

SPICE GRINDING



1.0 INTRODUCTION

Spices are an integral part of Indian food, with consumption not only in households, restaurants and other eateries but also in food processing industry such as pickles, sauces, instant curry powders, ready-to-eat food preparations and so on. Hence, a spice grinding unit is recommended.

2.0 PRODUCTS

2.1 Applications

Many spices are used all over the country and the unit can go on adding new products. But this note considers only some of them like turmeric powder, black pepper powder and chilli powder. This activity can be started in several states of the country where as this note considers Meghalaya as the preferred location.

2.2 Availability of technical know-how and quality standards.

CFTRI, Mysore, has successfully developed the technical know-how. It is advisable to obtain AGMARK certification.

3.0 MARKET POTENTIAL

Spices are essential ingredients imparting taste and flavour to food preparations. Besides their everyday use in households, they are also used in large quantities in restaurants, hostels, catering services, food processing industries, roadside eateries and so on. Apart from the state of Meghalaya, nearby North-Eastern states can also be tapped. Spices are fast moving consumable items and have large potential. There has to be a wide-spread network of dealers or retailers backed up by advertisements in local media. A provision of 20% of sales income is made to take care of these expenses.

4.0 MANUFACTURING PROCESS

The manufacturing process is very well established and does not involve technicalities. Unground spices are cleaned manually to remove impurities like mud and stones and are then washed in water. After drying them in sunlight, they are graded and ground with the help of grinding machine to convert them in powder form. Disintegrator is used in case of solid material like turmeric to obtain uniform mesh size. Spices in powder form are then weighed as per the contemplated packing quantities and packed in printed polythene bags and then these bags are sealed on automatic sealing machine.

5.0 CAPITAL INPUTS

5.1 Land and Building

Land measuring around 150 sq.mtrs. is adequate with built-up area of about 75 sq.mtrs. consisting of main production area, packing room and godown. The total cost is expected to be Rs. 2.50 lacs.

5.2 Plant and Machinery

The suggested production capacity is 60 tonnes per year for which following equipments costing about Rs. 2.20 lacs are envisaged.

| Item | Qty. |
|-------------------------|------|
| Disintegrator | 1 |
| Spice Grinding Machine | 1 |
| Plastic Sealing Machine | 1 |
| Weighing Scales | 2 |

5.3 Miscellaneous Assets

A provision of Rs. 20,000/- is made to take care of other support items like picking tables, storage racks etc.

5.4 Utilities

Power requirement would be 10 HP whereas water is required in small quantity to clean ungrounded spices and for potable purposes.

5.5 Raw Material

The major raw materials shall be unground turmeric, black pepper and chillies. Considering 5% process loss, the total quantity required would be 63 tonnes per year for the proposed capacity of 60 tonnes. Spices are widely grown in Meghalaya and Assam. It is estimated that the total production of turmeric in Meghalaya is around 8,500 tonnes and that of chillies, is 2,000 tonnes annually. Hence, availability of raw materials round the year will not be a problem. The project would require printed polythene bags of different sizes which would be available locally.

6.0 MANPOWER REQUIREMENTS

| Particulars | Nos. | Monthly Salary (Rs.) | Total Monthly Salary (Rs.) |
|----------------------|------|----------------------|----------------------------|
| Supervisor | 1 | 2,500 | 2,500 |
| Skilled Workers | 2 | 1,800 | 3,600 |
| Semi-skilled Workers | 2 | 1,500 | 3,000 |
| | | Total | 9,100 |

7.0 TENTATIVE IMPLEMENTATION SCHEDULE

| Activity | Period (in months) |
|--|--------------------|
| Application and sanction of loan | 2 |
| Site selection and commencement of civil work | 1 |
| Completion of civil work and placement of orders for machinery | 4 |
| Erection, installation and trial runs | 1 |

8.0 DETAILS OF THE PROPOSED PROJECT

8.1 Building

| Particulars | Area (Sq.Mtrs) | Cost (Rs.) |
|-------------|----------------|-----------------|
| Land | 150 | 50,000 |
| Building | 75 | 2,00,000 |
| | Total | 2,00,000 |

8.2 Plant and Machinery

The total cost would be Rs. 2.20 lac as explained earlier.

