SOYA FLOUR

1.0 INTRODUCTION

Soya beans are rich in proteins and are extensively used in many food items in several far East and East Asian countries since many decades. It is a comparatively new product in India and early seventies witnessed a major cultivation boom, with the state of Madhya Pradesh setting up the pace. Since then Maharashtra, Andhra Pradesh, Uttar Pradesh and Gujarat have also joined the bandwagon but even today Madhya Pradesh is the highest producer of soya bean. This note considers Maharashtra as the preferred location in view of good market prospects. Bulk of the production is used for extraction of oil but other products like soya milk, paneer, flour, curd etc. are also becoming popular, as soyabeans are high in proteins, low in fat and easy to digest.

2.0 PRODUCT

Soya bean flour is used in many products and has several uses and is considered to be a health food. With increasing awareness about health, there is a distinct shift towards soya products including its flour. Its use as supplement in wheat flour is increasing substantially in many households.

2.1 Compliances with the PFA Act are mandatory.

3.0 MARKET POTENTIAL

3.1 Demand and Supply

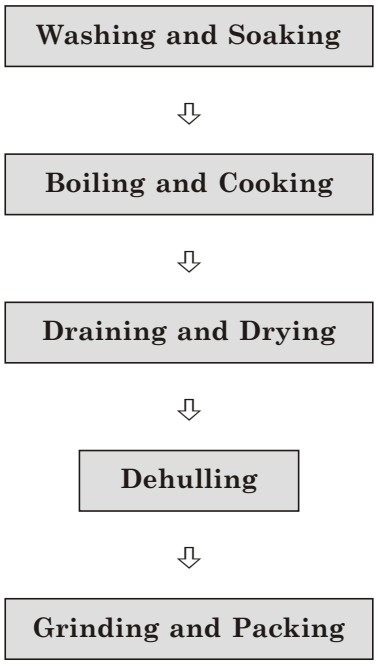
Soya bean products have become very popular throughout the world due to their nutritious values and India is not lagging behind. Many soya products have become very popular during the last few years and soya flour is one such product.

3.2 Marketing Strategy

Its applications are many fold and is used in meat products, cereal flour, ready-to-eat products, prepared instant mixes, baby foods, confectionaries, special diet food, high protein soups, protein concentrates, food additives, bakeries etc. Thus, there is a vast growing market. Many individual households have also started mixing a small proportion of soya flour as a supplement in wheat flour.

4.0 MANUFACTURING PROCESS

The process is known as Immersion cooking process. Soya beans are thoroughly washed to remove dirt, dust, stones etc. and are placed in a cloth sack. Sacks are then soaked in water for around 8-10 hours at room temperature. Due to soaking, the beans swell to around double their original size and their weight also goes up by around 2½ times. Immersion of the soaked whole beans (with moisture content of around 65%) in boiling water results in rapid cooking. Cooked beans are drained and then spread on a tray to dry in a current of air till moisture content comes down to about 10%. The dried whole soya beans are then cracked in a mill and hulls are separated. De-hulled beans are ground to the desired mesh and packed. The process loss is around 5%. The process flow chart is as under:



5.0 CAPITAL INPUTS

5.1 Land and Building

A plot of land of around 300 sq.mtrs. with built-up area of 200 sq.mtrs. would be adequate. Main processing and storage can be accommodated in 100 sq.mtrs. and balance 100 sq.mtrs. can be utilised for water storage and soaking tanks, drying shed etc. with asbestos roofing. Land may cost Rs. 90,000/- whereas built-up area of 200 sq.mtrs. would need around Rs. 4.50 lacs.

5.2 Machinery

Factory would run for about 250 days every year due to seasonal availability of soya beans for 2 shifts every day. Considering rated capacity of 2 tonnes per day, the per season capacity would be 500 tonnes for which following machines shall be required:

Item	Qty.	Price (Rs.)
Destoner	1	35,000
Magnetic Separator	1	40,000
Cookers	3	90,000
Tray Drier with 48rays	1	1,00,000
Dehuller	1	45,000
Pulveriser- 100 Kgs Capacity	1	80,000
Mini Boiler- 100 Kgs Capacity	1	1,00,000
Weighing Scale, sealing machines, aluminium utensils etc.	--	70,000
	Total	**5,60,000**

5.3 Miscellaneous Assets

Some other assets like furniture and fixtures, plastic tubs, packing tables, storage racks etc. would cost Rs. 80,000/-.

5.4 Utilities

Power requirement shall be 40 HP whereas per day water requirement shall be 10,000 ltrs. Coal or oil shall be required for boiler.

5.5 Raw and Packing Materials

The only raw material would be good quality soya beans. Yearly requirement even at 100% utilisation, would be 530 tonnes and with proper prior arrangements procurement would not be a problem. It is advisable to introduce 2 different packings. One for retailing and one bulk packing of 10 kgs. and 20 kgs. for institutional clients. Retailing can be undertaken in good quality printed polythene bags whereas bulk packing in polylined gunny bags.

6.0 MANPOWER REQUIREMENTS

Particulars	Nos.	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Skilled Workers	4	2,500	10,000
Semi-skilled Workers	4	1,750	7,000
Helpers	8	1,250	10,000
Salesman	1	2,500	2,500
Clerk	1	2,500	2,500
		Total	**32,000**

7.0 TENTATIVE IMPLEMENTATION SCHEDULE

Activity	Period (in months)
Application and sanction of loan	2
Site selection and commencement of civil work	2
Completion of civil work and placement of orders for machinery	6
Erection, installation and trial runs	2

8.0 DETAILS OF THE PROPOSED PROJECT

8.1 Land and Building

Particulars	Area (Sq.Mtrs)	Cost (Rs.)
Land	300	90,000
Building	200	4,50,000
	Total	**5,40,000**

8.2 Machinery

The estimated cost of machinery is likely to be Rs. 5.60 lacs as discussed earlier.

