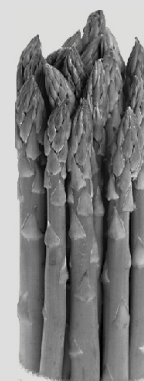


# ASPARAGUS PROCESSING



## 1.0 INTRODUCTION

Canned Asparagus is prepared from the edible portion of stalks of Asparagus. It is heated before sealing in a container to avoid spoilage. It is grown on sandy soils having good quality water and cool atmospheric conditions. It is grown in hilly areas and is considered to be a leafy vegetable, full of minerals and vitamins. Its consumption in our country is limited to exclusive restaurants, star hotels, airlines, catering services and high income households in metros and other urban cities. It has got very good export potential also. Promoters should either be familiar with export marketing or should have some associates abroad to cater to this market. Size of the project has been kept on lower side as export marketing is not envisaged. The project should be located in hilly region as Asparagus is cultivated in hilly areas.

## 2.0 PRODUCT

The product has a great demand in the world market whereas last few years have witnessed continuous increase in demand in the domestic market. The demand of Asparagus is increasing at the rate of 7 to 10 % per year. The recent technology has made it possible to grow Asparagus in one year. Compliance under FPO and PFA regulations is necessary.

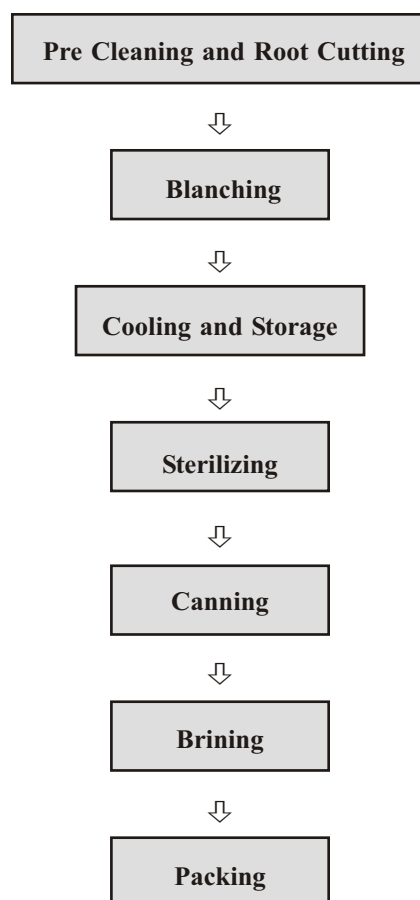
## 3.0 MARKET POTENTIAL

Indians love leafy and fresh vegetables. Unfortunately, items like vegetables, fruits etc. are available only during specified period of the year. Asparagus is one such vegetable which is liked by many because of its nutritious value. It is available especially in hilly areas whereas it is consumed in many other parts. Advent of canning technology has made it possible to enjoy seasonal fruits or vegetables throughout the year and the same technology is contemplated in this project. Availability of the product round the year would also cultivate

many new consumers. It is advisable for the promoters to enter into long term supply arrangements with star hotels, exclusive restaurants, airline caterers and big clubs.

#### 4.0 MANUFACTURING PROCESS

Fresh Asparagus is cleaned, pre-washed with the help of washing machines, steam blanched to inactivate the enzyme activity. In canning section, the green and white material is separated. Brine is mixed with small quantity of citric acid. Cans are filled about 130-140 gms. Afterwards, the cans are exhausted, sealed and processed at 120° C for 15 minutes and thereafter, cans are cooled and stored. The average yield is around 12%. A typical flow chart is as under:



#### 5. CAPITAL INPUTS

##### 5.1 Land and Buildings

A plot of land of around 600 sq.mtrs. would be sufficient since the built up area requirement is around 400 sq.mtrs. There will be need for a water storage tank with capacity of about 4000 ltrs. Cost of land is estimated to be Rs.1.80 lacs whereas that of civil work, Rs.10.50 lacs.

## 5.2 Plant and Machinery

Since this is a comparatively new product for domestic market, per season capacity of 250 tonnes with two shift working is suggested. This would need following equipments costing around Rs.25.00 lacs.

Particulars	Qty.
Pre-Cleaning Equipments	1 Line
Washing Equipments	1 Line
Blanching Equipments	2
Canning Unit	1
Filling Unit	1
Sealing and Sterilizing Unit	1
Baby Boiler- 100 Kgs	1

## 5.3 Miscellaneous Assets

The cost of tools, furniture and fixtures, storage racks, packing tables etc would be about Rs.2.50 Lacs.

