

A Study on Production Process, Quality Testing Procedure and Challenges Involved in Production and Supply with Reference to Ace Food Pvt Ltd

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Abstract—This study has been undertaken to analyse the production process, quality testing procedure, and challenges involved in production and supply with reference to Ace Food Pvt Ltd. The study focuses on the different stages involved in the production activities and quality control procedures followed by the company. The study also examines the major challenges faced during production and supply operations. To analyse the production process, different activities such as raw material procurement, processing, frying, seasoning, packaging, and storage are considered. To study the quality testing procedure, tests such as moisture testing, oil quality testing, nitrogen testing, and packaging quality checks are analysed. The challenges identified include fluctuations in raw material prices, labour shortages, transportation issues, storage problems, and supply chain difficulties. For the very purpose, both primary and secondary data have been collected from company records, websites, and published reports. The analytical framework contains descriptive analysis of production activities, quality testing methods, and production and supply challenges faced by the company.

Index Terms—Production Process, Quality Testing Procedure, Supply Chain, Food Processing Industry, Quality Control, Production Challenges

I. INTRODUCTION

Manufacturing industries are very crucial for the development of the economy as they produce consumable products. Food processing industry is becoming increasingly crucial in manufacturing industries as processing of food products assists in the increase of shelf life, ensures food safety, and provides consumer convenience. Food processing also helps in storage, packaging, transportation, and effective handling of products.

One of the most popular products of modern industries

is ready-to-eat snack foods. Such products are produced using raw materials like potatoes, bananas, peanuts, pulses, flour, spices, and edible oils by using various types of processes. Snacks are lightweight, handy, delicious, and are provided in different flavors and sizes.

The growing demand for processed and packaged food products has generated numerous opportunities for food manufacturing industries. Hygienic and quality production system is required for these companies to ensure food safety. Proper packaging of products will not only assist in keeping products fresh but also enhance their appearance.

In food items, the process of production consists of purchasing raw material, cleaning, grading, processing, frying, seasoning, packing, storage, and quality controlling. Control over these processes ensures that there will not be any issue about the quality and safety of food products. With effective production process, the firms can reduce waste, increase efficiency, and meet customer demand.

Quality testing is an important part of food production process. It includes testing of raw materials, oil, moisture, packaging, and sanitation. These measures ensure that the firms provide quality products which are safe for customers. Proper quality testing procedures also help companies maintain product standards and reduce the chances of defects and customer complaints.

Ace Food Pvt Ltd manufactures various ready-to-eat snack products under the brand names “Modern Kitchens.” The company focuses on product quality, hygienic production practices, efficient packaging systems, and timely supply of products. This study analyses the production process, quality testing procedure, and challenges involved in production and

supply with reference to Ace Food Pvt Ltd.

A. Objectives Of the Study

- To study the production process and quality testing procedure followed by the company.
- To study the challenges involved in the production and the supply of the product.

B. Need For the Study

Food processing industry has a key role in producing safety and quality food products for consumption. Ready to eat snack products are quite popular due to the convenience, taste, and variety of types available. Quality assurance and effective processes are crucial for customers' satisfaction and further company development. This study helps in understanding the production process followed by Ace Food Pvt Ltd and examines the quality testing procedures adopted by the company. The study also analyses the challenges involved in production and supply and how effective quality control and production efficiency help in maintaining customer satisfaction and organizational performance.

II. REVIEW OF LITERATURE

Al Falah, Khaled A. and Veera Pandiyan Kaliani Sundram (2025). Quality Management Practices and Production Quality Performance. According to the study, the factors contributing to an increase in the quality of products include continuous improvement and employee participation.

Trienekens, Jacques and Zuurbier, Peter (2008). Research on Quality and Safety Standards in Food Industry. This research established that food safety standards enable organizations to manufacture food products of quality. Problems associated with manufacturing food products included excessive costs, and inadequate storage and technology.

III. RESEARCH METHODOLOGY

The study is descriptive research to know the production process and quality testing procedures at Ace Food Pvt Ltd.

a) Sources of Data Primary Data

Primary data was collected through direct interaction with the General Manager. Information regarding the production process quality testing procedures, and challenges involved in production and supply

Secondary Data

Secondary data were collected from company records, books, websites, and previous studies related to the production industry.

IV. PRODUCTION PROCESS AND QUALITY TESTING PROCEDURE

Production Process of Different Products

The production of snack products is a systematic process that involves different stages and also the different steps for the different products. To ensure product quality, hygiene, taste, durability, and customer satisfaction.

