs is provided towards pre-production expenses like establishment, registration and administrative expenses, travelling, trial runs, interest during implementation etc.

f) Working Capital Assessment

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

(Rs. in lacs)

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of Raw material & Packing material	½ month	30%	4.50	3.15	1.35
Stock of Finished Goods	½ month	25%	5.86	4.40	1.46
Receivable	½ month	25%	6.23	4.68	1.55
Total			16.59	12.21	4.38

g) Project cost &Means of finance

Item	**Amount (Rs. in lacs)**
Land and building	7.50
Plant and machinery	11.80
Miscellaneous assets	1.70
P & P Expenses	2.00
Contingencies @ 10% on building and plant and machinery	1.78
Working capital margin	4.38
Total	29.16
Means of Finance	
Promoter's contribution	11.66
Term loan from Bank / FI	17.50
Total	29.16
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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.

7) PROJECTED PROFITABILITY

a) Production Capacity

As against the rated annual capacity of 16 lacs coconut / year, actual utilization in first year is taken at 60% and thereafter at 75%.

b) Sales Revenue at 100%

Product	**Qty (Tones)**	**Selling Price (Rs./Ton)**	**Sales (Rs. in lacs)**
Desiccated Coconut	200	1,20,000	240.00
Coconut Parings	30	50,000	15.00
Coconut Shell	60	7,000	4.20
		Total	**259.20**

c) Raw material & packing Material Required at 100%

The raw material needs are as under :

(Rs. in lacs)

Product	**Qty (Tones)**	**Rate (Rs. / Ton)**	**Value**
Coconut with husk	16.00 lacs	10.00	160.00
Packing material @ 10,000 Ton	--	--	20.00
	Total		180.00

d) Profitability statement **(Rs. in lacs)**

S. No.	**Particulars**	**1st year**	**2nd year**
A.	**Installed capacity**	**200 Tones**	
	Capacity Utilisation	60%	75%
	Sales Realisation	155.5	194.40
B.	**Cost of Production**		
	Raw material and Packing materials	108.00	135.00
	Utilities	1.08	1.35
	Salaries	12.54	13.79
	Stores and Spares	1.20	1.50
	Repairs and Maintenance	1.50	1.87
	Selling Expenses @ 10%	14.95	18.69
	Administrative Expenses	1.50	1.87
	Total	140.77	174.87
C.	**Profit before Interest & Depreciation**	**14.73**	**19.53**
	Interest on Term Loan	1.75	1.40
	Interest on Working Capital	1.46	1.83
	Depreciation.	1.78	1.60
	Net Profit	9.74	14.71
	Profit after tax	9.74	14.71

	Cash Accruals	11.52	16.31
	Repayment of Term Loan	Nil	3.50

e) Break Even Point Analysis

S. No.	Particulars	Amount (Rs. in lacs)	
(A)	**Sales**		**155.50**
(B)	**Variable Costs**		
	Raw & Packing Material	108.00	
	Utilities(70%)	0.75	
	Salaries (60%)	8.77	
	Stores and Spares	1.20	
	Selling and Distribution Exps (70%)	10.46	
	Admn Expenses (50%)	0.75	
	Interest on WC	1.46	**131.39**
(C)	**Contribution (A) – (B)**		**24.11**
(D)	**Fixed Costs**		**12.55**
(E)	**Break Even Point**		**52%**

f) Debt Service Coverage Ratio (DSCR) *(Rs. in lacs)*

Particulars	1st year	2nd year	3rd year
Cash Accruals	11.52	16.31	19.57
Interest on TL	1.75	1.40	1.35
Total (A)	13.27	17.71	20.92
Interest on TL	1.75	1.40	1.05
Repayment of TL	Nil	3.50	3.50
Total (B)	1.75	4.90	4.55
DSCR (A) / (B)	7.58	3.61	4.59
Average DSCR	5.26		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 29.16 lacs (Rs. in lacs)

Year	**Cash Accruals**	**32%**
1	11.52	8.64
2	16.31	9.29
3	19.57	8.41
4	19.57	6.26
5	Total	32.60

The IRR is 33%

h) Manpower requirement

Particulars	**Nos.**	**Monthly**	**Total Monthly Salary (Rs.)**
Skilled workers	2	7,500	15,000
Semi Skilled Workers	4	6,000	24,000
Helpers	10	5,000	50,000
Clerk	1	7,500	7,500
Salesman	**1**	**8,000**	**8,000**
		Total	**1,04,500**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 60% , 75%, 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.
- Price of raw material and selling price of finished products is taken at Rs. 10/pcs and Rs. 1,20,000/ ton respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

1. PENNWALT BERTUZZI
   J-19, Saket New Delhi -17
   Ph .011- 41764186 , 26522650 www.pennwalt.com

2. BAJAJ MASCHINEN PVT. LTD.
   7/20-27, Jai Lakhmi Industrial Estate, Site IV, Sahibabad Indl. Area,
   Distt. Ghaziabad (U.P.)
   120-4639950 -99, 4372848 Email : vp@bajajmachines.com

3. Best Engineering Technologies
   Plot No. 69 – A, No. 5-9-285/ 13, Rajiv Gandhi Nagar, Industrial Estate,
   Kukatpally, Hyderabad – 500037, www.bestengineeringtechnologies.com

4. Mather and Platt (India) Ltd.,
   805-806, Ansal Bhavan, 16, Kasturba, Gandhi Marg, New Delhi – 110001
   Ph. 23712840 / 41

PROJECT PROFILE
BANANA POWDER

1. INTRODUCTION

Banana is one of the most important fruits in India and occupies about 8.14 lacs hectares area with an annual production of about 302.82 lacs MT / year . The main banana growing states are Tamil Nadu, Maharashtra, Kerala and Andhra Pradesh and West Bengal. Banana contains about 20% sugar and reasonable amount of vitamins A, B, and C. This is considered to be a rich source of energy. It is consumed in several varieties of preparation and forms. When it is raw, it is used as a vegetable. It is easily digestible, when it is ripe, the pulp gets soft, sweet and has a pleasant aroma.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The most critical material will be ripe but fully grown Banana . Since quantity required of these items every month will not be much, no difficulty is envisaged in their procurement. Other materials like food grade colours, flavours, citric acid etc. shall be available locally. Polythene bags shall be required for packing. Production of Banana in West Bengal is estimated to be 10.77 lacs ton /year.

