

# MUSTARD OIL



## 1.0 INTRODUCTION

Consumption of edible oil is substantial throughout the country. All Indian households use it everyday. Various types of edible oils are available in the country for eg. groundnut, cottonseed, rapeseed, sunflower, mustard etc. Edible oils are made from respective oil seeds by extraction process and there are some national as well as regional brands. The North-East region of the country consumes mustard oil in large quantity. Therefore, Assam is the preferred location.

## 2.0 PRODUCT

### 2.1 Applications

Edible oil is an integral part of the Indian palate since long. India is perhaps the largest producer and consumer of different types of edible oils. Preference for the type of edible oil differs from state to state, e.g. People from western India prefer groundnut or cottonseed oil whereas North-East states like mustard oil. Hence this note is confined to mustard oil.

### 2.2 Compliances and quality standards

Compliance with PFA Act is necessary whereas registration under AGMARK is advisable. BIS has specified quality standards vide 546 IS 546:1975.

## 3.0 MARKET POTENTIAL

Due to peculiar food habits and preparation methods, Indians use large quantities of edible oils every day. With growing population, demand is increasing every year and the country is importing semi-processed edible oils since long. Mustard oil is preferred as a cooking medium by the people of North-East region including Assam. As per one estimate, there are more than 100 oil mills in Assam but even then mustard seeds are sold to other states and

mustard oil produced in other states is sold in Assam in ample quantity. Thus, good quality mustard oil produced locally can be sold in the market.

#### 4.0 MANUFACTURING PROCESS

The process of manufacture is well established and conventional. To begin with, dry mustard seeds are fed to Table Ghani or oil extractor wherein about 90% of the oil is extracted. Further processing in expeller results in additional extraction of oil. Liquid oil and solid portion is then separated in filters. The solid portion known as oil cake is sold as cattle feed. Edible oil is packed either in tins, jars or food grade plastic pouches. The oil contents depend upon quality of seeds but the average recovery of oil from seeds is in the range of 30% to 34%.

#### 5.0 CAPITAL INPUTS

##### 5.1 Land and Building

Around 200 sq.mtrs. of plot with built-up area of 100 sq.mtrs. is sufficient. The cost of land could be Rs. 0.50 lac whereas the built up area would cost Rs.1.75 lacs. The construction cost is taken on a lower side as this will be a typical Ghani and will not require RCC slab on the entire building. Thus, total cost of land and building shall be in the region of Rs.2.25 lacs.

##### 5.2 Machinery

Keeping in mind, the demand potential and economic viability of the project, it is advisable to install machinery to produce 72 tonnes of mustard oil every year at 100% capacity. In this industry, plant is operated for about 210-220 days per year due to seasonal availability of oil seeds. To have this rated production capacity, following machines are needed:

Item	Qty.	Price (Rs.)
Table Ghani	1	60,000
Oil Expellers	2	70,000
Filter Press	1	55,000
Other Support Equipments, electric motor and testing facilities	--	40,000
	<b>Total</b>	<b>2,25,000</b>

##### 5.3 Miscellaneous Assets

Assets like storage tanks, packing tables, furniture, storage racks etc. are likely to cost Rs.50,000/-.

##### 5.4 Utilities

Power requirement would be 25 HP and water shall be required for potable and sanitation purposes. The annual cost under this head at 100% activity level is estimated to be Rs.60,000/-.

### 5.5 Raw Material

The all important raw material shall be mustard seeds. The average recovery of oil is considered to be 30%. Hence to produce 72 tonnes of edible oil per year at 100% capacity utilisation, mustard seeds to the extent of 240 tonnes shall be required. In view of production of mustard seeds in excess of 75,000 tonnes every year, no difficulty is envisaged in procurement. Other materials in small quantities like additives and purifying agents shall be available easily. Packing materials like tins, jars or plastic pouches shall be required for which prior arrangement is advisable.

### 6.0 MANPOWER REQUIREMENTS

Particulars	Nos.	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Skilled Worker	2	1,800	3,600
Semi-skilled Workers	2	1,500	3,000
Helpers	2	1,200	2,400
Salesman	1	2,500	2,500
		<b>Total</b>	<b>11,500</b>

### 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 Building

Particulars	Area (Sq.Mtrs)	Total Cost (Rs.)
Land	200	50,000
Building	100	1,75,000

#### 8.2 Plant and Machinery

The total cost under this head is estimated to be Rs. 2.25 lacs as narrated before.

#### 8.3 Miscellaneous Assets

The total expenditure is likely to be Rs. 50,000 as explained earlier.

#### 8.4 Preliminary & Pre-operative Expenses

A provision of Rs .40,000/- is adequate towards expenditure like establishment charges, interest during implementation of the project, trial run expenses, etc.

### 8.5 Working Capital Requirement

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 PM	½ Month	30%	0.91	0.61	0.30
Stock of Finished Goods	½ Month	25%	1.20	0.90	0.30
Receivables	½ Month	25%	1.25	0.95	0.30
Working Expenses	1 Month	100%	0.20	--	0.20
		<b>Total</b>	<b>3.56</b>	<b>2.46</b>	<b>1.10</b>

### 8.6 Cost of the Project and Means of Financing

(Rs. in lacs)

Item	Amount
Land and Building	2.25
Plant and Machinery	2.25
Miscellaneous Assets	0.50
P&P Expenses	0.40
Contingencies @ 10% on Land & Building and Plant and Machinery	0.45
Working Capital Margin	1.10
<b>Total</b>	<b>6.95</b>
<b>Means of Finance</b>	
Promoters' Contribution	2.10
Loan from Bank/FI	4.85
<b>Total</b>	<b>6.95</b>
Debt Equity Ratio	2.31 : 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 and Build-up

Production capacity at 100% would be 72 tonnes of mustard oil considering working of about 220-230 days every year. It is assumed that the plant would be operated at 60% and 75% respectively during first 2 years.

