

# DEHYDRATED GINGER



## 1.0 INTRODUCTION

Ginger is a seasonal product but it is used extensively in many food preparations. Hence, dried ginger or ginger powder is used in large quantity during off-season. Fresh/dried ginger, ginger oil and ginger powder are used in large quantities in many vegetarian and non-vegetarian food preparations in Indian, Continental and Chinese cuisine. Ginger also has medicinal attributes and is used by households as well as by pharmaceutical companies. But fresh ginger is available only for about 5-6 months and hence the demand for bleached and dehydrated ginger is increasing.

This project profile is for setting up of a Dehydrated Ginger (Dried Ginger) producing unit with installed processing capacity of 500 kg per day of fresh ginger.

## 2.0 MARKET POTENTIAL

India is a leading ginger producer in the world with more than 50% of total ginger production taking place in North

East States and Uttarakhand. In North Eastern states Gingers are produced under organic conditions. Dry Ginger has huge export potential in addition to its existing demand in India. Ginger is used almost daily in our diet. Export of ginger increased from 8,332.91 tons in 2007-08 to 35,616.35 tons in 2011-12 in Quantum and increased from Rs 3,296.08 Lakh to Rs 26,626.77 Lakhs in value term.

## 3.0 PROCESS DETAILS

Ginger is washed and cleaned in water and then skin of ginger is peeled partially with the help of peeling machine. It is then dried in electrically operated tray drier at a temperature of about 60° C. Drying time is 24 hours in crossflow type drier and 14 hours in through-flow drier. Dried ginger slices are packed in polythene bags and sealed.

#### 4.0 COST OF THE PROJECT

The estimated project cost is given below:

Particulars	Amount (Rs lacs)
Land & Site Development	-
Building & Civil Works	4.03
Machinery & Equipment	2.04
Misc. Fixed Assets	1.20
Preliminary & Pre-operative Expenses	0.62
Contingencies & Escalation @ 3%	0.22
Working Capital	2.14
<b>TOTAL</b>	<b>10.26</b>

**4.1 Land & Site Development:** No. cost has been considered for land & site development. It is assumed that the unit will be set up in own land.

**4.2 Building & Civil Works:** Details of building & civil works are given below.

Particulars	Area (Sqft)	Rate (Rs)	Amount (Rs)
Work Shed cum Store (30x20 sqft, Brick wall, CGI sheet roofings, Concrete Floor)	600	600	360000
Add: Electrification, water supply, etc @ 12%			43200
<b>TOTAL</b>			<b>403200</b>
<b>Say (Rs. in lacs)</b>			<b>4.03</b>

**4.3 Machinery & Equipment:** Details of machinery & equipment are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Ginger peeling machine	1	40000	40000
Tray drier (electrically operated)	50	1600	80000
Washing tank	1	20000	20000
Weighing scales, sealing machine, etc.	LS	LS	20000
<b>Sub total</b>			<b>160000</b>
Add: Transportation, taxes, etc. @ 15%			24000
<b>TOTAL</b>			<b>204000</b>
<b>Say (Rs. in lacs)</b>			<b>2.04</b>

**4.4 Misc. Fixed Assets:** Details of miscellaneous fixed assets are given below.

Particulars	Qty	Rate (Rs)	Amount (Rs)
Water supply system (STW boring, 3 HP pump set, storage, pipes & fittings)	1	100000	100000
Furniture & fixtures	LS	LS	10000
Miscellaneous items	LS	LS	10000
<b>TOTAL</b>			<b>120000</b>
<b>Say (Rs. in lacs)</b>			<b>1.20</b>

**4.5 Preliminary & Pre-operative Expenses:** Details of preliminary & pre-operative expenses are given below.

Particulars	Amount (Rs lacs)
Travelling expenses	0.20
Professional & other fees	0.20
Interest during implementation	0.12
Miscellaneous expenses	0.10
<b>TOTAL</b>	<b>0.62</b>

**4.6 Contingencies & Escalation:** Contingencies & escalation has been assumed at 3% of the cost of building & civil works, machinery & equipment and miscellaneous fixed assets.

**4.7 Working capital:** Details of working capital are given below.

Particulars	Period (days)	Amount (Rs lacs)		
		Yr 1	Yr 2	Yr 3
Raw materials & consumables	15	0.45	0.52	0.60
Power	30	0.00	0.00	0.01
Salary	30	0.36	0.36	0.36
Finished Goods	15	0.64	0.72	0.80
Receivables	15	0.69	0.81	0.92
<b>Total</b>		<b>2.14</b>	<b>2.42</b>	<b>2.69</b>
Working Capital Margin in Yr 1 (100%)	2.14			

## 5.0 MEANS OF FINANCE

The means of finance for the project is estimated as below.

