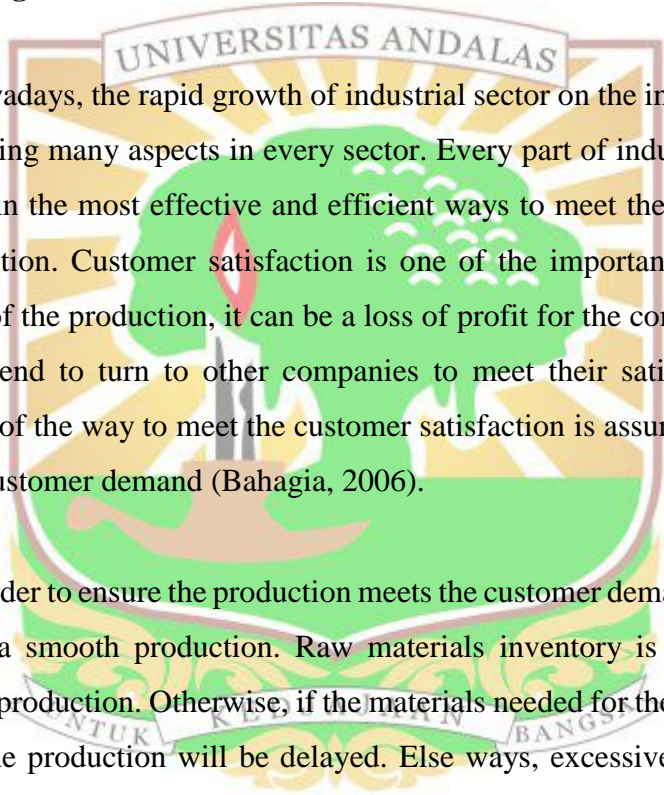


# CHAPTER I

## INTRODUCTION

This chapter is discussed on the research background, problem formulation, research objectives, research scope, and outline of the research report.

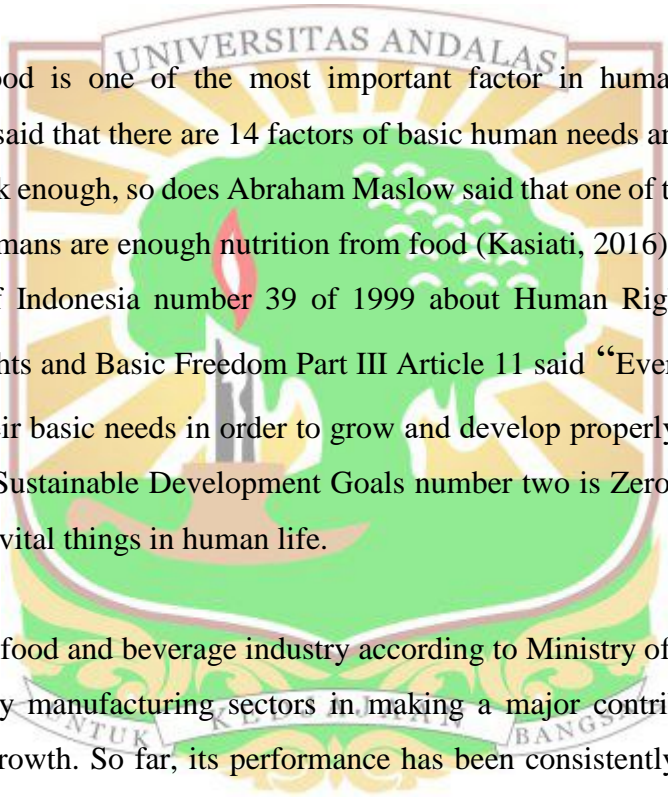
### 1.1 Background



Nowadays, the rapid growth of industrial sector on the industrial revolution 4.0 is affecting many aspects in every sector. Every part of industrial sector needs to produce in the most effective and efficient ways to meet the customer demand and satisfaction. Customer satisfaction is one of the important parameter of the successful of the production, it can be a loss of profit for the company because the customers tend to turn to other companies to meet their satisfaction (Bahagia, 2006). One of the way to meet the customer satisfaction is assuring the production meets the customer demand (Bahagia, 2006).

