

CHAPTER 3

THE STUDY OF CURRENT SITUATION

In this chapter, Squid Snacks Factory are introduced and detailed in their applications. Next the overview of manufacturing process will be described. Finally, the existing system and problem will be presented.

3.1 Company Background

The case study factory is a manufacturer of squid snacks under the own brand name was established in 1996 at Bangkok, Thailand. The factory is small industry which 1 ton of finished goods is an approximate daily capacity at present though the full capacity of the production is 1.5 ton/day because of the marketing planning. The company's product range encompasses all kinds of seasoned squid snacks. The main products are divided into two major types as follows:

1. Rolled seasoned squid: The company produces rolled seasoned cuttlefish in 3 different sizes that can be classified as 10 g., 20 g. and 30 g. in bag.
2. Baked crispy squid: The company produces baked seasoned cuttlefish in 5 different sizes that can be classified as 10 g., 20 g., 30 g., 40 g. in bag and 50 g. in can.

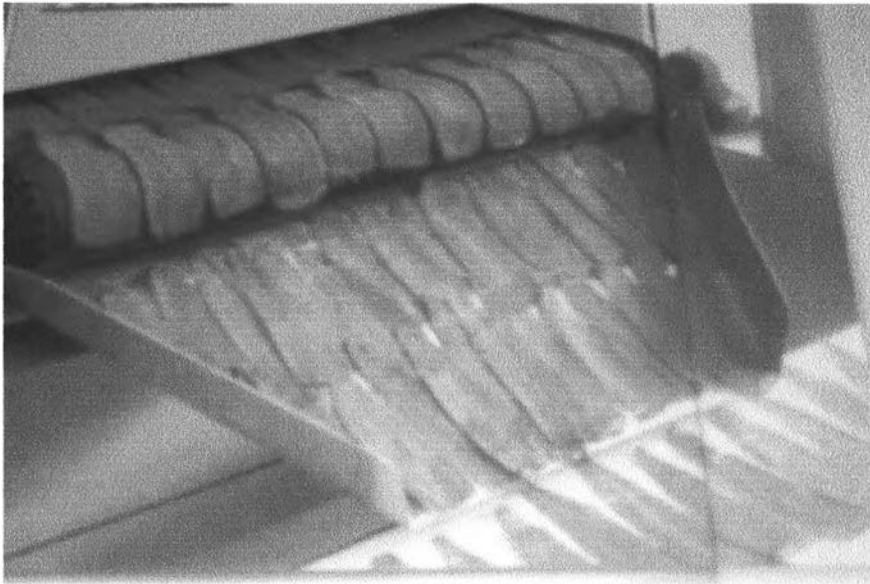


Figure 3.1 Rolled seasoned squid

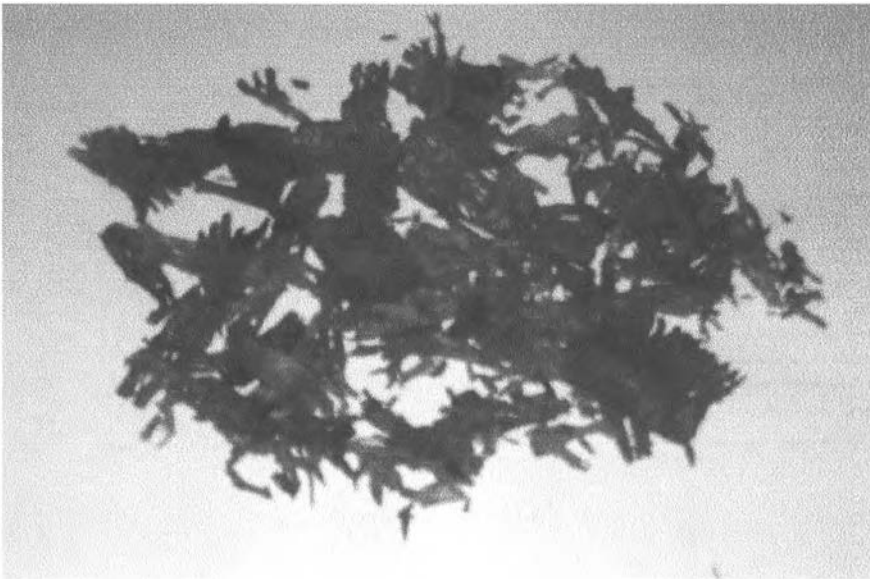


Figure 3.2 Baked crispy squid

Currently, the company exports five percent of its output to abroad markets i.e. North America and Asia.

