Potato/Banana Wafers

PRODUCT CODE	:	219804001 only for Patato Wafers
QUALITY AND STANDARDS	:	PFA Regulations and BIS
PRODUCTION CAPACITY	:	Qty. : 60 MT and Value: Rs. 39 lakhs
MONTH AND YEAR OF PREPARATION	:	May, 2003
PREPARED BY	:	Small Industries Service Institute 65/1, G.S.T. Road, Guindy Chennai - 600032 Tamil Nadu

Introduction

In India around 12 million tonnes of potato is grown which is about 4% of the total world production. However, the per capita consumption of potatoes is low. It is estimated that 25% of the potatoes, which are spoiled due to various reasons such as transportation, type of packing, non-availability of cold storage capacities during harvesting season, glut in the market etc., could be saved by making various preserved potato products. Potato wafer is one of such products which has a great potential as this is considered as one of the traditional foods of India. Potato wafers are needed to be made in a scientific manner and under hygienic conditions.

Banana is one of the most important fruits in India and occupies about 27.4 thousand hectares area with an annual production of about 42.33 thousand tonnes. The main banana growing states are: Tamil Nadu, Maharashtra, Kerala and Andhra Pradesh. Banana contains about 20% sugar and reasonable amount of Vitamins A, B and C. This is considered to be a rich source of energy producing food. It is consumed in several forms and preparations and amongst which Banana wafer is considered to be the most important item.

Market Potential

The popularity of snack foods is growing fast day-by-day and potato and banana wafers have emerged as a potential snack food. A number of organised as well as unorganised groups are already there catering to the needs of tea stalls, restaurants, railway stations, tourist places etc. Still there is a huge demand to be met for these products in interior and remote places in different parts of the country.

BASIS AND PRESUMPTIONS

(1) The scheme is based on single shift per day for 300 working days in a year at 75% working efficiency.

(2) Five year period is required for achieving full capacity utilisation.

(3) Labour wages are as per the rates prevailing in the area.

(4) Interest on Capital Investment @ 14% p.a.

(5) Payback period: 7 years

(6) Land cost Rs. 1500 per sq.m

IMPLEMENTATION SCHEDULE

A period of 8 months would be required for start of production from the date of approval of scheme. The break up of the activities with relative time for each activity is as follows:

1.	Acquisition of land	1 month
2.	Preparation of Project report and SSI Registration	1 month
3.	Financial assistantce from Institutions	3 months
4.	Building construction	3–6 months
5.	Power Connection	6–7 months
6.	Acquisition of machinery	6–7 months
7.	Installation of Machinery	7–7½ months
8.	Appointment of staff and labour	7–8 months
9.	Trial production and shooting problems	8-8½ months
10.	Commercial Production	9th month onwards

TECHNICAL ASPECTS

Process of Manufacture

Potato Wafers

The potatoes selected for wafers should be large oval shape free from disease and fully matured. They should have the minimum number of eyes to cut down the losses by trimming. They are washed thoroughly in water and peeled manually with stainless steel knife or by means of an abrasive potato peeling machine. The peelings are washed away with sprays of water. They are then trimmed and placed in water to prevent browning. They are sliced 0.4 to 0.5 cm. thick in a slicing machine. The slices are again placed in cold water whenever there is considerable delay in the subsequent operations of blanching. Then slices are kept in water containing 0.05% potassium metabisulphite to avoid oxidation. The slices are blanched for 3 to 5 minutes in boiling water and spread on trays at the rate of 4.88 kg. to 7.30 kg. per square metre of tray surface. The blanched chips are then subjected to hydro-extracting machine (centrifugal) to remove excess of water and fried in edible oil at 180-240°C, for 3-4 minutes. The fried potato wafers are then kept on the sieve to remove excess of oil, cooled and other ingredients like salts, spicy mixture is sprayed as per required taste. Cooled potato wafers are then packed in polythene bags and sealed.

Banana Wafers

Firm bananas are washed, peeled and sliced. The bananas thus prepared are then dipped in brine water to avoid oxidation. Sometimes turmeric powder is also used for colouring the banana chips or to improve colour.

The banana chips are fried in vegetable oil and cooled down to the room temperature. These wafers are then packed in polythene bags of suitable guaze and sizes to prevent spoilage.

Quality Control and Standards

Product must meet PFA Regulations. However, BIS Specifications are as follows:

IS: 4626:1978
IS: 2860:1964
IS: 7254:1974

Production Capacity (per annum)

Quantity : 60 MT
Value : Rs. 39,00,000

Motive Power 20 HP

Pollution Control

The unit will not create any pollution problems. However, entrepreneur should obtain NOC from concerned State Pollution Control Board.

Energy Conservation

Suitable measures should be adopted to use appropriate amount of Fuel and Electricity.