## 5.4 Utilities

The total power requirement shall be 35 HP whereas per day water requirement will be 4000 ltrs. Either coal or LDO shall be required for boiler.

## 5.5 Raw and Packing Materials

The raw material required shall be fresh Asparagus to the extent of 2000 tonnes every year at 100% activity level. Packing materials like tins, corrugated boxes, labels, BOPP tape etc. shall be required.

## 6.0 MAN-POWER REQUIREMENTS

Particulars	No	Monthly Salary (Rs.)	Total Monthly Salary (Rs.)
Skilled Workers	4	2,500	10,000
Semi-skilled Workers	4	1,750	7,000
Helpers	6	1,250	7,500
Salesman	1	2,500	2,500
		<b>Total</b>	<b>27,000</b>

## 7.0 TENTATIVE IMPLEMENTATION SCHEDULE

Activity	Period (in months)
Application and sanction of loan	2
Site selection and commencement of civil work	2
Completion of civil work and placement of orders for machinery	6
Erection, installation and trial runs	2

## 8.0 DETAILS OF THE PROPOSED PROJECT

### 8.1 Land and Building

(Rs. in Lacs)

Particulars	Area (Sq.Mtrs)	Amount
Land	600	1.80
Building	400	10.50
	<b>Total</b>	<b>12.30</b>

### 8.2 Plant and Machinery

The total cost of machinery is estimated at Rs.25.00 lacs, as explained earlier.

### 8.3 Miscellaneous Assets

The provision for miscellaneous assets of Rs. 2.50 lacs shall be adequate as explained earlier.

### 8.4 Preliminary and Pre-Operative Expenses

The registration charges, establishment expenses, trial run expenses, interest during implementation etc would be around Rs.7.50 lacs.

### 8.5 Working Capital Requirement

At 60% utilization in the first year, the total working capital needs shall be as under:

(Rs. in lacs)

Particulars	Period	Margin	Total	Bank	Promoters
Stock of Raw and Packing Materials	½ Month	30%	1.40	1.00	0.40
Stock of Finished Goods	½ Month	25%	2.40	1.80	0.60
Receivables	½ Month	25%	3.75	2.80	0.95
Working Expenses	1 Month	100%	1.00	--	1.00
		<b>Total</b>	<b>8.55</b>	<b>5.60</b>	<b>2.95</b>

## 8.6 Cost of the Project and Means of Financing

(Rs. in lacs)

Items	Amount
Land and Buildings	12.30
Plant and Machinery	25.00
Miscellaneous Assets	2.50
Preliminary and Pre-operative Expenses	7.50
Contingencies @ 10% on land and building and machinery	3.75
Working Capital Margin	2.95
<b>Total</b>	<b>54.00</b>
<b>Means of Finance</b>	
Promoter's Contribution	16.20
Bank Loan/ Financial Institutions	37.80
<b>Total</b>	<b>54.00</b>
Debt Equity Ratio	2.33 : 1
Promoters' Contribution	30%

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:

The installed production capacity of the proposed unit would be 250 tonnes per season whereas actual utilization is assumed to be 60% in the first year and 75% thereafter.

### 9.2 Sales Revenue at 100% Capacity

(Rs. in Lacs)

Product	Qty. in Tonnes	Selling Price Per Ton/Rs.	Value
Processed and Packed Asparagus	250	60,000	150.00

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

(Rs. in Lacs)

Product	Quantity (Tonnes)	Rate per Ton	Value
Fresh Asparagus	2,000	2,500	50.00
Preservatives --	--	7.50	
Cost of Packing Materials @ Rs.8000/Ton	--	--	20.00
		<b>Total</b>	<b>77.50</b>

#### 9.4 Utilities

The seasonal cost of utilities at 100% activity level would be Rs.6.00 lacs.

#### 9.5 Interest

The interest on Term Loan of Rs. 37.80 lacs has been calculated @ 14% per annum assuming repayment in 5 years including a moratorium period of 1 year, whereas interest on Working Capital would be 14% per annum.

#### 9.6 Depreciation

It has been calculated on WDV basis @ 10% on building and 15% on machinery and other assets.

