

CHAPTER I

INTRODUCTION

This chapter consists of background, problem formulation, research objectives, and research scope, and also the outline of the report.

1.1 Background

In companies engaged in the industrial sector, the production process is part of a very crucial business process, where companies are required to be able to run the production process effectively and efficiently. However, the problem often faced by industrial companies is the frequent occurrence of waste (something that has no added value) in every production activity, which makes it difficult for companies to achieve an effective and efficient production process. This will affect the speed and accuracy of order fulfillment which will have an impact on customer satisfaction, seeing that customer satisfaction is a major aspect in global competition. In addition, the presence of waste will have an impact on the incidence of costs - costs that should be suppressed. (Iswandharu, Sriyanto, & Rinawati, 2010). The ability of a company to run the production process effectively and efficiently indicates the level of productivity of the company. The more efficient and successful the company's production system, the less waste that occurs. One of the expected productivity indicators is to reduce waste generated in each activity. (Hines & Taylor, 2000)

In the lean concept, waste that occurs in activities does not add value to the product, but rather adds to the burden of resource consumption. (Mughni, 2010). The problem that usually occurs in the food industry when carrying out the production process is the occurrence of waste. Waste is divided into seven types, namely defects, waiting, unnecessary inventory, improper processing, unnecessary movement, transportation, excess product. (Lestari & Susandi, 2019). According to Gaspersz (2007), waste that occurs in the production process is generally caused by

irregular factory layouts, inappropriate machine setup times, non-standard work methods, poor planning, unsupportive conditions of equipment, materials and environment, ineffective methods, and inadequate human resources. This can result in uneven production output, decreased production quality, defective products, excess inventory, and wasted time in the production process.

Many people in West Sumatra Province have opened businesses engaged in the food industry. This is based on the Central Bureau of Statistics of West Sumatra Province which states that the range of 2018 to 2020 the number of people who have businesses in the food industry is in the range of 40,000 to 45,000 business units. Some businesses in the food sector include the bakery industry which is well known to the people of Padang City and has also distributed its products to other cities such as Happy Bakery, Pryangan Bakery, Bobo Roti, Hoya, Safari Bakery, Anandia Bakery and Ganto Bakery.

Ganto Bakery as one of the competing bread MSMEs in Padang city, is a bread production business located on Jl. Padang, Kurao Pagang, Nanggalo District, Padang City. This business has been established since 2013. The type of bread produced is a variant of wet bread with several types, such as donuts, chocolate and coconut stuffed bread, and mises toppings which are sold for IDR 2,000 per pack. The amount for bread needs is 7,000 to 8,000 packs per day, which in 1 batch can produce 432 breads.

The production process at Ganto Bakery consists of eight workstations. There are recipe weighing process, stirring process, milling process, molding, dough filling and cutting in 1 workstation, developing, baking, cooling and packaging. An overview of the production layout can be seen in **Figure 1.1**