1.	Raw material such as sugar	-	6.00
2.	Liquid glucose	-	2.50
3.	Citric Acid	-	2.10
4.	Essences colour flavour & preservatives	-	1.00
5.	Carbon dioxide	-	0.60
6.	Activated carbon hyprocell	-	0.15
	Total		**12.35**

4. MARKET OPPORTUNITIES

Major share of the banana production in the country is consumed in fresh form. Besides, a small percentage of it is exported especially to Russia. Being highly perishable in nature there is a need to preserve this important fruit by processing into products such as banana figs, banana pulp, weaning foods for infants, clarified banana juice , powder etc. to cater to the needs of different section of the society and thereby providing incentives to the growers. The technology to manufacture these products commercially has been developed by the Central Foods Technological Research institute , Mysore, Dehydrated ripe bananas popularly known as banana figs manufactured in the small and cottage scale sector are sold as snack foods at tea stalls restaurants, railway stations and tourist places in different parts of the country.

5. PROJECT DESCRIPTION

a) Product & Its uses

Banana is one of the most important fruits in India. The main banana growing states are Tamil Nadu, Maharashtra, Kerala and Andhra Pradesh and West Bengal. Banana contains about 20% sugar and reasonable amount of vitamins A, B, and C. This is considered to be a food having rich source of energy. It is consumed in several varieties of preparation and forms. When it is raw, it is used as vegetable or cooking purposes. It is easily digestible, when it is ripe, the pulp gets soft, sweet and has a pleasant aroma. The various commercial products which can be made out of banana are pulp, juice,

powder and figs. of Banana can be used for the manufacture of cushioning material processing into fabrics and preparation of starch.

b) Capacity

The proposed capacity of the plant is to process 150 MT / annum of banana.

c) Manufacturing process

Suitable varieties of banana used for the manufacture of figs are Nendran, Cavendiah & Pachabale . Firm, ripe and good quality bananas are cleaned in fresh water, steamed if necessary peeled and are cut longitudinally into halves with stainless steel knives. The cut fruits are dipped in 1 per cent sodium bicarbonate solution for 15 minutes and are then rinsed in 0.05 per cent citric acid solution. The prepared fruit are spread on flat bottomed wooden trays and are placed in sulphuring champer.

They are kept in the chamber for one hour , sulphur is burnt at the rate of 3.6 kg. per tonne of fruit in 28.3 cubic meter sulphur chamber space. It help in improving colour and taste of the product, beside, it also checks mould growth and prevent destruction of vitamins. The sulphured fruits should be pliable, soft and sticky, with moisture content of less than 5 per cent. The dried bananas are packed in insect proof hermetically sealed containers waxed or wax lined cartons or laminated bags.

Banana Powder

The dried banana chips of uneven sizes containing less than 5 percent moisture can be converted into banana powder by pulverizing. The banana powder can be used in weaning foods for infants or in manufacturing bakery and confectionery products.

6. PROJECT COMPONENTS & COST

a) Land & Building

Building with covered area of 250 sq. mtr processing and 250 sq.mtr for ripening chamber) having the provision of processing hall, store, Office laboratory, air tight chamber of mansonary Construction for ripening bananas. The cost of the building is estimated at Rs. 22.50 lacs

b) Plant & Machinery *(Rs. in lacs)*

1.	Cross flow tunnel drier	Rs. 11..25
2.	Spare wooden trolleys	Rs. 0.80
3.	Extra wooden slat bottom drying trays	Rs. 0.30
4.	Wooden preparation tables	Rs. 0.60
5.	Sulphur house	Rs. 0.75
6.	Heat sealing machinery	Rs. 0.10
7.	Boiler	Rs. 3.50
8.	Pulverizer	Rs. 1.80
9.	Platform type weighing balance	Rs. 0.20
10.	Aluminium vessels,	Rs. 0.18
11.	Retort with hoist arrangement	Rs. 0.24
12.	Laboratory equipments	Rs. 0.80
13.	Miscellaneous equipment	Rs . 0.50
14.	Electrification & installation charges	Rs. 1.40
15.	Cost of office equipments	Rs. 0.53
	Total	**Rs. 23.00**

c) Utilities

Power requirement will be 10 HP and around 5000 ltrs. of water shall be required every day for washing, potable and sanitation purposes. 5 LPG cylinders shall be required every month. Total cost of utilities is estimated at Rs. 3.00 lacs.

d) Prel. & Pre Operative Expenses

A provision of Rs. 2.45 lacs is made towards pre-production expenses like registration, establishment and administrative expenses, travelling, interest on loan during implementation trial run expenses etc.

e) Working Capital Assessment

(Rs. in lacs)

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of packing Material	1 month	30%	1.13	0.79	0.34
Stock of Finished Goods	½ month	25%	2.02	1.51	0.51
Receivable	½ month	25%	3.00	2.25	0.75
Total			**6.15**	**4.55**	**1.60**

f) Project cost & Means of finance

Item	**Amount (Rs. in lacs)**
Land and Building	22.50
Plant and Machinery	23.00
Miscellaneous Assets	3.50
P & P Expenses	2.45
Contingencies @ 10% on Building and plant and machinery	4.55
Working capital margin	1.60
Total	**57.60**
Means of Finance	
Promoters' contribution	23.00
Term loan from Bank FI	34.60

Total	57.60
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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.

