

# MUSTARD OIL



## 1.0 INTRODUCTION

Oil seed crop occupies an important position in the agricultural and industrial economy of India and accounts for about 10% of the total crop area. Mustard seed is one of the five major oil seeds from which edible oil is produced. Mustard oil is the medium of cooking in almost all the states of the Eastern Region, especially in West Bengal. The North-East region of the country also consumes mustard oil in large quantity. Mustard oil cake (by-product) is the common cattle feed which has got high nutritional value. It is also used as manure.

This project profile is for setting up of a Mustard Oil processing unit with installed processing capacity of 100 kg mustard seeds per day.

## 2.0 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. As per one estimate, there are more than 100 oil mills in Assam alone 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.

## 3.0 PROCESS DETAILS

The seeds are to be dried in sun (if these are not dried) and then cleaned by shakers to remove dust and foreign particles. The seeds are initially steamed and then passed through the expeller 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 for marketing. On an average 33 to 35 per cent of recovery of oil from the seed is made depending upon the quality of the seeds.

#### 4.0 COST OF THE PROJECT

The estimated project cost is given below:

Particulars	Amount (Rs lacs)
Land and Site Development	-
Building & Civil Works	6.93
Plant & Machinery	3.20
Misc. Fixed Assets	1.70
Preliminary & Pre-operative Expenses	0.75
Contingencies & Escalation @ 3%	0.35
Working Capital	5.18
<b>TOTAL</b>	<b>18.11</b>

**4.1 Land & Site Development:** No cost has been considered for land & site development. It is assumed that the unit will be set up in own land.

**4.2 Building & Civil Works:** Details of building & civil works are given below.

Particulars	Area (Sqm)	Rate (Rs)	Amount (Rs)
Work Shed cum Store (7x20 sqm, Half Brick wall, CGI sheet roof, Concrete Floor)	140	4500	630000
Add: Electrification, Water Supply, etc @ 10%			63000
<b>TOTAL</b>			<b>693000</b>
<b>Say (Rs. in lacs)</b>			<b>6.93</b>

**4.3 Machinery & Equipment:** Details of machinery & equipment are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Baby oil expeller	1	90000	90000
25 HP Motor with starter & switch	1	25000	25000
Filter press with accessories	1	40000	40000
Oil skimmer (Ghani)	1	25000	25000
Baby boiler (200 kg capacity)	1	40000	40000
Oil storage tank	2	5000	10000
Shaker screen with blower	1	20000	20000
Weighing scales, sealing machine, etc.	LS	LS	15000
<b>Sub total</b>			<b>265000</b>
Add: Transportation, installation, etc @ 15%			39750
<b>TOTAL</b>			<b>319750</b>
<b>Say (Rs. in lacs)</b>			<b>3.20</b>

**4.4 Misc. Fixed Assets:** Details of miscellaneous fixed assets are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Power connection (25 HP)	1	150000	150000
Furniture & fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
<b>TOTAL</b>			<b>170000</b>
<b>Say (Rs. in lacs)</b>			<b>1.70</b>

**4.5 Preliminary & Pre-operative Expenses:** Details of preliminary & pre-operative expenses are given below.

Particulars	Amount (Rs lacs)
Travelling expenses	0.20
Professional & other fees	0.20
Interest during implementation	0.25
Miscellaneous expenses	0.10
<b>TOTAL</b>	<b>0.75</b>

**4.6 Contingencies & escalation:** Contingencies & escalation has been assumed at 3% of the cost of building & civil works, machinery & equipments and misc. fixed assets.

**4.7 Working capital:** Details of working capital are given below.

	Period (days)	Amount (Rs lacs)		
		Yr 1	Yr 2	Yr 3
Raw materials & consumables	30	1.56	1.88	2.19
Salary	30	0.40	0.41	0.41
Finished Goods	30	2.05	2.39	2.72
Receivables	15	1.15	1.38	1.62
<b>TOTAL</b>		<b>5.18</b>	<b>6.06</b>	<b>6.94</b>
Working Capital Margin in Yr 1 (100%)	5.18			

## 5.0 MEANS OF FINANCE

The means of finance for the project is estimated as below.