FINANCIAL ASPECTS

A. Fixed Capital

i) Land 100 sq.mtr. @ Rs. 1500 1,50,000

(ii) Built up Area	Size	Area (sq.ft.)
Production Hall	30′ × 20′	600 sq.ft.
Stores	20′ × 20′	400 sq.ft.
Finished goods stores	20′ × 20′	400 sq.ft.
Laboratory	10′ × 10′	100 sq.ft.
Office	10′ × 10′	100 sq.ft.
WC and Bath	10′ × 5′	50 sq.ft.
	Total	1650 sq.ft.
Cost of Construction @ Rs 250 per sq.ft.		4,12,500
	Say	4,13,000

(iii) Machinery and Equipment

Sl. No.	Description	Qty.	Amount (In Rs.)
1.	Potato peeler (body and chamber of stainless steel) cap. per charge 15 kg. taking 3 to 4 minutes complete with motor	1 No.	15,000
2.	Power operated slicing machine with arrangements to adjust the thickness of slices with motor	1 No.	20,000
3.	Hydro extractor to extract-excess of moisture with motor	1 No.	10,000
4.	Deep fat fryer (oil tank of stainless steel, electrically heated, temp. control switch)	1 No.	22,000
5.	Polythene bag sealing machine	1 No.	10,000
6.	Salting drum	1 No.	10,000
	Total		87,000
	Erection and Electrification @ 10%		*9,000*
	Aluminum Table, Plastic Carry Containers etc.		*14,000*
	Total		1,10,000

(iv) Furniture and Fixtures 20,000

(v) Pre-operative Expenses	Amount (In Rs.)
Establishment cost, legal expenses, consultancy fee, Start up expenses interest during construction period, trial run expenses	20,000

vi) Fixed Capital Investment	Amount (In Rs.)
1. Land	1,50,000
2. Building	4,13,000
3. Machinery and Equipment	1,10,000
4. Furniture	20,000
5. Pre-operative expenses	20,000
Total	7,13,000

B. Working Capital (per month)

i) Raw Material

Particulars	Qty. MT	Rate/ Tonne	Total (In Rs.)
1. Potatoes/Banana	25	3,000	75,000
2. Ground-nut oil	2.5	40,000	1,00,000
3. Flavours, chemicals spices etc.	LS		5,000
4. Packaging material	LS		10,000
	Total		1,90,000

ii) Staff and Labour

Particulars	No.	Salary (In Rs.)	Amount (In Rs.)
1. Manager	1	6000	6,000
2. Sales supervisor	1	3000	3,000
3. Clerk	1	2500	2,500
4. Skilled workers	1	2000	2,000
5. Unskilled workers	4	1500	6,000
		Total	19,500
		Perquisites @ 15%	*2,925*
		Total	22,425

iii) Utilities	Amount (In Rs.)
1. Water	500
2. Fuel	4,500
3. Electricity	2,000
Total	7,000

iv) Other Contingent Expenses	Amount (In Rs.)
1. Consumable Stores	1,000
2. Maintenance and Repairs	1,000
3. Transportation and Travelling	4,000
4. Insurance	500
5. Other Expenses	1,000
6. Advertisement and Publicity	2,500
Total	10,000

v) Working Capital	Amount (In Rs.)
1. Raw Material	1,90,000
2. Staff and Labour	22,425
3. Utilities	7,000
4. Miscellaneous Expenses	10,000
Total	2,29,425

C. Total Capital Investment

	Amount (In Rs.)
1. Fixed capital	7,13,000
2. Working capital (for 3 months)	6,88,275
Total	14,01,275

FINANCIAL ANALYSIS

(1) Cost of Production (per annum)	Amount (In Rs.)
Recurring Expenses	27,53,100
Depreciation on building @ 5%	21,000
Depreciation on machinery @ 10%	11,000
Depreciation on furniture @ 20%	4,000
Interest on total capital investment @ 14%	1,96,200
Total	29,85,300

(2) Turnover (per annum)	Amount (In Rs.)
Potato/Banana Wafers 60 M.T. @ Rs. 65 Kg	39,00,000
Sales Commission @ 10%	3,90,000
Total	35,10,000

(3) Profit (per annum)

= Turnover – Cost of Production

= Rs. 35,10,000 – 29,85,000

= Rs. 5,25,000

(4) Net Profit Ratio

$$= \frac{\text{Profit} \times 100}{\text{Turnover}}$$

$$= \frac{5.25 \times 100}{35.10}$$

= 14.96%

(5) Rate of Return

$$= \frac{\text{Profit} \times 100}{\text{Total Capital Investment}}$$

$$= \frac{5.25 \times 100}{14.01}$$

$$= 37.47\%$$

(6) Break-even Point

Annual Fixed Cost	Total (Rs. in Lakhs)
40% Salaries	1.08
40% Utilities	0.34
40% Other Contingencies	0.48
Total Depreciation	0.36
Total Interest	1.96
Total	4.22

Break-even Point

$$= \frac{\text{Annual Fixed Cost} \times 100}{\text{Annual Fixed Cost} + \text{Profit}}$$

$$= \frac{4.22 \times 100}{4.22 + 5.25}$$

$$= \frac{422}{9.47}$$

$$= 44.56\%$$

= Say 45%

Addresses of Machinery and Equipment Suppliers

1. M/s. The Metal Box Co. of India
   Allahabad Bank Building,
   Connaught Circus,
   New Delhi-110001.
2. M/s. Revlon Metal Works
   293, Ballasis Road,
   Mumbai-400 008.
3. M/s. Dornow Food Technology
   Karl Bornow and Sohy, Kaiser Fried, Rich Ring, 96, D-4000 Dusseldorf, West Germany.
4. M/s. Batliboi and Co. Pvt. Ltd.
   P.B. No. 190, 4, Fort,
   Mumbai-1.
5. M/s. Textile Machinery Corporation Ltd.
   Boiler Factory,
   Royal Exchange Palace,
   Kolkata.

Raw Material Suppliers

Local Market.