The vision of the factory is being one of leaders in the squid snacks industry in Thailand, the factory aims to increase overall customer satisfaction levels and quality performance. The factory put greater efforts to resolve and improve fundamental

operating inefficiencies, reduce defects and eliminate hidden waste as well as the important point is to reduce production cost.

As the study concerns about development of KPIs in production, details about plant, process and equipment are necessary to mention.

3.2 Factory

The factory is a small industry on a 12,800 Square Meter plot of land and 5,000 Square Meter plot of one building. It is operating on one shift basis, eight hours a day and six days per week. The company employs a total of 80 workers, including engineers and quality assurance supervisors. Presently, 1 ton of finished goods is an approximate daily capacity even though the full capacity of the production is 1.5 ton/day because of the marketing planning.

3.2.1 Organization

The organization of the factory is divided into 5 sections as follows:

● Production Planning	2 persons
● Production	60 persons
■ Pre-Raw material	15 persons
■ Production	35 persons
■ Packing	10 persons
● Engineering	2 persons
● Quality Control	8 persons
● Maintenance	8 persons

According to the information above, most workers are under control of production section. About 20 workers work in the remaining sections. Some section has only 2 workers such as production planning and engineering. The current organization chart of this factory is illustrated in Figure 3.3.

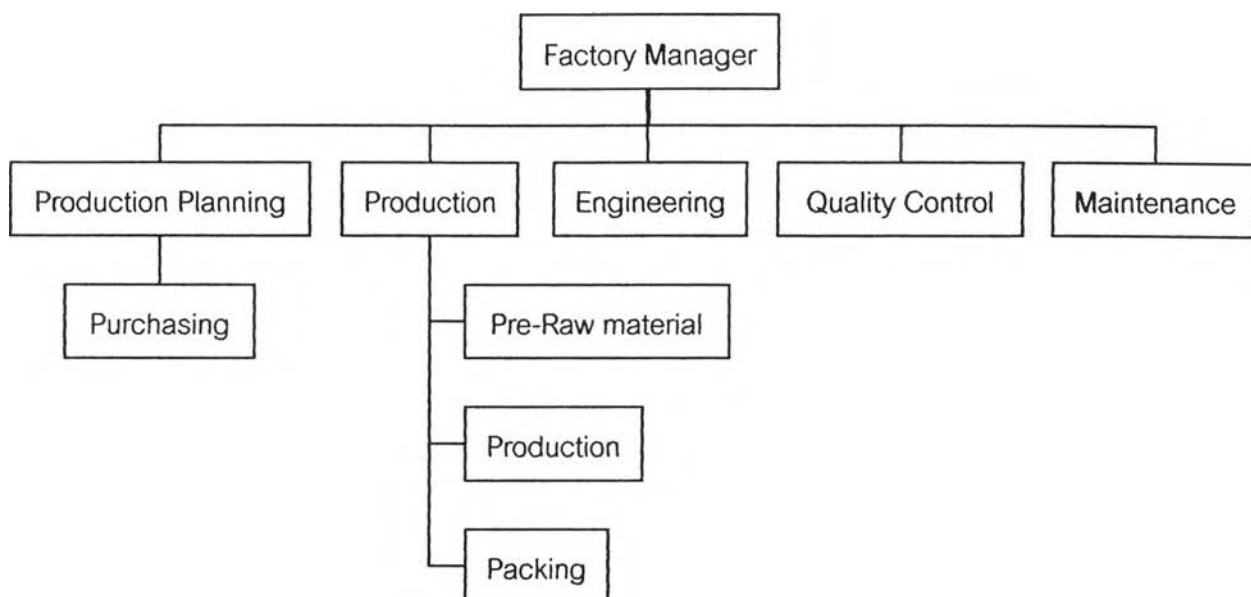


Figure 3.3 Organization chart of the factory

3.2.2 Functional Department

The factory has various departments as shown in Figure 3.3. Following is the description of each function.

1. Production Planning

This department is responsible for production planning and scheduling on annual, quarterly, monthly, weekly and daily basis for each product and each line. Moreover, raw material planning, worker planning and machine planning are in charged of this section.

Planning is based on forecasts provided by marketing and the capacity of the plant. Forwarding of indents for purchase of raw materials is also done by this department.