Particulars	Percent	Amount (Rs lacs)
<b><u>EQUITY</u></b>		
A. Equity from Promoters	40%	4.10
B. Subsidy from Central/State Govt.	-	
<b><u>DEBT</u></b>		
Term Loan from Banks/FIs	60%	6.15
<b>TOTAL</b>	<b>100%</b>	<b>10.26</b>

## 6.0 PROFITABILITY STATEMENT

(Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5
<b><u>A. INCOME</u></b>					
Production capacity (kg/annum)	18750	18750	18750	18750	18750
Capacity utilisation	60%	70%	80%	80%	80%
Total production/annum at capacity utilisation	11250	13125	15000	15000	15000
Price/kg (Rs)	150	150	150	150	150
Income from sales/annum	16.88	19.69	22.50	22.50	22.50
<b><u>B. OPERATING EXPENSES</u></b>					
Raw materials & consumables	10.90	12.72	14.53	14.53	14.53
Power	0.05	0.06	0.06	0.06	0.06
Salary	4.32	4.36	4.41	4.45	4.50
Repair & Maintenance	0.11	0.12	0.14	0.16	0.18
Selling Expenses	0.17	0.20	0.23	0.23	0.23
Other Expenses	0.08	0.10	0.11	0.11	0.11
Total Operating Expenses	15.63	17.55	19.48	19.55	19.62
Less: Working expenses capitalised	2.14	0.00	0.00	0.00	0.00
Operating profit	3.39	2.13	3.02	2.95	2.88
<b><u>C. FINANCIAL EXPENSES</u></b>					
Depreciation	0.35	0.35	0.35	0.35	0.35
Interest on Term Loan	0.49	0.41	0.29	0.18	0.06
Net Profit	2.55	1.37	2.37	2.42	2.47
Net cash accruals	2.90	1.72	2.72	2.77	2.82
Principal Repayment	0.36	1.45	1.45	1.45	1.45

**6.1 Estimation of Production Capacity:** Production of Dried Ginger per annum at installed capacity is estimated as below.

Capacity of plant (kg/day) - processing of fresh ginger	500
No. of months/annum (seasonal production)	6
No. of days/month	25
Total working days per annum	150
Quantity of raw materials processed/annum (kg)	75000
Recovery of dry ginger from fresh ginger (%)	25%
Total production/annum at 100% capacity (kg)	18750

**6.2 Raw Materials & Consumables:** Expenses on raw materials & consumables at installed capacity is estimated as below.

Raw material required at 100% capacity (kg)	75000
Add: Provision for spoilage at 0.1%	75
Total quantity of raw material required (kg)	75075
Price of fresh ginger (Rs/kg)	22
Expenses on raw materials at 100% capacity (Rs)	1651650
Add: Consumables, transportation charges, etc @ 10%	165165
Expenses on raw materials & consumables at 100% capacity (Rs)	1816815

**6.3 Power:** Expenses on power at installed capacity is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)	Total (Kw)	Kwh/day
Ginger peeling machine	1	3.00	3.00	5	15.00
Tray drier	50	0.15	7.50	8	60.00
General Lighting	3	0.10	0.30	8	2.40
Total power requirement/ day (Kw)					10.80
No. of days/year (Plant operation is seasonal)			150		
Rate per unit (Rs)			5.00		
Expenses on power per annum at 100% capacity (Rs)			8100		

**6.4 Salary:** Expenses on salary in the 1<sup>st</sup> year is estimated as given below. It is assumed that salary expenses will increase @ 1% every subsequent year.

Particulars of Employees	Numbers	Salary/Month (Rs)	Cost/annum (Rs)
Manager	1	8000	96000
Skilled workers	1	5000	60000
Semi skilled workers	2	4000	96000
Helpers	5	3000	180000
Expenses on salary in the 1st year (Rs)			432000

**6.5 Repair & Maintenance:** Expenses on repair & maintenance in the 1<sup>st</sup> year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 15% every subsequent year.

Particulars	Cost (Rs)	Rate	Amount (Rs lacs)
Building & Civil Works	4.03	1%	0.04
Machinery & Equipment	2.04	2%	0.04
Misc. Fixed assets	1.20	2%	0.02
Expenses on repair & maintenance in the 1st year (Rs)			0.11

**6.6 Selling Expenses:** Selling expenses have been assumed at 1% of sales.

**6.7 Miscellaneous Expenses:** Miscellaneous expenses have been assumed at 0.5% of sales.

**6.8 Depreciation:** Depreciation has been calculated by straight line method. The details of calculation are given below.

Description	Cost (Rs)	Rate	Amount/annum (Rs lacs)
Building & Civil Works	4.03	3.34%	0.13
Machinery & Equipment	2.04	7.07%	0.14
Misc. Fixed assets	1.20	6.23%	0.07
<b>TOTAL</b>	<b>6.44</b>		<b>0.35</b>

**6.9 Interest on Term Loan & Principal Repayment:** Interest rate has been assumed at 8% per annum. Duration of Loan repayment has been considered for a period of 5 years including moratorium period of 9 months with equal monthly instalments. The details of calculation are given below.

