

Cashew factory visit Report

*Note: Batch 2 ECE students are involved in the field study

Batch 1 *

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Abstract—This paper is part of field study based on course Traditional Skills in Indian Knowledge system. The topic study how cashew factory is surviving in spite enormous number of units on a small village locality. The paper analyzes the origin of cashew factory, availability of raw materials and how finished products are marketed. The possibility of enhancing sales by adopting e commerce or digital marketing techniques are also discussed. The study concludes with findings that if proper e commerce possibilities are adopted, an enhancement of sales to 40% can easily be achieved. The paper concludes with specific recommendation on enhancing productivity and quality by employing automation at some point of manufacturing.

Index Terms—Marampally, Cashew factory, skills, enhancement

I. INTRODUCTION

Cashew nuts are a popular and nutritious snack that is enjoyed all over the world. They are rich in protein, healthy fats, and minerals such as magnesium, phosphorus, and zinc. Cashew nuts are produced from the cashew tree, which is native to Brazil but is now widely grown in tropical regions of Asia, Africa, and Latin America. Cashew nut production involves several stages, from planting and growing the cashew trees to harvesting, processing, and packaging the nuts. The cashew trees produce cashew apples, which are used to make juice, wine, and other beverages, as well as the cashew nuts, which are used in cooking, snacking, and as ingredients in various food products. The cashew nut production process involves several steps, including harvesting the nuts, removing the outer shell, drying the kernels, and grading them according to size and quality. The nuts are then roasted, salted, or flavored as per the demand and packed for distribution to local markets or for export to other countries. Cashew nut production is an important industry that provides livelihoods to millions of farmers and workers in the developing world. India, Vietnam, and Nigeria are the top three producers of cashew nuts, accounting for more than 50.

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Fig. 1. Students from Govt. Polytechnic College Perumbavoor at Cashew Factory unit Marampally.

II. HISTORY OF CASHEW NUT FACTORY IN KERALA

The first cashew nut factory in Kerala goes to the Late Mr. Kollamparambil Kurian Pillai, who is known as the father of the cashew industry in the state. Kurian Pillai, a farmer from Kollam, had observed the large quantity of cashew fruits that were going waste in the region. He realized the potential of cashew nuts and decided to start a small-scale business to extract cashew kernels from the nuts. In 1932, he established the first cashew nut factory in Kollam, which marked the beginning of the cashew industry in Kerala. Initially, the cashew industry in Kerala was small and localized. However, it grew rapidly over the years, thanks to the efforts of entrepreneurs like Kurian Pillai, who worked tirelessly to promote cashew processing and export. Today, Kerala is one of the major cashew-producing states in India, with a large number of cashew nut factories that employ thousands of people and export cashew kernels to different parts of the world.

III. RAW MATERIAL REQUIREMENTS FOR THE UNIT

A sustainable food processing unit must ensure maximum capacity utilization and thus requires an operation of minimum 280-300 days per year to get reasonable profit. Therefore, ensuring uninterrupted raw materials supply requires maintenance of adequate raw material 21 — P a g e inventory. The processor must have linkage with producer organizations

preferably FPCs through legal contract to get adequate quantity and quality of raw materials which otherwise get spoiled. In the Cashew nut manufacturing project, the unit requires 467.5 kg/day, 552.5 kg/day, 637.5 kg/day, 765 Kg/day , 850 kg/day Cashew fruit at 55, 65, 75, 90 , 100 percent capacity utilization, respectively.



Fig. 2. Example

IV. PROCESSING

A cashew nut factory is a processing plant that specializes in the production of cashew nuts. The factory typically receives raw or unprocessed cashew nuts from cashew farmers or suppliers and then proceeds to process them into various forms, including roasted, salted, or unsalted cashew nuts, as well as cashew nut butter, flour, or oil. The processing of cashew nuts in the factory generally involves several stages, including sorting, cleaning, roasting, shelling, and grading. During the sorting stage, the raw cashew nuts are separated based on their size, shape, and quality. The cleaning stage involves removing any dirt, dust, or foreign materials from the cashew nuts. Next, the cashew nuts are roasted, which helps to enhance their flavor and aroma while also removing the outer shell. After roasting, the nuts are cooled, and the shells are removed through a mechanical process. The cashew nuts are then sorted again based on their size and shape and graded according to their quality. Finally, the processed cashew nuts are packaged and stored in a cool, dry place until they are ready for distribution and sale to retailers, wholesalers, or consumers. Cashew nut factories may also produce other products such as cashew apple juice or pulp, which is derived from the cashew fruit that surrounds the nut. These products are typically made using the byproducts from the cashew nut processing.



Fig. 3. Example

V. MACHINES USED IN CASHEW NUT FACTORY

The production of cashew nuts has several steps of processing. Many types of machines are used in each step. The steps used in the production of cashew nuts are:

- SORTING
- CLEANING
- ROASTING
- SHELLING
- GRADING

Different types of machines are used in each step. Some of them are :

- Cashew cooling machine
- Steam boiler machine
- Automatic cashew nuts peeling machine

These are the machines that we saw during our visit to the industry.



