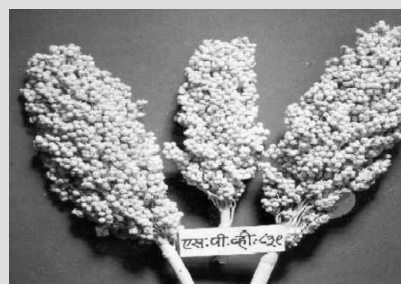


JOWAR FLAKES



1.0 INTRODUCTION

Jowar is a coarse grain and is difficult to pound. Therefore, it was not as popular as rice flakes. But with the advent of technology, it has now become possible to produce flakes from jowar as well. It is a very popular cereal especially in rural areas of western India. Jowar flakes have many applications.

2.0 PRODUCTS

2.1 Applications

Jowar flakes have several applications and they are very popular especially in Maharashtra. The preferred locations are Maharashtra, Madhya Pradesh or Karnataka. They are used for making deep fat fried products such as fried and seasoned mixtures or toasted and seasoned mixtures, energy food, upma, sweet/savoury pongal, sweet gravy, tamarind bhaat etc.

2.2 Availability of Technology & Compliances

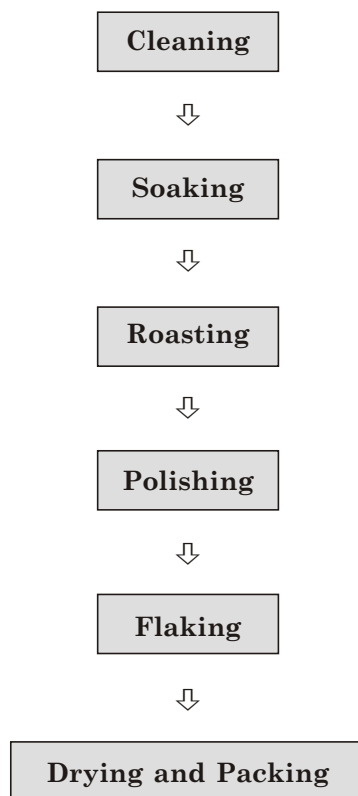
CFTRI, Mysore, has developed the process to make jowar flakes. Compliance under the PFA Act is necessary.

3.0 MARKET POTENTIAL

Jowar is a very popular foodgrain especially in rural and semi-urban areas as it is cheaper than wheat and paddy. Likewise, price of jowar flakes is less than rice flakes and hence poor section of the society prefers them. With so many applications, rural areas provide a thriving market. With proper distribution network, it is possible to penetrate the market. Retailing is not envisaged as it would need fairly large network.

4.0 MANUFACTURING PROCESS

Jowar grains are cleaned and soaked in hot water for around 10 hours. After that they are roasted and then rested to obtain wrinkle-free flakes. Grains are then polished and flaked and sifted. Finally, flakes are dried and packed. The yield is around 80% on clean jowar basis. The process flow chart is as under:



5.0 CAPITAL INPUTS

5.1 Land & Building

A readymade shed of around 100 sq.mtrs. may be bought which would cost around Rs. 2.00 lacs.

5.2 Machinery

Monthly processing capacity of 30 tonnes would require following machines: (Rs. in lacs)

Particulars	Qty	Amount
Soaking Tanks	4	0.40
Roaster of 250 kgs. Capacity	1	0.80
Cone Polisher	1	0.50
Flaker	1	0.75
Sieves	3	0.75
Drier with 48 Trays	1	1.00
Baby boiler of 100 kgs. Capacity	1	0.75
Weighing scales, stitching machines, fumigation equipment set etc.	--	0.80
	Total	5.75

5.3 Miscellaneous Assets

Other assets like furniture & fixtures, packing tables, plastic crates etc. would need Rs. 0.80 lac.

5.4 Utilities

Daily water requirement for process and sanitation and potable purposes would be around 6000 ltrs. whereas power requirement shall be 20 kw. Coal or LDO shall be needed for boiler.

5.5 Raw and Packing Materials

The only raw material shall be jowar grains. Maharashtra is a leading cultivator of jowar followed by MP and thus with proper prior arrangements, availability can be ensured. Jowar flakes shall be packed in printed polythene bags.

6.0 MANPOWER REQUIREMENTS

Particulars	No	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Skilled Workers	1	2,500	2,500
Semi-skilled Worker	1	1,750	1,750
Helpers	4	1,500	6,000
Salesman	1	2,500	2,500
		Total	13,750

7.0 TENTATIVE IMPLEMENTATION SCHEDULE

Activity	Period (in months)
Application and sanction of loan	1.5
Site selection and commencement of civil work	0.5
Completion of civil work and placement of orders for machinery	1.5
Erection, installation and trial runs	0.5

8.0 DETAILS OF THE PROPOSED PROJECT

8.1 Land and Building

A readymade shed of around 100 sq.mtrs. would cost around Rs.2.00 lacs as stated before.

8.2 Machinery

An estimated amount of Rs. 5.75 lacs shall be required to install required machinery.

8.3 Miscellaneous Assets

Other assets would need Rs. 80,000/- as explained earlier.

8.4 Preliminary and Pre-Operative Expenses

A provision of Rs. 1.25 lacs would take care of pre-production expenses.