8.3 Miscellaneous Assets

A provision of Rs. 20,000 is adequate as detailed earlier.

8.4 Preliminary & Pre-operative Expenses

A lump sum provision of Rs. 30,000 is made to take care of expenses like establishment, start-up etc.

8.5 Working Capital Requirement

The total requirement of working capital in the first year at 60% capacity utilisation would be Rs. 3.80 lacs comprising bank loan of Rs. 2.55 lacs and margin amount of Rs. 1.25 lacs as worked out hereunder:

(Rs. in lacs)

| Particulars | Period | Margin | Total | Bank | Promoters |
|-------------------------|---------|--------------|-------------|-------------|-------------|
| Stock of Raw Materials | 1 Month | 30% | 1.00 | 0.70 | 0.30 |
| Stock of Finished Goods | ½ Month | 25% | 0.60 | 0.45 | 0.15 |
| Receivables | 1 Month | 30% | 2.00 | 1.40 | 0.60 |
| Working Expenses | 1 Month | 100% | 0.20 | -- | 0.20 |
| | | Total | 3.80 | 2.55 | 1.25 |

8.6 Cost of the Project and Means of Financing

(Rs. in lacs)

| Item | Amount |
|--|-------------|
| Land and Building | 2.50 |
| Plant and Machinery | 2.20 |
| Miscellaneous Assets | 0.20 |
| P&P Expenses | 0.30 |
| Contingencies @ 10% on Land & Building and Plant & Machinery | 0.50 |
| Working Capital Margin | 1.25 |
| Total | 6.95 |
| Means of Finance | |
| Promoters' Contribution | 2.00 |
| Loan from Bank/FI | 4.95 |
| Total | 6.95 |
| Debt Equity Ratio | 2.47 : 1 |
| Promoters' Contribution | 29% |

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 would be 60 tonnes per year considering 300 working days and 2 shift working per day. Capacity utilisation is considered to be 60% in the first year and 75% in the second year.

9.2 Sales Revenue at 100%

(Rs. in lacs)

| Product | Qty. (Tonnes) | Selling Price (Rs./Ton) | Sales |
|---------------------|------------------|----------------------------|--------------|
| Turmeric Powder | 35 | 55,000 | 19.25 |
| Black Pepper Powder | 10 | 1,00,000 | 10.00 |
| Chillie Powder | 15 | 75,000 | 11.25 |
| | | Total | 40.50 |

9.3 Raw Materials Required at 100%

(Rs. in lacs)

| Product | Qty. (Tonnes) | Rate per Ton (Rs.) | Value |
|--------------|------------------|-----------------------|--------------|
| Turmeric | 36.75 | 35,000 | 12.85 |
| Black Pepper | 10.50 | 60,000 | 6.30 |
| Chilli | 15.75 | 10,000 | 1.57 |
| | | Total | 20.72 |

Annual cost of packing bags of 100 gms and 250 gms capacity would be Rs. 1,50,000/-.

9.4 Utilities

Annual cost of electricity at 100% activity level would be Rs. 50,000/- whereas that of water Rs. 12,000/-.

9.5 Selling Expenses

A provision of 20% of sales value every year is made towards expenses like selling commission, sampling, publicity, transportation etc.

9.6 Interest

Interest on term loan of Rs. 4.95 lacs has been calculated @ 12% per annum considering repayment in 4 years including a moratorium period of one year whereas on working capital assistance, it is computed @ 14% per annum.

9.7 Depreciation

Depreciation has been computed on WDV basis and the rates assumed are 10% on building and 20% on plant and machinery.

