10

DESICCATED COCONUT (COCONUT POWDER)

PRODUCT CODE	:	219917000
QUALITY AND STANDARDS	:	IS 966:1962 and PFA Act, Specifications
PRODUCTION CAPACITY	:	Quantity : 1,80,000 kg. Desiccated Coconut Value : Rs. 162.00 Lakhs
MONTH AND YEAR OF PREPARATION	:	January, 2003
PREPARED BY	:	Small Industries Service Institute 36 B/C, Gandhi Nagar, Jammu (J & K)

INTRODUCTION

India is the third largest coconut producing country in the world. Copra and coconut oil are the two major products of the coconut processing industry. Nearly 60% of the total production of nuts is utilized for food uses and the rest goes in for oil extraction. In spite of the fact that our country has the necessary raw material to launch new product lines, minimal progress has taken place in the application of modern technology for full utilization of various coconut products such as desiccated coconut, coconut cream powder, partially defatted coconut gratings, bottled coconut water, etc., Desiccated coconut is widely used in the preparation of sweets, confectionery, curry preparation etc. At present about 4000 tonnes of desiccated coconut is produced annually. The main concentration of units producing desiccated coconut are in Kerala, Tamil Nadu, Andhra Pradesh, Karnataka, Orissa and Maharashtra. Desiccated coconut is not only a value added product but it being a labour intensive industry will also generate a large number of employment opportunities.

MARKET POTENTIAL

Being a mass consumption item, desiccated coconut has a good market. At present about 4000 tonnes of desiccated coconut is manufactured annually and used mainly by confectionery and biscuit industry. Desiccated coconut may find good market in areas where coconuts are not produced particularly in Northern India. Now-a-days food habits of our people are changing very fast and a number of food items are being introduced every day where desiccated coconut may also find use. So there is a good scope for new small scale units to come up in this line of manufacture.

BASIS AND PRESUMPTIONS

The Project Profile is based on the following presumptions:

(i)	Working hours/shift	8 hrs.
(ii)	No. of shift/day	1
(iii)	Working days	300
(iv)	Total number of working hrs.	2400 hrs.
(v)	Working efficiency	75%
(vi)	Time period for achieving maximum capacity utilization	2 years
(vii)	Labour charges	As per State Government's Minimum Wages Act.
(viii)	Margin money	25% of capital investment
(ix)	Rate of interest	15%
(x)	Operative period of the project	10 years
(xi)	Value of machinery and equipments	Taken on the basis of a particular supplier of machinery and equipments
(xii)	Value of raw material Packing material/others	As per local market rate on wholesale basis
(xiii)	Land	@Rs. 100 per sq. m
(xiv)	Construction charge	@Rs. 1,500 per sq.m
(xv)	Break-even Point	Calculated on full capacity utilization basis
(xvi)	Pay-back period	6 to 7 years

IMPLEMENTATION SCHEDULE

The project implementation schedule will be as follows:

(i)	Project preparation	0-1 month
(ii)	Site selection, acquisition of land and land development	1-2 months
(iii)	Sanction of loan	1-3 months
(iv)	Construction of building	3-4 months
(v)	Sanction of electric power, water and telephone connection	4-5 months
(vi)	Procurement of Machinery and Equipments	5-6 months
(vii)	Electrification & installation	6-7 months
(viii)	Recruitment of staff and labour	7-8 months
(ix)	Trial run	8-10 months
(x)	Commercial production	10-11 months

The project could yield result by the end of the 12th month.

TECHNICAL ASPECTS

Process of Manufacture

First step in the manufacture of desiccated coconut is the selection of coconuts. The quality of desiccated coconut depends upon the quality of coconuts used. Fully matured coconuts of about 12 months are used for the preparation of desiccated coconut. Fully matured nuts are stored with the husk for about one month so that the water inside the kernels is absorbed. This also facilitates coconut kernels to get separated from shell walls. The coconuts are dehusked and their shells are removed. The brown portion of nuts called tasta is removed by scrapping it off. About 10-15% of the kernel goes as paring by this process. These parings can be pressed out after drying to get oil which can be used for soap making.

