

DEHYDRATED VEGETABLE



1.0 INTRODUCTION

Many vegetables are seasonal in nature and due to their low shelf life after harvest they are sold in the markets at very low prices. There is a considerable surplus of these vegetables which can be processed (dehydrated) for consumption during lean months. Dehydration technique has been developed by which vegetables in dehydrated form are preserved for a longer period and are made available during off-season. With this technology, certain high value and popular vegetables can be profitably sold.

This project profile is for production of Dehydrated Vegetables with installed processing capacity of 400 Ton per annum, based on 300 working days per annum and 8 working hours per day.

2.0 MARKET POTENTIAL

Food habits of Indians are such that most of the households prepare vegetables every day. Due to climatic conditions and types of soil, many vegetables are cultivated throughout the year. The major limitation of bulk of the green vegetables is that they are grown only during pre-determined season which lasts for 3-4 months and thus their availability during rest of the months is a major problem. Hence, if they are made available during this period, then they command premium. Green house method enables cultivation of any vegetable during any season but calls for huge investment which affects the

economic viability. Dehydration technique is, therefore, preferred.

3.0 PROCESS DETAILS

The all-important raw material for the project would be fresh vegetables. Depending upon the availability of vegetables during different seasons, the product-mix may change. Likewise the prices of raw materials would also change depending upon the exact product mix and crop pattern. The all important packing materials will be plastic bags made from suitable grade plastic, corrugated boxes, box strapping, labels etc.

This project profile primarily considers dehydration of cabbage, cauliflower, spinach and carrots. Other suitable vegetables can also be thought of. In case of cauliflowers; they are chopped to make small pieces and washed. Then they are blanched and dried in cold air. Spinach leaves are separated from the stalk, washed and dried in the drier. As regards carrots, they are washed, scrapped and cubed after washing. Cubes are then blanched and dried. These dehydrated vegetables are then packed and stored carefully. Packing is very critical as any fungal growth would damage the product. Process and weight loss varies from vegetable to vegetable but on an average it is 25% as the vegetables are dehydrated. In other words, the input-output ratio is 4:1.

4.0 COST OF THE PROJECT

The estimated project cost is given below:

(Rs. in lacs)

Particulars	Amount (Rs)
Land & site development	Own Land/On Lease
Building & civil works	6.60
Plant & Machinery	20.08
Misc. Fixed assets	1.16
Preliminary & pre-operative expenses	2.10
Contingencies & escalation @ 3%	0.84
Working capital	2.63
TOTAL	33.40

4.1 Land & Site Development: Nil. Total Land: 5,000 Sq. Ft. Covered Area: 2,000 Sq. Ft.

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

Particulars	Area (Sqft)	Rate (Rs)	Amount (Rs)
Work Shed cum Office	2000	275	550000
Sub total			550000
Add: Electrification, water supply and sanitation @20%			110000
TOTAL			660000
Say (Rs. in lacs)			6.60

4.3 Plant & Machinery: Details of plant & machinery are given below.

Particulars	Qty	Amount (Rs)
Washing Tanks with sets of Cubers, Slicers etc	1	1650000
Blanching Tank with thermostat Control	1	
Stacking trays for vegetables	40	
pre-cooling facility for vegetables	1	
Vibratory Shakers	1	
Fluidized bed dryer to dehydrate vegetables complete with all accessories	1	
Hot-water boiler with accessories	1	
Automatic form fill and sealing machine	1	
Pin Mil with accessories of 50 Kgs/hr capacity	1	
Misc. Tools and Testing Equipments	LS	175000
Sub total		1825000
Add: Installation, transportation etc @ 10%		182500
TOTAL		2007500
Say (Rs. in lacs)		20.08

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

Particulars	Qty	Rate (Rs)	Amount (Rs)
Transformer	1	200000	200000
Fixtures and Fittings	1	40000	40000
Furniture's including Working Tables	LS	--	15000
Miscellaneous items	LS	--	50000
Sub total			105000
Add: Installation, transportation etc @ 10%			10500
TOTAL			115500
Say (Rs. in lacs)			1.16

4.5 Contingencies & escalation: Contingencies & escalation has been assumed at 3% of the cost of land & site development, building & civil works, plant & machinery and miscellaneous fixed assets.