Particulars	Percent	Amount (Rs lacs)
<b>EQUITY</b>		
A. Equity from Promoters	40%	7.24
B. Subsidy from Central/State Govt.	-	
<b>DEBT</b>		
Term Loan from Banks/FIs	60%	10.87
<b>TOTAL</b>	<b>100%</b>	<b>18.11</b>

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b>A. INCOME</b>					
Production capacity (kg/annum)					
(i) Oil	47520	47520	47520	47520	47520
(ii) Oil cake	86400	86400	86400	86400	86400
Capacity utilisation	50%	60%	70%	70%	70%
Production/annum at capacity utilisation					
(i) Oil	23760	28512	33264	33264	33264
(ii) Oil cake	43200	51840	60480	60480	60480
Price/kg of oil (Rs)	100	100	100	100	100
Price/kg of oil cake (Rs)	10	10	10	10	10
Income from sale of oil/annum (Rs lakh)	23.76	28.51	33.26	33.26	33.26
Income from sale of oil cake/annum (Rs lakh)	4.32	5.18	6.05	6.05	6.05
Total income/annum	28.08	33.70	39.31	39.31	39.31
<b>B. OPERATING EXPENSES</b>					
Raw Materials & Consumables	19.03	22.83	26.64	26.64	26.64
Power	0.47	0.56	0.66	0.66	0.66
Salary	4.92	4.97	5.02	5.07	5.12
Repair & Maintenance	0.17	0.18	0.20	0.22	0.24
Selling Expenses	0.28	0.34	0.39	0.39	0.39
Miscellaneous Expenses	0.12	0.14	0.17	0.17	0.17
Total Operating Expenses	24.98	29.03	33.08	33.15	33.22
Less: Working expenses capitalised	5.18	0.00	0.00	0.00	0.00
Operating profit	8.27	4.67	6.24	6.17	6.09
<b>C. FINANCIAL EXPENSES</b>					
Depreciation	0.56	0.56	0.56	0.56	0.56
Interest on Term Loan	0.87	0.72	0.52	0.32	0.11

Net Profit	6.84	3.38	5.15	5.29	5.42
Net cash accruals	7.41	3.94	5.72	5.85	5.98
Principal Repayment	0.64	2.56	2.56	2.56	2.56

**6.1 Estimation of Production Capacity:** Production of Oil and Oil Cake at installed capacity is estimated as below.

Capacity of oil expeller (kg/hr) - processing of mustard seeds	100
No. of working hrs/day	8
No. of days/annum (Seasonal)	180
Total working hrs/annum	1440
Quantity of raw materials processed/annum (kg)	144000
Recovery of oil from seed (%)	33%
Recovery of oil cake from seed (%)	60%
Total production/ annum of oil at 100% capacity (kg)	47520
Total production/ annum of oil cake at 100% capacity (kg)	86400

**6.2 Raw Materials & Consumables:** Expenses on raw materials & consumables at installed capacity is estimated as below.

Raw material required at 100% capacity (kg)	144000
Add: Provision for spoilage at 0.1%	144
Total quantity of raw material required (kg)	144144
Price of mustard seed (Rs/kg)	24
Expenses on raw materials at 100% capacity (Rs)	3459456
Add: Consumables, packaging, etc @ 10%	345946
Expenses on raw materials & consumables at 100% capacity (Rs)	3805402

**6.3 Power:** Expenses on power at installed capacity is estimated as below.

Connected Load (kw)	19
Avg. load factor	70%
Hrs/day	8
Days/annum	180
Annual power consumption (kwh)	18799.2
Rate per unit (Rs)	5
Expenses on power per annum at 100% capacity (Rs)	93996

**6.4 Salary:** Expenses on salary in the 1<sup>st</sup> year is estimated as given below. It is assumed that salary expenses will increase @ 1% every subsequent year.