Deshelled coconuts are broken into pieces, washed properly and disintegrated into powders of various grades. The powder is then dried in a drier by spreading it out uniformly in trays. The temperature in the drying chamber is maintained at about 180° F and the powder is stirred occasionally during the drying process to ensure uniform drying. Great care should be taken during drying. When powder is dried, it is cooled and passed through a vibratory screen having different sizes (12, 14 and 16 mesh). The segregated

material is packed in oil proof, moisture proof polythene lined plywood boxes of 25 kgs. It may also be packed in poly-bags of 250 gms, 500 gms for retail sale. During the process of manufacturing desiccated coconut, a number of by-products such as coconut shell, parings, and husks are obtained which may be converted into various items of great importance. It has been worked out that 100 kgs of desiccated coconut is obtained from 1000 coconuts.

Quality Control and Standards

The Bureau of Indian Standards specification for desiccated coconut is IS 966:1962. Product should also conform to PFA Act, specifications.

Production Capacity (per annum)

Quantity	Amount (Rs. in lakhs)
1,80,000 kg desiccated coconut	162.00
27,000 kg coconut parings	9.45
54,000 kg coconut shell	0.37
Total	171.82
Say	172.00

Motive Power 12 K.W.

Pollution Control

The main effluent produced in the process of desiccated coconut is the after wash water having dissolved solids and coconut oil. The level of dissolved solids and oil is not significant and the effluent water could be safely used for irrigation purpose or drained out after traping solids and oils. The water having detergent used for cleaning equipments should be disposed off separately. Proper disposal facility should be made available for dumping refuge and perishable spoiled products and a separate pit constructed for this purpose. Proper hygiene and sanitation will ensure environment free of pollution. However, a no objection certificate is required to be obtained from State Pollution Control Board and care should be taken to control pollution.

Energy Conservation

Electrical energy is the main energy source in the process of desiccated coconut manufacturing. Efforts should be made to keep power load at the minimum at a time. Capacitors should be fitted for motors to keep power factor to its maximum. Improved designs of tube light with electronic choke should be fitted for lighting purposes for getting efficient light with less electric energy consumption. Factory shed should be constructed in such a way that natural light could be utilized, optimum temp. should be maintained in the drying chamber to get desired product with less energy. Proper maintenance of electrical equipments and machinery will further ensure energy conservation. Proper monitoring should be done in the operation of machinery and equipment particularly drier and when not required, it should be switched off.

FINANCIAL ASPECTS

A. Fixed Capital

i) Land and Building

Particulars	Amount (Rs. in lakhs)
(i) Land 500 sq. m.	0.50
(ii) Land development	0.20
(iii) Boundary wall/fencing, etc.	0.20

Particulars	Amount (Rs. in lakhs)
(iv) Factory shed and office 200 sq. m. @ Rs. 1,500 per sq. m.	3.00
(v) Store 60 sq. m. @ Rs. 1,000 per sq.m.	0.60
(vi) Overhead Tank	0.40
Total	4.90

ii) Machinery and Equipments

Particulars	Qty.	Amount (Rs. in lakhs)
(i) Cabinet type hot air drier with blower, motor and other accessories	1	1.85
(ii) Disintegrator 12" size with 10 H.P. Motor and accessories	1	1.05
(iii) Vibratory sifting machine fitted with G.I. wire mesh and 2 H.P motor	1	0.50
(iv) Al Trays	20	0.30
(v) Platform weighing balance	1	0.15
(vi) Polythene sealing machine	2	0.05
(vii) Other Misc. equipments like scrapping Knives, Al vessel, trolleys etc.	LS	0.10
(viii)Working tables	LS	0.20
(ix) Laboratory testing equipments	LS	0.20
(x) Office equipments and furniture	LS	0.50
(xi) Electrification and installation	LS	0.50
Total		5.40
(iii) Pre-operative Expenses		0.60
Total Fixed Capital (i+ii+iii)		10.90

B. Recurring Expenditure (per month)

(i) Personnel

Designation	Number	Amount (In Rs.)
a) Administrative		
(i) Manager-cum-Food Technologist	1	8,000
(ii) Salesman	1	2,000
(iii) Clerk-cum-typist	1	2,000
(iv) Peon-cum-chowkidar	1	1,500
b) Technical		
(i) Supervisor	1	4,000
(ii) Chemist	1	2,000
(iii) Skilled workers	2	4,000
(iv) Semi-skilled workers	2	3,000
(v) Unskilled workers	20	25,000
Perquisites @ 15%		7,725
Total		59,225

ii) Raw Materials	Total (Rs. in lakhs)
i) Coconut with husk 1,50,000 Nos. @ Rs 7 each	10.50
ii) Polythene bags 150 kg @ Rs120 per bag	0.18
iii) Plywood boxes of 25 Kg capacity 600 Nos. @ Rs 100 per box	0.60
iv) Labels, gums and other packing aids L.S	0.12
Total	11.40