2. Production

The production is a continuous process producing two kinds of products. Production plans are received from production planning department on weekly and daily basis.

The responsibilities of production section start since preparing raw material, production, packing until transfer to storage.

3. Engineering

Engineering section gives the assessment about capability of manufacturing facility to produce a product. In addition, design and development of tooling and process is the responsibility of this department.

4. Quality Control

Inspection of raw materials, work in progress and finished goods is a responsibility of quality control department. Quality reports are sent to factory manager weekly. In addition, scrap and defect are sent for reworking.

5. Maintenance

Maintenance is serving the production function to keep up the operational availability of equipment and machine.

3.2.3 Factory Layout

The factory has one line for producing rolled seasoned cuttlefish and baked seasoned cuttlefish by swapping the line to produce two products. The layout of plant is shown in Figure 3.4 and list of machines is given below.

- 1 – Cool storage
- 2 – Selected size machine
- 3 – Roaster machine
- 4 – Roller machine
- 5 – Seasoning squid roaster machine
- 6 – Conveyer baking machine
- 7 – Roll squid baking machine
- 8 – Packing machine

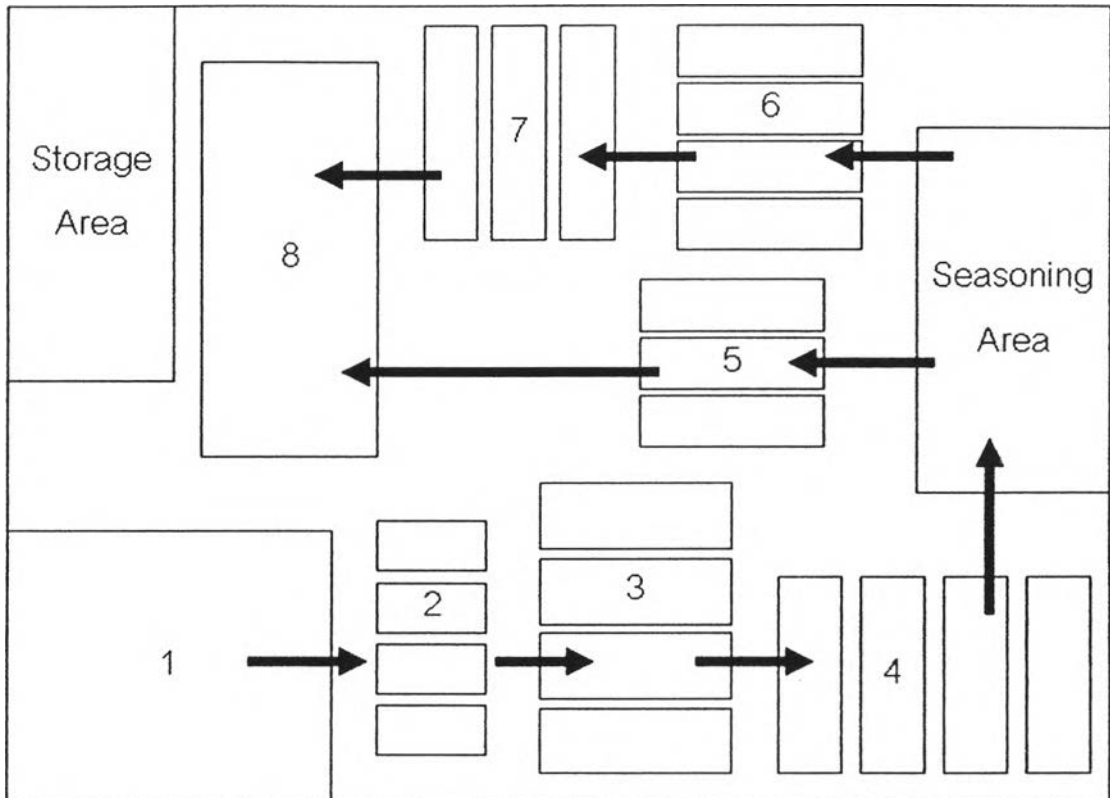


Figure 3.4 Plant layout

3.3 Production Process

The production processes of the squid snacks of the company are shown in figure below.

