PROJECT PROFILE
MUSHROOM PROCESSING

1. INTRODUCTION

Mushrooms are gradually becoming popular as they are rich in minerals and vitamins and very low on fat and sugar. Fresh mushrooms have very limited life and hence they need to be consumed within a few hours . But processing and canning increase their shelf life to a few months. Mushrooms are used to make soups, pickles, and used as vegetables also. It is considered as a vegetarian delicacy all over the world and their consumption is increasing in India as well. Their household use is picking up but they are consumed in large quantities in star hotels and restaurants. Hence, firm tie-up with some of them is advisable.

2. OBJECTIVES

The objective of the profiles is to encourage and assist prospective entrepreneurs in MSME sector in and guiding making them aware of the opportunities of this sector. It is also being developed by the Directorate of the Food Processing Industries, Government of West Bengal to help entrepreneurs with knowledge about raw materials availability, knowledge of market, source of technology and plant and machinery suppliers. M/s ITV Agro & Food Technologies Pvt. Ltd., New Delhi has helped in developing the project profile.

3. RAW MATERIAL AVAILABILITY

The most crucial raw material will be good quality fresh mushrooms. Shelf life of fresh mushrooms is few hours and hence the location has to be very close to the cultivation areas. Prior arrangements with some cultivators for regular supply must be made. Future planning may include mushroom cultivation for captive consumption .

Salt and citric acid will be required in small quantities . Cans of appropriate size, lables and corrugated boxes would form packing material.

4. MARKET OPPORTUNITIES

Mushrooms are very popular in most of the developed countries and they are becoming popular in many developing countries like India. Applications and market for mushrooms is growing rapidly in India because of their nice aroma, nutrition value, subtle flavour and special taste. Many exotic food preparations like soup, vegetables, pickles etc. are made from them. They are also used for garnishing, to prepare many varieties of gravy and for stuffing several food preparations. But they are still considered as up market products and their consumption is limited to urban and semi urban areas. Fresh mushrooms have very limited shelf life but processed and canned mushrooms have a fairly long shelf life and can be sold even at far off places. Star hotels, exclusive restaurants, certain caterers are the bulk consumers and a firm tie-up for regular supply with some of them is advisable. The product can be sold even through department stores, super markets etc.

5. PROJECT DESCRIPTION

a) Product & Its uses

Mushroom is an exotic and nutritious source of vegetarian food and is also easy to digest. It is considered as a suitable substitute for meat and eggs. There are many varieties of mushrooms and most of them are edible. It is a universal product and WB has been considered as a likely location.

b) Capacity

The proposed capacity of the plant is to process 300 MT / annum of fresh mushrooms.

c) Manufacturing process

Fresh mushrooms are washed in cold water and then blanched in boiling water for around 3 -4 minutes. Then they are dehydrated in drier and packed. It is advisable to pre-treat fresh mushrooms in a solution containing brine to prevent discolouration. Packing is very critical as formation of moisture contaminates mushrooms very quickly. Hence plain cans and brine of 2% salt and 0.2% citric acid are used for packing. The cans are exhausted at 19°C for 7-8 minutes, sealed and processed under pressure for around half an hour. Yield of final product depends up on the quality of dryer, manufacturing process employed, moisture content in fresh mushrooms and moisture required in the final product.

6. PROJECT COMPONENTS & COST

a) Land & Building

Land measuring around 200 sq. mtrs. built up area of about 100 sq. mtrs. is adequate. Land may cost Rs. 1,00,000/- whereas cost of construction could be Rs. 6.00 lacs.

b) Plant & Machinery

A market survey would help to arrive at the proposed processing capacity. Assuming daily capacity of 0.5 ton or annual capacity of 150 tons considering 300 working days would require the following machines.

(Rs. in lacs)

Item	**Qty**	**Amount**
Baby boiler	1	3.50
Tray-type dehydrator	1	5.00
Can seamer	1	0.60
Can reforming with rubber rollers, hand flanger etc.	1	0.75
Exhaust box with electric motor	1	0.80
Steam jacketed kettle	1	0.75

Weighing scales	2	0.40
Laboratory equipments	-	0.50
Total		**12.30**

c) Miscellaneous Assets

Some other support assets like furniture and fixture, storage rack, packing tables, SS utensils etc. shall be required for which a provision of Rs. 2.00 lacs is made.

d) Utilities

The power requirement will be 20 HP and everyday water requirement shall be 5000 ltres / day . The cost of utilities is estimated to be at Rs. 1.60 lacs/ year.

e) Prel. & Pre Operative Expenses

A provision of Rs. 1.50 lacs is made towards pre-production expenses like market assessment, registration , establishment and administrative charges, interest during implementation, trial runs etc.

f) Working Capital Assessment

As against the processing capacity of 150 tons, the plant is expected to run at 60% in the first year which would call for the following working funds :

(Rs. in lacs)

Particulars	**Period**	**Margin**	**Total**	**Bank**	**Promoters**
Stock of raw material & packing material	½ month	30%	1.92	1.34	0.58
Stock of finished goods	½ month	25%	2.55	1.92	0.63
Receivable	½ month	25%	3.18	2.38	0.80
Total			**7.65**	**5.64**	**2.01**

g) Project cost & Means of finance

Item	**Amount (Rs. in lacs)**
Land and Building	7.00
Plant and Machinery	12.30
Miscellaneous Assets	2.00
P & P Expenses	1.50
Contingencies @ 10% on building and plant & machinery	1.83
Working capital margin	2.01
Total	26.64
Means of Finance	
Promoters' contribution	10.64
Term loan from Bank/ FI	16.00
Total	26.64
Debt Equity Ratio	1.5:1
Promoters contribution	40%

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.