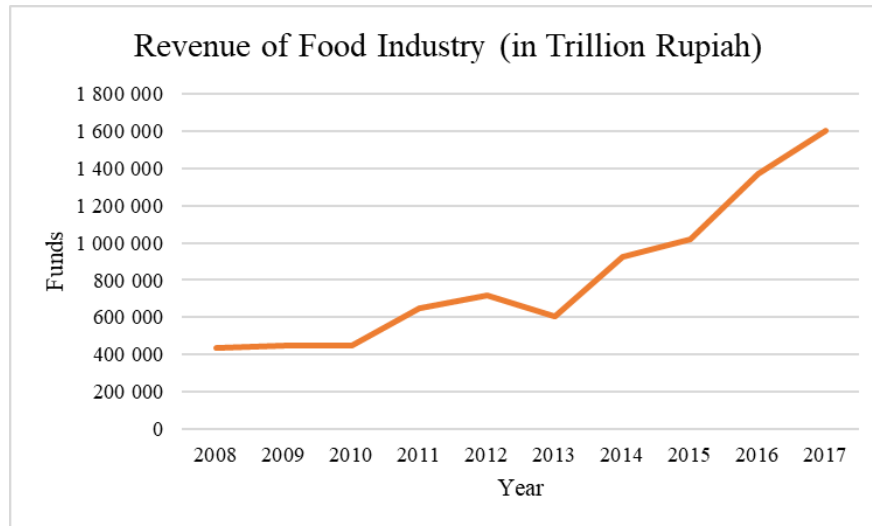
In order to ensure the production meets the customer demand is the company must have a smooth production. Raw materials inventory is one of aspects to support the production. Otherwise, if the materials needed for the production are on stock out the production will be delayed. Else ways, excessive inventory of raw materials will be wasted of storage area and holding cost. Therefore, raw materials inventory is one of the most important factor for a company. Consequently, the company ought to have an optimal inventory. Inventory exist in order to synchronize supply from the supplier and the demand of the customer (Tersine, 1994). Inventory planning which has been well articulated will meet the production needed well that lead to customer satisfaction and optimizing the cost that the company spend on buying and holding of the materials (Relph & Barrar, 2003).

Inventory planning is a very important issue for production. The production process affected by the availability of the raw materials used. Availability of the materials also affect the effectiveness and efficiency of the production process. Loss of opportunity and decrease of profit even penalty could happen due to delays or stock outs of materials that needed, beside excessive materials also a loss of money and waste of space for the company (Waller & Esper, 2014). Stock out of raw materials also affects the company since the production are depend on the availability of raw materials. The inventory rules are different for each company, depending on type of the product, amount of demand, and the capacity of storage.



Food is one of the most important factor in human being. Virginia Henderson said that there are 14 factors of basic human needs and one of those are eat and drink enough, so does Abraham Maslow said that one of the most vital basic needs of humans are enough nutrition from food (Kasiati, 2016). Based on laws of Republic of Indonesia number 39 of 1999 about Human Rights in Chapter III Human Rights and Basic Freedom Part III Article 11 said “Everyone has the right to fulfill their basic needs in order to grow and develop properly”. United Nations also stated Sustainable Development Goals number two is Zero Hunger. It means that food is vital things in human life.

The food and beverage industry according to Ministry of Industry is one of the mainstay manufacturing sectors in making a major contribution to national economic growth. So far, its performance has been consistently positive, starting from its role in increasing productivity, investment, exports to employment. The Ministry of Industry noted that throughout 2018, the food and beverage industry was able to grow by 7.91 percent or exceeding the national economic growth of 5.17 percent. In fact, the growth of large and medium manufacturing industry production in the fourth quarter of 2018 increased by 3.90 percent against the fourth quarter of 2017, one of which was caused by the increase in the production of the beverage industry which reached 23.44 percent. **Figure 1.1** shows the revenue of Food Industry in Trillion Rupiah.



**Figure 1.1** Revenue of Food Industry  
(Source: Badan Pusat Statistik, 2020)

**Figure 1.1** shows that food industry in Indonesia are one of the most auspicious industry in Indonesia. The **Figure 1.1** shows that the output of food industry in Indonesia is tends to go up from 2008 until 2017. The figure shows that the graphic tends to increase every year. There is a valid argument for the assertion that the bakery industry will expand quickly.

