

Model Project Report on Fruit & Vegetable Processing Unit

Model Project Report

Introduction

India is the second largest producer of fruits and vegetables in the world after China. It accounts for about 15 per cent of the world's production of vegetables. The area and production of horticultural produce.

As per the latest estimates, by Central Institute of Post Harvest Engineering and Technology (CIPHET), Ludhiana, the wastage of fresh horticultural produce is upto 18 per cent due to poor postharvest management practices. Hardly 2 per cent of perishable horticultural produce is processed to value added products. Hence, there is huge scope for processing of fruits and vegetables. This wastage can be easily prevented by adopting various methods of preservations. At the same time, there is market glut during harvesting season and farmers are forced to sell their produce at throw away prices. Therefore, food processing industries can help farmers to get sure income for their produce and also avoid market glut. There are various methods of preservation of food including thermal processing ,fermentation, pickling, dehydration, freezing etc. The technology for preservation also varies with type of products and targeted market. Some of fast-growing segments of food processing industries are given as under:

- Mango and other fruit pulps
- Pickles, chutney, sauces etc.
- Tomato products like paste, puree and ketchup
- Fruit jam, marmalade, crush, squashes, juices etc.
- Canned fruits and vegetables etc.
- Frozen products like frozen peas, cauliflower etc.
- Ready to cook (RTC), Ready to Eat (RTE) and Ready to Serve (RTS) products

Type of Concern

New entrepreneurs may start their business as an individual, proprietary concern, partnership firm or a joint stock company. Individual & proprietary concern should have their PAN number and should preferably have a bank account. Partnership firms should

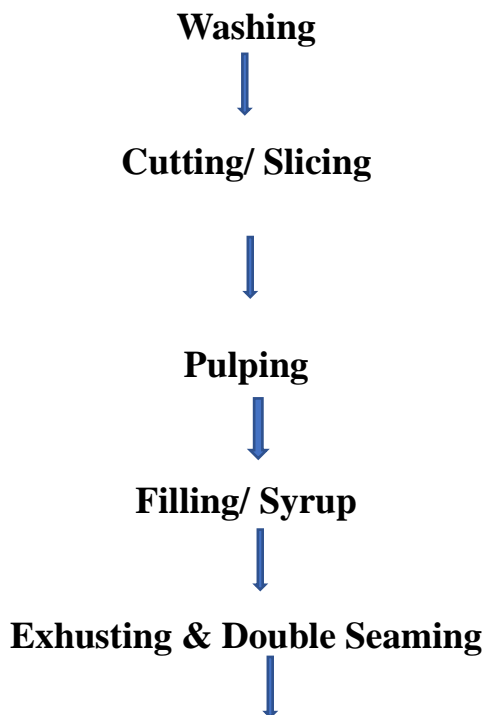
execute a partnership deed as per Indian Partnership Act 1932 on a Non-Judicial Stamp Paper as per the Stamp Act of the State Government and register the partnership firm with the Ministry of Corporate affairs.

Products:

Canned fruit pulp and vegetables Canning a method of preservation in which a cooked or uncooked food is sealed in tin plated and lacquered steel cans. The sealed cans are sterilized by heat treatment under high pressure in retort. The temperature required for effective sterilization varies with the pH of the product and is generally higher than boiling point of water (100°C or 212°F).

Fruit pulp is prepared from selected varieties of fruits. Fully matured fruit are harvested and quickly transported to the fruit processing plant. The fruits are ripened in controlled ripening chambers or natural ripening in open yard. Fully ripened fruits are washed, pulped, deseeded, centrifuged, homogenized, thermally processed and filled hot to maintain sterility. The preparation process includes cutting, de-stoning, refining packing, processing and cooling. Fruits are also canned in slices, rings and cubes etc. along with sugar syrup of desired brix.

The flowchart for canned fruit pulp :



Processing Retorting



Cooling



Storage

Storage and packing

The entire product range manufactured should follow the Weight and Measurement Act and packed accordingly in different standard keeping units (SKU). The product should be stored as per batch number allocated to particular product. The product has to be separately stored in storage area.

One can follow either “First In First Out (FIFO)” or “First Expiry First Out (FEFO)” method in dispatch process. The entire products can be stored at ambient temperature in dry place. Pickle, chutney and sauces need proper curing before marketing, therefore are stored for a specific period before dispatch.⁴

Indians are fond of table enrichers, which are regularly used along with main course of meals as well as snacks. Apart from individual households, restaurants, roadside eateries, clubs, hostels, caterers etc. are bulk consumers of fruit and vegetable products. Branded products Washing & peeling Extraction Filtration & Boiling Sugar Syrup Stirring Bottling Packing Storage 6 available in the market are costly. Therefore, new comers need to work on competitive pricing. The real competition would be from age-old practice of making pulps, jam, jelly, pickles or chutneys at home by the housewives. Many Indian households make these items during season and store

Marketing

Marketing of fruit and vegetable product is the biggest challenge. There are several popular brands in the market, which act as an entry barrier for new food products. Indian market is also flooded by imported products. Therefore, new comers need to give maximum importance to marketing of its products. It is always better to engage a professional agency for product branding and marketing. The units shall also allocate reasonable budget for advertisement and promotion. The details of the product marketing are discussed in this section.

