

# VERMICELLI



## 1.0 INTRODUCTION

Vermicelli is a popular instant food product. It falls under the category of extruded product and is made from wheat flour. At times tapioca or soya bean or groundnut flour is also added. Thus, it is rich in proteins and liked by people from all walks of life, irrespective of age. It is basically a snack food item and at times it is also used as a table enricher. With changing lifestyles, greater awareness about health and preference for instant food items have made vermicelli very popular and an item of mass consumption.

## 2.0 PRODUCT

### 2.1 Applications

Vermicelli is an extruded instant food product basically made from wheat flour. Other flours like groundnut, soya bean or tapioca are also mixed with wheat flour to make it more nutritive. They are easily affordable, tasty and easy to make. This product can be made in many states of the country and this note considers Bihar as the preferred location.

### 2.2 Availability of technical know-how Quality Standards and Compliances

DFRL, Mysore,, has successfully developed the technical know-how. BIS has specified quality parameters in 1485:1976. Compliances under the PFA Act are mandatory.

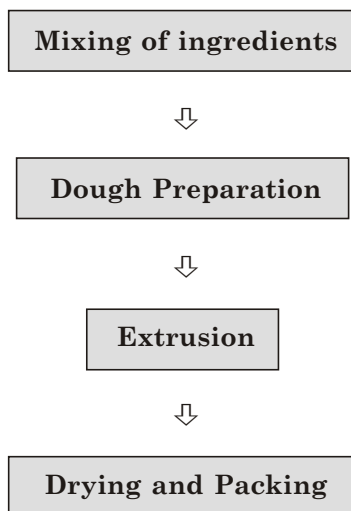
## 3.0 MARKET POTENTIAL

Urbanisation has changed the lifestyles of not only urbanites but even of semi-urban and rural areas. This along with increase in the purchasing power of people, has fuelled demand for many fastfood or instant food items and vermicelli is one such product. With the addition of groundnut or soya bean or tapioca flour, it also becomes a nutritive product and thus even health conscious people prefer it. Vermicelli has, thus, become a very popular instant food

variety since last few years and its demand is steadily growing. There are some established brands like Maggi and Fryums but the market is very large and growing. A small scale unit can compete with these brands in the local market on the price front because of low overheads, less transportation costs and reasonable advertisement budget. Proper and adequate placement of product and thrust on publicity basically at the point of sales would also be crucial.

#### 4.0 MANUFACTURING PROCESS

It is very well standardised and simple. Wheat and other flours in small quantity are mixed with around 25% to 30% of water in a mixer for about half an hour and dough is prepared. This dough is passed through extruder and long rods of vermicelli come out from the extruder which are cut into the desired length and then placed in the tray drier for drying. Drying temperature is around 55-65<sup>o</sup> C and time required is 4½ to 5 hours. Dried pieces are weighed and packed in attractively printed polythene bags. The weight and process loss is around 10%. The process flow chart is as under:



#### 5.0 CAPITAL INPUTS

##### 5.1 Land and Building

Built-up area of around 100 sq.mtrs. is adequate to accommodate production area as well as storage and packing facilities. Hence a readymade shed could be bought which may cost Rs. 2.50 lacs.

##### 5.2 Machinery

Product would be sold in local and nearby markets and hence rated production capacity of 80 tonnes per year with 300 working days and 12 hours working every day is suggested.

This would call for installation of following machines:

Item	Qty.	Price (Rs.)
Extruder of 50 kgs. capacity with all attachments and electricals	1	1,75,000
Dough-kneading machine of 50 kgs. cap.	1	80,000
48 Trays capacity drier	1	80,000
Mixer	1	40,000
Weighing-scales, polythene bag sealing machine, SS vessels etc.	--	40,000
	<b>Total</b>	<b>4,15,000</b>

### 5.3 Miscellaneous Assets

Other assets like furniture & fixtures, plastic tubs, storage racks etc. shall be required for which a provision of Rs.40,000/- is made.

### 5.4 Utilities

Daily water requirement shall be around 1,500 ltrs. whereas power requirement will be 20 HP.

### 5.5 Raw and Packing Materials

Major raw material would be wheat flour which will be available locally. Other flours like soya bean, tapioca or groundnut will be required in small quantities. Some minerals and vitamins can also be added. Printed polythene bags and corrugated boxes, BOPP tape would be the packing materials.

## 6.0 MANPOWER REQUIREMENTS

Particulars	Nos.	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Skilled Workers	2	2,500	5,000
Helpers	4	1,250	5,000
Salesman	1	2,500	2,500
		<b>Total</b>	<b>12,500</b>

## 7.0 TENTATIVE IMPLEMENTATION SCHEDULE

Activity	Period (in months)
Application and sanction of loan	2
Site selection and commencement of civil work	1
Completion of civil work and placement of orders for machinery	4
Erection, installation and trial runs	1

## 8.0 DETAILS OF THE PROPOSED PROJECT

### 8.1 Building

A readymade shed of 100 sq.mtrs. costing around Rs.2.50 lacs as explained earlier would be needed.

## 8.2 Machinery

Proposed annual production capacity of 80 tonnes would need machinery worth Rs.4.15 lacs as discussed earlier.

## 8.3 Miscellaneous Assets

A provision of Rs.40,000/- under this head is enough as stated before.

## 8.4 Preliminary & Pre-operative Expenses

An amount of Rs. 60,000/- is provided for towards expenses like registration, establishment, administrative and travelling charges, interest during implementation, trial runs and so on.

