CHAPTER I INTRODUCTION

I.1 Background

CV. Trisno Adi, based in Sekar Putih Bondowoso, is a company that processes tobacco as the main raw material for cigarettes, apart from products related to cigarettes, such as cloves and sauce. This company was founded in 1990 and still exists today. Its business fields include processing tobacco (raw materials) into semi-finished products (primary processing). CV. Trisno Adi has only used machines to process tobacco products as raw materials into semi-finished materials, the application of this machine is seen as very important in optimizing production in terms of:

1. Quantity (increase in production capacity)
2. Quality of production
3. Cost efficiency

Previously in carrying out this processing, CV. Trisno Adi only uses human labor, so there are several problems that arise from the company and consumer side after buying semi-finished products, namely:

1. Quality is not uniform
2. The production process takes a long time

Based on the conditions experienced from the third point of business, CV. Trisno Adi in terms of overcoming the problem finally implemented a semi-automated system that still combines machines with humans as a substitute for conventional systems.

CV. Trisno Adi uses make to order, order according to customer. The customer determines the number of orders from 7 types of blend packing, namely MR4, CF2, XL4, MOR, AB, BC, and CD of 2 different raw materials namely Rajangan and Daun Tembakau. Each packing blend has different specifications depending on the nicotine and sugar content which will determine the product of the company that ordered it. The production process of CV. Trisno Adi are still in the early stage of production, so there would be changes that comes to overcome problems that arise

in the production processes, so the production processes of CV. Trisno Adi is not fixed and could change in the future.

According to the results of observations at CV. Trisno Adi, was obtained the data on processes and the processing flow in the production line each with its own averaged operation time and manpower for Rajangan raw materials. The main process and the operation time of producing the packing blend are listed on the Figure I.1 and Table I.1.

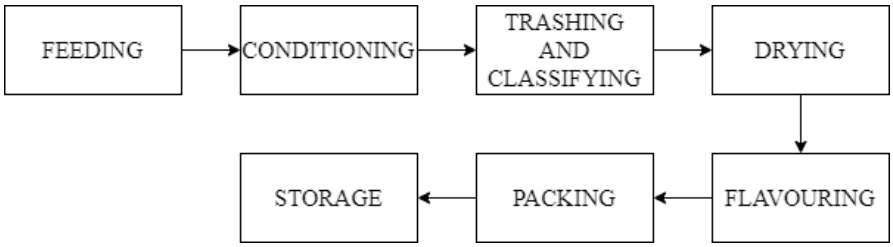

Figure I.1 Production flow of CV. Trisno Adi

Table I.1 Rajangan packing blend processes

Processes for Rajangan		
Name of Process	Time (Minutes)	Manpower (Person)
Feeding	20	10
Conditioning	45	1
Trashing and Classifying	30	
Drying	60	1
Flavoring	30	1
Packing	15	6
Storage	15	2
Total	480	32

Currently there are nine processes in one cycle of production in the production line of CV. Trisno Adi. Set Up is the process of setting up all the machines according to the requirement of packing blend that is going to be produce. Tobacco Preparation is the process of preparing the raw materials needed to produce the desired packing blend type. Feeding is the process of inputting the raw materials to the long conveyor that are going to the DCCC machine. Conditioning is the process of increasing the moisture content and humidity of raw materials so it would not get easily crumble and to increase the aroma, conditioning is done in the DCCC machine. Trasher and Classifier, the trasher process is done to prevent clumping of the raw materials, and then the raw materials would go to a classifier process to

separate the hilt, leaves, and dust. Drying is the process of decreasing the moisture content of the already processed tobacco according to the seller requirement. Flavoring is the process of adding tobacco flavor to give the tobacco a certain taste and aroma. Packing is the process of putting the processed tobacco in to a C48 cartoon box with a capacity of 100kg each. Storage is the process storing the packed processed tobacco in the C48 cartoon box into the storage area.

An observation also done on data lists of orders of the packing blend variants, namely the MR4, CF2, XL4, MOR, AB, BC, and CD from companies. These data will be the basis of determining the problem that arises when CV. Trisno Adi implementing the newest production system.