4.6 Preliminary & pre-operative expenses: Details of preliminary & pre-operative expenses are given below. (Rs. in lacs)

Particulars	Amount (Rs)
Travelling expenses	10000
Professional & other fees	41000
Interest during implementation	109010
Miscellaneous expenses	50000
TOTAL	210010
Say (Rs. in lacs)	2.10

4.7 Working capital: Details of working capital are given below. (Rs. in lacs)

	Period (Days)	Total Current Assets		
		Year 1	Year 2	Year 3
Raw materials	10	0.38	1.42	1.62
Power & Utility	30	0.18	0.21	0.24
Salary	30	0.92	0.92	0.93
Finished Goods	15	2.42	2.75	3.07
Receivables	15	2.66	3.11	3.55
Total		6.56	8.40	9.41
Working capital margin in Year 1 (40%)	2.63			

5.0 MEANS OF FINANCE: The means of finance for the project is estimated as below. (Rs. in lacs)

Particulars	Percent	Amount
EQUITY		
A. Equity from Promoters	40%	13.36
B. Subsidy from Central/State Govt.	-	
DEBT		
Term Loan from Banks/Financial Institutions	60%	20.04
TOTAL	100%	33.40

6.0 PROFITABILITY STATEMENT (Rs. in lacs)

Particulars	Yr 1	Yr 2	Yr 3	Yr 4	Yr 5	Yr 6	Yr 7
A. INCOME							
Production capacity (Ton/annum)	400	400	400	400	400	400	400
Capacity utilisation	60%	70%	80%	80%	80%	80%	80%
Production/annum at capacity utilisation	240	280	320	320	320	320	320
Total income/annum	64.80	75.60	86.40	86.40	86.40	86.40	86.40
B. OPERATING EXPENSES							
Raw materials	44.40	51.80	59.20	59.20	59.20	59.20	59.20
Power & Utility	2.20	2.56	2.93	2.93	2.93	2.93	2.93
Salary	11.16	11.22	11.27	11.33	11.38	11.44	11.50
Repair & Maintenance	0.48	0.49	0.50	0.51	0.52	0.54	0.55
Other Expenses	0.65	0.76	0.86	0.86	0.86	0.86	0.86
Total Operating Expenses	58.89	66.83	74.77	74.84	74.90	74.97	75.04
Operating profit	5.91	8.77	11.63	11.56	11.50	11.43	11.36
C. FINANCIAL EXPENSES							
Depreciation	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Interest on Term Loan	1.60	1.48	1.21	0.95	0.68	0.41	0.14
Interest on Working Capital Loan	0.32	0.40	0.45	0.45	0.45	0.45	0.45
Net Profit	2.64	5.53	8.61	8.81	9.01	9.21	9.41
Net cash accruals	3.99	6.89	9.97	10.17	10.37	10.57	10.77
Principal Repayment	0.00	3.34	3.34	3.34	3.34	3.34	3.34

6.1 Production capacity and Sales Realisation: Total production of spice powder at 100% capacity utilization is estimated as below.

Dehydrated Vegetables	400 Ton
Total production per annum at 100% capacity	400 Ton

Particulars	Qty	Price per Unit (Rs.)	Amount (Rs.)
Dehydrated Vegetables	400 Ton	27000	10800000
Total Annual Sales at 100% capacity (Rs)			10800000

6.2 Raw materials: Total expenses on raw materials at 100% capacity utilization are estimated as below.

Particulars	Qty	Price per Unit (Rs.)	Amount (Rs.)
Vegetables	1200 Ton	5000	6000000
Packing Material	-LS-	Rs. 3500 Per Ton of Finished Goods	1400000
Expenses on raw material at 100% capacity (Rs)			7400000

6.3 Power & Utility: Total expenses on power & utility at 100% capacity utilization is estimated as below.

Particulars	Quantity	Power (Kw)	Total (Kw)
Plant & machinery (Total HP of 50)	--	37.30	37.30
General Lighting	20	0.10	2.00
Total power requirement/ day (Kw)			39.30
No. of hrs/day	8		
Nos. of days/annum	300		
Annual power requirement (kwh)	94320		
Rate per unit (Rs)	3.50		
Expenses on power (Rs)	330120		
Expenses on Water/Other Utilities (Rs)	36000		
Expenses on power & Utility at 100% capacity (Rs)	366120		

6.4 Salary: Total expenses on salary in the 1st year are estimated as given below. It is assumed that salary expenses will increase @ 0.5% every subsequent year.

