PROJECT PROFILE ON SWEET POTATO CHIPS MAKING UNIT

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INTRODUCTION

Sweet potatoes contains rich nutrients like complex carbohydrates, dietary fiber and beta-carotene, while having moderate contents of other micronutrients, vitamin A, vitamin C, etc. and have very good food values. It can prevent many diseases. The colour of this root vegetable is mostly red, purple and brown. Sweet potato grows most of the states in India. The country produces about 1500 thousand tonnes of sweet potatoes. Most producing states are Odisha, Kerala, Uttar Pradesh, West Bengal, Madhya Pradesh, Chhattisgarh, etc.

Healthy and nutritious snack products from sweet potatoes are produced from sweet potatoes. These chips have huge demand worldwide. Those chips can be produced by different methods like - fried deep-fried, dehydrated, dried and baked. Vacuum frying is a reasonably new technology which uses lower pressure and temperature rather than atmospheric deep-fat frying to improve the quality attributes of food products. The basic chips are cooked and salted; additional varieties are manufactured using various flavorings and ingredients including herbs, spices, cheeses, other natural flavors, artificial flavors and additives.

PRODUCTS AND ITS APPLICATION

- Sweet potato chips are mainly used for snacks.
- Some of the African countries use raw sweet potatoes as food.
- In India, it is roasted slow over kitchen coals and eaten with some dressing--primarily salt, yogurt. Street vendors also sale those items during winter.

DESIRED QUALIFICATION FOR PROMOTER

No proper qualification require for sweet potato chips preparation.

INDUSTRY OUTLOOK/TREND

According to the findings by WHO, there are as many as 350 primary immunodeficiency diseases in the world. While this makes a multitude of people vulnerable to these diseases, in an era of health-consciousness, it also opens up the market for food products such as sweet potato that aid to the immune system. As per WBOC report, Global Sweet Potato Fries Market size was USD 3459.9 million and it is expected to reach USD 5969.3 million by the end of 2026, with a CAGR of 11.1% during 2021-2026.

India is one of the major exporter of sweet potato chips. Australia, Malaysia, Philippines, Thailand, Indonesia, Singapore, Nepal, Kuwait, etc. are the main importer of sweet potato chips. During 2020-21, India exported around 45,267.85 thousand tonnes of chips to the world.

HS Code: 20041000

Year	Exports Value in Rs. Lakhs
2021-22 (April-June)	12306.80
2020-21	31422.52
2019-20	21719.20
2018-19	13,457.19

Source: Ministry of Commerce & Industries

MARKET POTENTIAL AND MARKETING ISSUES, IF ANY

Importance of Sweet potatoes and its byproduct is rising day by day. It is one of the food supplement for malnourished people. Consumers are opting for snacks that are loaded with healthy nutrients, including vitamins, minerals, and proteins, rather than traditional meals. Manufacturers are launching innovative products under different categories, such as organic, low salt, and fat-free snacks to attract more consumers, especially the millennial and gen-z population.

PROJECT ASSUMPTIONS

- Capacity of the unit is 150 MT per year
- First Year capacity utilization is 55% in second 65% in third 75% in fourth year 90% in fifth years and 100%.
- Working days is 300 days per year
- Working hours is 8-10 hours per day
- Wastage @10%
- 3.5 kg sweet potato gives 1 kg sweet potato chips

RAW MATERIAL REQUIREMENTS

For fried sweet potato chips, sweet potatoes and vegetable oils are the main ingredients. A sustainable food-processing unit must ensure maximum capacity utilization and thus requires an operation of minimum 280-300 days per year to get reasonable profit. Therefore, ensuring uninterrupted raw materials supply requires maintenance of adequate raw material inventory. The processor must have linkage with farmer producer organizations (FPOs) through legal contract to get adequate quantity and quality of raw materials which otherwise get spoiled. In the sweet potato chips manufacturing project, the unit requires 865 kg/day, 1021kg/day, 1179 kg/day, 1414 Kg/day & 1571 kg/day sweet potatoes at 55, 65, 75, 90 & 100 percent capacity utilization, respectively.