7) PROJECTED PROFITABILITY

a) Production Capacity

As against the rated processing capacity of 300 tons/ year the, capacity utilization in the first year is assumed to be 60% and thereafter 75%.

b) Sales Revenue at 100%

Product	**Qty (Tons)**	**Price / Ton (Rs. in lacs)**	**Sales value (Rs. in lacs)**
Tinned mushrooms	75	1.70	127.50

c) Raw Material Required at 100%

(Rs. in lacs)

Product	**Qty (Tonnes)**	**Rate (Rs./ Ton)**	**Value**
Fresh Mushrooms	300	20,000	60.00
Salt, Citric Acid etc	-		1.20
Cans	1,76,500	Rs. 7/tin	12.35
Cartons, labels etc	-	-	3.50
	Total		**77.05**

d) Projected Profitability **(Rs. in lacs)**

S. No.	**Particulars**	**1st year**	**2nd year**
A.	**Installed capacity**	**150 Tons**	
	Capacity Utilisation	60%	70%
	Sales Realisation	76.50	95.62
B.	**Cost of Production**		
	Raw Materials & Packing material	46.23	57.78
	Utilities	0.96	1.20
	Salaries	5.16	5.67
	Stores and Spares	1.20	1.50
	Repairs and Maintenance	0.90	1.12
	Selling Expenses @ 25%	5.73	7.17
	Administrative Expenses	1.20	1.50
	Total	**61.38**	**75.74**
C.	**Profit before Interest & Depreciation**	15.12	19.88
	Interest on Term Loan	1.60	1.30
	Interest on Working Capital	0.68	0.85
	Depreciation.	1.83	1.64
	Net Profit	11.01	16.13

	Income-tax @ 20%	2.20	3.22
	Profit after tax	8.81	12.91
	Cash Accruals	10.64	14.55
	Repayment of Term Loan	Nil	3.00

e) Break Even Point Analysis

S. No.	Particulars	Amount (Rs. in lacs)	
(A)	**Sales**		**95.62**
(B)	**Variable Costs**		
	Raw Material & Packing Material	**57.78**	
	Utilities(70%)	0.84	
	Salaries (60%)	3.96	
	Stores and Spares	1.50	
	Selling Exps (70%)	5.01	
	Admn. Expenses (50%)	0.75	
	Interest on WC	0.85	**70.69**
(C)	**Contribution (A) – (B)**		**24.93**
(D)	**Fixed Costs**		**7.36**
(E)	**Break Even Point**		**30%**

f) Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

Particulars	1st year	2nd year	3rd year
Cash Accruals	10.64	14.55	17.64
Interest on TL	1.60	1.30	1.00
Total (A)	12.24	15.85	18.46
Interest on TL	1.60	1.30	1.00
Repayment of TL	Nil	3.00	3.00

Total (B)	1.60	4.30	4.00
DSCR (A) /(B)	7.65	3.68	4.62
Average DSCR	5.31		

g) Internal Rate of Return (IRR)

Cost of the project is Rs. 26.64 lacs

(Rs. in lacs)

Year	**Cash Accruals**	**24%**	**40%**
1	10.64	8.57	7.60
2	14.55	9.45	7.42
3	17.46	9.14	6.35
4	17.46	7.38	4.53
Total		**34.54**	**25.90**

The IRR is around 40%

h) Manpower requirement

Particulars	**Nos.**	**Monthly**	**Total Monthly Salary (Rs.)**
Skilled workers	2	7,500	15,000
Helpers	4	5,000	20,000
Salesman	1	8,000	8,000
		Total	**43,000/-**

8. ASSUMPTIONS

- The plant will work for 300 days in a year. :
- The operating capacity is 60% , 75%, 90 % during 1st year , 2nd year and 3rd year respectively.
- The interest on term loan is taken at 10% per annum and on working capital it is 12% per annum.

- Price of raw material and selling price of finished products is taken at Rs. 20,000/ ton and Rs. 1.70 lacs / ton respectively.

9. SOURCES OF TECHNOLOGY

CFTRI, Mysore, has successfully developed the technical know-how for the product. BIS has laid down the quality standard. The compliance under FSSAI act is a must.

10. PLANT & MACHINERY SUPPLIERS

1. Henan name brand machinery co. Ltd.
   I Xishizhao, 1st District, North West of Xinji Road,
   Dist. Zhenghou, Henan, (China)
   Ph. 0086 – 371 65950319
   www.brandmachinery.com , e-mail.info@foodmachinesale.com

2. Central Food Technological Research Institute
   Mysore -570020 (Karnataka)
   Ph. 0821-2514760
   www. cftri.com