Particulars of Employees	Numbers	Salary/ Month (Rs)	Cost/ annum (Rs)
Production Manager	1	12000	144000
Sales Person	4	8000	384000
Skilled workers	4	5000	240000
Semi-skilled workers	5	4000	240000
Unskilled workers	3	3000	108000
Expenses on salary in the 1st year (Rs)			1116000

6.5 Repair & Maintenance: Total expenses on repair & maintenance in the 1st year is estimated as given below. It is assumed that expenses on repair & maintenance will increase @ 2% every subsequent year.

(Rs. in lacs)			
Particulars	Cost (Rs)	Rate	Amount (Rs)
Building & civil works	6.60	1.00%	0.07
Plant & Machinery	20.08	2.00%	0.40
Misc. Fixed assets	1.16	1.50%	0.02
Expenses on repair & maintenance in year 1			0.48

6.6 Other Expenses: Other expenses have been assumed at 1% of sales realisation.

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

(Rs in lacs)			
Description	Cost (Rs)	Rate	Amount/annum (Rs)
Building & civil works	6.60	3.34%	0.22
Plant & Machinery	20.08	5.28%	1.06
Misc. Fixed assets	1.16	6.33%	0.07
TOTAL			1.35

6.8. Interest on term loan & principal repayment: Interest rate has been assumed at 8%. Duration of Loan repayment has been considered for a period of 7 years including moratorium period of 12 months with equal monthly instalments. The details of calculation are given below.

(Rs in lacs)								
Month	Year	1	2	3	4	5	6	7
Month 1	Opening balance	20.04	20.04	16.70	13.36	10.02	6.68	3.34
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest (8%)	0.13	0.13	0.11	0.09	0.07	0.04	0.02
	Closing balance	20.04	19.76	16.42	13.08	9.74	6.40	3.06
Month 2	Opening balance	20.04	19.76	16.42	13.08	9.74	6.40	3.06
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.13	0.11	0.09	0.06	0.04	0.02
	Closing balance	20.04	19.48	16.14	12.80	9.46	6.12	2.78
Month 3	Opening balance	20.04	19.48	16.14	12.80	9.46	6.12	2.78
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.13	0.11	0.09	0.06	0.04	0.02
	Closing balance	20.04	19.20	15.86	12.52	9.18	5.84	2.50
Month 4	Opening balance	20.04	19.20	15.86	12.52	9.18	5.84	2.50
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.13	0.11	0.08	0.06	0.04	0.02
	Closing balance	20.04	18.92	15.58	12.25	8.91	5.57	2.23
Month 5	Opening balance	20.04	18.92	15.58	12.25	8.91	5.57	2.23
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.13	0.10	0.08	0.06	0.04	0.01
	Closing balance	20.04	18.65	15.31	11.97	8.63	5.29	1.95
Month 6	Opening balance	20.04	18.65	15.31	11.97	8.63	5.29	1.95
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.12	0.10	0.08	0.06	0.04	0.01
	Closing balance	20.04	18.37	15.03	11.69	8.35	5.01	1.67
Month 7	Opening balance	20.04	18.37	15.03	11.69	8.35	5.01	1.67