**9.2 Sales Revenue at 100%**

(Rs. in lacs)

Product	Qty. (Tonnes)	Selling Price (Rs)	Sales
Mustard Oil	72	65,000	46.80
De-oiled Cake	80	5,000	4.00
	<b>Total</b>	<b>50.80</b>	

**9.3 Raw Materials Required at 100%**

(Rs. in lacs)

Product	Qty. (Tonnes)	Rate per Ton	Value
Mustard Seeds	240	13,000	31.20
Others	--	--	1.50
Packing Materials	--	--	3.60
		<b>Total</b>	<b>36.30</b>

**9.4 Utilities**

The annual expenditure at 100% activity level is assumed to be Rs.60,000/-.

**9.5 Interest**

Interest on term loan of Rs. 4.85 lacs is calculated @ 12% considering repayment in 5 years inclusive of a moratorium period of 1 year. Interest on working capital assistance from bank is taken at 14% per annum.

**9.6 Depreciation**

It is computed on WDV basis and rates assumed are 10% on building and 20% on machinery and miscellaneous assets.

## 10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No.	Particulars	1st Year	2nd Year
<b>A</b>	<b>Installed Capacity</b>	--- 72 Tonnes ---	
	Capacity Utilisation	60%	75%
	Sales Realisation	30.48	38.10
<b>B</b>	<b>Cost of Production</b>		
	Raw and Packing Materials	21.78	27.22
	Utilities	0.36	0.45
	Salaries	1.38	1.55
	Stores & Spares	0.21	0.30
	Repairs & Maintenance	0.30	0.42
	Selling Expenses @ 7.5%	2.29	2.86
	Administrative Expenses	0.24	0.36
	<b>Total</b>	<b>26.56</b>	<b>33.16</b>
<b>C</b>	<b>Profit before Interest &amp; Depreciation</b>	<b>3.92</b>	<b>4.94</b>
	Interest on Term Loan	0.55	0.41
	Interest on Working Capital	0.34	0.43
	Depreciation	0.68	0.55
	Net Profit	2.35	3.55
	Income-tax @ 20%	0.45	0.70
	Profit after Tax	1.90	2.85
	Cash Accruals	2.58	3.40
	Repayment of Term Loan	--	1.15

## 11.0 BREAK-EVEN ANALYSIS

(Rs. in lacs)

No	Particulars	Amount	
[A]	Sales	30.48	
[B]	Variable Costs		
	Raw and Packing Materials	21.78	
	Utilities (70%)	0.25	
	Salaries (70%)	0.97	
	Stores & Spares	0.21	
	Selling Expenses (80%)	1.83	
	Admn Expenses (50%)	0.12	
	Interest on WC	0.34	25.50
[C]	Contribution [A] - [B]		4.98
[D]	Fixed Costs		2.63
[E]	Break-Even Point (D ÷ C)		53%

## 12.0 [A] LEVERAGES

### Financial Leverage

$$\begin{aligned} &= \text{EBIT/EBT} \\ &= 3.24 \div 2.35 \\ &= 1.38 \end{aligned}$$

### Operating Leverage

$$\begin{aligned} &= \text{Contribution/EBT} \\ &= 4.98 \div 2.35 \\ &= 2.12 \end{aligned}$$

### Degree of Total Leverage

$$\begin{aligned} &= \text{FL/OL} \\ &= 1.38 \div 2.12 \\ &= 0.65 \end{aligned}$$

## [B] Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr
Cash Accruals	2.58	3.40	3.61	3.86	4.12
Interest on TL	0.55	0.41	0.30	0.17	0.08
<b>Total [A]</b>	<b>3.13</b>	<b>3.81</b>	<b>3.91</b>	<b>4.03</b>	<b>4.20</b>
Interest on TL	0.55	0.41	0.30	0.17	0.08
Repayment of TL	--	1.20	1.20	1.20	1.25
<b>Total [B]</b>	<b>0.55</b>	<b>1.61</b>	<b>1.50</b>	<b>1.37</b>	<b>1.33</b>
<b>DSCR [A] ÷ [B]</b>	<b>5.69</b>	<b>2.36</b>	<b>2.60</b>	<b>2.94</b>	<b>3.15</b>
<b>Average DSCR</b>	----- 3.34 -----				

**[C] Internal Rate of Return (IRR)**

Cost of the project is Rs. 6.95 lacs.

(Rs. in lacs)

Year	Cash Accruals	24%	28%	32%
1	2.58	2.08	2.02	1.96
2	3.40	2.21	2.07	1.95
3	3.61	1.89	1.72	1.57
4	3.86	1.63	1.44	1.27
5	4.12	1.40	1.20	1.03
	<b>17.57</b>	<b>9.21</b>	<b>8.45</b>	<b>7.78</b>

The IRR is around 34%.

The above stated machines are easily available locally. Other suppliers are

1. Industrial Equipments, Guwahati
2. Archana Machinery Stores, Guwahati
3. Eastend Engg. Company, 173/1, Goplarai Thakur Rd., Kolkata-700035  
Tel No. 25773416/6324
4. Sadanand Aprotech Pv. Ltd. ,B-34 Mini nagar, Dahisar(E), Mumbai-400068.  
Tel No. 28114536