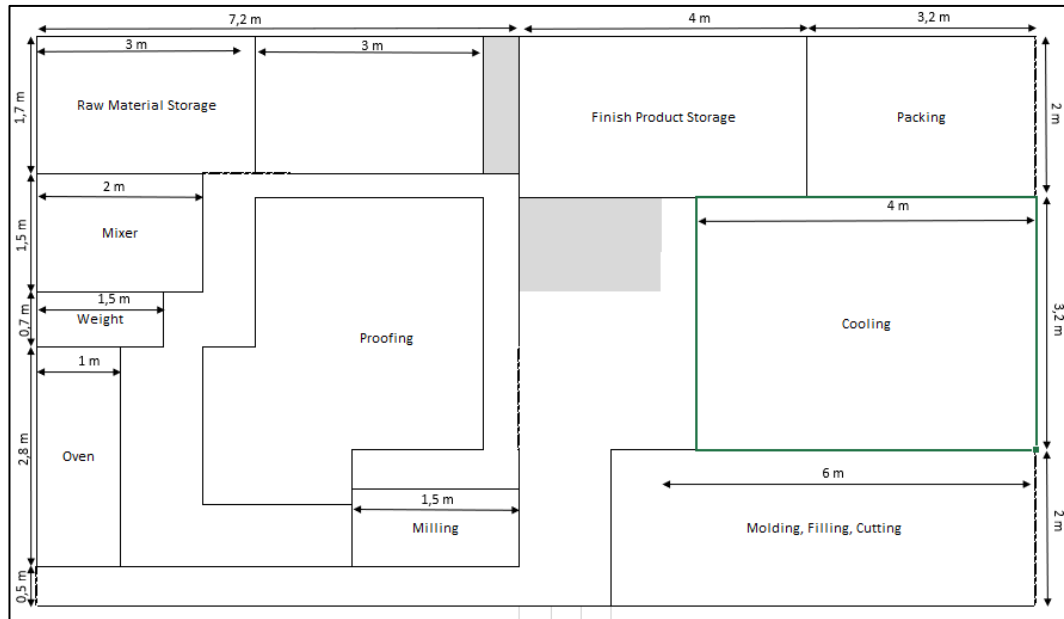


Figure 1. 1 Layout of Production Area at Ganto Bakery

The production process that occurs at Ganto Bakery starts from taking raw materials in the warehouse which are then weighed. After weighing, the raw materials are then put into the mixer for the stirring process. The dough that has been stirred will then be ground on the grinding table manually to facilitate the next stage of production. The dough that has been ground is then put into the breadline machine which consists of the process of molding, stuffing and cutting the dough according to the desired size. The next step is to let the dough rest for the development process and bake it in the oven. After the baking process, the bread will be cooled with the help of a fan, then the bread can be packaged. The flow diagram of the bread production process at Ganto Bakery can be seen in **Figure 1.2**.

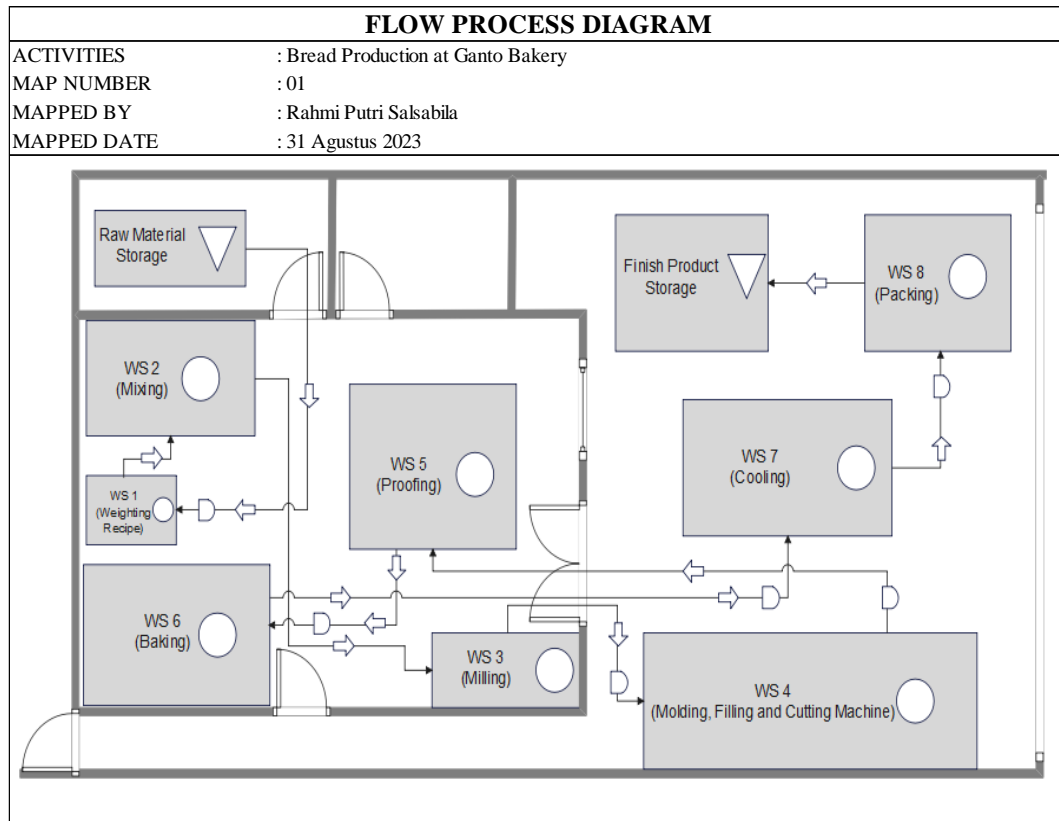


Figure 1. 2 Flow Diagram of Bread Production Process at Ganto Bakery

Ganto Bakery has 13 employees working in the production department and uses several machines, such as mixers, breadline machines which include dough molding machines, filling machines, and dough cutting machines, and ovens. Based on direct observation to the research location and interviews with the business owner, the normal time for 1 batch of production is about 3 hours. However, the production process of 1 batch often takes more than the normal time due to several factors. The problem that occurs is the repetitive process, such as in weighing the dough in the molding, filling and weighing processes. Indeed, about 50% of the dough does not have the desired size, so the dough needs to be weighed again manually using a digital scale to ensure each dough has the same weight.

