

TURMERIC : CURING & POLISHING

QUALITY AND STANDARDS : As per BIS/PFA specifications

PRODUCTION CAPACITY : 50 tpa



1.0 PRODUCT AND ITS APPLICATIONS

Turmeric is an important condiment used mainly for culinary preparations and also as a dye with varied uses in cosmetic industries. It is also used for therapeutical applications externally and internally. 'Kum-Kum' is also a product of turmeric which finds a place in offerings on religious and ceremonial occasions. Besides, the byproducts obtained during the polishing of turmeric are used as manure, and for manufacture of incense sticks.

2.0 MARKET POTENTIAL



India is the largest producer of turmeric in the world with annual production of more than 4 lakh tonnes i.e. nearly 90% of global produce. About 8% is exported and rest is consumed locally. Andhra Pradesh and Tamilnadu jointly account for over 50% of turmeric production. Kerala, Maharashtra, Karnataka, Orissa and Bihar are other important producing states. The commonly grown turmeric varieties are Sugantham, Suvarna, PCT, Roma PTS. These contain 6-7% oleoresin of which 35% is curcumin. The 'Lakadong' variety of turmeric, grown in Meghalaya, contains 7.4% curcumin, reportedly highest in the world. Turmeric is also produced in

Arunachal Pradesh and Assam. There is a vast scope for setting up units for high quality cured turmeric. Polishing adds to its commercial value.

3.0 BASIS AND PRESUMPTIONS

- a) The unit proposes to work at least 100 days per annum on 2 shifts basis.
- b) The unit can achieve its full capacity utilization during the 2nd year of operation.
- c) The wages for skilled workers is taken as per prevailing rates in this type of industry.
- d) Interest rate for total capital investment is calculated @ 12% per annum.
- e) The entrepreneur is expected to raise 20-25% of the capital as margin money.
- f) The unit proposes to construct own building.
- g) Costs of machinery and equipment are based on average prices enquired from machinery manufacturers.

4.0 IMPLEMENTATION SCHEDULE

Project implementation will take a period of 8 months. Break-up of the activities and relative time for each activity is shown :

- Scheme preparation and approval : 01 month
- SSI provisional registration : 1-2 months
- Sanction of financial supports etc. : 2-5 months
- Installation of machinery and power connection : 6-8 months
- Trial run and production : 01 month

