

MUSTARD POWDER



1.0 INTRODUCTION

Mustard seeds are an important oilseed and India is one of the leading producers of these oilseeds. Bulk of the production goes for oil extraction but de-husked mustard is a popular table enricher on account of its flavour and pungency. A pasty product with mustard, salt and vinegar is very popular abroad whereas mustard powder is used as condiment in many food preparations like pickles and chutney, meat, salad dressings etc. North-Eastern states of Assam and Arunachal Pradesh produce substantial quantity of mustard seeds and mustard powder is also used extensively. Therefore, one of the North-Eastern states is the preferred location.

2.0 PRODUCT

2.1 Applications

Mustard powder is used in many vegetarian and non-vegetarian food preparations and also in pickles and chutney, in salad dressings etc. Its flavour and pungency finds many uses as table mustard.

2.2 Availability of technology and compliances

CFTRI, Mysore, has standardised the technology for producing mustard powder of good quality. Compliance under the PFA Act is mandatory.

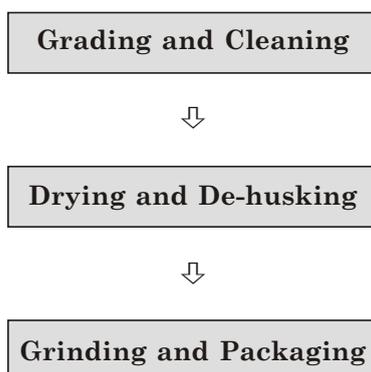
3.0 MARKET POTENTIAL

Mustard edible oil is one of the popular oils and mustard powder has also become very popular as condiment due to its peculiar flavour and pungency. Mustard powder is used in many vegetarian and non-vegetarian food and snack preparations and as condiment in pickles, meat and salad dressings. As a matter of fact, Indian black mustard is known for its

flavour and pungency and has very good export potential. There are very few large scale producers of this product and market is dominated by the small units. Adequate publicity, proper placement and well-spread marketing network are critical aspects.

4.0 MANUFACTURING PROCESS

Process developed by the CFTRI, Mysore, ensures optimal product recovery of right quality. To start with, graded and cleaned seeds are dried and subjected to splitting and de husking. Then the mixture of husk and splits are screened and separated. Mustard splits are ground to the desired fineness to obtain powder in a triple roller mill and finally powder is packed. Recovery is around 75%. The process flow chart is as follows:



5.0 CAPITAL INPUTS

5.1 Land and Building

Land of around 300 sq.mtrs. with constructed area of 150 sq.mtrs. would be sufficient. Main production area would need around 75 sq.mtrs. whereas balance area would be utilised for raw material and finished goods storage and packing. Land would cost around Rs.90, 000 whereas cost of construction would be around Rs. 3.75 lacs.

5.2 Machinery

Annual rated capacity of 225 tonnes considering 2 shift working per day and 300 working days each year would require following machines:

Item	Qty.	Price (Rs.)
Triple Roller Mill	1	1,50,000
Grader	1	40,000
Classifier	1	30,000
Plate Mill	1	85,000
Mini Boiler- 100 Kgs Capacity	1	75,000
Steam Jacketed Kettle- 60Ltrs.	1	20,000
Seed Cleaner	1	25,000
Weighing scale, sealing machine, aluminium utensils, HDPE barrels, etc.	-	75,000
	Total	5,00,000

5.3 Miscellaneous Assets

A provision of Rs. 80,000/- would take care of some other assets like furniture & fixtures, storage facilities, packing tables etc.

5.4 Utilities

Total power requirement shall be 30 HP whereas per day water requirement would be 2500 ltrs. Coal shall be required for boiler.

5.5 Raw and Packing Materials

The only raw material would be good quality mustard seeds. Since the annual requirement even at 100% would not be more than 300 tonnes, no difficulty is envisaged in procurement. Printed polythene bags of good quality, corrugated boxes, labels, BOPP tape would be the packing materials.

6.0 MANPOWER REQUIREMENTS

Particulars	Nos.	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Skilled Workers	2	2,500	5,000
Semi-skilled Workers	4	1,750	7,000
Helpers	6	1,250	7,500
Salesman	1	2,500	2,500
		Total	22,000

7.0 TENTATIVE IMPLEMENTATION SCHEDULE

Activity	Period (in months)
Application and sanction of loan	2
Site selection and commencement of civil work	1
Completion of civil work and placement of orders for machinery	4
Erection, installation and trial runs	1

8.0 DETAILS OF THE PROPOSED PROJECT

8.1 Land and Building

Particulars	Area (Sq.Mtrs)	Cost (Rs.)
Land	300	90,000
Building	150	3,75,000
	Total	4,65,000

8.2 Machinery

Total cost of machinery is estimated to be Rs. 5.00 lacs as explained earlier.

8.3 Miscellaneous Assets

A provision of Rs. 80,000/- would be adequate under this head as stated before.

8.4 Preliminary & Pre-operative Expenses

An amount of Rs. 1.25 lacs would take care of pre-production expenses like establishment, registration, travelling and administrative charges, trial runs, interest during implementation etc.