A. Banana Chips

Nendran banana procured and peeled, sorted, washed, and blanched in cold water without causing discoloration. They are then cut into pieces and deep fried in vegetable oil at 156°C-157°C by adding salt during the frying process. These are then sorted, seasoned, and blended together after frying. Bananas are packed in packets with nitrogen flushing and are tested for seal and nitrogen quality.

B. Wheat Halwa

Wheat is selected, thoroughly washed, and processed properly in order to soak overnight for proper digestibility and quality. Afterwards, wheat is grinded, filtered, and mixed with sugar, ghee, and cardamom along with dry fruits such as almonds, cashews, and raisins. This is stirred thoroughly to prepare a thick and properly cooked halwa. After preparation, it is laid out for cooling and further cut into desired sizes.

C. Kabuli Channa

Kabuli channa was purchased then washed and soaked for one night. On the following day, it is again washed and subjected to centrifugation. Centrifugation is performed to remove the excess water content. It is then deep-fried in oil heated to 180°C. Seasoning is then added to the oil. It consists of most of the Indian spices. It is then packaged after cooling.

D. Masala Peanut

Peanuts are purchased and manually sorted. The masala or the seasonings is made in the industry itself using common traditional Indian spices. The masala is made and applied onto the peanuts and fried manually

at 160°C. After frying, it is cooled and sent for packaging.

E. Moong dal

Moong dal is purchased and it is washed thoroughly and soaked in water. Next day it is washed again and subjected to centrifugation. It is roasted in 160°C and allowed to cool down. After it is cooled down, it is packed. All these processes are performed manually.

The Quality Testing Procedure

ACE FOODS Pvt. Ltd. strictly maintains its quality controlling measures that make sure all their food products are of the highest quality and are absolutely safe for consumption. Quality controls are being conducted on every stage of production from raw materials selection till packaging. Besides that, some samples are being tested in laboratories while others are being inspected in industry. Such procedures are aimed at maintaining high standards of products.

The key quality testing includes such tests as nitrogen purity test, moisture content test, TPM (Total Polar Molecules) test, lactic acid test, peroxide value test, acid value test, iodine value test, salt determination test, and specific gravity of oil test. Such tests help to determine quality characteristics like freshness, purity, chemical and physical qualities, salt content. Also, package quality is being inspected.

Manual checks include checking for any possible packet defects, proper seal, contamination and leakage possibilities. One of the crucial aspects during testing procedure is nitrogen flushing of packets. It provides an extra life span of the product, prevents oxidation and maintains freshness.

The quality control process ensures that the foods meet the standards for food safety and taste. The quality control process will also ensure that there is an established good reputation for the company due to product quality.

V. CHALLENGES INVOLVED IN THE PRODUCTION AND SUPPLY

Challenges Involved in The Production

A. Raw Material Challenges

Some of the raw materials related problems faced by Ace Foods Pvt. Ltd. include lack of consistency of quality owing to agricultural differences, shortage of certain raw materials during certain seasons, high

levels of price volatility, and inability to maintain the same level of quality.

B. Human Resource Challenges

Some of the significant human resource problems faced by Ace Foods Pvt. Ltd. include employee absenteeism, shortage of skilled employees, and labor shortage in times of increased demand. Employee absenteeism results in reduced labor force and delayed processing, which can result in delayed deliveries and low-quality output. Lack of skilled employees affects production through both manual and machines. Labor shortage in times of high demands causes overproduction and fatigue among other things, even for the temporary labor force that may be employed.

C. Production Department Challenges

The issues that are faced by Ace Foods include wastage that occurs during production processes, and production delays. The reason behind wastages is the damage, ripeness, or poor quality of the raw material used in the production process. This includes cases where there is burning, damage, or problems with packing the products. In Ace Foods, only those products that have been damaged or gone bad are treated as wastages; however, small pieces are kept aside for sale in order to make up for the losses.

D. Quality Control Department

Some of the problems faced by Ace Foods Pvt. Ltd. are related to food safety and quality standards such as FSSAI, ISO, and HACCP, which are mandatory in export market. Since changes frequently happen in food safety requirements and laws, compliance becomes a tough job and very expensive. Even minor mistakes in labeling or packing will result in fines, rejection, and delay of shipment.

Challenges Involved in the Supply

E. Transportation Department

The company is encountering numerous problems pertaining to transportation that have an impact on the timely delivery of goods. Poor state of roads leads to delayed deliveries, prolonged time spent on transit, and damages to transport vehicles. Increased cost of fuel results in increased costs of transportation, reduced profit margins, and makes the process of budgeting and pricing hard. Extreme weather conditions such as rains, stormy winds, and hot

weather lead to product deterioration, problems with loading and unloading goods, and poor quality of snacks.