### 10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

No	Particulars	1st Year	2nd Year
<b>A</b>	<b>Installed Capacity</b>	-----250 MT -----	
	Capacity Utilization	60%	75%
	Sales Realization	90.00	112.50
<b>B.</b>	<b>Cost of Production</b>		
	Raw and Packing Materials	46.50	58.15
	Utilities	3.60	4.50
	Salaries	3.24	3.75
	Stores and Spares	1.20	1.50
	Repairs and Maintenance	1.80	2.40
	Selling Expenses @ 17.5%	15.75	19.70
	Administrative Expenses	1.80	2.40
	<b>Total</b>	<b>73.89</b>	<b>92.40</b>
<b>C.</b>	<b>Profit before Interest &amp; Depreciation</b>	<b>16.11</b>	<b>20.10</b>
	Interest on Term Loan	4.76	3.86
	Interest on Working Capital	0.78	1.00
	Depreciation	5.18	4.45
	Net Profit	5.39	10.79
	Income Tax @ 20%	1.09	2.16
	Profit after Tax	4.30	8.63
	Cash Accrual	9.48	13.08
	Repayment of Term Loan	--	8.50

## 11.0 BREAK EVEN POINT ANALYSIS

(Rs. in Lacs)

No.	Particulars	Amount	
A	Sales		90.00
B	Variable Cost		
	Raw and Packing Materials	46.50	
	Utilities (70%)	2.52	
	Salaries (70%)	2.27	
	Stores and Spares	1.20	
	Selling Expenses (70%)	11.02	
	Administrative Expenses (50%)	0.90	
	Interest on working capital	0.78	
	<b>Total</b>		<b>65.19</b>
C	Contribution		24.81
D	Fixed Cost		15.92
E	Break-Even Point (D÷C)		64%

## 12.0 [A] LEVERAGES

### Financial leverage

$$\begin{aligned} &= \text{EBIT/EBT} \\ &= 10.93 \div 5.39 \\ &= 2.03 \end{aligned}$$

### Operating Leverage

$$\begin{aligned} &= \text{Contribution / EBT} \\ &= 24.81 \div 5.39 \\ &= 4.60 \end{aligned}$$

### Degree of Total Leverage

$$\begin{aligned} &= \text{FL/OL} \\ &= 2.03 \div 4.60 \\ &= 0.44 \end{aligned}$$

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

(Rs. in lacs)

Particulars	1st Yr	2nd Yr	3rd Yr	4th Yr	5th Yr
Cash Accruals	9.48	13.08	14.23	16.92	19.01
Interest on TL	4.76	3.86	2.68	1.48	0.80
<b>Total [A]</b>	<b>14.24</b>	<b>16.94</b>	<b>16.91</b>	<b>18.40</b>	<b>19.81</b>
Interest on TL	4.76	03.86	2.68	1.48	0.80
Repayment of TL	--	9.45	9.45	9.45	9.45
<b>Total [B]</b>	<b>4.76</b>	<b>13.31</b>	<b>12.13</b>	<b>10.93</b>	<b>10.25</b>
<b>DSCR [A] ÷ [B]</b>	<b>2.99</b>	<b>1.28</b>	<b>1.40</b>	<b>1.69</b>	<b>1.94</b>
<b>Average DSCR</b>	----- <b>1.86</b> -----				

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

Cost of the project is Rs. 54.00 lacs.

(Rs. in lacs)

Year	Cash Accruals	16%	18%	20%
1	9.48	8.17	8.03	7.90
2	13.08	9.72	9.39	9.08
3	14.23	9.12	8.67	8.24
4	16.92	9.34	8.73	8.16
5	19.01	9.05	8.31	7.64
6	21.63	8.87	8.00	7.25
7	23.15	8.20	7.27	6.46
<b>Total</b>	<b>117.50</b>	<b>62.47</b>	<b>58.40</b>	<b>54.73</b>

The IRR is around 20%

**Some of the machinery suppliers are**

1. B. Sen Berry and Co, 65/11, Rohtak Road, Karol Baugh, New Delhi- 110005
2. Gardeners Corpn, 158, Golf Links, New Delhi- 110003
3. SP Engg. Works, Fazal Gunj, Kanpur
4. Auric Techno Services Pvt. Ltd. C 101 Shreenath Hermitage, Baner Road, Pune 411008  
Tel. No. 25898072 25899113 Fax No. 25899113
5. Euro Pack Machines ( India ) Pvt. Ltd. 52, Bindal Estate, Sakinaka, Mumbai 400072  
Tel. No. 28526477 28502151