CV Hoya Mitra Sejati is one of the famous bakery in town, Padang West Sumatera. CV Hoya Mitra Sejati established in 7 August 1985 by Mr. Arief Cendikiawan as the founder. CV Hoya Mitra Sejati has expanded their business not only in Padang, West Sumatera but also in Pekanbaru, Riau. CV Hoya Mitra Sejati already has four branch in Padang. Otherwise, CV Hoya Mitra Sejati in Pekanbaru have 8 branches. CV Hoya Mitra Sejati produces so many types of food products. The products are divided into 13 classes that can be seen on **Appendix A**.

Currently, CV Hoya Mitra Sejati does not have any method for the inventory planning. Excessive of stocks are often happen in CV Hoya Mitra Sejati. There are a total of 109 raw materials used in CV Hoya Mitra Sejati that can be seen on **Appendix B**. The raw materials are supplied by 23 suppliers that can be seen on **Appendix B**.

Inventory are able to synchronize the demand of the product and the lead time from the supplier. A reputation of availability of the product or within a reasonable time can augment the profit of the company (Tersine, 1994). Excessive of raw materials often happen in CV Hoya Mitra Sejati that can be seen on **Table 1.1** below.

**Table 1.1** Summary of Raw Materials Inventory in January – December 2019

No	Raw Materials	Unit	Periode	1	2	3	4	5	6	7	8	9	10	11	12	Total
1	CREAM CHEESE	Box (1.36 Kg)	Beginning Inventory	27	23	28	33	27	35	41	34	25	28	22	26	
			Material Requirement	14	15	15	16	12	14	17	18	17	16	16	19	189
			Ending Inventory	13	8	13	17	15	21	24	16	8	12	6	7	
			Excessive	13	8	13	17	15	21	24	16	8	12	6	7	160
2	ALMOND	Kg	Beginning Inventory	8.1	8.1	17.3	11.4	11.4	9.4	17.2	15.2	13.2	10.8	8.8	6.5	
			Material Requirement	0	2.1	5.9	0	2	3.5	2	2.5	2.4	2	2.3	2.1	26.8
			Ending Inventory	8.1	6	11.4	11.4	9.4	5.9	15.2	12.8	10.8	8.8	6.5	4.4	
			Excessive	8.1	6	11.4	11.4	9.4	5.9	15.2	12.8	10.8	8.8	6.5	4.4	110.9
3	MORIN NUT DONUT	Box (1 Kg)	Beginning Inventory	50	48	62	58	59	36	40	38	59	57	55	46	
			Material Requirement	27	26	29	24	23	21	27	29	27	27	34	24	318
			Ending Inventory	23	22	33	34	36	15	13	9	32	30	21	22	
			Excessive	23	22	33	34	36	15	13	9	32	30	21	22	290
4	BLACK CHERRY 3 KG	Box (3 Kg)	Beginning Inventory	9	6	4	3	4	2	2	2	13	11	10	8	
			Material Requirement	3	2	1	1	4	1	1	1	2	1	2	1	19
			Ending Inventory	6	4	3	2	0	2	1	1	11	10	8	7	
			Excessive	6	4	3	2	0	2	1	1	11	10	8	7	54
5	KERNEL	Box (425 g)	Beginning Inventory	365	234	323	263	321	272	350	275	362	289	342	248	
			Material Requirement	200	175	180	182	174	140	195	189	193	212	190	185	2,215
			Ending Inventory	165	59	143	81	147	132	155	86	169	77	152	63	
			Excessive	165	59	143	81	147	132	155	86	169	77	152	63	1,429
6	CORN CREAM STYLE	Can (425 g)	Beginning Inventory	7	8	9	7	8	9	8	8	9	7	7	7	
			Material Requirement	5	5	5	4	4	4	5	5	4	5	3	4	53
			Ending Inventory	2	3	4	3	4	5	3	3	5	2	4	3	
			Excessive	2	3	4	3	4	5	3	3	5	2	4	3	41
7	RAISINS SUN MAID	Kg	Beginning Inventory	173	121	191	143	156	143	193	139	134	151	166	117	
			Material Requirement	109	100	105	100	70	63	85	62	99	100	81	95	1,069
			Ending Inventory	64	21	86	42	86	80	108	77	35	51	85	22	
			Excessive	64	21	86	42	86	80	108	77	35	51	85	22	756
8	TUNA	Can (180 g)	Beginning Inventory	59	48	86	74	53	40	73	57	38	67	51	51	
			Material Requirement	11	10	12	21	13	15	16	19	19	16	20	19	191
			Ending Inventory	48	38	74	53	40	25	57	38	19	51	31	32	
			Excessive	48	38	74	53	40	25	57	38	19	51	31	32	506
9	RED CHERRY TANK	Bottle (4.25 Kg)	Beginning Inventory	9	9	9	9	13	7	12	10	10	10	8	8	
			Material Requirement	4	4	4	4	6	3	6	4	4	6	4	6	55
			Ending Inventory	5	5	5	5	7	4	6	6	6	4	4	2	
			Excessive	5	5	5	5	7	4	6	6	6	4	4	2	59
10	RED CHERRY BUCKET	Bucket (10 Kg)	Beginning Inventory	2	2	1	2	3	2	3	3	2	2	1	3	
			Material Requirement	1	1	0	1	1	1	0	1	0	1	0	1	8
			Ending Inventory	1	1	1	1	2	1	3	2	2	1	1	2	
			Excessive	1	1	1	1	2	1	3	2	2	1	1	2	18