Table I.2 List of packing blend orders in 2022

Name of Factory	Type of Packing	Date of Order	Date of Shipment	
			Target	Realization
PR. Kacang Bayi	AB	10/07/2022	03/08/2022	08/08/2022
	BC	04/08/2022	17/08/2022	22/08/2022
PR. Sejahtera	BC	23/08/2022	05/09/2022	08/09/2022
	XL4	16/09/2022	25/09/2022	29/09/2022
PT. Tembakau Djaya Saktisari	AB	25/09/2022	13/10/2022	16/10/2022
	CD	10/10/2022	17/10/2022	22/10/2022
PR. Djitoe	CF2	17/10/2022	01/11/2022	08/11/2022
	MR4	04/11/2022	10/11/2022	17/11/2022
PR. AA	AB	14/11/2022	21/11/2022	23/11/2022

In fulfilling the required volume of orders, CV. Trisno Adi has a tolerance of 2 days after the initial date of order. Based by the table I.2, it can be seen that the deadline from the companies is not met and pass the tolerance date of shipment as shown by the table I.2.

To identify the problem more specifically, an identifier tool is used. Identifier tool that is used for this research is the fishbone diagram. A fishbone diagram, often called a Cause-and-Effect diagram, is a diagram resembling a fishbone that can show the cause and effect of a problem (John Bank, 1992). The basic function of a Fishbone/Cause and Effect/Ishikawa diagram is to identify and organize the possible causes of a specific effect and then separate the root causes

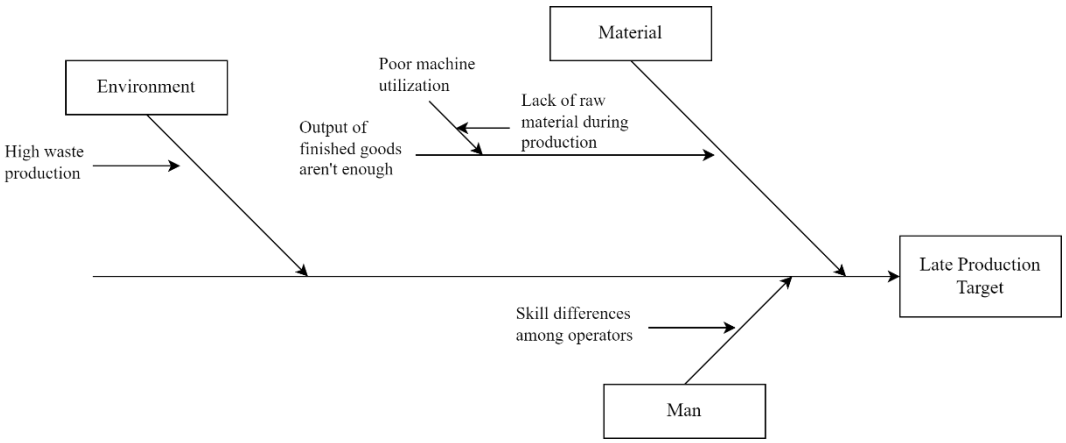

Figure I.2 Fishbone diagram of the problems

After an analysis using fishbone diagram, problems that can cause late production target are grouped into material, man, and environment. In the material section, the problem that occur are output of finished goods are not enough caused by poor machine utilization that also caused by lack of raw material during production. In the man section the problem that occur is skill differences among operators. In the environment section the problem that occur is high waste production.

Further investigation of the production system shows is shown on figure I.3 where it shows that percentage of the machine idling and not doing work in one day of production which translates to poor machine utilization.

