

PROJECT PROFILE

ON

DEHYDRATED VEGETABLES AND POWDERS

Month & Year
Aug 2010

**PREPARED BY
TANSTIA-FNF SERVICE CENTRE
B-22, INDUSTRIAL ESTATE
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Supported by

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STIFTUNG **FÜR DIE FREIHEIT**

DEHYDRATED VEGETABLES AND POWDERS

1. **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. The seasonal vegetables that are in demand during lean periods are peas, cauliflower and carrots. Dehydrated powders of spinach, onion and garlic find use in the spices and food processing industries as well as in the consumer markets.

2. **Market**

The major market outlets are the “ A” class outlets. The product also finds placement in self-service counters and departmental stores. Food processing industries purchase the product in bulk quantities. The dehydrated powders also have a good export potential.

3. **Packaging**

Dehydrated Vegetables and Powders are packed in tins for bulk packaging. In retail packaging, small dispensers are used.

4. **Production capacity**

- The plant will be in operation for three shifts a day.
- The plant will process 1500 kgs of vegetables and 500 kgs of onions and garlic per day.
- The yield of Dehydrated Vegetables and Powders will be 25% of the weight of raw material used. The total quantity of finished product per annum would be 112.5 metric tonnes of dehydrated vegetables and 37.5 metric tonnes of dehydrated onion and garlic powders. .
- The time period required for achieving full capacity utilization is six months.

5. **Sales revenue**

- With an ex-factory selling price at Rs. 250 per kilogram for dehydrated vegetable powders, the total sales revenue will be Rs. 375.00 lakhs per annum.

6. Production process outline.

Peas

Fresh mature pea pods are collected and the seeds separated. They are dried at 50 degrees centigrade in the dryers.

Cauliflower

The vegetable is chopped into small pieces and dried in a current of cold air.

Spinach

The leaves are separated from the stalk, washed in water to remove adhering dirt and dried in the drier at 50 degrees centigrade.

Carrots

The roots are washed, scraped and cubed. The cubes are blanched and dried in the drier at 50 to 55 degrees centigrade. They are ground to a fine powder along with some edible starches and anti-caking agents.

Onion and garlic

The skin is peeled and the pods dried at temperatures ranging from 55 to 60 degrees centigrade. They are then ground after mixing with edible starches and anti-caking agents.

Dehydrated potato and tapioca slices

The tubers are washed and the skin peeled. They are sliced to 2 to 3 mm thickness and blanched immediately to prevent browning. After blanching, they are soaked in brine solution for salting and removal of excess starches. They are then dried in the tray drier at 50 to 55 degrees centigrade.

7. Quality specifications

- The product should be free from mold and fungal growth.
- It should be free from any fermented odour, coliforms, staphylococci and streptococci bacteria.
- The moisture content in the product should not normally exceed 8 to 10%
- It shall not contain any added flavours or colours.

8. Pollution control measures

Not necessary as there are no pollutants or effluents.

9. Energy conservation measures

Common measures will do.

10. Land and construction cost for the proposed unit

Land required – 1.0 acre - Rs. 2.00 lakhs. The area required is 6700 square feet as described below.

Sl	Description	Sq. feet
1	Processing area – pre preparation	1000
2	Raw material store	800
3	Washing area	500
4	Dehydration area	1000
5	Grinding area	1000
6	Packing area	500
7	Quality control laboratory	400
8	Packaging material store room	400
9	Finished goods store	400
10	Machinery spares store room	100
11	Administration office	200
12	Boiler area	200
13	Toilet space	200
14	Total	6700

Construction cost – Rs. 800 per square foot

Total cost of civil works – Rs. 53.60 lakhs

Total cost of land and civil works – Rs. 55.60 lakhs

11. Costing of machinery and equipment

SI	Description	Rs. lakhs
1	Precooling facility at + 10 degrees centigrade for vegetables	3.500
2	Stacking trays for vegetables – 500 trays @ Rs. 150 each with each tray holding 10 kgs of raw material	0.750
3	Preparatory section consisting of washing tank, slicers and graters	3.500
4	Blanching tank with thermostat control, solenoid valves, and circulation pump to keep blanching solution in circulation	2.850
5	Vibratory shaker in stainless steel to remove excess water after blanching	1.600
6	Fluidized bed dryers for dehydrating vegetables at a capacity of 1000 kilograms in a span of 8 to 10 hours complete with heat exchanger, blower fans and accessories	18.840
7	Pin mill with accessories at a grinding capacity of 50 kilograms per hour	6.500
8	Hot water boiler and accessories	2.850
9	Form fill and seal packing machine with augur weighers and fillers	8.750
10	Total	49.140
11	Laboratory equipment	2.000
12	Grand total machinery and equipment	51.140