## 8.5 Working Capital Requirements

Capacity utilisation of 60% in the first year would need following working capital:

(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%	1.20	0.90	0.30
Receivables	½ Month	25%	1.00	0.75	0.25
Other Expenses	1 Month	100%	0.30	--	0.30
		<b>Total</b>	<b>2.95</b>	<b>1.95</b>	<b>1.00</b>

## 8.6 Cost of the Project & Means of Financing

(Rs. in lacs)

Item	Amount
Land and Building	2.50
Machinery	4.15
Miscellaneous Assets	0.40
P&P Expenses	0.60
Contingencies @ 10% on Building and Plant & Machinery	0.65
Working Capital Margin	1.00
<b>Total</b>	<b>9.30</b>
<b>Means of Finance</b>	
Promoters' Contribution	2.70
Term Loan from Bank/FI	6.60
<b>Total</b>	<b>9.30</b>
Debt Equity Ratio	2.33 : 1
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 annual rated capacity of 80 tonnes, actual utilisation in the first year is assumed to be 60% and thereafter 75%.

### **9.2 Sales Revenue at 100%**

With selling price of Rs.55,000/- per ton, the annual sales realisation of 72 tonnes (with 90% yield) would be Rs.39.60 lacs.

### **9.3 Raw and Packing Materials Required at 100%**

(Rs. in lacs)

<b>Product</b>	<b>Qty. (Tonnes)</b>	<b>Price/Ton (Rs.)</b>	<b>Value</b>
Wheat Flour	60	15,000	9.00
Soyabean/Groundnut/Tapioca Flour	20	24,000	4.80
Packing Materials @ Rs.7,000/- per ton	--	--	5.04
		<b>Total</b>	<b>19.44</b>

### **9.4 Utilities**

Annual expenditure at 100% utilisation would be Rs. 60,000/-.

### **9.5 Selling Expenses**

A provision of 20% of sales income would take care of commission, transportation, free sampling, publicity material etc.

### **9.6 Interest**

It is computed @ 12% per annum on term loan of Rs.6.60 lacs considering repayment in 4 year including a moratorium period of 1 year and on bank loan for working capital, it is taken @ 14%.

### **9.7 Depreciation**

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

## 10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No.	Particulars	1st Year	2nd Year
<b>A</b>	<b>Installed Capacity</b>	<b>--- 80 Tonnes ---</b>	
	Capacity Utilisation	60%	75%
	Sales Realisation	23.76	29.70
<b>B</b>	<b>Cost of Production</b>		
	Raw and Packing Materials	11.66	14.58
	Utilities	0.36	0.45
	Salaries	1.50	1.80
	Stores and Spares	0.15	0.21
	Repairs & Maintenance	0.18	0.30
	Selling Expenses @ 20%	4.75	5.94
	Administrative Expenses	0.42	0.60
	<b>Total</b>	<b>19.02</b>	<b>23.88</b>
<b>C</b>	<b>Profit before Interest &amp; Depreciation</b>	<b>4.74</b>	<b>5.82</b>
	Interest on Term Loan	0.72	0.54
	Interest on Working Capital	0.28	0.35
	Depreciation	1.16	0.95
	Profit before Tax	2.58	3.98
	Income-tax @ 20%	0.52	0.80
	Profit after Tax	2.06	3.18
	Cash Accruals	3.22	4.13
	Repayment of Term Loan	--	2.00

## 11.0 BREAK-EVEN ANALYSIS

(Rs. in lacs)

No	Particulars	Amount	
[A]	Sales		<b>23.76</b>
[B]	Variable Costs		
	Raw and Packing Materials	11.66	
	Utilities (70%)	0.25	
	Salaries (70%)	1.05	
	Stores & Spares	0.15	
	Selling Expenses (70%)	3.33	
	Admn Expenses (50%)	0.21	
	Interest on WC	0.28	<b>16.93</b>
[C]	Contribution [A] - [B]		<b>6.83</b>
[D]	Fixed Cost		<b>4.25</b>
[E]	Break-Even Point [D] ÷ [C]		<b>62%</b>

**12.0 [A] LEVERAGES**

**Financial Leverage**

= EBIT/EBT

= 3.58 ÷ 2.58

= 1.38

**Operating Leverage**

= Contribution/EBT

= 6.83 ÷ 2.58

= 2.65

**Degree of Total Leverage**

= FL/OL

= 1.38 ÷ 2.65

= 0.52

**[B] Debt Service Coverage Ratio (DSCR)**

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr
Cash Accruals	3.22	4.13	4.51	4.92
Interest on TL	0.72	0.54	0.30	0.12
<b>Total [A]</b>	<b>3.94</b>	<b>4.67</b>	<b>4.81</b>	<b>5.04</b>
Interest on TL	0.72	0.54	0.30	0.12
Repayment of TL	--	2.20	2.20	2.20
<b>Total [B]</b>	<b>0.72</b>	<b>2.74</b>	<b>2.50</b>	<b>2.32</b>
<b>DSCR [A] ÷ [B]</b>	<b>5.47</b>	<b>1.84</b>	<b>2.09</b>	<b>2.38</b>
<b>Average DSCR</b>	----- <b>2.95</b> -----			

**[C] Internal Rate of Return (IRR)**

Cost of the project is Rs. 9.30 ;lacs.

(Rs. in lacs)

<b>Year</b>	<b>Cash Accruals</b>	<b>24%</b>	<b>28%</b>	<b>32%</b>
1	3.22	2.60	2.51	2.44
2	4.13	2.68	2.52	2.37
3	4.51	2.36	2.15	1.96
4	4.92	2.08	1.84	1.62
	<b>16.78</b>	<b>9.72</b>	<b>9.02</b>	<b>8.39</b>

The IRR is around 26%.

**Some of the machinery suppliers are**

1. Punjab Engg. Works, Ram Krishna Samadhi Road, Kolkata
2. AMS Engg, Station Road, Patna, Bihar
3. Siwan Foundry, Siwan, Bihar