8.5 Working Capital Requirement

At 65% 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%	0.45	0.30	0.15
Stock of Finished Goods	½ Month	25%	0.60	0.45	0.15
Receivables	½ Month	25%	0.80	0.60	0.20
Working Expenses	1 Month	100%	0.30	--	0.30
		Total	2.15	1.35	0.80

8.6 Cost of the Project and Means of Financing

(Rs. in lacs)

Items	Amount
Building	2.00
Plant and Machinery	5.75
Miscellaneous Assets	0.80
Preliminary and Pre-operative Expenses	1.25
Contingencies @ 10% on building and machinery	0.80
Working Capital Margin	0.80
Total	11.40
Means of Finance	
Promoter's Contribution	3.20
Term Loan from Bank/FI	8.20
Total	11.40
Debt Equity Ratio	2.56 : 1
Promoters Contribution	28%

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

As against the rated capacity of 360 tonnes, actual utilisation in the first year is assumed to be 65% and thereafter it is limited to 80%.

9.2 Sales Revenue at 100%

Considering selling price of Rs. 9500/ton; the annual income at 100% activity level for 290 tonnes shall be Rs. 27.55 lacs.

9.3 Raw and Packing Materials Required at 100%

(Rs. in lacs)

Product	Qty (Tonnes)	Rate/Ton (Rs)	Value
Jowar	360	3750	13.57
Packing Material	--	--	1.25
		Total	14.82

9.4 Utilities

The annual expenditure on utilities at 100% shall be Rs.2.00 lacs.

9.5 Interest

Interest on term loan of Rs. 8.20 lacs is calculated @ 12% per annum assuming repayment in 5 years including a moratorium period of 1 year whereas on working capital from bank it is assumed to be 14% per annum.

9.6 Depreciation

It is calculated on WDV basis @ 10% on building and 15% on machinery.

10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No	Particulars	1st Year	2nd Year
A	Installed Capacity	---- 360 Tonnes ----	
	Capacity Utilisation	65%	80%
	Sales Realisation	17.90	22.05
B.	Cost of Production		
	Raw and Packing Materials	9.63	11.85
	Utilities	1.20	1.50
	Salaries	1.53	1.80
	Stores and Spares	0.30	0.42
	Repairs and Maintenance	0.36	0.48
	Selling Expenses	0.60	0.75
	Administrative Expenses	0.48	0.60
	Total	14.10	17.40
C.	Profit before Interest & Depreciation	3.80	4.65
	Interest on Term Loan	0.98	0.80
	Interest on Working Capital	0.19	0.25
	Depreciation	1.06	0.91
	Profit before Tax	1.57	2.69
	Income Tax @ 20%	0.31	0.53
	Profit after Tax	1.26	2.16
	Cash Accrual	2.32	3.07
	Repayment of Term Loan	--	2.05

11.0 BREAK-EVEN POINT ANALYSIS

(Rs. in lacs)

No.	Particulars	Amount	
A	Sales		22.05
B	Variable Cost		
	Raw and Packing Materials	11.85	
	Utilities (70%)	1.05	
	Salaries (70%)	1.26	
	Stores and Spares	0.42	
	Selling Expenses (70%)	0.53	
	Administrative Expenses (50%)	0.30	
	Interest on working capital	0.25	15.66
C	Contribution		6.39
D.	Fixed Cost		3.70
E.	Break Even Point (D ÷ C)		58%

12.0 [A] LEVERAGES

Financial leverage:

$$= \text{EBIT/EBT}$$

$$= 3.74 \div 2.69$$

$$= 1.39$$

Operating Leverage

$$= \text{Contribution/EBT}$$

$$= 6.39 \div 2.69$$

$$= 2.37$$

Degree of Total Leverage

$$= \text{FL/OL}$$

$$= 1.39 \div 2.37$$

$$= 0.59$$

[B] Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr
Cash Accruals	2.32	3.07	3.30	3.58	3.84
Interest on Term Loan	0.98	0.80	0.55	0.30	0.18
Total (A)	3.30	3.87	3.85	3.88	4.02
Interest on Term Loan	0.98	0.80	0.55	0.30	0.18
Repayment of Term Loan	--	2.05	2.05	2.05	2.05
Total (B)	0.98	2.85	2.60	2.35	2.23
DSCR (A) ÷ (B)	3.35	1.36	1.48	1.65	1.87
Average	----- 1.94 -----				

[C] Internal Rate of Return (IRR)

Cost of the project is Rs. 11.40 lacs.

(Rs. in lacs)

Year	Cash Accruals	16%	18%	20%	24%
1	2.32	2.00	1.97	1.93	1.87
2	3.07	2.28	2.20	2.13	2.00
3	3.30	2.12	2.01	1.91	1.73
4	3.58	1.98	1.85	1.73	1.51
5	3.84	1.83	1.68	1.54	1.31
6	4.29	1.76	1.59	1.44	1.18
7	4.48	1.59	1.41	1.25	0.99
	24.88	13.56	12.71	11.93	10.59

The IRR is around 21%.

Some of the machinery suppliers are

1. Kalpana Boilers, 18 Kailash Park, LBS Marg, Ghatkopar (West), Mumbai 400 036
2. Raylons Metal Works, PB No 17426, JB Nagar, Andheri (E), Mumbai 400 059
3. Auric Techno Services Pvt Ltd, C-101, Shreenath Hermitage, Baner Road, Pune 411 008
Tel. No. : 25898072, 9113 Fax No. 25899113
4. D.K. Bary & Co Pvt Ltd, 11/35, West Punjabi Bagh, New Delhi 110 026, Tel. No. : 25160363
5. Guru Nanak Engg. & Foundry Works, 166 Focal Point, Mehta Road, Amritsar 143 039
Tel. No. : 2583542, 2587943, Fax: 2587944