12. Project cost

SI	Description	Rs. lakhs
1	Land	2.000
2	Civil works	53.600
3	Plant machinery	49.140
4	Laboratory equipment	2.000
5	Transport vehicle (1 LCV)	7.500
6	Pollution control equipment	0.000
7	Energy conservation equipment	0.000
8	Cost of power connection	1.000
9	Cost of electrification	1.000
10	Erection and commissioning	4.500
11	Cost of machinery spares	2.000
12	Cost of office equipment	2.000
13	Deposits if any	0.250
14	Company formation expenses	0.100
15	Gestation period expenses	1.500
16	Sales tax registration expenses	0.100
17	Initial advertisement and publicity	10.000
18	Contingencies	1.000
19	Working capital margin money	9.776
20	Total	147.466

13. Working capital requirements per month

a. Salaries and wages

SI	Description	No of persons	Total salary / month (Rs. lakhs)
1	Production Manager	1	0.400
2	Production supervisor cum chemist	3	0.750
3	Skilled workers	3	0.300
4	Unskilled workers	9	0.450
5	Packing workers	9	0.360
6	Administrative staff	2	0.500
7	Driver	1	0.100
8	Sales coordinator	1	0.200
9	Total	29	3.060

b. Raw material requirement per month

SI	Description	Qty (kgs)	Rate / kg (Rs)	Value (Rs. lakhs)
1	Vegetables	40000	14.00	5.600
2	Onions	7000	14.00	0.980
3	Garlic	7000	60.00	4.200
3	Total raw material	63500		10.780

c. Packaging material requirement per month

SI	Description	Qty	Rate / unit (Rs)	Value (Rs. lakhs)
1	Primary packaging material – metallized polyester – poly film	50 kgs	250	0.125
2	Cartons and straps	2000 nos	40	0.800
3	Total			0.925

Total value of raw and packing materials – Rs. 11.705 lakhs

d. Utilities per month

SI	Description	Rs. lakhs
1	Power 14000 kwh @ Rs. 5.50 per unit	0.770
2	Water	0.050
3	Boiler fuel	0.500
4	Total utilities	1.320

e. Contingent expenses per month

SI	Description	Rs. lakhs
1	Rent for processing shed	0.000
2	Postage and stationery	0.020
3	Telephones, fax etc.	0.050
4	Consumable stores	0.020
5	Repairs and maintenance	0.281
6	Local transports, loading and unloading	0.300
7	Advertisement and publicity @10 of sales	3.333
8	Insurance	0.020
9	Sales expenses @ 5% of sales	1.666
10	Miscellaneous expenses @ 2% of sales	0.666
11	Trade incentives @ 2% of sales	0.666
12	Taxes @ 4%	1.332
13	Total contingent expenses	8.354

f. Total working capital requirement per month

SI	Description	Rs. lakhs
1	Salaries and wages	3.060
2	Raw material and packaging material	11.705
3	Utilities	1.320
4	Contingent expenses	8.354
5	Total	24.439

14. Means of finance

SI	Description	Rs. lakhs
1	Total Project Cost	147.466
2	Equity	48.664
3	Debt	98.802
4	Working capital margin money	9.776

15. Financial analysis

SI	Description	Rs. lakhs
1	Total recurring cost per year	293.268
2	Depreciation on land and building	5.560
3	Depreciation on machinery	5.280
4	Depreciation on furnaces	0.000
5	Depreciation on moulds and fixtures	0.020
6	Depreciation on office equipment	0.200
7	Interest on long term loan @ 13.5%	13.338
8	Interest on short term borrowings@ 13.5%	1.979
9	Total cost of production	319.645

16. Turnover per year

SI	Item	Qty	Rate/unit (Rs)	Total Rs. lakhs
1	Dehydrated vegetables	112500 kgs	250	281.25
2	Dehydrated onion powder	37500 kgs	250	93.75
3	Total	150000 kgs		375.00

17. Viability analysis

SI	Description	Value
1	Net profit before income tax (Rs. lakhs)	55.355
2	Net profit ratio	14.7%
3	Internal rate of return	23.7%
4	Break even percentage	38%
5	Debt service coverage ratio	2.101

List of machinery suppliers

1. Geeta Food Engineering, Plot No. C - 7 / 1, TTC Industrial Area, Pawana MIDC, Thane - Belapur Road, Behind Savita Chemicals, Navi Mumbai 400705. Maharashtra.; Tel: 022 - 56101973; Fax: 022 - 55906450