Sl. No.	Particulars	Rate (KG) in INR
1	Sweet Potato	7
2	Vegetable oil	130

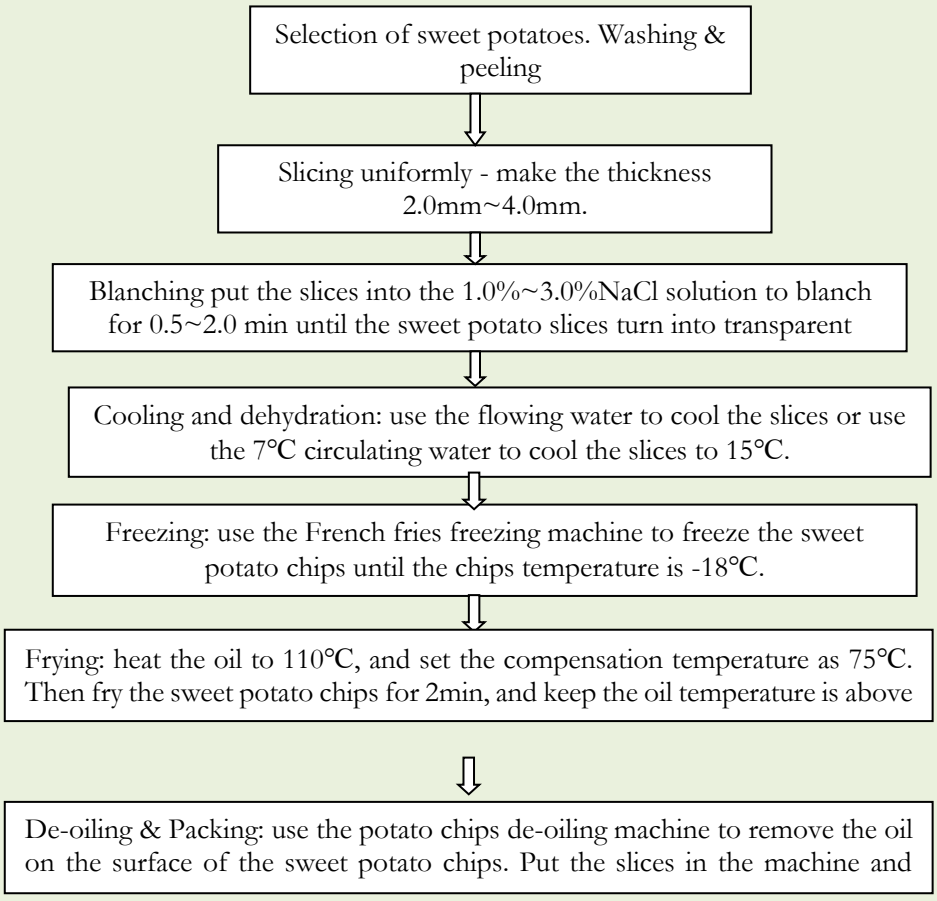
3	Other materials	3
4	Packing materials	6

Raw material requirement per year

Sl. No.	Particulars	Raw Material Requirement per year (Assumptions of capacity utilization)				
		1st	2nd	3rd	4th	5th
1	Capacity utilization	55%	65%	75%	90%	100%
2	Per day requirement of sweet potato for processing (assuming 8 hrs shift) KG	865	1021	1179	1414	1571
3	Per annum requirement of sweet potato (assuming 300 days in a year) MT	259	306	354	424	471
4	Vegetable oil requirement (MT) per annum	24.75	29.25	33.75	40.50	45.00
5	Other raw materials (MT) per annum	1.7	2.0	2.3	3.0	3.3
6	Packing materials (MT) per annum	82.5	195	225	270	300

MANUFACTURING PROCESS

Sweet potato chips are made from fresh sweet potatoes, with high nutritious value. Process flow chart of preparation of sweet potato chips is as follows:



MANPOWER REQUIREMENT (PER MONTH)

Type	Number	Cost (Rs.)
Supervisor	1	18,000
Technician	1	16,000
Semi-skilled labour	2	14,000
Helper	1	6,000
Salesman	1	12,000
Total per month	6	66,000
Total per annum		12,72,000

LAND

Particulars	Units	Details
Land and building	Sq. Ft.	(20 x 32 x 12 ft - LxBxH)
If rented area, rent	Rs.	50000

MACHINERY SPECIFICATIONS

Types of machinery	Quantity	Price (Rs. Lakh)
Cold store sq. meter (9000 kg)	1	10.00
Washing tank (500 litre)	1	0.50
Cutter/Slicer (500 kg/hr)	1	2.50
Blanching kettle (300 litre) gas operated	1	1.00
Dryer (120 kg/batch)	1	2.10
Deep fat frying kettle Gas Operated (100 litre)	1	0.50
Continuous sealing machine (suitable)	1	0.25
Weighing balance	1	0.06
Accessories (suitable)		0.50
Total		17.50

Total cost of the above machineries come around 17.50 lakh excluding GST and transportation cost.

Utilities: Expense on Power & water connection 0.90 lakh

Furniture & Fixture: Expense on furniture & fixtures are 1 lakh

Pre-operative expense: Expenditure on Legal expenses, start-up expenses, Establishment cost, consultancy fees, trials and others 1 lakh

Contingencies: 1.20 lakh

COST OF THE PROJECT

Sl. No	Particulars	Cost (Rs. Lakh)
1	Land rent	6.00
2	Plant & Machinery	17.50
3	Utilities	0.90
4	Furniture	1.00
5	Pre-operative expense	1.00
6	Contingencies	1.20
4	Working Capital	6.40
	Total	**34.00**
	Means of Finance	
	Subsidy	10.00
	Promoters contribution	8.00
	Term loan (@10%)	16.00

IMPLEMENTATION SCHEDULE

	Months……						
Project Stages	1	2	3	4	5	6	7
Acquisition of Land							
Ordering of Machinery							
Delivery of Machinery							
Term/Wkg Loan Sanction							
Installation of Machinery							
Commissioning of Plant							
RM/Inputs Procurement							
Manpower Appointments							
Commercial Production							