Fig. 4. Machines used in cashew factory

A. Cashew Cooling Machine

The Cashew Cooling Machine is used to humidify the dry cashews. The borma treated cashew kernels are humidified (moisturized) by water mist spray. The cashew kernel trays are kept in trolleys for conditioning and humidified in a closed room. Steam is injected instead of water mist for accelerated humidification in a short time. The humidified kernels brown skin(testa) undergoes shrinkage due to sudden cooling which dislodges the hold(adhesion) of the skin to the kernel.

B. Steam Boiler Machine

Steam boilers are standard equipments in all cashew processing facilities, regardless of size. The raw cashew nuts are either cooked or blanched using the steaming machine, which is the major purpose of the steam machine. The steam generated by the steam boiler is then sent to the steaming machine.

C. Automatic Cashew Nuts Peeling Machine

Engineered as per the industry laid norms, the offered peeling machine is mainly used for peeling of raw cashew in different cashew processing industry. The cashew peeling machine works with pneumatic principle, specially designed to be used for peeling cashew nut. It separates the kernels from the inner soft skin of the kernels efficiently.

VI. HEALTH BENEFITS OF CASHEW

Cashew nuts have several health benefits due to their nutrient content. Here are some of the benefits:

- **Heart Health:** Cashews are rich in unsaturated fats, including monounsaturated and polyunsaturated fats, which can help reduce LDL or "bad" cholesterol levels and promote heart health.
- **Weight Management:** Despite being a high-fat food, cashews are low in calories and high in fiber and protein, which can help keep you feeling full and satisfied, leading to reduced calorie intake and weight loss.
- **Bone Health:** Cashews are a good source of magnesium, which is essential for strong bones. Magnesium also helps with the absorption of calcium in the body.
- **Blood Sugar Control:** Cashews are low in sugar and high in fiber and protein, which can help regulate blood sugar levels.
- **Brain Function:** Cashews contain several nutrients, including vitamin E, copper, and magnesium, that support brain function and cognitive performance.
- **Antioxidant Properties:** Cashews are a rich source of antioxidants, including vitamin E and selenium, which can help protect against oxidative stress and cell damage.

Overall, incorporating cashews into your diet can have several health benefits, but it's important to consume them in moderation, as they are high in calories and fat.

VII. VISIT TO CASHEW NUT FACTORY

As per the instruction of Lijo Cheriyan sir we gathered at 10:00am in Kunnvazhi. The visit was to the cashew nut factory near Kunnvazhi. We were 17 ECE students participated the program. And there were other students from Mechanical Departments. The goal of the industrial visit was to analyze the atmosphere and the working of the factory and observe pros and cons, and profit and the chances of loss in a company. The factory that we visited was a cottage industry. The aim of the company was to clean the cashew nuts that given to them and to distribute to retailers. Most of the cashew nuts are coming from Kollam district. They will get approximately 500kg of cashew nuts daily. They were about 11 workers, most of them are women employees. They get daily wages as per the quantity of cashews they cleaned. A worker approximately get 250 rupees per day. They will get about 5 rupees per kilogram of cashew they cleaned. The company was neat and clean, which give a positive ambiance to the company. The workers were so hard working and they were so polite to us. The company was small but well developed with high quality machinery. The cleaning process will continue until the cashew will completely cleaned. This process will continued up to three times. The company has been working for 8 Years.

VIII. PROBLEM FACED IN INDUSTRY

- Smoke is a mixture of particles and gases that are produced when materials such as wood or other organic matter are burned incompletely. Charcoal, on the other

hand, is a type of fuel that is produced when wood or other organic matter is heated in the absence of air, which removes the volatile compounds and leaves behind mostly carbon.

- To convert smoke into charcoal, you will need to capture the smoke and then subject it to a process of pyrolysis, which is the heating of organic material in the absence of oxygen. Here are the general steps:
- **Build a smoke chamber:** You will need to build or find a container that can capture the smoke, such as a metal drum with a lid. Make sure the container has a small hole in the lid to allow smoke to escape.
- **Fill the container with wood or other organic material:** The material should be tightly packed in the container, with as little air space as possible.
- **Heat the container:** Place the container over a fire or other heat source, and heat it until smoke begins to escape through the hole in the lid.
- **Close the lid:** Once smoke is coming out of the container, close the lid tightly to prevent air from entering.
- **Continue heating the container:** Keep heating the container until the smoke stops coming out of the hole in the lid. This process can take several hours, depending on the amount of material in the container.
- **Cool and collect the charcoal:** Once the smoke has stopped coming out, let the container cool completely. Then open the lid and remove the charcoal.
- Note that this process can be dangerous, as it involves heating combustible material. It should only be attempted by those with experience and appropriate safety equipment.

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