(Source: CV Hoya Mitra Sejati, 2019)

**Table 1.1** Summary of Raw Materials Inventory in January – December 2019  
(Cont.)

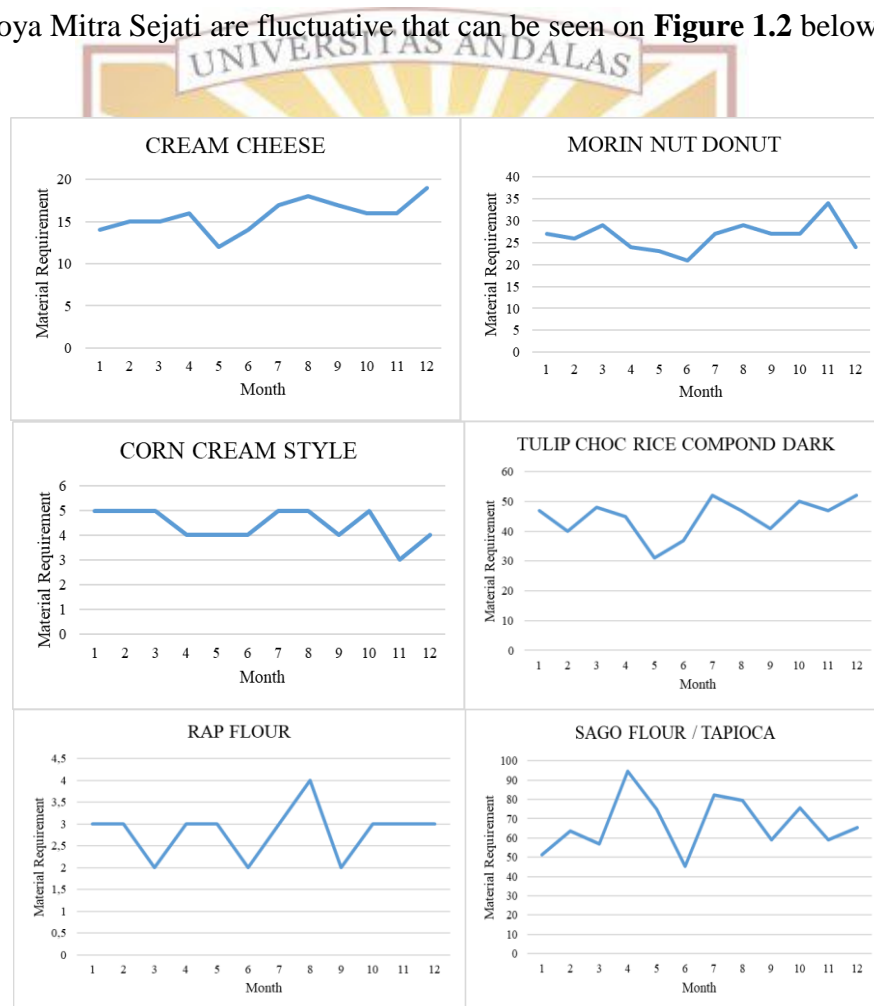
No	Raw Materials	Unit	Periode	1	2	3	4	5	6	7	8	9	10	11	12	Total	
11	PASTA SAUCE BOLOGNESE	Bottle (500 g)	Beginning Inventory	24	12	12	36	12	13	1	12	4	12	1	1	105	
			Material Requirement	12	12	12	24	1	13	1	12	4	12	1	1		
			Ending Inventory	12	0	0	12	11	0	0	0	0	0	0	0		0
			Excessive	12	0	0	12	11	0	0	0	0	0	0	0		0
12	TULIP CHOC RICE COMPOUND DARK	Box (1 Kg)	Beginning Inventory	57	56	56	58	49	48	52	49	52	61	51	64	537	
			Material Requirement	47	40	48	45	31	37	52	47	41	50	47	52		
			Ending Inventory	10	16	8	13	18	11	0	2	11	11	4	12		
			Excessive	10	16	8	13	18	11	0	2	11	11	4	12		
13	BLUEBAND MASTER (CAKE MARGARINE)	Box (15 Kg)	Beginning Inventory	19	19	21	16	29	17	20	21	20	30	27	44	208	
			Material Requirement	15	13	15	12	22	17	14	15	16	23	23	23		
			Ending Inventory	4	6	6	4	7	0	6	6	4	7	4	21		
			Excessive	4	6	6	4	7	0	6	6	4	7	4	21		
14	SALAD OIL (SOYA OIL)	Can (3 L)	Beginning Inventory	11	8	5	9	6	10	8	12	8	8	6	9	34	
			Material Requirement	3	3	2	3	2	2	3	4	4	2	3	3		
			Ending Inventory	8	5	3	6	4	8	5	8	4	6	3	6		
			Excessive	8	5	3	6	4	8	5	8	4	6	3	6		
15	CERES HAGEL	Box (12.5 Kg)	Beginning Inventory	19	23	28	21	25	29	33	23	25	23	21	24	194	
			Material Requirement	16	15	17	16	21	11	16	18	15	16	17	16		