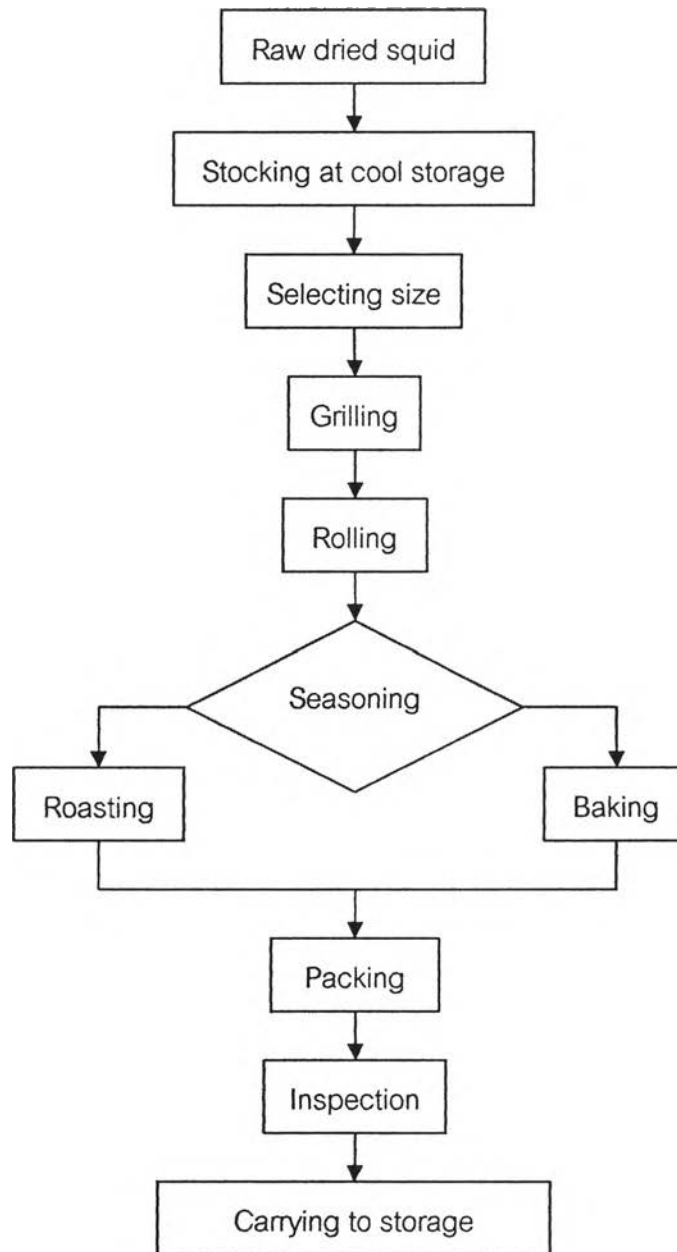


Figure 3.5 Production process of the squid snacks

According to the Figure 3.5, at the beginning, raw dried squid as a raw material is inspected and loaded into the cool storage. When the factory starts the production, raw dried squid is carried from cool storage to clean and select for the right size. After that it is taken to roaster machine to grilling process and then passed rolling process to grind. Then the product will be sent to seasoning process with original recipe using modern methods.

Next the seasoned squid is separated to two products: rolled seasoned cuttlefish and baked seasoned cuttlefish. For rolled seasoned cuttlefish, roast the seasoned squid before packing or bake and roll the seasoned squid before packing for baked seasoned cuttlefish. Finally, pass the finished goods to inspection process to ensure the quality of product.

3.4 Existing System in the Factory

3.4.1 Operational System in the Factory

Firstly, quantity of product is planned from production planning periodically. Then, order raw material in advance to prepare production and recorded in stock card. When production receives job order card from production planning, then production records data in requisition card. This must be performed in order to bring raw material to production. In production line, staff will record the quantity of product in daily production report and random product to check the quality.

3.4.2 Reporting System in the Factory

Reporting system that the factory uses currently can be divided into 2 systems: operational report and evaluation report. The characteristics of these report system are explained below.

3.4.2.1 Operational Report

Operational report that used in the factory includes official report and unofficial report. Official report characteristic is exactly document and method to record. Otherwise, unofficial report is the document that staff recorded the overall performance of production, daily raw material used, daily capacity of machine, cause of mis-planned production and etc. in order to summarize to the superiors. The examples of operation report are as follows.

1. Stock card

Stock card is the document used to check raw material inventory. One card uses for one raw material. When raw material are used, staff will record the quantity of raw material used and the quantity of remain raw material in stock card.

