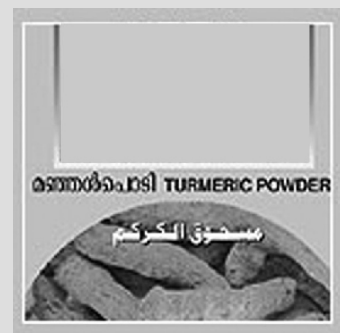


CURED & POLISHED TURMERIC



1.0 INTRODUCTION

Turmeric is an important condiment as well as useful dye with many applications in pharmaceutical and cosmetic industries. "Kum-Kum", a speciality of Indians is also made from turmeric. It is used as an offering during religious and other ceremonial occasions. One type of starch is also extracted from certain varieties of turmeric. It is an important spice and widely used in many food and snack preparations round the year throughout the country. Thus, there are multiple applications of turmeric and it is a versatile product.

2.0 PRODUCT

2.1 Applications

Harvested rhizomes need curing and polishing before turmeric can be used. Curing provides a uniform colour whereas polishing changes rough and dull appearance to a smooth surface of brownish-yellow colour. This activity is undertaken on job work basis. This activity can be taken up in many parts of the country but the preferred locations are Bihar, Jharkhand, Assam, Maharashtra, AP, TN, Orissa etc.

2.2 Availability of technology

CFTRI, Mysore, has successfully developed technology for this product.

3.0 MARKET POTENTIAL

India is a leading producer of turmeric in the world with many varieties like Sugantham, Suvarna, PCT, PTS and so on. Andhra Pradesh and Tamil Nadu are the leading producers followed by Kerala, Karnataka, Bihar and Maharashtra. There are several applications of turmeric and it is used in many food and snack preparations, as offerings in ceremonies, in pharmaceutical and cosmetic production, to extract one type of starch and even the by-

products obtained during its polishing are used as manure and for making incense sticks. Thus, it is a versatile product with demand round the year across the country.

4.0 MANUFACTURING PROCESS

Harvested rhizomes are separated into globular mother rhizomes and the longitudinal finger. Roots, hairs and poorly developed and shrivelled portions are then removed and bulbs and fingers are separately processed for curing, sun-drying and polishing. Curing is the process of cooking raw rhizomes in water as it imparts bulbs/fingers uniform colour and the starch gets gelatinised which considerably reduces the drying time. Cooked turmeric is sun-dried by spreading in yards which reduces the moisture content and gives a metallic sound when broken. Dried turmeric is polished mechanically. Polishing removes the scales, rootlets and some of the epidermal layers and the rough and dull appearance changes to a smooth surface of brownish yellow colour. The surface colour can be further improved by external coating of turmeric powder.

5.0 CAPITAL INPUTS

5.1 Land and Building

A shed of around 35-40 sq.mtrs. with drying yard of 20 x 5 mtrs. is adequate. This area can be taken on rental basis as this is a seasonal activity.

5.2 Machinery

It is a seasonal activity carried out for around 8 months every year. To install monthly capacity of 15 tons or per season capacity of 120 tonnes, following machines shall be required.

Item	Qty.	Price (Rs.)
Polishers	2	50,000
Rectangular inner tank	1	25,000
Weighing scale, galvanised buckets, furnace (bhatti), plastic buckets, aluminium vessels etc.	--	45,000
	Total	1,20,000

The equipments can be easily bought locally.

5.3 Miscellaneous Assets

Other assets like furniture & fixtures, storage racks, packing tables etc. would cost Rs. 40,000/-.

5.4 Utilities

Power requirement would be 5 HP whereas daily water requirement would be 4000 ltrs. Firewood would be required for furnace.

5.5 Raw and Packing Materials

There will not be any raw material as the work will be undertaken on job work basis. Same gunny bags in which rhizomes are sent can be used for polished turmeric.