			Ending Inventory	3	8	11	5	4	18	17	5	10	7	4	8		
			Excessive	3	8	11	5	4	18	17	5	10	7	4	8		
16	OREO VANILA	Bag (137 g)	Beginning Inventory	255	254	298	180	311	199	214	203	186	287	157	164	1,428	
			Material Requirement	121	100	118	109	112	105	131	137	139	130	113	113		
			Ending Inventory	134	154	180	71	199	94	83	66	47	157	44	51		
			Excessive	134	154	180	71	199	94	83	66	47	157	44	51		
17	COTT	Bag (1 Kg)	Beginning Inventory	7	5	3	7	15	6	4	12	6	5	8	6	35	
			Material Requirement	2	2	1	2	9	2	2	7	1	2	2	3		
			Ending Inventory	5	3	2	5	6	4	2	5	5	3	6	3		
			Excessive	5	3	2	5	6	4	2	5	5	3	6	3		
18	CINNAMON POWDER	Bag (7 ons)	Beginning Inventory	12	11	9	8	6	4	2	11	10	6	4	10	23	
			Material Requirement	1	2	1	2	2	2	1	1	4	2	1	4		
			Ending Inventory	11	9	8	6	4	2	1	10	6	4	3	6		
			Excessive	11	9	8	6	4	2	1	10	6	4	3	6		
19	PURE TOMATO	Can (430 g)	Beginning Inventory	61	56	57	56	75	46	92	61	69	45	48	52	356	
			Material Requirement	29	28	25	29	29	35	31	41	24	26	28	31		
			Ending Inventory	32	28	32	27	46	11	61	20	45	19	20	21		
			Excessive	32	28	32	27	46	11	61	20	45	19	20	21		
20	LYCHEE	Can (565 g)	Beginning Inventory	115	117	107	126	118	116	131	123	143	124	117	96	805	
			Material Requirement	46	70	77	68	62	45	80	64	79	67	81	66		
			Ending Inventory	69	47	30	58	56	71	51	59	64	57	36	30		
			Excessive	69	47	30	58	56	71	51	59	64	57	36	30		