8.5 Working Capital Requirements

At 60% capacity utilisation in the first year, the working capital needs would be as under:

(Rs. in lacs)

Particulars	Period	Margin	Total	Bank	Promoters
Stock of Raw and Packing Materials	½ Month	30%	1.45	1.00	0.45
Stock of Finished Goods	½ Month	25%	1.80	1.20	0.60
Receivables	½ Month	25%	2.50	1.90	0.60
Working Expenses	1 Month	100%	0.75	--	0.75
		Total	6.50	4.10	2.40

8.6 Cost of the Project & Means of Financing

(Rs. in lacs)

Item	Amount
Land and Building	4.65
Machinery	5.00
Miscellaneous Assets	0.80
P&P Expenses	1.25
Contingencies @ 10% on Land and Building and Plant & Machinery	0.95
Working Capital Margin	2.40
Total	15.05
Means of Finance	
Promoters' Contribution	4.50
Term Loan from Bank/FI	10.55
Total	15.05
Debt Equity Ratio	2.34 : 1
Promoters' Contribution	30%

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 rated annual capacity of 225 tonnes, actual utilisation in the first year is taken at 60% and thereafter it is limited to 75%.

9.2 Sales Revenue at 100%

Assuming selling price of Rs. 45,000/- per ton, annual sales at 100% would be Rs. 101.25 lacs.

9.3 Raw and Packing Materials Required at 100%

(Rs. in lacs)

Product	Qty. (Tons)	Price/Ton (Rs.)	Value
Mustard Seeds	300	15,000	45.00
Packing Materials @ Rs. 6,000/Ton	--	--	13.50
		Total	58.50

9.4 Utilities

Annual expenditure at 100% on utilities like power, water and coal would be Rs. 3.00 lacs.

9.5 Selling Expenses

A provision of 22.5% of sales income each year would take care of expenses like selling commission, transportation, free sampling, publicity etc.

9.6 Interest

Interest on term loan of Rs. 10.55 lacs is calculated @ 12% per annum assuming complete repayment in 5 years including a moratorium period of 1 year whereas on working capital from bank, it is taken @ 14% per annum.

9.7 Depreciation

It is calculated on WDV basis @ 10% in building and 20% on machinery and miscellaneous assets.

10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No.	Particulars	1st Year	2nd Year
A	Installed Capacity	- - 225 Tonnes - -	
	Capacity Utilisation	60%	75%
	Sales Income	60.75	75.95
B	Cost of Production		
	Raw and Packing Materials	35.10	43.88
	Utilities	1.80	2.25
	Salaries	2.64	3.15
	Stores and Spares	0.60	0.72
	Repairs & Maintenance	0.72	0.90
	Selling Expenses @ 22.5%	13.67	17.08
	Administrative Expenses	0.84	1.00
	Total	55.37	68.98
C	Profit before Interest & Depreciation	5.38	6.97
	Interest on Term Loan	1.14	0.87
	Interest on Working Capital	0.57	0.71
	Depreciation	1.54	1.27
	Profit before Tax	2.13	4.12
	Income-tax @ 20%	0.43	0.82
	Profit after Tax	1.70	3.30
	Cash Accruals	3.24	4.57
	Repayment of Term Loan	--	2.35

11.0 BREAK-EVEN ANALYSIS

(Rs. in lacs)

No	Particulars	Amount	
[A]	Sales		75.95
[B]	Variable Costs		
	Raw and Packing Materials	43.88	
	Utilities (70%)	1.58	
	Salaries (70%)	2.20	
	Stores & Spares	0.72	
	Selling Expenses (70%)	11.96	
	Admn Expenses (50%)	0.50	
	Interest on WC	0.71	60.55
[C]	Contribution [A] - [B]		15.40
[D]	Fixed Cost		9.28
[E]	Break-Even Point [D] ÷ [C]		60%

12.0 [A] LEVERAGES

Financial Leverage

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

$$= 3.84 \div 2.13$$

$$= 1.80$$

Operating Leverage

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

$$= 11.38 \div 2.13$$

$$= 5.34$$

Degree of Total Leverage

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

$$= 1.80 \div 5.34$$

$$= 0.34$$

[B] Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr
Cash Accruals	3.24	4.57	4.96	5.25	5.56
Interest on TL	1.14	0.87	0.65	0.37	0.21
Total [A]	4.38	5.44	5.61	5.62	5.77
Interest on TL	1.14	0.87	0.65	0.37	0.21
Repayment of TL	--	2.65	2.65	2.65	2.60
Total [B]	1.14	3.52	3.30	3.02	2.81
DSCR [A] ÷ [B]	3.84	1.54	1.71	1.86	2.05
Average DSCR	----- 2.20 -----				

[C] Internal Rate of Return (IRR)

Cost of the project is Rs. 15.05 lacs.

(Rs.in lacs)

Year	Cash Accruals	16%	18%	20%
1	3.24	2.79	2.74	2.70
2	4.57	3.40	3.28	3.17
3	4.96	3.18	3.02	2.87
4	5.25	2.90	2.71	2.53
5	5.56	2.65	2.43	2.24
6	5.93	2.43	2.19	1.99
	29.51	17.35	16.37	15.50

The IRR is around 21%.

Some of the machinery suppliers are

1. Industrial Equipments, Guwahati
2. Archana Machinery Stores, Guwahati
3. Punjab Engg. Works, Ram Krishna Samadhi Road, Kolkata
4. Eastend Engg. Compnay, 173/1, Gopalrai Thakur Rd., Kolkata-700035.
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