6.0 MANPOWER REQUIREMENTS

Particulars	Nos.	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Semi-skilled Workers	2	1,750	3,500
Helpers	10	1,250	12,500
		Total	16,000

7.0 TENTATIVE IMPLEMENTATION SCHEDULE

Activity	Period (in months)
Application and sanction of loan	1.5
Site selection and commencement of civil work	0.5
Completion of civil work and placement of orders for machinery	1.5
Erection, installation and trial runs	0.5

8.0 DETAILS OF THE PROPOSED PROJECT

8.1 Land and Building

It is advisable to hire the required space on rental basis as stated before.

8.2 Machinery

Total cost of machinery is expected to be Rs. 1.20 lacs as explained earlier.

8.3 Miscellaneous Assets

A provision of Rs.40, 000/- is adequate under this head as stated before.

8.4 Preliminary & Pre-operative Expenses

An amount of Rs. 50,000/- would take care of pre-production expenses like registration, establishment, travelling and administrative charges, interest during implementation etc.

8.5 Working Capital Requirements

There will not be need for working capital as only job work would be undertaken during the season. However, the promoters are advised to keep aside Rs. 25,000/-.

8.6 Cost of the Project & Means of Financing (Rs. in lacs)

Item	Amount
Land and Building	Rented
Machinery	1.20
Miscellaneous Assets	0.40
P&P Expenses	0.50
Contingencies	0.10
Working Capital Margin	0.25
Total	2.45
Means of Finance	
Promoters' Contribution	0.70
Term Loan from Bank/FI	1.75
Total	2.45
Debt Equity Ratio	2.50 : 1
Promoters' Contribution	29%

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.

9.0 PROFITABILITY CALCULATIONS

9.1 Production Capacity & Build-up

As against the per season capacity of 120 tonnes, actual utilisation is expected to be 60% in the first year and 75% thereafter.

9.2 Job work Income at 100%

Considering job work charges of Rs. 7000/- per ton, per season income at 100% would be Rs. 8.40 lacs.

9.3 Utilities

Expenditure on utilities like power, water and fire-wood every season at 100% utilisation is expected to be Rs. 1.00 lac.

9.4 Interest

Interest on term loan of Rs. 1.75 lacs is computed @ 12% per annum assuming complete repayment in 3 years including a moratorium period of 1 year.

9.5 Depreciation

It is calculated on WDV basis @ 20% on machinery and miscellaneous assets.

10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No.	Particulars	1st Year	2nd Year
A	Installed Capacity	--- 120 Tonnes ---	
	Capacity Utilisation	60%	75%
	Job work Income	5.04	6.30
B	Cost of Production		
	Utilities	0.60	0.75
	Salaries	1.12	1.30
	Stores and Spares	0.15	0.21
	Repairs & Maintenance	0.18	0.30
	Rent	0.24	0.30
	Administrative Expenses	0.36	0.48
	Total	2.65	3.34
C	Profit before Interest & Depreciation	2.39	2.96
	Interest on Term Loan	0.19	0.12
	Depreciation	0.32	0.25
	Profit before Tax	1.88	2.59
	Income-tax @ 20%	0.38	0.52
	Profit after Tax	1.50	2.07
	Cash Accruals	1.82	2.32
	Repayment of Term Loan	--	0.80

11.0 BREAK-EVEN ANALYSIS

(Rs. in lacs)

No	Particulars	Amount	
[A]	Income		5.04
[B]	Variable Costs		
	Utilities (70%)	0.42	
	Salaries (70%)	0.78	
	Stores & Spares	0.15	
	Admn Expenses (50%)	0.18	1.53
[C]	Contribution [A] - [B]		3.51
[D]	Fixed Cost		1.63
[E]	Break-Even Point [D] ÷ [C]		46%

12.0 [A] LEVERAGES

Financial Leverage

$$= \text{EBIT/EBT}$$

$$= 2.71 \div 1.88$$

$$= 1.44$$

Operating Leverage

$$= \text{Contribution/EBT}$$

$$= 3.51 \div 1.88$$

$$= 1.87$$

Degree of Total Leverage

$$= \text{FL/OL}$$

$$= 1.44 \div 1.87$$

$$= 0.77$$