7) PROJECTED PROFITABILITY

a) Production Capacity

The rated production capacity of the plant is 150 tons / year whereas actual capacity utilization is expected to be 60% and 75% during 1st year and 2nd year respectively.

b) Sales Revenue at 100%

Product	**Qty (Tons)**	**Selling Price (Rs. / ton)**	**Total sales (Rs. in lacs)**
Banana Powder	20.00	1,50,000	30.00
Banana Figo	100.00	90,000	90.00
	Total		**120.00**

c) Raw Material Required at 100%

Product	**Qty (Tons)**	**Rate (Rs. / Ton)**	**Value (Rs. in lacs)**
Banana	150	20,000	30.00
Chemicals			3.00
Packing material			12.00
	Total		**45.00**

d) Projected Profitability

(Rs. in lacs)

S. No.	Particulars	1st year	2nd year
A.	**Installed capacity**	**150 Ton /year**	
	Capacity Utilisation	60%	75%
	Sales Realisation	72.00	90.00
B.	**Cost of Production**		
	Raw & Packing Materials	27.00	33.75
	Utilities	1.80	2.25
	Salaries	7.20	7.92
	Stores and Spares	2.10	2.62
	Repair and Maintenance	1.80	2.25
	Selling Expenses @ 20%	7.20	9.00
	Administrative Expenses	1.50	1.87
	Total	48.60	59.46
C.	**Profit before Interest & Depreciation**	**23.40**	**30.54**
	Interest on Term Loan	3.46	2.76
	Interest on Working Capital	0.55	0.68
	Depreciation.	4.55	4.09
	Net Profit	14.88	23.01
	Income-tax @ 20%	2.97	4.60
	Profit after tax	11.91	18.41
	Cash Accruals	16.46	22.50
	Repayment of Term Loan	Nil	7.00

e) Break Even Point Analysis

S. No.	Particulars	Amount (Rs. in lacs)	
(A)	**Sales**		**72.00**
(B)	**Variable Costs**		
	Raw & Packing Material	27.0	
	Utilities(70%)	1.26	
	Salaries (60%)	4.32	
	Stores and Spares	2.10	
	Selling and Distribution Exps (70%)	5.04	
	Admn Expenses (50%)	0.75	
	Interest on WC (Repair & maint.)	0.55	41.02
(C)	**Contribution (A) – (B)**		**30.98**
(D)	**Fixed Costs**		**11.59**
(E)	**Break Even Point**		**38%**

f) Debt Service Coverage Ratio (DSCR) *(Rs. in lacs)*

Particulars	1st year	2nd year	3rd year
Cash Accruals	16.46	22.50	27.00
Interest on TL	3.46	2.76	2.06
Total (A)	19.92	25.26	29.06
Interest on TL	3.46	2.76	2.06
Repayment of TL	Nil	7.00	7.00
Total (B)	3.46	9.76	9.06
DSCR (A) / (B)	5.75	2.58	3.20
Average DSCR	3.84		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 57.60 lacs

(Rs. in lacs)

Year	Cash Accruals	25%
1	16.46	13.16
2	22.50	14.62
3	27.00	14.14
4	27.00	11.42
5	27.00	8.14
Total		61.48

Internal Rate of Return IRR 25%

h) Manpower requirement

Particulars	**Nos.**	**Monthly**	**Total Monthly Salary (Rs. in lacs)**
Skilled workers	2	7,500	1.80
Semi Skilled Workers	2	6,000	1.44
Production Manager	1	10,000	1.20
Salesman	1	8,000	0.96
Others	**2**	**15,000**	**1.80**
		Total	**7.20 lacs**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 60% , 75%, 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.

- Price of raw material and selling price of finished products is taken at Rs. 20,000 / ton and Rs.1,50,000 / ton respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

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   Ph .011- 41764186 , 26522650 www.pennwalt.com

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   Distt. Ghaziabad (U.P.)
   120-4639950 -99, 4372848 Email : vp@bajajmachines.com

3. Best Engineering Technologies
   Plot No. 69 – A, No. 5-9-285/ 13, Rajiv Gandhi Nagar, Industrial Estate,
   Kukatpally, Hyderabad – 500037, www.bestengineeringtechnologies.com

4. Mather and Platt (India) Ltd.,
   805-806, Ansal Bhavan, 16, Kasturba, Gandhi Marg, New Delhi – 110001
   Ph. 23712840 / 41

PROJECT PROFILE

FRUIT WINE

1. INTRODUCTION

Fruit wine making is gradually picking up in India. Realizing the potential of this industry, some state Industrial Development Corporation has established wine parks under the Food Park scheme of the Ministry of Food Processing Industry of the Govt. of India. Apart from providing basic infrastructure facilities, these parks would have other innovative features like wine festival ground, exhibition centre, wine therapy centre etc. The Govt. has also declared a special incentive package for the grape processing industry. Thus a number of promotional schemes are available. There are around 20 grape wine producing units in the state of Maharashtra alone and many are likely to come up. Market for grape wine is continuously growing in India and abroad. This is a good product especially for some progressive farmers who are already in grape farming.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The basic raw material required for the unit is fresh and matured grapes. Production of grapes in West Bengal is negligible. However, farmers can take up cultivation of grapes in some part of the state .

4. MARKET OPPORTUNITIES

a) Demand and supply

India is a large market for wine. As against per capita consumption of European Countries of 55-60 ltrs every year, the per capita consumption in India is few spoons. It has been proved that Indian grapes (wine quality) are very good and some wineries are already catering to the quality-conscious USA and European market.