(Rs in lacs)

Month	Year	1	2	3	4	5
Month 1	Opening balance	6.15	5.79	4.34	2.90	1.45
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest (8%)	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.15	5.67	4.22	2.78	1.33
Month 2	Opening balance	6.15	5.67	4.22	2.78	1.33
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.15	5.55	4.10	2.65	1.21
Month 3	Opening balance	6.15	5.55	4.10	2.65	1.21
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.15	5.43	3.98	2.53	1.09
Month 4	Opening balance	6.15	5.43	3.98	2.53	1.09
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.15	5.31	3.86	2.41	0.97
Month 5	Opening balance	6.15	5.31	3.86	2.41	0.97
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.04	0.03	0.02	0.01
	Closing balance	6.15	5.19	3.74	2.29	0.84
Month 6	Opening balance	6.15	5.19	3.74	2.29	0.84
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.02	0.01
	Closing balance	6.15	5.07	3.62	2.17	0.72
Month 7	Opening balance	6.15	5.07	3.62	2.17	0.72
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.15	4.95	3.50	2.05	0.60
Month 8	Opening balance	6.15	4.95	3.50	2.05	0.60
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.15	4.83	3.38	1.93	0.48
Month 9	Opening balance	6.15	4.83	3.38	1.93	0.48
	Repayment	0.00	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.15	4.71	3.26	1.81	0.36
Month 10	Opening balance	6.15	4.71	3.26	1.81	0.36
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	6.03	4.59	3.14	1.69	0.24
Month 11	Opening balance	6.03	4.59	3.14	1.69	0.24
	Repayment	0.12	0.12	0.12	0.12	0.12

	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.91	4.46	3.02	1.57	0.12
Month 12	Opening balance	5.91	4.46	3.02	1.57	0.12
	Repayment	0.12	0.12	0.12	0.12	0.12
	Interest	0.04	0.03	0.02	0.01	0.00
	Closing balance	5.79	4.34	2.90	1.45	0.00
	Principal Repayment	0.36	1.45	1.45	1.45	1.45
	Interest	0.49	0.41	0.29	0.18	0.06

### 7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	Total
Profit After Tax (Net Profit)	2.55	1.37	2.37	2.42	2.47	
Depreciation	0.35	0.35	0.35	0.35	0.35	
Interest	0.49	0.41	0.29	0.18	0.06	
Total	3.39	2.13	3.02	2.95	2.88	14.38
Interest	0.49	0.41	0.29	0.18	0.06	
Loan repayment	0.36	1.45	1.45	1.45	1.45	
Total	0.85	1.86	1.74	1.63	1.51	7.59
DSCR	3.98	1.15	1.73	1.82	1.91	

Average DSCR = 1.89

### 8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales	16.88	19.69	22.50
B. Variable cost			
Raw materials & consumables	10.90	12.72	14.53
Power	0.05	0.06	0.06
Other expenses	0.08	0.10	0.11
Total variable cost	11.03	12.87	14.71
C. Contribution (A-B)	5.84	6.81	7.79
D. Fixed & Semi-fixed Costs			
Salary	4.32	4.36	4.41
Repair & maintenance	0.11	0.12	0.14
Interest on Term Loan	0.49	0.41	0.29
Depreciation	0.35	0.35	0.35
Total fixed cost	5.27	5.25	5.19
E. BREAK EVEN POINT	90.20%	77.01%	66.69%
F. BEP at operating capacity	54.12%	53.91%	53.35%
G. Cash BEP	50.49%	50.27%	49.72%

**9.0 INTERNAL RATE OF RETURN (IRR)**

Year	0	1	2	3	4	5
<b>CASH OUTFLOW</b>						
Capital Expenditure	7.49	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	2.14	-2.14	0.00	0.00	0.00
<b>Total (A)</b>	<b>7.49</b>	<b>2.14</b>	<b>-2.14</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>CASH INFLOW</b>						
Profit After Tax		2.55	1.37	2.37	2.42	2.47
Add: Depreciation		0.35	0.35	0.35	0.35	0.35
Add: Interest		0.49	0.41	0.29	0.18	0.06
Add: Salvage Value						
<b>Total (B)</b>	<b>0.00</b>	<b>3.39</b>	<b>2.13</b>	<b>3.02</b>	<b>2.95</b>	<b>2.88</b>
<b>NET FLOW (B-A)</b>	<b>-7.49</b>	<b>1.25</b>	<b>4.28</b>	<b>3.02</b>	<b>2.95</b>	<b>2.88</b>

IRR = 25%

**MACHINERY SUPPLIERS**

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