MUSTARD/RAPESEED OIL

PRODUCT CODE	:	211001023
QUALITY AND STANDARDS	:	As per 'Agmark' and PFA Specifications. The ISI Specification for Mustard Oil is IS 546:1975 (2nd Revised)
PRODUCTION CAPACITY	:	Qty.: 9975 Tins (16 kg.) of Mustard Oil Value : Rs. 70,82,250.00 per annum Qty. 287 M.T. of Mustard Cake Value : Rs. 12,91,500.00 per annum
MONTH AND YEAR OF PREPARATION	:	May, 2003
PREPARED BY	:	Small Industries Service Institute 111 and 112, B.T. Road, Kolkata-700035

INTRODUCTION

Oil seed crop occupies an important position in the agricultural and industrial economy of the country and accounts for about 10 per cent 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. It is also used for the purpose of massage. Mustard oil cake (by-product) is the common cattle feed which has got high nutritional value. It is also used as manure.

MARKET POTENTIAL

Mustard oil has enormous demand as one of the edible oils and used as cooking medium especially in Northern, Eastern and North Eastern India. Mustard oil is also used in preparation of pickles by the housewives and pickle manufacturing units.

BASIS AND PRESUMPTIONS

The profile is drawn on the basis of the following presumptions:

1. Working hours/shift	:	8 hours
2. No. of shift/day	:	1
3. Working days	:	300
4. Total No. of working hours	:	2400
5. Working efficiency	:	75%
6. Time period for achieving maximum capacity utilisation	:	3rd year from the date of start of production
7. Labour charges	:	As per the Minimum Wages Act of State Government.
8. Margin Money	:	25% of Capital Investment

9. Rate of interest on fixed and working capital : 15%
10. Operative period of the project : 10 years

Value of the machinery and equipment is estimated on the basis of prevailing prices in the market.

IMPLEMENTATION SCHEDULE

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

1. Scheme preparation and approval	01month
2. SSI provisional registration	1-2 months
3. Sanction of loan	2-5 months
4. Installation of Machinery and power connection	6-8 months onwards
5. Trial Run and Production	8 months

TECHNICAL ASPECTS

Process of Manufacture

The seeds are to be dried in sun (if these are not dried) and then cleaned by shakers to remove dust and foreign matter. The seeds are initially steamed and then passed through the expeller and the process is repeated till the maximum oil is extracted out of the seeds. The filtered oil is filled into containers which are subsequently scaled and labelled 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.

Quality Control and Standards

The quality of oil should conform at–least to the quality and standards laid down in PFA Act. However, for better marketing of this product, the standards may be maintained as per *'Agmark'* specification. The ISI specification is No. IS:546:1975 (second revision). The entrepreneur may approach the appropriate authorities to get *'Agmark'* or ISI specification for better marketing of the product.

Production Capacity

The estimated production capacity per annum is as follows:

Mustard Oil : 159.6 MT
Mustard Cake : 287 MT
Weight loss : 9.4 (approximately 2% of the raw material)

Motive Power

Total motive power required including plant, machinery and office fittings is 30 HP.

Pollution Control

The extraction of oil does not need any steps to be taken for the pollution control as no effluents are responsible for air and water pollution. However, the entrepreneurs are advised to take 'No Objection Certificate' from the State Pollution Control Board before the commencement of production.

Energy Conservation

The fuel for the steam production in the boiler is coal or oil (diesel) depending upon the type of boiler. Proper care should be taken while utilising the fuel for the production of steam. It should be fed depending upon the requirement of the steam in production. There should

be no leakage of steam in the pipe lines. While softening the seeds in the kettles, the over passing of the steam should also be avoided for better oil recovery and energy conservation.

FINANCIAL ASPECTS

A. Fixed Capital

i) Land and Building	Amount (In Rs.)
1. Land - 350 sq. meter @ Rs 300 per sq.m.	1,05,000
2. Covered area including work shed, godown, store, etc. 250 sq.m. @ Rs 2000 sq.mtrs with C.I.I. sheet roofing	5,00,000
3. Boundary wall and gate, etc.	50,000
4. Toilet, bathroom, etc.	25,000
Total	6,80,000

ii) Machinery and Equipment

Sl. No.	Description	Qty.	Amount (In Rs.)
1.	Baby oil expeller No. 1 extra heavy duty with single steel gear set and long heating kettle (Chamber size: 27" × 5") 9 bolts capacity 110kg./hr.	2 Nos.	1,86,000
2.	25 HP Motor with starter and switch	1 No.	20,000
3.	Filter press frame type 14"×14"×14" plates plunger pump and filter cloth	1 No.	35,000
4.	Ghani Bengal type	2 pair	45,000
5.	Baby boiler 200 kg. capacity	1 No.	35,000
6.	Oil storage tank	3 Nos.	9,000
7.	Shaker screen with blower	1	15,000
8.	Weighing scale blower type 100 kg. capacity		8,000
	Electrification and installation charges @ 10% of the cost of machinery and equipment		35,000
	Cost of belt, pulley, other tools, fixture etc.		5,000
	Cost of office furniture and furnishing		15,000
	Total		4,08,000

iii) Preliminary and Pre-operative Expenses (Rs.)	
Legal expenses, establishment cost, travelling,start-up expenses, consultancy fee, estimation fee, interest during construction, trial room expenses	40,000
Total Fixed Capital (i+ii+iii)	11,28,000