	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.12	0.10	0.08	0.06	0.03	0.01
	Closing balance	20.04	18.09	14.75	11.41	8.07	4.73	1.39
Month 8	Opening balance	20.04	18.09	14.75	11.41	8.07	4.73	1.39
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.12	0.10	0.08	0.05	0.03	0.01
	Closing balance	20.04	17.81	14.47	11.13	7.79	4.45	1.11
Month 9	Opening balance	20.04	17.81	14.47	11.13	7.79	4.45	1.11
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.12	0.10	0.07	0.05	0.03	0.01
	Closing balance	20.04	17.53	14.19	10.85	7.51	4.17	0.83
Month 10	Opening balance	20.04	17.53	14.19	10.85	7.51	4.17	0.83
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.12	0.09	0.07	0.05	0.03	0.01
	Closing balance	20.04	17.25	13.91	10.58	7.24	3.90	0.56
Month 11	Opening balance	20.04	17.25	13.91	10.58	7.24	3.90	0.56
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.12	0.09	0.07	0.05	0.03	0.00
	Closing balance	20.04	16.98	13.64	10.30	6.96	3.62	0.28
Month 12	Opening balance	20.04	16.98	13.64	10.30	6.96	3.62	0.28
	Repayment	0.00	0.28	0.28	0.28	0.28	0.28	0.28
	Interest	0.13	0.11	0.09	0.07	0.05	0.02	0.00
	Closing balance	20.04	16.70	13.36	10.02	6.68	3.34	0.00
Principal Repayment		0.00	3.34	3.34	3.34	3.34	3.34	3.34
Interest		1.60	1.48	1.21	0.95	0.68	0.41	0.14

7.0 DEBT SERVICE COVERAGE RATIO (DSCR)

(Rs. in lacs)

Year	1	2	3	4	5	6	7
Profit After Tax (Net Profit)	2.64	5.53	8.61	8.81	9.01	9.21	9.41
Depreciation	1.35	1.35	1.35	1.35	1.35	1.35	1.35
Interest	1.60	1.48	1.21	0.95	0.68	0.41	0.14
Total	5.60	8.37	11.18	11.11	11.05	10.98	10.91
Interest	1.60	1.48	1.21	0.95	0.68	0.41	0.14
Loan repayment	0.00	3.34	3.34	3.34	3.34	3.34	3.34
Total	1.60	4.82	4.55	4.29	4.02	3.75	3.48
DSCR	3.49	1.74	2.46	2.59	2.75	2.93	3.13

Average DSCR = 2.61

8.0 BREAK EVEN POINT (BEP)

(Rs. in lacs)

Year	1	2	3
A. Net sales	64.80	75.60	86.40
B. Variable cost			
Raw materials	44.40	51.80	59.20
Power & Utility	2.20	2.56	2.93
Other expenses	0.65	0.76	0.86
Interest on Working Capital Loan	0.32	0.40	0.45
Total variable cost	47.56	55.52	63.44
C. Contribution (A-B)	17.24	20.08	22.96
D. Fixed & Semi-fixed Costs			
Salary	11.16	11.22	11.27
Repair & maintenance	0.48	0.49	0.50

Interest on Term Loan	1.60	1.48	1.21
Depreciation	1.35	1.35	1.35
Total fixed cost	14.60	14.54	14.34
E. BREAK EVEN POINT	84.70%	72.44%	62.48%
F. BEP at operating capacity	50.82%	50.71%	49.99%
G. Cash BEP	46.11%	45.99%	45.27%

9.0 INTERNAL RATE OF RETURN (IRR)

(Rs. in lacs)								
Year	0	1	2	3	4	5	6	7
CASH OUTFLOW								
Capital Expenditure	28.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Working Capital	0.00	6.56	1.84	1.01	0.00	0.00	0.00	0.00
Total (A)	28.67	6.56	1.84	1.01	0.00	0.00	0.00	0.00
CASH INFLOW								
Profit After Tax		2.64	5.53	8.61	8.81	9.01	9.21	9.41
Add: Depreciation		1.35	1.35	1.35	1.35	1.35	1.35	1.35
Add: Interest		1.60	1.48	1.21	0.95	0.68	0.41	0.14
Add: Salvage Value								
Total (B)	0.00	5.60	8.37	11.18	11.11	11.05	10.98	10.91
NET FLOW (B-A)	-28.67	-0.97	6.53	10.17	11.11	11.05	10.98	10.91

IRR = 23%

Sl. No.	Name of the Machinery Suppliers	Communication Address
1.	M/s G.R. Engg. Works Pvt Ltd	Worli, Mumbai, Maharashtra, Pin-400 018
2.	M/s Raylon Metal Works	J B Nagar, Andheri (E), Mumbai , Pin-400 059
3.	M/s Laxicon Engg	Sita Bardi, Nagpur, Maharashtra, Pin-440 012