WORKING CAPITAL ASSESSMENT

Particulars	Period	Year 1 (55%)	Year 2 (65%)	Year 3 (75%)
Raw material stock	7 days	2.29	2.70	3.69
Work in progress	15 days	4.58	5.41	7.37
Packing materials	15 days	0.45	0.53	0.73
Finished goods' Stocks	15 days	5.80	6.85	9.34
Receivables	30 days	11.60	13.70	18.69

Working expenses	30 days	0.89	1.05	1.43
Total current assets		25.60	30.25	41.25
Margin money (25%)		6.40	7.56	10.31
Bank Finance		19.20	22.69	30.94

PROFITABILITY CALCULATION

Sl. No.	Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
A	Install capacity	82.5	97.5	112.5	135	150
	Capacity Utilization	55%	65%	75%	90%	100%
B	Expenditure (in lakh)					
B1	Sweet potato	18.15	21.45	24.75	29.7	33
B2	Oil	32.18	38.03	43.88	52.65	58.5
B3	Other material	0.05	0.06	0.07	0.09	0.1
B4	Packing materials	4.95	11.7	13.5	16.2	18
B5	Utilities (Electricity & Fuel)	1.04	1.23	1.42	1.7	1.89
B6	Salaries	4.62	12.72	12.72	12.72	12.72
B7	Repair & Maintenance	0.50	0.80	0.90	0.90	0.90
B8	Insurance	0.30	0.30	0.30	0.30	0.30
B9	Miscellaneous	2.30	2.30	2.30	2.30	2.30
	Total	**64.09**	**88.59**	**99.84**	**116.56**	**127.71**
C	Total Sales (Avg price 170 kg)	**140.25**	**165.75**	**191.25**	**229.5**	**255**
D	PBDIT (Total sales – Total expenditure)	**76.16**	**77.16**	**91.41**	**112.94**	**127.29**
E1	Depreciation on machineries (@10%)	1.75	1.57	1.41	1.28	1.14
E2	Depreciation on Furniture & Fixtures (@10%)	0.1	0.09	0.08	0.07	0.06
E3	Interest on term loan (@10%)	1.8	1.8	1.8	1.8	1.8
E4	Interest on working capital loan (@10%)	1.92	2.26	3.09	3.09	3.09
F	Profit after deducting depreciation & Interest	70.59	71.44	85.03	106.7	121.2
G	Tax (@30%)	21.18	21.43	25.51	32.01	36.36
H	Profit after deducting tax	49.41	50.01	59.52	74.69	84.84

BREAK EVEN POINT ANALYSIS

Sl. No.	Particulars	Year 1	Year 2	Year 3	Year 4	Year 5
A	Install capacity	82.5	97.5	112.5	135	150
	Capacity Utilization	55%	65%	75%	90%	100%
B	Fixed Cost					
B1	Salary	4.62	12.72	12.72	12.72	12.72
B2	Depreciation on machineries (@10%)	1.75	1.57	1.41	1.28	1.14
B3	Depreciation on Furniture & Fixtures (@10%)	0.1	0.09	0.08	0.07	0.06
	Interest on term loan (@10%)	1.8	1.8	1.8	1.8	1.8
B4	Insurance	0.30	0.30	0.30	0.30	0.30
	Total Fixed Cost (in lakh)	**8.57**	**16.48**	**16.31**	**16.17**	**16.02**
C	**Sales revenue (in lakh)**	**140.25**	**165.75**	**191.25**	**229.50**	**255.00**
D	Variable Cost					
D1	Sweet potato	18.15	21.45	24.75	29.7	33
D2	Oil	32.18	38.03	43.88	52.65	58.5
D3	Other material	0.05	0.06	0.07	0.09	0.1
D4	Packing materials	4.95	11.7	13.5	16.2	18
D5	Utilities (Electricity & Fuel)	1.04	1.23	1.42	1.7	1.89
D6	Casual Staff Salaries	6.00	6.00	6.00	6.00	6.00

D7	Repair & Maintenance	0.50	0.80	0.90	0.90	0.90
D8	Interest on working capital loan (@10%)	1.92	2.26	3.09	3.09	3.09
D9	Miscellaneous	2.30	2.30	2.30	2.30	2.30
	Total Variable Cost (in lakh)	**67.09**	**83.83**	**95.91**	**112.63**	**123.78**
E	Net Profit	49.41	50.01	59.52	74.69	84.84
F	Break Even Point % Net profit X100/Net Profit + Fixed Cost	108.57	116.48	116.31	116.17	116.02

References

- Video link- https://youtu.be/A5M58CKmGpI

MANUFACTURES/ SUPPLIERS OF MACHINERY

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STATUTORY/ GOVERNMENT APPROVALS

There is statutory requirement of FSSAI license for setting up of food processing industry. Moreover, MSME & GST registration, IEC Code for Export of end products and local authority clearance may

be required for Shops and Establishment, for Fire and Safety requirement and registration for ESI, PF and Labour laws may be required if applicable. Entrepreneur may contact State Pollution Control Board where ever it is applicable.

DISCLAIMER:

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

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