B. Working Capital (per month)

i) Personnel

(a) *Administrative and Supervisory*

	Designation	No.	Amount (In Rs.)
a)	Manager-cum-Chemist	1	2,500
b)	Store keeper-cum-Accountant	1	1,500
c)	Purchase-cum-Salesman	1	1,500
d)	Chowkidar-cum-Peon	1	1,000
	(b) Technical Staff		
a)	Skilled Workers	2	3,000
b)	Unskilled Workers	3	3,000
	Total	9	12,500
	Add-perks and benefits 15%		1,875
	Total		14,375

ii) Raw Material		Amount (In Rs.)
a)	Mustard seeds 38 tonnes @ Rs.13000 per tonne on average	4,94,000
b)	Tin Containers 16 kg. Cap. 830 Nos. @ Rs. 35 per Container	29,050

Raw Material		Amount (In Rs.)
c)	Gunny bags 450 Nos. @ Rs. 20 per bag	9,000
d)	Labels for container	2,500
	Total	5,34,550

iii) Utilities		Amount (In Rs.)
a)	Power - 3000 KWH @ 4.50 per KWH	13,500
b)	Water	500
c)	Fuel for boiler	4,000
	Total	18,000

iv) Other Contingent Expenses		Amount (In Rs.)
a)	Stationery and postage	500
b)	Consumable store	1,000
c)	Telephone	1,000
d)	Repairs and maintenance	2,000
e)	Transport charges	6,500
f)	Advertisement and publicity	1,000
g)	Insurance charges	500
h)	Other miscellaneous expenses	500
	Total	13,000

v) Working Capital (per month) (i+ii+ii+iv) Rs. 5,79,925

vi) Working capital (for 3 months) 5,79,925×3 Rs. 17,39,775

C. Total Cost of the Project

		Amount (In Rs.)
a)	Total fixed Cost including land, building, plant and machinery etc.	1,12,8000
b)	Working capital margin @ 25%	4,34,980
	Total	1,56,2980

D. Total Capital Investment

		Amount (In Rs.)
i)	Fixed Capital	11,28,000
ii)	Working Capital (For three months)	17,39,775
	Total	28,67,775

MACHINERY UTILIZATION

It is estimated that 75% crushing capacity of the expellers and filter press will be utilized. The power consumption has also been calculated considering average 6 hrs. per day working of the machinery.

FINANCIAL ANALYSIS

1) Cost of Production (per year)		Amount (In Rs.)
a)	Total recurring cost	69,59,100
b)	Depreciation on Building @ 5% p.a.	28,750
c)	Depreciation on machinery and equipment @ 10% p.a.	40,800
d)	Interest on total capital investment @ 15% p.a.	4,30,000
	Total	74,58,650

2. Turnover (per year)	Amount (In Rs.)
Mustard oil 9975 tins @ Rs. 710 per tin	70,82,250
Mustard cake 287 MT @ Rs. 4500 per MT	12,91,500
Total	83,73,750

3. Net Profit (per year) *(Before Income Tax)*

= Total Sales – Cost of production

= 8373750 – 74,58,650

= 9,15,100

4. Net Profit Ratio

$$= \frac{\text{Net profit per year} \times 100}{\text{Turnover per year}}$$

$$= \frac{915100 \times 100}{8373750}$$

= 11%

5. Rate of Return

$$= \frac{\text{Net profit per year}}{\text{Total Investment}}$$

$$= \frac{9,15,100 \times 100}{28,67,775}$$

= 31.9%

6. Break-even Point

i) Fixed Cost		Amount (In Rs.)
a)	Depreciation on machine and equipment	40,800
b)	Depreciation on Building @ 5% p.a.	28,750
c)	Interest on total capital investment	4,30,000
d)	Insurance charges	10,000
e)	40% of salary and wages	69,000
f)	40% of utilities and other expenses	86,400
	Total	6,64,950
	or Say	6,65,000

ii) Net Profit (per year) Rs. 9,15,100

$$\text{B.E.P.} = \frac{\text{Fixed Cost} \times 100}{\text{Fixed cost+Net Profit}}$$

$$= \frac{6,65,000 \times 100}{15,80,100}$$

$$= 42.1\%$$

ADDITIONAL INFORMATION

The project requires huge amount of working capital to stock the seeds during season to compete in the market. If the entrepreneur is not in a position to manage sufficient working capital, he should also crush the other seasonal edible oil seeds available at different time intervals.

Addresses of Machinery and Equipment Suppliers

1) M/s. Punjab Engg. Works
32, Ram Krishna Samadhi Road,
Kolkata - 54.

2) M/s. S.P. Engg. Co.
79/9, Latouche Road,
P.B. No. 218,
Kanpur - 208 001.

3) M/s. Lyallpur Engg. Co.
G.T. Road, P.B. No. 8,
Gaziabad, U.P.

4) M/s. Delhi Iron and Steel Co.Pvt. Ltd.
G.T. Road,
Gaziabad(U.P).

5) M/s. Swastik Engg. Works
198, Panjara Pole Road,
Mumbai- 110004.

6) M/s. Parekh Machine Tools
5, Khetra Das Lane,
Behind Broadway Hotel,
Kolkata - 12.

Raw Material Suppliers

Available in Local Markets.