F. Distribution Department

Problems faced by Ace Foods include the problem of returning unsold products and short shelf life of the products. Due to either lack of demand or expiry of the products, they are returned resulting in loss, more effort being made, and wastage of products. The shelf life of snack products is short, hence should be consumed immediately to avoid deterioration of quality and making them unsaleable.

VI. DISCUSSION

The results from the study indicate that effective production management and strong quality control methods help improve ACE Foods Pvt. Ltd.'s product quality, safety, and customer satisfaction through proper raw material selection, controlled production processes, and systematic quality inspections. The frying, seasoning, and packaging processes, along with strict laboratory testing and hygiene practices, enable the company to maintain product crispness, taste, freshness, and longer shelf life. According to the analysis performed regarding product quality and customer satisfaction, a high percentage of products meet quality standards in terms of taste, texture, packaging, and durability. In addition, most finished products are found to be consistent in quality, properly sealed, and delivered in good condition, which increases customer trust and repeat purchases. Additionally, there exists a correlation between production control and product performance. The quality inspection process reveals that proper monitoring of oil quality, moisture levels, nitrogen level, and strength of packaging material results in a higher level of product stability and fewer defects, hence increased customer satisfaction. Finally, the study reveals that good hygiene practices, proper waste disposal, and use of high-quality packaging materials ensure good reputation for ACE Foods Pvt. Ltd. as a food producer firm. This way, maintenance of high standards and production systems makes ACE Foods Pvt. Ltd. competitive and ensures its growth and development.

VII. FINDINGS OF THE STUDY

1. The study observed that the company has a well-organized and systematic production process.
2. The study found that quality checks are conducted at every stage of production, and modern packaging techniques are used to maintain product freshness for a longer period.
3. The study revealed that the company strictly follows FSSAI, ISO, and HACCP standards, ensuring high levels of safety, hygiene, and quality in its products.
4. The study observed that various quality tests such as moisture, TPM, peroxide, acid value, iodine, salt, nitrogen, and metal detection
5. The study revealed that worker absenteeism and shortages of skilled labor affect production, especially during peak seasons, leading to overtime work, employee fatigue, and higher chances of errors.
6. The study found that supply chain issues, including poor road conditions, high fuel costs, unfavorable weather, and transportation delays, increase costs and negatively impact customer satisfaction
7. The study shows that wastage happens during raw materials, frying, breakage, and packaging, and leftover chips are sold for ₹10.

VIII. SUGGESTION

1. Some raw materials are being sourced from only one supplier, which is risky. The company should identify multiple trusted suppliers from different regions.
2. The company can introduce zip-liner packets to help maintain product freshness and crispiness after opening. This type of packaging is suitable for medium and large-sized snack packets that are consumed in multiple servings.
3. The company can introduce healthy snacks like baked chips and diet-based products to attract health-conscious customers and increase demand.
4. The company can add a QR code on the packet, so customers can easily give feedback about taste, packaging, and quality. This will help improve product and customer satisfaction.

IX. CONCLUSION

The study on “Production Process, Quality Testing Procedure, and Challenges Involved in Production and Supply with Reference to ACE Foods Pvt. Ltd.” concludes that the company follows a well-structured and systematic production process supported by strong quality control measures. The production stages such as raw material selection, processing, frying, seasoning, and packaging are carried out under hygienic conditions to ensure good taste, freshness, and longer shelf life of the products.

The study also concludes that ACE Foods Pvt. Ltd. maintains strict quality testing procedures at every stage of production, including raw materials, oil quality, moisture content, packaging strength, and nitrogen flushing. These quality control measures help in maintaining product safety, consistency, and customer satisfaction.

However, the study identifies that the company faces several challenges such as variation in raw material quality, seasonal availability issues, labour shortage, production wastage, transportation difficulties, and compliance with strict food safety regulations. These challenges affect production efficiency and supply chain operations.

Despite these challenges, the company is able to maintain its market reputation through effective production management, hygienic practices, and continuous quality improvement. Overall, it can be concluded that strong production systems and quality assurance practices play a major role in ensuring customer satisfaction and supporting the growth and competitiveness of ACE Foods Pvt. Ltd.

REFERENCES

- [1] J. Trienekens and P. Zuurbier, “Quality and safety standards in the food industry: Developments and challenges,” *Int. J. Prod. Econ.*, 2008, doi: 10.1016/j.ijpe.2007.02.050.
- [2] K. A. Al Falah and V. P. K. Sundram, “Impact of quality management practices on production quality performance: Examining the role of process improvement and Lean Six Sigma,” 2025.
- [3] Ace Foods Pvt. Ltd., “Modern Kitchens Mangalore,” accessed May 23, 2026.