8.3 Miscellaneous Assets

An amount of Rs. 80,000/- has been earmarked towards other assets as stated before.

8.4 Preliminary & Pre-operative Expenses

Pre-production expenses like registration, establishment, travelling and administrative charges, interest during implementation, trial runs etc. are likely to cost Rs. 1.50 lacs.

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%	2.65	1.85	0.80
Stock of Finished Goods	½ Month	25%	3.00	2.25	0.75
Receivables	½ Month	25%	3.50	2.60	0.90
Working Expenses	1 Month	100%	0.75	--	0.75
	Total	**9.90**	**6.70**	**3.20**	

8.6 Cost of the Project & Means of Financing

(Rs. in lacs)

Item	Amount
Land and Building	5.40
Machinery	5.60
Miscellaneous Assets	0.80
P&P Expenses	1.50
Contingencies @ 10% on Land and Building and Plant & Machinery	1.10
Working Capital Margin	3.20
Total	**17.60**
Means of Finance	
Promoters' Contribution	5.10
Term Loan from Bank/FI	12.50
Total	**17.60**
Debt Equity Ratio	2.45
Promoters' Contribution	29%

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 capacity of 500 tonnes, actual utilisation in the first year is assumed to be 60% and thereafter it is limited to 75%.

9.2 Sales Revenue at 100%

Assuming average selling price of Rs. 28,000/- per ton, sales income at 100% activity level would be Rs. 140.00 lacs.

9.3 Raw and Packing Materials Required at 100%

(Rs. in lacs)

Product	Qty. (Tonnes)	Price/Ton (Rs.)	Value
Soyabeans	530	17,000	90.10
Packing Materials @ Rs.2250/Ton	--	--	11.25
		Total	**101.35**

9.4 Utilities

Per season cost of utilities at 100% utilisation would be Rs.3.00 lacs.

9.5 Interest

Interest on term loan of Rs.12.50 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 computed @ 14% per annum.

9.7 Depreciation

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

10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No.	Particulars	1st Year	2nd Year
A	**Installed Capacity**	**--- 500 Tonnes ---**	
	Capacity Utilisation	60%	75%
	Sales Realisation	84.00	105.00
B	**Cost of Production**		
	Raw and Packing Materials	60.80	76.01
	Utilities	1.80	2.25
	Salaries	2.88	3.40
	Stores and Spares	0.90	1.25
	Repairs & Maintenance	1.20	1.50
	Selling Expenses @ 10%	8.40	10.50
	Administrative Expenses	1.20	1.50
	Total	**77.18**	**96.41**
C	**Profit before Interest & Depreciation**	**6.82**	**8.59**
	Interest on Term Loan	1.36	1.10
	Interest on Working Capital	0.94	1.18
	Depreciation	1.73	1.43
	Profit before Tax	2.79	4.88
	Income-tax @ 20%	0.56	0.98
	Profit after Tax	2.23	3.90
	Cash Accruals	3.96	5.33
	Repayment of Term Loan	--	2.80

11.0 BREAK-EVEN ANALYSIS

(Rs. in lacs)

No	Particulars		Amount
[A]	**Sales**		**105.00**
[B]	**Variable Costs**		
	Raw and Packing Materials	76.01	
	Utilities (70%)	1.58	
	Salaries (70%)	2.38	
	Stores & Spares	1.25	
	Selling Expenses (70%)	7.35	
	Admn. Expenses (50%)	0.75	
	Interest on WC	1.18	**90.50**
[C]	**Contribution [A] - [B]**		**14.50**
[D]	**Fixed Cost**		**9.02**
[E]	**Break-Even Point [D] ÷ [C]**		**62%**

12.0 [A] LEVERAGES

Financial Leverage

= EBIT/EBT

= 5.09 ÷ 2.79

= 1.82

Operating Leverage

= Contribution/EBT

= 11.60 ÷ 2.79

= 4.16

Degree of Total Leverage

= FL/OL

= 1.82 ÷ 4.16

= 0.44

[B] Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr
Cash Accruals	3.96	5.33	5.74	6.07	6.39
Interest on TL	1.36	1.10	0.77	0.43	0.26
Total [A]	**5.32**	**6.43**	**6.51**	**6.50**	**6.65**
Interest on TL	1.36	1.10	0.77	0.43	0.26
Repayment of TL	--	3.10	3.10	3.10	3.20
Total [B]	**1.36**	**4.20**	**3.87**	**3.53**	**3.46**
DSCR [A] ÷ [B]	**3.91**	**1.53**	**1.68**	**1.84**	**1.92**
Average DSCR	**---------- 2.17----------**				

[C] Internal Rate of Return (IRR)

Cost of the project is Rs. 17.60 lacs.

(Rs. in lacs)

Year	Cash Accruals	16%	18%	20%	24%
1	3.96	3.41	3.35	3.30	3.19
2	5.33	3.96	3.83	3.70	3.46
3	5.74	3.68	3.50	3.32	3.01
4	6.07	3.35	3.13	2.93	2.57
5	6.39	3.04	2.79	2.57	2.18
6	6.81	2.79	2.52	2.28	1.87
	34.30	**20.23**	**19.12**	**18.10**	**16.28**

The IRR is around 21%.

Some of the machinery suppliers are

1. Raylon Metal Works, PO BOX 17426, Andheri(E), Mumbai-400059
2. Sujata Enterprise, Laxmi Road, Pune-411030
3. Laxicon Engg., Sita Bardi, Nagpur 440 012
4. Flourtech Engg. Pvt. Ltd. 16/5, Mathura Rd., Faridabad-121002.
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