(Source: CV Hoya Mitra Sejati, 2019)

Inventory planning needed to be applied in CV Hoya Mitra Sejati due to excessive of materials that can be seen on the **Table 1.1** above. The rest of the data can be seen on **Appendix B**. Fortunately for CV Hoya Mitra Sejati cases they never

faced expired although they are facing excessive stock of raw materials in their inventory.

CV Hoya Mitra Sejati does not have any method for controlling their inventory, so they do not have any standard when and why they should repurchase the raw materials. The raw materials repurchase only based on the estimated used without any calculation. Consequently, there are excessive of materials in the storage. Also CV Hoya Mitra Sejati already have a deal with the Supplier where the transportation cost will be paid by the Supplier. The raw materials requirement in CV Hoya Mitra Sejati are fluctuative that can be seen on **Figure 1.2** below.



**Figure 1.2** Raw Materials Requirements in CV Hoya Mitra Sejati year of 2019  
(Source: CV Hoya Mitra Sejati, 2019)

Based on **Figure 1.2**, it can be seen that six of the 109 raw materials of CV Hoya Mitra Sejati requirements are fluctuating. All raw materials of CV Hoya Mitra

Sejati are having a fluctuates characteristic. CV Hoya Mitra Sejati also orders their raw materials from the supplier in the same quantity but different times based on the materials the inventory availability. Therefore, it is needed to develop the inventory planning of raw materials in CV Hoya Mitra Sejati.

One of the methods can be used in inventory planning is the Continuous Review Method (Q) method. This method checks the amount of each raw material available in inventory continuously every day. It also has a fixed amount of ordering lot size for each order placed when the inventory's raw materials have reached the reorder point or below. There are two models of the Continuous Review Method (Q) implied for different classes of materials, i.e., is the (s,S) model and (s,Q) model (Fuady, *et al.*, 2017). In the Continuous Review Method (Q) the drawbacks of raw materials inventory may occur during the lead time, therefore safety stock is used to avoid demand fluctuations during the period.

## 1.2 Problem Formulation

Based on the research background, the problem formulation of this research is how to determine the inventory planning of raw materials for Bread and Pastry in CV Hoya Mitra Sejati.

## 1.3 Research Objectives

The objective of this research is to develop an inventory planning of raw materials for Bread and Pastry in CV Hoya Mitra Sejati.

## 1.4 Research Scopes

The scopes of the problem in this research are:

1. The raw materials considered in inventory planning are only the main raw materials for bread and pastry, not including the substitute materials and infrequent materials that are rarely used materials for bread and pastry.

2. It is assumed that CV Hoya Mitra Sejati only obtains the raw materials from the main suppliers, regardless the other suppliers.

## 1.5 Outline of Report

The outline of this final project report as follows:

### CHAPTER I INTRODUCTION

This chapter discussed about research background, problem formulation, research objective, research scopes, and outline of report.

### CHAPTER II LITERATURE REVIEW

This chapter presents the literatures used to support the research. The literature review consists of inventory, types of inventory, cost of inventory, materials classification, and probabilistic inventory model.

### CHAPTER III RESEARCH METHODOLOGY

This chapter describes the stages of research systematically. The stages of this research consist of preliminary study, literature study, problem formulation, data collection, data processing, discussions, conclusions, and suggestions for future research.

### CHAPTER IV INVENTORY PLANNING OF RAW MATERIALS FOR BREAD AND PASTRY IN CV HOYA MITRA SEJATI

This chapter discussed the data collection and data processing of the research conducted on inventory planning of raw materials.

### CHAPTER V DISCUSSIONS

This chapter discusses the results of this research consisting of classification of raw materials, comparisons of actual and proposed inventory planning and inventory cost for 2019, inventory planning for 2020 using continuous review method, and sensitivity analysis.

### CHAPTER VI CONCLUSIONS

This chapter consists of conclusions of this research and suggestions for future research.