5.0 TECHNICAL ASPECTS

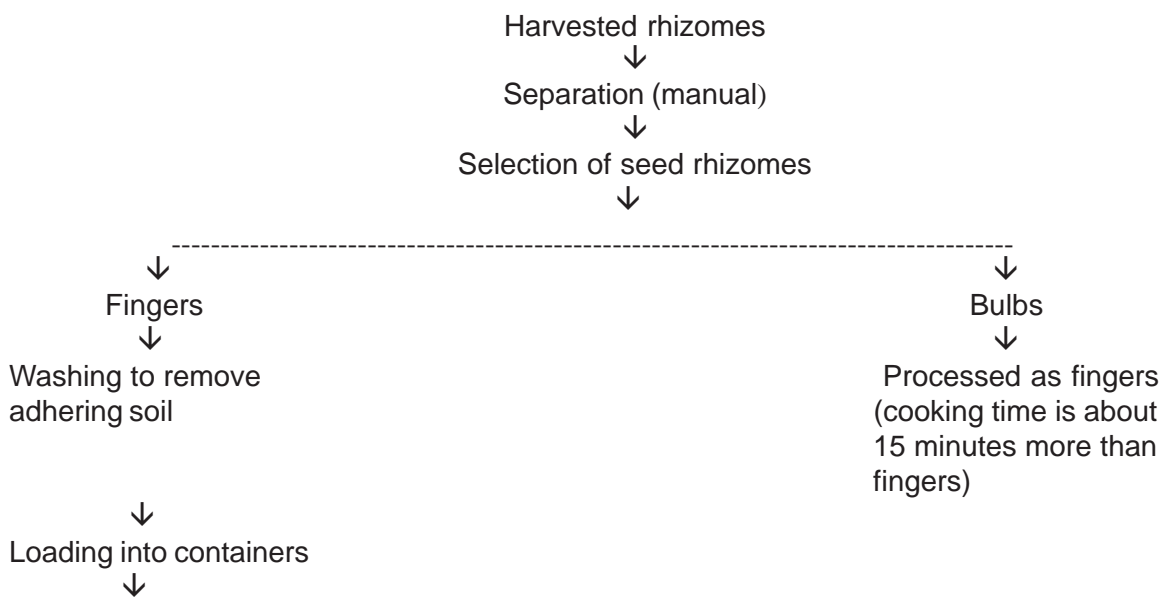
5.1 Location

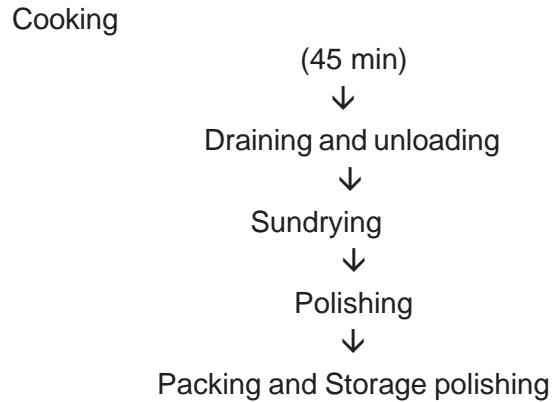
The important factors to be considered for selecting the location are nearness to cultivation area, market, availability of cheap labour and infrastructural facilities.

5.2 Process of Manufacture

The globular mother rhizomes are separated by hand from the longitudinal finger. Roots, hair and poorly developed portions are removed. The bulbs and fingers are separately processed for curing, sundrying and polishing. Curing is essentially a process of cooking the raw rhizomes in water till soft. Cooking gives uniform colour; the starch gets gelatinised and the time of drying is considerably reduced. Cooked turmeric is spread in yards and dried in the sun. Dried turmeric has a low moisture content. It gives a metallic sound when broken. The dried turmeric is polished by manual or mechanical rubbing of the surface. Mechanical polishing drums are available to handle small or large batches. Through polishing, the scales, rootlets and some of the epidermal layers are removed and the dull appearance changes to smooth surface of brownish yellow colour. The surface colour can be further improved by external coating with turmeric powder. Dried turmeric is packed in gunny bags and stored in warehouses. Periodical fumigation is necessary as the dry turmeric is quite susceptible to insect infestation.

FLOW-CHART





5.3 Quality Control and Standards: As per BIS/PFA requirements

6.0 POLLUTION CONTROL

There is no major pollution problem associated with this industry except for disposal of waste which should be managed appropriately. The entrepreneurs are advised to take “No Objection Certificate” from the State Pollution Control Board.

7.0 ENERGY CONSERVATION

Only minimum quantity of fuel required for cooking should be used.

8.0 PRODUCTION CAPACITY

Quantity	:	50 tpa (500 kg/day)
Installed capacity	:	350 kg/shift/day
Working days	:	100/annum (2 shifts)
Manpower	:	8
Utilities		
Motive Power	:	3 kW
Water	:	2 kL/day
Firewood	:	0.15 tpd

9.0 FINANCIAL ASPECTS

9.1 Fixed Capital

9.1.1 Land & Building

		Amount (Rs. lakh)
Land 200 sq.m.	:	0.30
Built up Area 30 sq. m.	:	1.00
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Total cost of Land and Building	:	1.30

9.1.2 Machinery and Equipment

Description	Amount (Rs. lakh)
■ Weighing scale	: 0.70
■ Inner tank	
■ Outer vessel for boiling water	
■ Polisher	
■ Buckets and miscellaneous	
Erection & electrification @10% cost of machinery & equipment	: 0.07
Office furniture & fixtures	: 0.05
Total	: 0.82