Particulars of Employees	Numbers	Salary/Month (Rs)	Cost/annum (Rs)
Manager	1	8000	96000
Skilled/Semi Skilled Workers	2	5000	120000
Sales Staff	2	4000	96000
Helpers	5	3000	180000
Expenses on salary in the 1st year (Rs)			492000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 10% every subsequent year.

Particulars	Cost (Rs)	Rate	Amount (Rs lacs)
Building & Civil Works	6.93	1%	0.07
Plant & Machinery	3.2	2%	0.06
Misc. Fixed Assets	1.70	2%	0.03
Expenses on repair & maintenance in the 1st year (Rs)			0.17

**6.6 Selling Expenses:** Selling expenses have been assumed at 1% of sales.

**6.7 Miscellaneous Expenses:** Misc. expenses have been assumed at 0.5% of sales.

**6.8 Depreciation:** Depreciation has been calculated by straight line method. The details of calculation are given below.

(Rs in lacs)

Description	Cost (Rs)	Rate	Amount/ annum (Rs)
Building & Civil Works	6.93	3.34%	0.23
Plant & Machinery	3.20	7.07%	0.23
Misc. Fixed Assets	1.70	6.23%	0.11
TOTAL			0.56

**6.9 Interest on Term Loan & Principal Repayment:** Interest rate has been assumed at 8% per annum. Duration of Loan repayment has been considered for a period of 5 years including moratorium period of 9 months with equal monthly instalments. The details of calculation are given below.

(Rs in lacs)

Month	Year	1	2	3	4	5
Month 1	Opening balance	10.87	10.23	7.67	5.11	2.56
	Repayment	0.00	0.21	0.21	0.21	0.21
	Interest (8%)	0.07	0.07	0.05	0.03	0.02
	Closing balance	10.87	10.01	7.46	4.90	2.34
Month 2	Opening balance	10.87	10.01	7.46	4.90	2.34
	Repayment	0.00	0.21	0.21	0.21	0.21
	Interest	0.07	0.07	0.05	0.03	0.02
	Closing balance	10.87	9.80	7.24	4.69	2.13
Month 3	Opening balance	10.87	9.80	7.24	4.69	2.13
	Repayment	0.00	0.21	0.21	0.21	0.21
	Interest	0.07	0.07	0.05	0.03	0.01
	Closing balance	10.87	9.59	7.03	4.47	1.92
Month 4	Opening balance	10.87	9.59	7.03	4.47	1.92
	Repayment	0.00	0.21	0.21	0.21	0.21
	Interest	0.07	0.06	0.05	0.03	0.01
	Closing balance	10.87	9.37	6.82	4.26	1.70
Month 5	Opening balance	10.87	9.37	6.82	4.26	1.70
	Repayment	0.00	0.21	0.21	0.21	0.21
	Interest	0.07	0.06	0.05	0.03	0.01
	Closing balance	10.87	9.16	6.61	4.05	1.49
Month 6	Opening balance	10.87	9.16	6.61	4.05	1.49
	Repayment	0.00	0.21	0.21	0.21	0.21
	Interest	0.07	0.06	0.04	0.03	0.01
	Closing balance	10.87	8.95	6.39	3.84	1.28
Month 7	Opening balance	10.87	8.95	6.39	3.84	1.28
	Repayment	0.00	0.21	0.21	0.21	0.21
	Interest	0.07	0.06	0.04	0.03	0.01
	Closing balance	10.87	8.74	6.18	3.62	1.07
Month 8	Opening balance	10.87	8.74	6.18	3.62	1.07
	Repayment	0.00	0.21	0.21	0.21	0.21
	Interest	0.07	0.06	0.04	0.02	0.01
	Closing balance	10.87	8.52	5.97	3.41	0.85
Month 9	Opening balance	10.87	8.52	5.97	3.41	0.85
	Repayment	0.00	0.21	0.21	0.21	0.21
	Interest	0.07	0.06	0.04	0.02	0.01
	Closing balance	10.87	8.31	5.75	3.20	0.64