Depending upon the quality and maturity (age) prices of wine range from Rs. 600/- to few thousand rupees for a bottle of 750 ml. Due to higher import duty, imported wines are very costly. Consumption of wine is reportedly increasing @ 25% to 30% in the country. Good quality and fancy bottles and corks are also available within the country. Thus, apart from various incentives from the state & central governments, other conditions are also very positive. Hence financial viability would not be problem. Many of the existing wineries in the region have proved this aspect. Export of wine from India during the year 2010 -11, 2011-12, and 2012-13 is estimated to be Rs. 72.37 lacs, Rs.187.94 lacs and Rs. 713.75 lacs respectively.

b) Marketing Strategy :

Apart from world market, India is a very good market. Wine consumption in the country is still at nascent stage. Wine is now accepted as a health or social drink and its consumption is increasing gradually. Quality wines were mainly imported till couple of years back and hence they were very expensive . Availability of good quality Indian wine at half the price has resulted in continuous increase in demand. Gradual

awareness about basic difference between wines and hard drinks is also helping the wine industry. Thus, India provides a large virgin market for wine.

5. PROJECT DESCRIPTION

a) Product & its uses

There are various types of wines available in the world like white wine, red wine dessert wine etc. Red wine is popular in India. It is increasingly being promoted as health drink as against other hard liquors like whisky or rum.

b) Capacity

The proposed capacity of the plant is to process 360 MT / annum of grapes .

c) Manufacturing process

Wine making is a specialized line in India till now unlike in countries like France, Italy, Australia or Argentina where even the farmers have their small wineries. Hence, it is advisable to consult a wine maker. The process is as under :

- Selection of grapes, de-stoning and pressing
- In case of white wine, fermentation without skin whereas for red wine, the fermentation is undertaken with skin and then skin is removed.
- Further process involves cold treatment and filtration.
- Finally, bottling corking, foiling and labeling is undertaken.

Fermentation is the most critical stage which decides the ultimate quality.

6. PROJECT COMPONENTS & COST

a) Land & Building

Land 1000 sq. meter @ Rs. 500 sq. m	-	Rs. 5.0 lacs
Covered area 500 sq. meter @ Rs. 6000 sq. m.	-	Rs. 30.00 lacs

b) Plant & Machinery

			(Rs. in lacs)
1.	Cost of fermentation unit	-	Rs. 25.00
2.	Automatic bottle filling machine	-	Rs. 10.20
3.	Bottle washing machine a	-	Rs. 11.70
4.	Bottle collecting & revolving table	-	Rs. 3.60
5.	Water treatment plant	-	Rs. 2.10
6.	Steam boiler	-	Rs. 8.40
7.	Refrigeration unit	-	Rs. 5.50
8.	Chain & chain conveyor	-	Rs. 3.70
9.	Hand operated bottle filling machine	-	Rs. 1.70
10.	Leg operated crown corking machine	-	Rs. 0.80
11.	Light screener & other accessories	-	Rs. 0.75
12.	Volume tester-cum – purifier & other	-	Rs. 0.65
	Total	**-**	**Rs. 74.10**

c) Miscellaneous Assets

Some other assets like furniture and fixtures, working tables, storage racks and bins, D. G. set, electrical etc. would cost about Rs. 29.00 lacs.

d) Utilities

Power requirement shall be 30 HP whereas per day water requirement for processing and potable and sanitation purpose will be 50,000 litres. Annual cost of utilities at 100% utilization will be Rs. 8.40 lacs**.**

e) Prel. & Pre Operative Expenses

There will be many pre-production expenses like registration, establishment & administrative, travelling expenses, interest during implementation, trial run expenses, etc for which a provision of Rs. 2.75 lacs is made.

f) Working Capital Assessment

(Rs. in lacs)

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of raw material & packing material	¼ month	30%	2.88	2.02	0.86
Stock of Finished Goods	½ month	25%	8.15	6.12	2.03
Receivable	½ month	25%	10.00	7.50	2.50
Total			**21.03**	**15.64**	**5.39**

g) Project cost & Means of finance

Item	**Amount (Rs. in lacs)**
Land and Building	35.00
Plant and Machinery	74.10
Miscellaneous Assets	29.00
P & P Expenses	2.75
Contingencies @ 10% on building and plant & machinery	10.40
Working capital margin	5.39
Total	**156.64**
Means of Finance	
Promoters' contribution	62.65
Term loan from Bank / FI	93.99
Total	156.64
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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 & machinery for eligible projects subject to certain terms and conditions.

7) PROJECTED PROFITABILITY

a) Production Capacity

The rated production capacity of the plant is process 360 tonnes per year of grapes whereas actual capacity utilization is expected to be 60% and 75% during 1st year & 2nd year of operation respectively.

b) Sales Revenue at 100%

Product	**Qty (crates / year)**	**Selling Price (Rs. / crate)**	**Sales (Rs. in lacs)**
Grape wine	20,000	2050/-	410.00

c) Raw Material Required at 100%

Various raw material required for the unit are given below;

Product	**Qty (Tones)**	**Rate (Rs. / Ton)**	**Value (Rs. in lacs)**
Fresh grapes	360	50,000	180.00
Chemical / yeast			18.00
Packing material			
Bottles			24.00
Label / carton			9.00
Total			**231.00**

d) Projected Profitability

(Rs. in lacs)