9.1.3 Pre-operative Expenses

Consultancy fee, project report, deposits with electricity department etc.	: 0.18
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9.1.4 Total Fixed Capital (9.1.1+9.1.2+9.1.3)	: 2.30
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9.2 Recurring expenses per annum

9.2.1 Personnel

Designation	No.	Salary Per month	Amount (Rs.lakh)
Manager/Entrepreneur	1	3000	0.36
Skilled workers(4 months)	2	2000	0.16
Unskilled workers (4 months)	5	1500	0.30
Perquisites @15%			0.13
Total	: 8		0.95

9.2.2 Raw Material including packaging materials

Particulars	Qty.(MT)	Rate	Amount (Rs. lakh)
Rhizomes	60	22,000	13.20
Gunny bags	500 No.	14 each	00.07
Total:			13.27

9.2.3 Utilities	Amount (Rs. lakh)
Power	0.06
Water	0.01
Fuel	0.13
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Total:	0.20
9.2.4 Other Contingent Expenses	Amount (Rs. lakh)
Repairs and maintenance@10%	0.08
Consumables & spares	}
Transport & Travel	
Publicity	
Postage & stationery	
Telephone	
Insurance	0.01
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Total:	0.15
9.2.5 Total Recurring Expenditure	Amount (Rs. lakh)
(9.2.1+9.2.2+9.2.3+9.2.4)	14.57
9.3 Working Capital	2.43
Recurring Expenditure for 2 months	
9.4 Total Capital Investment	Amount (Rs. lakh)
Fixed capital (Refer 9.1.4)	2.30
Working capital (Refer 9.3)	2.43
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Total:	4.73

10.0 FINANCIAL ANALYSIS

10.1 Cost of Production (per annum)	Amount (Rs. lakh)
Recurring expenses (Refer 9.2.5)	14.57
Depreciation on building @5%	00.05
Depreciation on machinery @10%	00.08
Depreciation on furniture @20%	00.01
Interest on Capital Investment @12%	00.57
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Total:	15.28

10.2 Sale Proceeds (Turnover) per year

Item	Qty. (MT)	Rate per Kg	Amount (Rs.lakh)
Cured & polished turmeric	50	36	18.00

10.3 Net Profit per year

= Sales – Cost of production
= 18.00 – 15.28
= Rs. 2.72 lakh

10.4 Net Profit Ratio

= $\frac{\text{Net profit} \times 100}{\text{Sales}}$

= $\frac{2.72 \times 100}{18}$

= 15.1%

10.5 Rate of Return on Investment

= $\frac{\text{Net profit} \times 100}{\text{Capital Investment}}$

= $\frac{2.72 \times 100}{4.73}$

= 57.5%

10.6 Annual Fixed Cost

	Amount (Rs. Lakh)
All depreciation	0.14
Interest	0.57
40% of salary, wages, utility, contingency	0.52
Insurance	0.01
Total:	<hr/> 1.24

10.7 Break even Point

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

= $\frac{1.24 \times 100}{1.24 + 2.72}$

= 31.3%

11.0 ADDRESSES OF MACHINERY AND EQUIPMENT SUPPLIERS

Narene Tulaman Manufacturers Pvt. Ltd.
Balanagar
Hyderabad – 500 037

Avery Co. of India Pvt. Ltd.
28/2, Waterloo Street
P.B. 377, Kolkata – 700 001

Bharti Scales & Eng. Co.
4/1, Haldar Para Lane
Khurut, Howrah (West Bengal)

ACME Scales Co.
324-C, Grant Road
Mumbai – 400 002

12.0 OTHER SPECIAL FEATURES

The unit may take up curing and polishing of turmeric in collaboration with spice powder units to improve profitability.