iii) Utilities	Amount (In Rs.)
i) Electricity 1000 KWH @ Rs 4	4,000
ii) Water 100 KL @ Rs 3	300
iii) Fuel (fire wood)	7,000
Total	11,300
or Say	0.11 Lakhs

iv) Other Contingent Exs.	Amount (In Rs.)
i) Postage, stationery and telephone	3,000
ii) Store consumables	1,000
iii) Repair and maintenance	1,000
iv) Transportation	5,000
v) Advertisement and publicity	5,000
vi) Insurance	1,000
vii) Misc. expenses	4,000
Total	20,000
or Say	0.20 Lakhs
v) Total Recurring Expenditure (i+ii+iii+iv)	12.30 Lakhs

vi) Working Capital	
Recurring expenditure for two months	24.60 Lakhs

C. Total Capital Investment

	Total (Rs. in lakhs)
a) Fixed Capital	10.90
b) Working Capital (for 2 months)	24.60
Total	35.50

MACHINERY UTILISATION

The machinery utilization in this project has been worked out to be 60% in the first year and 75% in the second year.

FINANCIAL ANALYSIS

1. Cost of Production (per year)

Sl. No.	Description	Amount (Rs. in lakhs)
i)	Total recurring expenditure	147.60
ii)	Depreciation on building and other civil works @ 5%	0.21
iii)	Depreciation on machinery and equipments @ 10%	0.39
iv)	Depreciation on hand tools @ 15% per annum and other misc. equipments	0.05
v)	Depreciation on office equipments and furniture @ 20%	0.14
vi)	Interest on capital investment @ 15%	5.33
	Total	153.72
	or Say	154

2. Turnover (per year)		(Rs. in lakhs)
i)	Desiccated coconut 180 M.T @ Rs 86,000 M.T.	154.80
ii)	Coconut paring 27 M.T @ Rs 35,000 M.T.	9.45
iii)	Coconut shell 54 M.T. @ Rs 700 M.T.	0.37
	Total	164.62
	or Say	165.00

3. Net Profit (per year) *(Before Income Tax)* 11.00

4. Net Profit Ratio 7%

5. Rate of Return 31%

6. Break-even Point

i) Fixed Cost		Amount (Rs. in lakhs)
a)	Depreciation on machinery and equipments	0.39
b)	Depreciation on hand tools/ other misc. equipments	0.05
c)	Depreciation on office equipments and furniture	0.14
d)	Depreciation on building and other civil works	0.21
e)	Interest on total investment	5.33
f)	40% of salary and wages	2.83
g)	40% of other contingent expenses	0.96
	Total	9.91
ii)	Net Profit (per year)	11.00

$$\text{B.E.P.} = \frac{\text{F.C} \times 100}{\text{F.C. + profit}}$$

$$= \frac{9.91 \times 100}{20.91\ (9.91+11)}$$

$$= 47\%$$

Additional Information

The entrepreneur may contact Director, Central Food Technological Research Institute, Mysore (Karnataka) for more technical details and process know-how.

Addresses of Machinery and Equipment Suppliers

a) Disintegrator

1) M/s. D.P.Pulversier Works
12, Nagindas Master Road Extn.
(Opp Maharashtra State Co-op. Bank Ltd.) Fort,
Mumbai - 400 023.

2) M/s. Monarch Engineering Works
13, Kharwa Lane, Kumbharwada,
Mumbai - 400 004.

3) M/s. Batliboi Co.
Narsimha Raja Road,
Bangalore - 560 002.

b) Drier

1) M/s. Andrew Yule and Co. Ltd.
Kalyani Unit Engg. Division,
Yule House, 8 Clive Row,
Kolkata - 700 001.

2) M/s. MaCneill and Mager Ltd.
Unity Building, J.C.Road,
Bangalore - 110002.

3) M/s. Shanthi Engineering Works
Liquire of 8 Road,
Canoor - 643 101.

c) Vibratory Screen

1) M/s. Frederick Herbert and Co.
10 Second Pasta Lane,
Mumbai.

2) M/s. Gladwyin and Co.
Poonawala Building,
251, Dr. Dadabhai Nauroji Road,
Mumbai - 110001.

d) Platform Weighing Balance

1) M/s. Avery India Ltd.
Falnir Road Cross,
Mangalore - 1.

2) M/s. Ganapathi Bhandarkar and Company
Azizuddin Road,
Mangalore - 1.

Raw Materials, Components and Spare Suppliers

These are locally available.