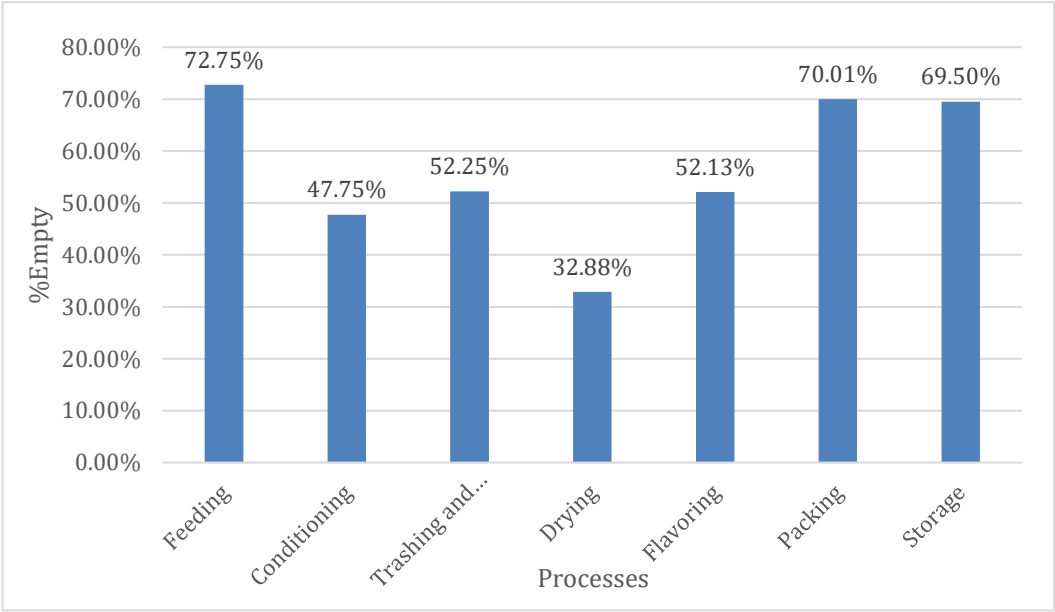

Figure I.3 %Idle on each machine

It is also found that the production machine was designed to produce 4600kg of finished goods in one day, that supposed to be enough considering the amount of order, order date, dan date of shipment based on table I.2, for example the order of PR. Kacang Bayi that started ordering in from 10 July 2022, with a machine capacity of producing 4600kg in one day, the order was supposed to be finished in 3 August 2022, still 2 days early from the target date of shipment, but the order finished at 8 August 2022. Based on this investigation it is proven that the capacity of the machine should be enough.

Based on the problem listed by the fishbone diagram in figure I.5, the problem of an output of finished goods that is less than the actual designed output of the machine could be because of lack of raw material during production that can be caused by the existing inventory policy of CV. Trisno Adi that has a raw materials arrival of 1600kg with an interval of arrival ranging from 150 minutes to 200 minutes that could leads to lack of raw materials and caused a poor machine utilization and production target cannot be completed on time which can cause a loss of trust from the customer and a bad reputation to CV. Trisno Adi. Because of the existence of those problems, therefore it is necessary to determine the best inventory policies for the production line of CV. Trisno Adi so that the production line does not run out of raw material.

I.2 Alternative Solution

Table I.3 Alternative solution

No	Root Causes	Alternative Solution
1	Lack of raw material	Do a proper inventory policy to ensure enough raw material for production and a good machine utilization
2	Skill differences among operator	Do an even training to all of the operators
3	High waste production	Do a regular and scheduled maintenance of the machine that causes high waste production

I.3 Problem Formulation

1. How to design an inventory policy that can minimize production lateness?
2. How is the comparison between the proposed inventory policy and existing inventory policy?
3. How to reduce idling of CV. Trisno Adi production machine?

I.4 Purpose

1. To design an inventory policy that can minimize production lateness
2. To compare the proposed inventory policy and existing inventory policy.
3. To reduce idling of CV. Trisno Adi production machine.

I.5 Benefit of Research

1. This research can provide a new design of inventory policy that are implemented on the CV. Trisno Adi production line.
2. This research can provide a decisional support on the best inventory policy system of the CV. Trisno Adi production line.
3. This research can provide an analysis on how to reduce production lateness of CV. Trisno Adi production line.
4. The results of this study can be used as an evaluation by the management of CV. Trisno Adi to make improvements on the production line.

I.6 Writing Systematics

CHAPTER I INTRODUCTION

This chapter discusser the background of the problem in the production line of CV. Trisno Adi that included the problem formula, purpose, limitation, and benefit.

CHAPTER II TEORITICAL BASIS

This chapter provide the theories and references that are related to Line Balancing with a goal to create a basis of thought and theoretical basis that will be used in the implementation of research.

CHAPTER III METODOLOGY OF RESEARCH

This method provides the steps analysis of problem solving with the goal to finish the research based on the purpose of research.

CHAPTER IV DATA COLLECTION AND PROCESSING

This chapter provide the data needed to acquire the result of the research. Data processing is done in accordance with the methodology listed in Chapter III.

CHAPTER V ANALYSIS

This chapter will analyze the data processing and the improvements that have been done.

CHAPTER VI CONCLUSION AND SUGGESTION

This chapter provide the conclusions obtained from the research conducted as well as advice for the CV. Trisno Adi.