Domestic market them for remaining part of the year. But this practice is gradually disappearing due to changing lifestyles, hassles of making these items and their

availability throughout the year from market. There are many variants of these products. New comers may introduce new flavour with certain change in the ingredients to alter taste of the products. It is imperative to cater to regional palate and ethos e.g. products targeted to areas populated by Jain community needs to be prepared with “no onion and no garlic” tag.

Export market

Apart from domestic market, there is good demand for processed products in export market. Nowadays Indian products are widely accepted throughout the world for commercial as well as household consumption. Currently, more than 50 countries import processed fruit and vegetable products from India. Of late large numbers of Indian have migrated to various countries and higher numbers of Indian visit other countries. Therefore, the demand for Indian food products is on the rise in many countries. New entrants may initially join hands with existing merchant exporters to get entry into such markets. Thereafter, vast export potential for such products can be tapped slowly.

Quality control and quality assurance The processed products should follow the Food Safety and Standard Authority of India (FSSAI) act 2006. FSSAI Act is applicable pan India for all food products. It prescribes minimum standards operating procedures, food safety norms, packaging & labelling norms. The new units need to take a license called FSSAI number from Food Safety and Standards Authority of India.

Electrical and other items:

Various machines have to be connected to electrical motors of suitable power ratings for supplying power to them. Accordingly AC-3 phase motors of different power ratings, varying from 2.50 Hp to 7.50 Hp will be required for powering various unit operations of the unit. The total cumulative Hp ratings of all these motors will be 55 Hp. The costs of electrical motors have been included along with the cost of plant and machinery.

Water Requirement

The total water requirement of such unit will be 1000 litres per day. Water is mostly required for washing and also in various unit operations during processing. Apart from it, water will also be required for domestic consumption purpose. The water should be clean and treated well for hardness before use. It is preferable to carry out water testing from a reputed testing laboratory before setting up a plant. Nowadays RO plants are installed to meet water requirement of food processing industry.

Manpower Requirement.

Fruit and vegetable processing is a highly labour intensive operation. Majority of labour is engaged on contract basis during season. These labourers are skilled and mostly women folk. In order to perform day to day work, manpower requirement of a small-scale fruit processing unit

Working Capital:

Working capital is the most crucial input for viability of any fruit and vegetable processing unit. The raw materials being seasonal in nature, fruit and vegetable processing units need to maintain high inventories. Nowadays, banks are free to finance working capital based on actual need of the borrower. A provision of adequate working capital needs to be considered by the financing banks. The banks provide Cash Credit Limit, commonly known as CC limit to the borrowers for meeting their day to day expenses. The different components of working capital are discussed in this section.

Raw material and packing material

The raw material required would be fruits and vegetables, which are directly procured from the farmers. Other inputs are generally available locally in general stores. As the fruits and vegetables are highly perishable in nature, raw material stock only for 7 days is considered for assessment of working capital.

Work-in-Progress (WIP)

The raw materials need to be converted to semi-finished products and preserved for processing in future. Therefore, the WIP has been considered for 30 days.

Finished goods

Processed fruit and vegetable products can be stored for a period of 12 - 18 months at ambient conditions. However, finished product storage for 15 days has been considered to keep the inventory level under check.

Means of Finance

Financing to food processing falls under priority sector lending. The loans to units meeting the criteria of MSME are classified under MSME sector. Such units can be financed by any scheduled commercial banks, Regional Rural Banks and Cooperative

Banks. Important terms and conditions of financing such units are discussed in this section.

Margin money

The promoters of the units need to bring their margin as per the requirement of financing banks and also as per RBI guideline issued from time to time. The margin money varies from minimum 10 per cent to 25 per cent of project cost. We have assumed margin money of 25 per cent in this model scheme.

Bank loan

The promoters of the units can approach any financing bank for finance. It is compulsory to take bank loan to avail various subsidy schemes of government. Therefore, the promoters should be careful in deciding means of finance.

Grant & subsidy There are numbers of incentive from State Government for promotion of food industry. Some of the states have formulated their Agro Industry Policy. The new comers should go through these guidelines. Various incentives are available depending upon location of the unit from District Industry Centres (DIC). Therefore, to take maximum advantage of these incentives, entrepreneurs may contact the District Industry Centres in their state.

Govt. Approvals/ Clearance Required

Prior to establishment

- i. Registration of concern with Registrar of Companies (ROC)
- ii. NOC from Local Bodies like Gram Sabha/ MC etc. - mandatory
- iii. Consent to establish from State Pollution Control Board – mandatory
- iv. Approval of Layout plan for construction – mandatory
- v. Permission to dug bore well from Ground Water Survey and Development Authority (GSDA)
- vi. Registration with District Industry Centre (DIC) for as Small and Medium Enterprise
- vii. Application to State Electricity Board/ Authority for sanction of requisite power load

After establishment

- i. Licence from FSSAI
- ii. Permission to commence production from State Pollution Control Board
- iii. Licence from Boiler Inspector