S. No.	Particulars	1st year	2nd year
A.	**Installed capacity**	**360 Tones**	
	Capacity Utilisation	60%	75%
	Sales Realisation	246.00	307.50
B.	**Cost of Production**		
	Raw Materials & Packing Materials	138.60	173.25
	Utilities	5.04	6.30
	Salaries	20.88	22.96
	Stores and Spares	1.80	2.25
	Repairs and Maintenance	3.00	3.75
	Selling Expenses @ 10%	24.00	30.00
	Administrative Expenses	2.40	3.00
	Total	**195.72**	**241.51**
C.	**Profit before Interest & Depreciation**	**50.28**	**65.99**
	Interest on Term Loan	9.39	7.89
	Interest on Working Capital	1.87	2.34
	Depreciation.	10.40	9.36
	Net Profit	28.62	46.40
	Income-tax @ 20%	2.86	4.64
	Profit after tax	25.76	41.76
	Cash Accruals	36.16	51.12
	Repayment of Term Loan	Nil	15.00

e) Break Even Point Analysis

S. no.	Particulars	Amount (Rs. in lacs)	
(A)	**Sales**		**246.00**
(B)	**Variable Costs**		
	Raw Material & Packing material	138.60	
	Utilities(70%)	3.52	
	Salaries (60%)	12.52	
	Stores and Spares	1.80	
	Selling Exps (70%)	16.80	
	Admn Expenses (50%)	1.20	
	Interest on WC	1.87	**176.31**
(C)	**Contribution (A) – (B)**		**69.69**
(D)	**Fixed Costs**		**30.67**
(E)	**Break Even Point**		**44%**

f) Debt Service Coverage Ratio (DSCR) *(Rs. in lacs)*

Particulars	1st year	2nd year	3rd year
Cash Accruals	36.16	51.12	61.34
Interest on TL	9.39	7.89	6.39
Total (A)	45.55	59.01	67.63
Interest on TL	9.39	7.89	6.39
Repayment of TL	Nil	15.00	15.00
Total (B)	9.39	22.89	21.39
DSCR (A) / (B)	4.85	2.57	3.16
Average DSCR	3.52		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 156.64 lacs **(Rs. in lacs)**

Year	**Cash Accruals**	**24%**
1	36.16	28.92
2	51.12	33.22
3	61.34	32.14
4	61.34	25.94
5	61.34	20.91
6	61.34	16.86
Total		157.99

The IRR in 15%

h) Manpower requirement

Particulars	**Nos.**	**Monthly**	**Total Monthly Salary (Rs.)**
Manger	1	10,000	10,000
Sales Manager	1	8,000	8,000
Purchase Officer	1	8,000	8,000
Accountant cum cashier	1	8,000	8,000
Clerk	2	5,000	10,000
Steno-cum- Typist	2	5,000	10,000
Salesman-cum- Driver	1	5,000	5,000
Chief Chemist	1	10,000	10,000
Production Chemist	2	6,000	12,000
Maintenance Engineer	1	8,000	8,000
Laboratory Chemist	1	8,000	8,000
Mechanic	2	8,000	16,000

Skilled workers	5	7,000	35,000
Unskilled workers	5	6,000	30,000
Total			**1.74 lacs**

8. ASSUMPTIONS

- The plant will work for 200 days in a year. :
- The operating capacity is 60% , 75%, 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.
- Price of raw material and selling price of finished products is taken at Rs. 50,000 / ton and Rs. 2,050/ crate respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

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PROJECT PROFILE
PINEAPPLE PROCESSING

1. INTRODUCTION

Fruits are an important source of energy. However, their availability is seasonal and they are perishable. Hence, they need to be processed and preserved which also results in value addition. India is endowed with many varieties of fruits. Amongst these fruits, pineapple and orange are very popular and number of processed products like juices, squashes, jam, marmalades etc. can be made from them.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The all important raw materials shall be fresh pineapples. It is estimated that around - 10.50 lacs hectares are covered under pineapple cultivation in West Bengal. Total production is estimated to be 3.21 lacs MT / year. Pineapples are available from August to October and December to February. Even at 100% capacity utilization the project would require 250 MT of pineapples . Hence availability will not be a bottleneck. Other items like additives, preservatives, sugar etc. shall also be required in small quantities.

Packing materials like food grade plastic bottles or glass bottles shall also be required in large quantities for which proper supply arrangements shall have to be made.

4. MARKET OPPORTUNITIES

Fruit are popular amongst all age groups. But fresh fruit are available only during specific season and that too-for 2-3 months every year . Hence downstream product made from fresh fruits have become popular especially in urban and semi- urban areas. But of late, demand from rural areas is also going up. Apart from households, they are sold at many places like restaurants, clubs, railway stations and bus-stops, cold drink houses, picnic or tourist spots and many such places. With growing disposable income and changing lifestyle, such products have witnessed an increase in demand. Export of pineapple juice during the year 2010-11,2011-12 & 2012-13 is estimated to be Rs. 22.16 lacs, Rs. 2.05 lacs and Rs. 25.76 lacs respectively. Whereas Export of pineapple squash during the year 2010-11,2011-12 & 2012-13 is estimated to be Rs. 31.21 lacs, Rs. 59.87 lacs and Rs. 33.61 lacs respectively

5. PROJECT DESCRIPTION

a) Product & Its uses

Pineapples are grown in large quantities in many parts of the country including the North- East region and West Bengal. Fruits are perishable in nature and for their preservation, they need to be processed to make juice, squashes, jam etc. This product note is confined to making pineapple juice and squash . The preferred location is any part of West Bengal.

b) Capacity

The proposed capacity of the plant is to process 250 MT / annum of pineapple .

c) Manufacturing process

The important steps involved in making fruit juice and squash are

- Washing , cleaning grading and peeling of fruits.

- Juice extraction and filtration for removal of seed and fibres
- Juice processing, sterilization and mixing of preservatives
- In case of squashes, juice is mixed with syrup of sugar, citric acid and water and this mixture is stirred till uniform solution is formed.