In addition, the fermentation process also has problems such as improper processing and defects. During the fermentation process, the dough for 1 production batch stacked with 18 pans did not rise because the operator did not cover the stacked bread pans perfectly. So a total of 432 doughs or equal to 1 production batch

did not rise. Therefore, the dough can be reused by repeating the production process from the milling process. But this can only be done on bread dough without filling. For dough with chocolate or coconut filling, the dough could not be reused and thus became a defective product. This resulted in one batch of products failing to produce and needing to make another batch to meet the production target. Often this problem occurs 2-3 times in 2 weeks, both in dough without filling and with filling.

Defect problems are inevitable in the bread production process. In the baking process, when removing the oven pans, there are pans that are stacked irregularly, resulting in some bread being squeezed out. Other defects include burnt bread during the baking process and bread that falls off during the topping process. According to the business owner's explanation, there are 15 to 25 defects in bread every day. Product defects are relatively small for the total production per day, so based on initial recognition, defects do not really affect the additional production time.

Another problem found is the unnecessary transfer process. In **Figure 1.2**, where during the cooling process, the breadline machine must be shifted to the side so that it is sufficient for the cooling process area. The donut frying area is also done in the packaging area, so when the frying process is done, packaging for other types of products cannot be done. The production area is less spacious due to inefficient spatial planning. The irregular layout of the area makes it difficult for operators to move due to the large number of piles, both fermentation process piles and cooling process piles. It can be seen that the production process time becomes longer due to some of the wastes already mentioned, such as waste of defects, improper processing, unnecessary movements, and excessive transportation.

One of the methods used to solve problems related to waste in the production process is lean manufacturing. Lean manufacturing is a set of tools and techniques useful for eliminating waste in the production process. Lean manufacturing aims to change the organization within the company to be more

efficient and competitive, to reduce lead time and increase output by eliminating waste. In addition, this approach is able to reduce unnecessary inventory, increase knowledge about the production process, save costs, reduce lead time, and reduce waste. (Nurwulan, 2021). The lean approach is carried out to form a continuous improvement strategy in the production system to analyze the types of causes of waste so that the value stream can operate smoothly and make production time more efficient in an effort to increase competitiveness. . (Dhiwangkara & Lukmandono, 2021) Therefore, this approach is suitable to be applied to MSMEs in an effort to increase competitiveness by Ganto Bakery with similar bread production MSMEs.

Based on the above problems, it is necessary to conduct research to minimize the waste in Ganto Bakery, as well as identify other wastes that have not been identified in the previous background. It is hoped that this research can help minimize the waste that occurs at Ganto Bakery with the recommendations for improvement provided.

1.2 Problem Formulation

Based on the background that has been explained, there are indications of waste in the production process at Ganto Bakery. So that the formulation of problems in this research is what is the highest waste, the cause of the highest waste, and also proposed improvements to reduce waste in the production process at Ganto Bakery.

1.3 Research Objectives

The objectives of the research conducted are as follows:

1. Identify the highest waste in the production process at Ganto Bakery
2. Analyze and find out the causes of the highest waste that occur in the production process at Ganto Bakery

3. Determine proposed improvements to reduce waste that occurs in the production process at Ganto Bakery

1.4 Research Scope

The research scope of this report is as follows:

1. The research only focuses on production process activities and it is assumed that there is no change in the production process in making bread at Ganto Bakery
2. Research focused on the type of coconut stuffed bread product, because this product is the type of bread with the most requested
3. Improvement recommendations are given to the impactful waste, and are only discussed until the proposed improvement

1.5 Outline of Report

The outline of this report is as follows:

CHAPTER I INTRODUCTION

Chapter I contains the background of the research, the formulation of the problem, the purpose of the research, the research scope, and the outline of this report.

CHAPTER II LITERATUR REVIEW

This chapter explains theories related to research, such as the concept of lean manufacturing, waste, Value Stream Mapping (VSM), Waste Assessment Model (WAM) that include Waste Relationship Matrix (WRM), Waste Assessment Questionnaire (WAQ), Value Stream Analysis Tools (VALSAT), and fishbone diagrams.

CHAPTER III RESEARCH METHODOLOGY

This chapter contains steps in researching to achieve research objectives. This section consists of preliminary studies, literature studies, problem identification, problem formulation, method selection, data collection, data processing, analysis, and closing.

CHAPTER IV DATA COLLECTING AND PROCESSING

This chapter contains the data collecting during research and the result after processing the data that will be used in analysing this research

CHAPTER V DISCUSSIONS

This chapter contains the analysis after doing the calculation of research that have been carried out previously, which is adjusted to the research objective and giving the improvement recommendation to Ganto Bakery

CHAPTER VI CONCLUSIONS

This chapter contains the conclusions of this research based on the processing and analysing data, and also suggestion based on the result of research obtained and improvement for the next researcher.