2. Requisition card

Requisition card is the document used to request raw material from warehouse, in order to track the quantity of raw material used, find out who request raw material and who is responsible when there are problems with raw material.

3. Daily production report

Daily production report is used to report the quantity of product and defect. Staff must record this document to report a supervisor regularly.

4. Job order card

Job order card is the document that production receives from production planning periodically. This card gives detail about the quantity of planning product.

5. Clock in and Clock out card

It is used to check working time of staff.

3.4.2.2 Evaluation Report

Evaluation will be reported to management level periodically. This report summarize the overall situation in the factory that can give overall picture to the management level and make it clear to the manager for the problems that should be addressed. The examples of evaluation report are as follows.

1. Production planning

This report presents the production planning of the factory. The factory has monthly planning.

2. Production report

This report presents the quantity of production periodically.

3. Raw material used report

This report presents the quantity of raw material periodically.

4. Raw material cost report

This report presents the cost of every raw material that the factory uses.

5. Overhead cost report

This report presents power cost and water cost monthly.

According to the reporting system mentioned above, there are some problems occur from the existing report system are as following.

1. The factory lack of necessary report such as source of defect, performance ratio, machine report and etc.
2. The factory does not use these report effectively because of workers do not record or rarely record data.

3.5 KPIs in the Factory

Currently, the factory does not have enough KPIs to control and measure performance. KPIs that this factory has operated are as follows.

1. Quantity of product
2. Raw material used
3. Quantity of defect

According to information above shown, the factory operates a small number of KPIs and the KPIs are useless and improper for using because of incorrect data form involving sections.

Due to the insufficient of KPIs, rarely operation, never operation and lack of necessary KPIs, these problems lead to the following major problems.

1. The factory achieves the production target but sometimes it can not achieve 100% such as quantity of finished goods and punctual production. This identify that the factory has mis-planned production problem.
2. The factory manages production resource utilization such as man, machine and material ineffectiveness because of the lack of KPIs to show the status of each factor.
3. The factory is unable to identify the source of production loss, for example loss that occur when use non conformity raw material because of lack of report and system to control.
4. The lack of system to control raw material inventory, thus it is difficult to control raw material inventory accuracy.
5. The maintenance uses corrective maintenance system. It does not have a plan for preventive maintenance. Moreover, the factory does not have the record of all the repairs, overhauls, modifications and replacements done on equipment.

6. The factory does not have standard to examine and control worker utilization.
7. The factory manager finds it is hard to observe the overview of the production performance such as efficiency, machine utilization and human performance in order to plan and develop the production effectiveness.

3.6 Causes and Problem Analysis

After study problems in the factory, found that lack of necessary KPIs to measure and control production performance is the important problem for this factory. Therefore, the major impacts that the factory face are as following.

1. Existing system cannot be measured

There are many types of measurement such as the Balance Scorecard, Benchmarking, etc. For example, benchmarking can make the factory know what the status and position of the business is. In this case, if the factory is not interested in KPIs, it cannot obtain the necessary information as following example:

- Production capacity
- Unit production cost
- Quantity of product uncompleted on time
- Machine downtime

When the factory does not set more necessary KPIs, it will not know what the exact problem is such as unachievable production target. In fact, it is occurring in the factory, this cause makes the factory lose an opportunity to sell its products.

2. Insufficient data to analyze

Due to lack of collecting necessary data, the factory will not know what the data is. Therefore, when the factory does not obtain data, it has nothing to analyze. For example, stock card, it can show the movement of product day by day so the manager

will know which items has the highest or lowest turnover in each month or quarter. This simple stock card is useful to make a production plan.

3. Difficult to improve

In KPIs process, it can help the factory manager to define the exact problem. It is not impossible that any business does not face the problem no matter how serious it is. Therefore, if the factory does not determine KPIs, it will not know how to analyze or solve the problem. This makes the factory has no improvement.

From the present study, it is found that the factory does not have good and suitable KPIs. They are as follows:

1. Quantity of product
2. Raw material used
3. Quantity of defect

4. Unable to control

When the factory does not have KPIs, it likes a ship which does not have navigator to guide to the right way. Each worker does the job without a good direction. This cause make our staff have no skills, no target, no improvement, and so fourth. Therefore, it has nothing to control the operation and production in the factory.