

DEHULLED SESAME SEED

QUALITY AND STANDARDS : PFA Specification

PRODUCTION CAPACITY : 280 MT Dehulled sesame seeds

1.0 PRODUCT AND ITS APPLICATIONS

The major portion of sesame seed produced in the country is used for extraction of oil. Sesame seed is also used in a variety of sweets, confectionery and bakery products. For utilization in the above food products, sesame has to be dehulled to remove the outer fibrous husk cover. This is usually done by soaking the seeds overnight in water, followed by drying and rubbing against a rough surface. The separated hulls are removed by winnowing. The method is laborious, time consuming and suitable for processing small quantities only.



An improved wet dehulling process is now available which accomplishes easy removal of the husk. The dehulled seed can be expeller pressed for obtaining good quality oil. The cake is further solvent extracted to recover the residual oil and the protein rich cake is used for protein fortification of various food preparations.

2.0 MARKET POTENTIAL

The dehulled sesame has uniform white colour and is ready for use in cookery and confectionery. It is rich in protein (22%) and oil (60%). It has a large demand in domestic as well as export markets particularly for use in the confectionery industry.

3.0 BASIS AND PRESUMPTIONS

- a) The unit would work for 200 days per annum on single shift basis.
- b) The unit can achieve its full capacity utilization during the 3rd 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 below:

❖ 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 Raw material

The important sesame growing states are Gujarat, Maharashtra, Madhya Pradesh, Orissa, Rajasthan, West Bengal, Karnataka, Tamilnadu, Andhra Pradesh and Uttar Pradesh. As such sesame seed are easily available all over the country.

5.2 Process of Manufacture

The process details are available with CFTRI. It consists of the following steps:

- a) **Preliminary cleaning and grading** : Commercial quality sesame seed is cleaned to remove dust, fines, stones and other foreign matter using vibratory screening equipment, followed by destoning.
- b) **Contacting with hot lye**: The seeds are placed in a boiling solution of sodium hydroxide for a prescribed time. These are thoroughly washed by a stream of water.
- c) **Removal of skin and pigments** : Washed seeds are brushed under a current of water to remove the hulls.
- d) **Drying** : The dehulled wet seeds are dried in a cross-flow or fluidized bed drier.

5.3 Quality Control and Standards : PFA Specifications

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

The fuel for the steam generation in the boiler is coal or LDO depending upon the type of boiler. Proper care should be taken while utilising the fuel for the steam production. There should be no leakage of steam in the pipe lines and adequate insulation should be provided.

8.0 PRODUCTION CAPACITY

Quantity	:	280 tpa
Value	:	Rs. 114.80 lakh
Installed capacity	:	2 tpa
Working days	:	200/annum
Optimum capacity utilization	:	70%
Manpower	:	18

Utilities

Motive Power	:	18 kW
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Water : 8 kL/day

9.0 FINANCIAL ASPECTS

9.1 Fixed Capital

9.1.1 Land & Building Amount (Rs. lakh)

Land 600 sq.m.	:	0.75
Built up Area 150 sq. m.	:	5.50

Total cost of Land and Building	:	6.25

9.1.2 Machinery and Equipment

Description		Amount (Rs. lakh)
Seasame seed pre-cleaning unit, destoner, wire mesh basket, mixing tanks, vibratory screen, pulper and mechanical drier.	:	9.00
Erection & electrification @10% cost of machinery & equipment	:	1.00
Office furniture & fixtures	:	0.50
Total :		-----
		10.50

9.1.3 Pre-operative Expenses

Consultancy fee, project report, deposits with electricity department etc.	:	0.70
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9.1.4 Total Fixed Capital 17.45 (9.1.1+9.1.2+9.1.3)

9.2 Recurring expenses per annum

9.2.1 Personnel

Designation	No.	Salary Per month	Amount (Rs.lakh)
Factory Manager	1	10000	1.20
Supervisory staff	2	5000	1.20
Office Assistant	1	5000	0.60
Skilled workers (7 months)	2	2500	0.35
Unskilled workers (7 months)	8	1500	0.84
Skilled workers (12 months)	4	1500	0.72
			4.91
Perquisites @10%			0.49

Total : 18 5.40

9.2.2 Raw Material including packaging materials

Particulars	Qty.(MT)	Rate	Amount (Rs. lakh)
Raw sesame	315	28000	88.00
Soda alkali	12	8500	01.02
Hydrochloric acid	3	8000	00.24
Jute bags	5600 no.	5 each	00.28

Total:			89.54

9.2.3 Utilities **Amount (Rs. lakh)**

Power		0.47
Water		0.01

Total:		0.48

9.2.4 Other Contingent Expenses **Amount (Rs. lakh)**

Repairs and maintenance@10%		1.45
Consumables & spares, others		0.60
Insurance		0.15

Total:		2.20

9.2.5 Total Recurring Expenditure **Amount (Rs. lakh)**
(9.2.1+9.2.2+9.2.3+9.2.4)

97.62

9.3 Working Capital **08.15**

Recurring Expenditure for one month

9.4 Total Capital Investment **Amount (Rs. lakh)**

Fixed capital (Refer 9.1.4)		17.45
Working capital (Refer 9.3)		08.15

Total:		25.60

10.0 FINANCIAL ANALYSIS

10.1 Cost of Production (per annum) **Amount (Rs. lakh)**

Recurring expenses (Refer 9.2.5)		97.62
Depreciation on building @5%		00.23
Depreciation on machinery @10%		01.00
Depreciation on furniture @20%		00.10
Interest on Capital Investment @12%		02.95

Total:		101.90

10.2 Sale Proceeds (Turnover) per year

Item	Qty. (MT)	Rate per MT	Amount (Rs.lakh)
Dehulled sesame seeds Packed in jute bags	280	41000	114.80

10.3 Net Profit per year

= Sales - Cost of production

= 114.80 - 101.90

= Rs. 12.90 lakh

10.4 Net Profit Ratio

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

= $\frac{12.9 \times 100}{114.80}$

= 11.24%

10.5 Rate of Return on Investment

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

= $\frac{12.9 \times 100}{25.60}$

= 50.39%

10.6 Annual Fixed Cost

	Amount (Rs. Lakh)
All depreciation	1.33
Interest	2.95
40% of salary, wages, utility, contingency	3.23
Insurance	0.15
Total:	<hr/> 7.66

10.7 Break even Point

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

$$= \frac{7.66 \times 100}{7.66 + 12.90}$$

$$= \frac{766}{20.56}$$

$$= 37.26\%$$

11.0 ADDRESSES OF MACHINERY AND EQUIPMENT SUPPLIERS

Jyothi Industries.
31, Pampa Mahakavi Road
Bangalore – 560 004

Raylons Metal Works
Kondivita Lane
Andheri, Mumbai

Shanti Engineering Works
Figure of 8 Road
Coonor – 643 101

SIDVIN
78, 5th Main, Saraswathipuram
Mysore – 570 009