6. PROJECT COMPONENTS & COST

a) Land & Building

Built up area of about 300 sq. mtrs. shall be adequate. A building of this size could cost around Rs. 18.00 lacs. About 150 sq. mtrs would constitute production area whereas balance space can be utilized for packing and storage. In addition to this land area of 500 sq.m will cost Rs. 2.50,000/-

b) Plant & Machinery

To ensure financial viability of the project, it is desirable to install production capacity of 100 tonnes of juice and also 100 MT of squash per year, considering around 250 working days due to non-availability of fruits during about 3 months. To have this production capacity, the following equipments are required :

(Rs. in lacs)

Item	**Qty**	**Price**
Fruit washing tanks	2	0.50
Juice extractors	2	5.00
Steam jacketed kettles	2	1.50
Stirrer	1	0.25
Bottle washing machine filling machines	1	3.50
Baby boiler (100 kgs. capacity)	1	3.00
Testing equipment	-	1.25
Mixing tank	1	1.00
	Total	**16.00**

c) Miscellaneous Assets

The project would require other assets like exhaust fans, stainless steel vessels for storage, furniture, storage racks etc. for which a provision of Rs. 3.00 lacs is necessary.

d) Utilities

Total power requirement shall be 40 HP whereas water requirement per day shall be 5000 ltrs. Annual expenditure under this heads at 100 % capacity utilization would be around Rs. 2.50 lacs/-

e) Prel. & Pre Operative Expenses

Expenses like registration and establishment, trial run expenses, interest during implementation period etc. are expected to be Rs. 2.50 lacs.

f) Working Capital Assessment

At 60 % activity level in the first year, bank finance for working capital shall be Rs. 4.76 lacs whereas margin to be brought in by the promoters is Rs. 1.67 lacs totaling to Rs. 6.43 lacs . The exact calculations are as under :

(Rs. in lacs)

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of Raw Material / Packing material	½ month	30%	1.37	0.96	0.41
Stock of Finished Goods	½ month	25%	2.44	1.83	0.61
Receivable	½ month	25%	2.62	1.97	0.65
Total			**6.43**	**4.76**	**1.67**

g) Project cost &Means of finance

Item	**Amount (Rs. in lacs)**
Land and Building	20.50
Plant and Machinery	16.00
Miscellaneous Assets	3.00
P & P Expenses	2.50
Contingencies @ 10% on building and plant & machinery	3.40
Working capital margin	1.67
Total	**47.07**
Means of Finance	
Promoters' contribution	18.83
Term loan from Bank /FI	28.24
Total	47.07
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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.

7) PROJECTED PROFITABILITY

a) Production Capacity

The rated production capacity of the plant is 250 tons per year whereas actual capacity utilization is expected to be 60% and 75 during 1st year and 2nd year respectively.

b) Sales Revenue at 100%

Product	**Qty (Tones)**	**Selling Price (Rs. / Ton)**	**Sales (Rs. in lacs)**
Pineapple Juice	100	60,000	60.00
Pineapple Squash	100	55,000	55.00
Total			**115.00**

c) Raw Material Required at 100%

Detail of various raw material required are given below ;

(Rs. in lacs)

Product	**Qty (Tons)**	**Rate (Rs./ Ton)**	**Value**
Pineapple	250	12,000	30.00
Sugar	45	30,000	13.50
Additives preservatives, flavours etc.	-		1.50
Packing Material	-		10.0
	Total		**55.00**

d) Profitability statement

(Rs. in lacs)

S. No.	**Particulars**	**1st year**	**2nd year**
A.	**Installed capacity**	**250 Tones**	
	Capacity Utilisation	60%	75%
	Sales Realisation	69.00	86.25
B.	**Cost of Production**		
	Raw & packing Materials	33.00	41.25
	Utilities	1.80	2.25
	Salaries	6.1	6.71
	Stores and Spares	1.5	1.87
	Repairs and Maintenance	1.20	1.50
	Selling Expenses @ 10%	6.30	7.87
	Administrative Expenses	1.50	1.87
	Total	51.40	63.32
C.	**Profit before Interest & Depreciation**	**17.60**	**22.93**

	Interest on Term Loan	2.82	2.32
	Interest on Working Capital	0.57	0.71
	Depreciation.	3.40	3.06
	Net Profit	10.81	16.84
	Profit after tax	10.81	16.84
	Cash Accruals	14.21	19.90
	Repayment of Term Loan	Nil	5.0

e) Break Even Point Analysis

S. No.	**Particulars**	**Amount (Rs. in lacs)**	
(A)	**Sales**		**86.25**
(B)	**Variable Costs**		
	Raw & Packing Material	91.25	
	Utilities(70%)	1.57	
	Salaries (60%)	4.69	
	Stores and Spares	1.87	
	Selling Exps (70%)	5.50	
	Admn Expenses (50%)	1.30	
	Interest on WC	0.71	56.85
(C)	**Contribution (A) – (B)**		**29.40**
(D)	**Fixed Costs**		**9.42**
(E)	**Break Even Point**		**32%**

f) Debt Service Coverage Ratio (DSCR) ***(Rs. in lacs)***

Particulars	**1st year**	**2nd year**	**3rd year**
Cash Accruals	14.21	19.90	23.87
Interest on TL	2.82	2.32	1.82
Total (A)	17.03	22.22	25.69

Interest on TL	2.82	2.32	1.82
Repayment of TL	Nil	5.00	5.00
Total (B)	2.82	7.32	6.82
DSCR (A) / (B)	6.10	3.03	3.76
Average DSCR	4.29		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 47.07 lacs

(Rs. in lacs)

Year	**Cash Accruals**	**24%**	**28%**
1	14.21	11.45	11.09
2	19.90	12.93	12.13
3	23.87	12.50	11.38
4	23.87	10.09	8.90
5	23.87	8.13	6.94
5		55.10	50.44

The IRR is around 28%

h) Manpower requirement

Particulars	**Nos.**	**Monthly**	**Total Monthly Salary (Rs.)**
Skilled workers	2	7,500	15,000
Semi Skilled Workers	3	6,000	18,000
Helpers	4	5,000	20,000
Salesman	1	8,000	8,000
		Total	**61,000/-**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 60% , 75%, 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.
- Price of raw material and selling price of finished products is taken at Rs. 12,000 / ton and Rs. 55,000 / ton respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