10.0 PROJECTED PROFITABILITY

(Rs. in lacs)

| No. | Particulars | 1st Year | 2nd Year |
|----------|--|--------------------------|--------------|
| A | Installed Capacity | --- 60 Tonnes --- | |
| | Capacity Utilisation | 60% | 75% |
| | Sales Realisation | 24.30 | 30.35 |
| B | Cost of Production | | |
| | Raw Materials | 12.43 | 15.54 |
| | Packing Materials | 0.90 | 1.12 |
| | Utilities | 0.38 | 0.45 |
| | Salaries | 1.10 | 1.26 |
| | Stores & Spares | 0.06 | 0.09 |
| | Repairs & Maintenance | 0.18 | 0.30 |
| | Selling Expenses @ 20% | 4.86 | 6.07 |
| | Administrative Expenses | 0.48 | 0.72 |
| | Total | 20.39 | 25.55 |
| C | Profit before Interest & Depreciation | 3.91 | 4.80 |
| | Interest on Term Loan | 0.53 | 0.42 |
| | Interest on Working Capital | 0.35 | 0.44 |
| | Depreciation | 0.65 | 0.54 |
| | Net Profit | 2.38 | 3.40 |
| | Income-tax @ 20% | 0.48 | 0.68 |
| | Profit after Tax | 1.90 | 2.72 |
| | Cash Accruals | 2.55 | 3.26 |
| | Repayment of Term Loan | -- | 1.50 |

11.0 BREAK-EVEN ANALYSIS

(Rs. in lacs)

| No | Particulars | Amount | |
|-----|---|--------|--------------|
| [A] | Sales | | 24.30 |
| [B] | Variable Costs | | |
| | Raw Materials | 12.43 | |
| | Packing Materials | 0.90 | |
| | Utilities (70%) | 0.27 | |
| | Salaries (35%) | 0.37 | |
| | Stores & Spares | 0.06 | |
| | Selling and Distribution Expenses (80%) | 3.88 | |
| | Admn Expenses (50%) | 0.24 | |
| | Interest on WC | 0.35 | 18.50 |
| [C] | Contribution [A] - [B] | | 5.80 |
| [D] | Fixed Costs | | 3.42 |
| [E] | Break-Even Point [D] ÷ [C] | | 59% |

12.0 [A] LEVERAGES

Financial Leverage

= EBIT/EBT

= 3.91 ÷ 2.38

= 1.64

Operating Leverage

= Contribution/EBT

= 5.80 ÷ 2.38

= 2.44

Degree of Total Leverage

= FL/OL

= 1.64 ÷ 2.44

= 0.67

[B] Debt Service Coverage Ratio (DSCR)

(Rs. in lacs)

| Particulars | 1st Yr | 2nd Yr | 3rd Yr | 4th Yr |
|-----------------------|------------------|-------------|-------------|-------------|
| Cash Accruals | 2.55 | 3.26 | 3.36 | 3.52 |
| Interest on TL | 0.53 | 0.42 | 0.22 | 0.11 |
| Total [A] | 3.08 | 3.68 | 3.58 | 3.63 |
| Interest on TL | 0.53 | 0.42 | 0.22 | 0.11 |
| Repayment of TL | -- | 1.65 | 1.65 | 1.65 |
| Total [B] | 0.53 | 2.07 | 1.87 | 1.76 |
| DSCR [A] ÷ [B] | 5.81 | 1.77 | 1.91 | 2.06 |
| Average DSCR | ----- 2.88 ----- | | | |

[C] Internal Rate of Return (IRR)

Cost of the project is Rs. 6.95 lacs.

(Rs. in lacs)

| Year | Cash Accruals | 24% | 28% | 32% |
|-------------|----------------------|-------------|-------------|-------------|
| 1 | 2.55 | 2.06 | 1.99 | 1.93 |
| 2 | 3.26 | 2.12 | 1.99 | 1.87 |
| 3 | 3.36 | 1.76 | 1.60 | 1.46 |
| 4 | 3.52 | 1.49 | 1.31 | 1.16 |
| | 12.69 | 7.43 | 6.89 | 6.42 |

The IRR is around 28%.

The machines will be available from:

1. Industrial Equipments, Guwahati
2. Archana Machinery Stores, Guwahati, Assam
3. East End Engg. Company, 173/1, Goplarai Thakur Rd., Kolkata-700035
Tel No. 25773416/6324