Month 10	Opening balance	10.87	8.31	5.75	3.20	0.64
	Repayment	0.21	0.21	0.21	0.21	0.21
	Interest	0.07	0.06	0.04	0.02	0.00
	Closing balance	10.65	8.10	5.54	2.98	0.43
Month 11	Opening balance	10.65	8.10	5.54	2.98	0.43
	Repayment	0.21	0.21	0.21	0.21	0.21
	Interest	0.07	0.05	0.04	0.02	0.00
	Closing balance	10.44	7.88	5.33	2.77	0.21
Month 12	Opening balance	10.44	7.88	5.33	2.77	0.21
	Repayment	0.21	0.21	0.21	0.21	0.21
	Interest	0.07	0.05	0.04	0.02	0.00
	Closing balance	10.23	7.67	5.11	2.56	0.00
Principal Repayment		0.64	2.56	2.56	2.56	2.56
Interest		0.87	0.72	0.52	0.32	0.11

**7.0 DEBT SERVICE COVERAGE RATIO (DSCR)**

(Rs. in lacs)

Year	1	2	3	4	5	Total
Profit After Tax (Net Profit)	6.84	3.38	5.15	5.29	5.42	
Depreciation	0.56	0.56	0.56	0.56	0.56	
Interest	0.87	0.72	0.52	0.32	0.11	
Total	8.27	4.67	6.24	6.17	6.09	31.43
Interest	0.87	0.72	0.52	0.32	0.11	
Loan repayment	0.64	2.56	2.56	2.56	2.56	
Total	1.50	3.28	3.08	2.87	2.67	13.40
DSCR	5.50	1.42	2.03	2.15	2.28	

Average DSCR = 2.35

**8.0 BREAK EVEN POINT (BEP)**

(Rs. in lacs)

Year	1	2	3
A. Net sales	28.08	33.70	39.31
B. Variable cost			
Raw Materials & Consumables	19.03	22.83	26.64
Power	0.47	0.56	0.66
Selling Expenses	0.28	0.34	0.39
Other expenses	0.12	0.14	0.17
Total variable cost	19.90	23.88	27.86
C. Contribution (A-B)	8.18	9.82	11.46
D. Fixed & Semi-fixed Costs			
Salary	4.92	4.97	5.02
Repair & maintenance	0.17	0.18	0.20
Interest on Term Loan	0.87	0.72	0.52
Depreciation	0.56	0.56	0.56
Total fixed cost	6.52	6.44	6.30
E. BREAK EVEN POINT	79.62%	65.59%	55.03%
F. BEP at operating capacity	39.81%	39.36%	38.52%
G. Cash BEP	36.37%	35.91%	35.08%

**9.0 INTERNAL RATE OF RETURN (IRR)**

Year	0	1	2	3	4	5
CASH OUTFLOW						
Capital Expenditure	12.18	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	5.18	0.88	0.88	0.00	0.00
Total (A)	12.18	5.18	0.88	0.88	0.00	0.00
CASH INFLOW						
Profit After Tax		6.84	3.38	5.15	5.29	5.42
Add: Depreciation		0.56	0.56	0.56	0.56	0.56
Add: Interest		0.87	0.72	0.52	0.32	0.11
Add: Salvage Value						
Total (B)	0.00	8.27	4.67	6.24	6.17	6.09
NET FLOW (B-A)	-12.18	3.10	3.79	5.36	6.17	6.09

IRR = 25%

**MACHINERY SUPPLIERS**

- (a) Goyum Screw Press  
Plot No. 324/2, Industrial Area A, Ludhiana - 141003, Punjab, India
- (b) Frigmaires Engineers  
P. O. Box No. 16353, Janata Industrial Estate, Lower Unit No. 8, Senapati Bapat Marg,  
Opposite Pheonix Mill, Mumbai - 400 013, Maharashtra, India
- (c) Muez Hest India Private Limited  
No. 231, Blue Rose Industrial Estate, Near Cable Corporation, Western Express Highway,  
Borivali East, Mumbai - 400066, Maharashtra, India