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PROJECT PROFILE
OSMODRIED FRUITS

1. INTRODUCTION

Fruits & Vegetables are available during specific seasons and they are perishable. Hence, majority of them are not available during off season. To overcome this problem, dehydration technique has been developed by which fruits in dehydrated form are preserved for a longer period and are made available during off-season. With this technology, certain high value and popular fruits & vegetables can be profitably sold in the market.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The all-important raw material will obviously be fresh fruits . Hence, the location of the project has to be nearer to fruits growing areas. Depending upon the availability of fruits during different seasons, the product mix may change. Likewise the prices of raw material would also change depending upon the exact product mix and crop pattern. Prices of fruits vary and the product mix may also change according to quantum of crop and consumer preference . Hence, it is not feasible to arrive at variety-wise fruit & vegetable required every month and their individual prices. Therefore, average price of each fruits is taken at Rs. 20000/- per ton. The packing materials will be

plastic bags made from suitable grade plastic, corrugated boxes, box strapping, labels etc. Total production of fruits in the country is estimated to be 805.57 lacs ton /year whereas total production of fruits in West Bengal is estimated to be 31.36 lacs ton /year.

4. MARKET OPPORTUNITIES

a) Demand and Supply

Food habits of Indians are such that most of the house hold require fruits every day. Due to climatic condition and types of soil, many fruits & vegetable are cultivated throughout the year. The major limitation of bulk of the fruits is that they are grown only during pre-determined season which lasts for 3-4 months and thus their availability during rest of the months is a major problem. Hence, if they are made available during this period then they command a premium. Green house method enables cultivation of any fruits during any season but call for huge investment which affects the economic viability. Dehydration technique is therefore, preferred. Total export of dehydrated fruits & vegetable from India during the year 2010-11,2011-12 & 2012-13 is estimated to be Rs. 51563.40 lacs, Rs. 702320.99 lacs and Rs. 86390.06 lacs respectively.

b) Marketing Strategy

With growing income, changing lifestyles and hectic daily schedule, market for dehydrated fruits is growing especially in urban areas. Proper placement of products in the departmental stores, super markets, shopping mall etc. backed up by publicity is the key to success . It is also possible to have tie-up with exclusive restaurants, star hotels renowned caterers etc. for regular supplies.

5. PROJECT DESCRIPTION

a) Product & Its uses

Dehydration technology is well established and proven. Certain products like banana, mango etc. command good price during lean and off-season. Banana and mango

powder also has good demand round the year but these products are generally available throughout the year and powder is somehow not favoured by many. This project can be set up in many different part of the country but this note considers West Bengal as the preferred location.

b) Capacity

The proposed capacity of the plant is to process 600 MT / annum of fruits.

c) Manufacturing process

This note primarily considers dehydration of fruits. Fruits are chopped to make small pieces and washed. Then they are blanched and dried in air. These dehydrated fruits are then packed and stored carefully. Packing is very critical as any fungal growth would damage the product. Process and weight loss varies from fruit to fruit, but on an average it is 25 % as the fruits are dehydrated. In other words, the input-output ration is 4:1.

6. PROJECT COMPONENTS & COST

a) Land & Building

The plot of about 500 sq. mtrs is required. The built up area requirement will be 220 sq. mtrs. Storage of fruits would require area of 35 sq. mtrs, whereas packing room and finished good godown will occupy about 60 sq. mtrs. fruits washing tanks could be constructed adjacent to the raw material godown with asbestos sheets. Main production hall will be of around 100 sq. mtrs. and balance 25 sq. mtrs could be allotted for office and laboratory. The entire area has to be neat and clean and completely hygienic. Considering price of land @ Rs. 500/- per sq. mtr. the total cost of land would be Rs. 2.50 lacs whereas that of civil work it will be Rs. 13.20 lacs. Construction cost is taken on a higher side as flooring, painting etc. of the building has to be of superior quality to maintain hygienic standards.

b) Plant & Machinery

Easy and regular availability of fresh fruits during each season and nearby urban markets are the critical aspects for arriving at the installed production capacity for the purpose of this note and with a view to minimizing initial capital investment. The rated capacity is taken at 600 tons and 300 working days. The following machine shall be required. **(Rs. in lacs)**

Item	**Qty**	**Price**
Washing tanks with sets of cubers , slicers, etc,	2	1.00
Blanching tank with thermostat control	1	2.50
Stacking trays for fruits	1	0.50
Pre-cooling facility for fruits	1	2.50
Vibratory shakers	1	1.20
Fluidized bed dryer to dehydrate fruits complete with all attachments	1	7.00
Hot water boiler with attachments	1	2.50
Automatic form, fill and seal machines complete with attachments	1	3.75
Pin mill with accessories of 50 kgs /hr. capacity	1	4.25
Testing equipments	1 set	1.25
Electrification		2.00
Total		**28.45**

c) Miscellaneous Assets

Other assets like storage racks and bins, aluminum top working tables, exhaust fans, furniture and fixtures, electrical, plastic trays/ jars / tubs, office equipment etc. shall be required for which a provision of Rs.3.25 lacs is made.

d) Utilities

Power requirement shall be 30 HP whereas water required for washing of fruits and for potable and sanitary purposes will be 20000 litrs /day. Total cost of utilities is estimated to be Rs. 3.75 lacs.

e) Prel. & Pre Operative Expenses

There will be many expenses under this category like registration charges, market survey expenses, scrutiny fee of the financial institution, pre production administrative overheads including salaries, travelling, interest during construction and implementation period, trial run expenses and so on. Hence, a provision of Rs. 3.50 lacs is made.

f) Working Capital Assessment

As against rated capacity of 600 tonnes per year, capacity utilization of 60% is assumed in the first year. At this activity level, the project would require working capital of Rs. 7.09 lacs as worked out here below:

(Rs. in lacs)

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of Raw Material & packing materials	½ month	25%	3.25	2.44	0.81
Stock of Finished Goods	½ month	25%	4.19	3.15	1.04
Receivable	½ month	25%	4.75	3.57	1.18
		Total	**12.19**	**9.16**	**3.03**

g) Project cost & Means of finance

Item	**Amount (Rs. in lacs)**
Land and Building	15.70
Plant and Machinery	28.45
Miscellaneous Assets	3.25
P & P Expenses	3.50
Contingencies @ 10% on Building and plant and machinery	4.16
Working capital margin	3.03
Total	**58.09**
Means of Finance	
Promoters' contribution	23.23
Term loan from Bank / FI	34.86
Total	58.09
Debt Equity Ratio	1.5:1
Promoters contribution	40%

Financial assistance in the form of grant is available from the Ministry of Food Processing Industries, Govt. of India, towards the expenditure on technical civil works and plant and machinery for eligible projects subject to certain terms and conditions.

7) PROJECTED PROFITABILITY

a) Production Capacity

The rated production capacity of the plant is 600 tonnes per year whereas actual capacity utilization is expected to be 60% and 75% during 1st year and 2nd year respectively.

b) Sales Revenue at 100%

As explained above, there will not be exact sales mix every month. It will vary according to the availability of vegetables and their prices and consumer demand or preferences . A firm tie-up with a large buyer may also change the sales mix. Hence, average price realization is taken at Rs. 1.26 lacs per ton or Rs. 189.00 lacs per year.

c) Raw Material Required at 100%

The total requirement of raw material is estimated at 600 MT/ annum.

Product	**Qty (Tones)**	**Rate (Rs. / Ton)**	**Value (Rs. in lacs)**
Vegetable	600	20	120.00
Packing Material			4.80
		Total	**124.80**

d) Profitability statement

(Rs. in lacs)

S. No.	**Particulars**	**1st year**	**2nd year**
A.	**Installed capacity**	**600 Tones**	
	Capacity Utilisation	60%	75%
	Sales Realisation	114	142
B.	**Cost of Production**		
	Raw & Packing Materials	78.00	93.00
	Utilities	2.25	2.81
	Salaries	11.16	12.27
	Stores and Spares	0.90	1.12
	Repairs and Maintenance	1.20	1.50
	Selling Expenses @ 5%	5.65	7.10
	Administrative Expenses	1.80	2.25

	Total	**100.56**	**120.05**
C.	**Profit before Interest & Depreciation**	**13.44**	**21.95**
	Interest on Term Loan	3.48	2.78
	Interest on Working Capital	1.09	1.37
	Depreciation.	4.16	3.74
	Net Profit	4.70	14.06
	Profit after tax	4.71	14.06
	Cash Accruals	8.87	17.80
	Repayment of Term Loan	Nil	7

e) Break Even Point Analysis

S. No.	**Particulars**	**Amount (Rs. in lacs)**	
(A)	**Sales**		**142.00**
(B)	**Variable Costs**		
	Raw Material	93.00	
	Utilities(70%)	**1.96**	
	Salaries (60%)	6.13	
	Stores and Spares	1.12	
	Selling and Distribution Exps (70%)	3.15	
	Admn Expenses (50%)	0.45	
	Interest on WC	1.37	**107.18**
(C)	**Contribution (A) – (B)**		**34.82**
(D)	**Fixed Costs**		**13.05**
(E)	**Break Even Point**		**38%**

f) Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	**1st year**	**2nd year**	**3rd year**
Cash Accruals	8.87	17.80	21.35
Interest on TL	0.48	2.78	2.08
Total (A)	**12.35**	**20.58**	**23.43**
Interest on TL	3.48	2.78	2.08
Repayment of TL	Nil	7.00	7.00
Total (B)	3.48	9.78	9.08
DSCR (A) / (B)	3.54	2.10	2.58
Average DSCR	2.74		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 56.83 lacs (Rs. in lacs)

Year	**Cash Accruals**	**24%**	**16%**	**18%**
1	8.87	7.09	7.64	7.51
2	17.80	11.57	13.22	12.78
3	21.35	11.18	13.68	13.00
4	21.35	9.03	11.78	11.01
5	21.35	7.28	10.16	9.32
6	21.35	46.35	8.75	7.89
	Total		**65.23**	**61.51**

The IRR is around 19%.

h) Manpower requirement

Particulars	Nos.	Monthly salary	Total Monthly Salary (Rs.)
Machine operator	2	8500	17,000
Skilled Worker	2	8500	17,000

Semi Skilled Workers	4	6000	24,000
Helpers	3	5000	15000
Laboratory Technician	1	8000	7000
Salesman	1	8000	8000
Clerk	1	7000	7000
		Total	**93,000**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 60%, 75%, 90 % during 1st year, 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.
- Price of raw material and selling price of finished products is taken at Rs. 20,000 / ton and Rs. 1.26 lacs/ ton respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

1. PENNWALT BERTUZZI
   J-19, Saket New Delhi -17
   Ph .011- 41764186 , 26522650 www.pennwalt.com

2. BAJAJ MASCHINEN PVT. LTD.
   7/20-27, Jai Lakhmi Industrial Estate, Site IV, Sahibabad Indl. Area,
   Distt. Ghaziabad (U.P.)
   120-4639950 -99, 4372848 Email : vp@bajajmachines.com

3. Best Engineering Technologies
   Plot No. 69 – A, No. 5-9-285/ 13, Rajiv Gandhi Nagar, Industrial Estate,
   Kukatpally, Hyderabad – 500037, www.bestengineeringtechnologies.com

4. Mather and Platt (India) Ltd.,
   805-806, Ansal Bhavan, 16, Kasturba, Gandhi Marg, New Delhi – 110001
   Ph. 23712840 / 41