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Application of Raw Material Inventory Control in Neko Neko Bakery and Cake with EOQ Method for Multi Item

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Abstract. Inventory control is important action in calculating the optimal amount of the inventory level that required. The raw materials' supply is the one factors in the production process. The lack of raw materials can make the production process gonna be hung up, otherwise the excess of raw materials can make increasing in storage cost and other costs, this research is the application of the Economic Order Quantity (EOQ) method. It used Lilliefors Normality Test to found the normality of the data. From the calculations from the EOQ method in this study found that the total cost of raw material supplies according to Neko Neko Bakery & Cake was amounted to Rp. 9.699.331,24. While from EOQ was amounted to Rp. 6.713.210,99. And using this method, the company can saving their cost to Rp. 2.986.120,25 from the Total Inventory Cost Calculation.

Keyword: Inventory Control, Raw Material, Lilifors Method, EOQ Method

Abstrak. *Pengendalian persediaan merupakan tindakan yang sangat penting dalam menghitung berapa jumlah optimal tingkat persediaan yang diharuskan. Persediaan bahan baku merupakan salah satu faktor dalam proses produksi. Kekurangan bahan baku akan berakibat pada terhambatnya proses produksi, sebaliknya kelebihan bahan baku akan berakibat pada membengkaknya biaya penyimpanan dan biaya lainnya. Penelitian ini merupakan penerapan metode Economic Order Quantity (EOQ). Dan menggunakan Uji Kenormalan Lilliefors untuk mengetahui kenormalan data. Dari perhitungan yang dihasilkan dengan metode EOQ dalam penelitian ini diperoleh total biaya persediaan bahan baku menurut perusahaan Neko Neko Bakery & Cake sebesar Rp. 9.699.331,24. Sedangkan menurut EOQ sebesar Rp. 6.713.210,99. Dan menggunakan metode EOQ perusahaan dapat menghemat biaya sebesar Rp. 2.986.120,25 dari perhitungan Total Inventory Cost.*

Kata Kunci: *Pengendalian Persediaan, Bahan Baku, Metode Lilifors, Metode EOQ*

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1 Introduction

In general, one of the company's activities is to carry out the production process. Production is a very important activity for the sustainability of the company. The continuity of production activities for the company can run smoothly if the company can maintain the optimal amount of inventory to meet market demand. Inventory can be defined as items that are stored for use or sale in future periods or periods. Inventory is a model that is commonly used to solve problems related to the efforts to control raw materials and finished materials in a company's activities.

Inventory issues are one of the important problems that must be solved by the company. One of the efforts in anticipating this inventory problem is with a system of control on inventory. In order to avoid the shortage of raw ba-han, the company can provide raw materials in large quantities. However, the supply of raw materials in large quantities is a growing cost of material supplies as well. Conversely, if the inventory is too small or the lack of inventory will cause disappointment in consumers and will result in the company losing consumers. Inventory plays an important role so that the company can run well [1].

Inventory control is a very important action in calculating what is the optimal amount of inventory level required, as well as when it is time to start rebooking. The purpose of inventory management is to be able to meet consumer demand quickly, to keep the company from running out of inventory resulting in the cessation of pro-production processes, to maintain and when possible increase sales and profits of the company, to keep small purchases avoidable and keep inventory stock not massive so as not to cause massive costs.

The EOQ model is one of the inventory control models that aims to determine the number of orders for goods or materials that are most economical according to the needs of the company. This model can increase the cost of perdi-aan. So that the company can minimize the cost of production planning without reducing the target or profit to be achieved. The number of orders that can minimizes the total cost of inventory is called economic order quantity [2].

Andira has did a study about The analysis of wheat flour material inventory using EOQ Method. This study found that using the EOQ method, the reordering point (ROP) is carried out when it reaches the amount of 31,626 kg. By using the EOQ method in 2014 on Makasssar Peak bread can be ordered as much as 15 times compared to what the company does which is only 9 times. The application of the EOQ method to the company results in a cheaper cost when compared to the method that has been applied by the company [3].

Neko Neko Bakery & Cake is one of the businesses in pematangsiantar city engaged in the production of bread and cake. Its main activities are producing bread, cakes, and more. The

main raw materials used in this production process are wheat flour, sugar, butter, developers, softeners, and other raw materials. This business is located on Jalan Melanthon Siregar, Pematangsiantar City.

2 Theoritical Review

2.1 Inventory

Supplies are raw materials, goods in process (work in process), finished goods, auxiliary materials, complementary materials, components stored in anticipation of demand fulfillment [4]. In general, supplies include goods or materials that the company needs in the production process and the process of dis-tribusion of goods. Production will not run smoothly when the supply of raw materials is less, as well as sales will not succeed if the supply is less. Without a supply, entrepreneurs will be faced with the risk that their company will one day not be able to fulfill the wishes of its subscriptions [5].

2.2 Inventory Control

Inventory control is an activity to get maximum profit and smooth running a business. Whether a service company, a trade, or a manufacturing company always needs supplies. Inventory is one aspect of a very risky decision in logistics management. Too much inventory will burden the company with high carrying costs.

2.3 Normality Lilliefors Test

In inventory control, the formulation of statistical science is used to determine distribution patterns, where the distribution pattern can be calculated by testing the normality of observational data. The normality test with the Lilliefors test is performed if the data is a single data or a single frequency data, not group frequency distribution data. One of the requirements of this normality test is that many n < 30. For hypothesis testing, procedures that must be done include:

a. Data value X1; X2; X3;.....; Xn is used as the default number Z1; Z2; Z3;....; Zn with menguse formulas (with X and S which are averages and standard deviations, respectively).
   Calculating the average of observation samples used formula:

$$\bar{X} = \frac{\sum_{i=1}^{n} X_i}{n} \quad (1)$$

   Calculating the standard deviation of the sample used formula:

$$S = \sqrt{\frac{\sum_{i=1}^{n} (X_i - \bar{X})^2}{n-1}} \quad (2)$$

So, to calculate the value Z is used formula:

$$Z_i = \frac{X_i - \bar{X}}{S} \quad (3)$$

Information:

$\bar{X}$ = Average

X_i = Data in-i

S = Standard deviation

Z_i = Standard Number

i = 1, 2, 3, … , n

b. For each standard number and using the standard normal distribution list, then calculate the probability:

$$F(Z_i) = P(Z \leq Z_i) \quad (4)$$

c. Calculating the proportion of Z_1, Z_2, Z_3,..., $Z_n \leq Z_i$, if this proportion is expressed by S (Z_i), then:

$$S(Z_i) = \frac{Amount\ of\ Z_1, Z_2, Z_3, \ldots, Z_n \leq Z_i}{n} \quad (5)$$

d. Calculate the difference | F (Zi) – S (Zi)| And set the absolute price.

e. Find the greatest value among the absolute values of the difference $|F(Z_i) - S(Z_i)|$ and make it become L_{hitung} or L_0.

$$L_{hitung} = \max\{|F(Z_i) - S(Z_i)|\} \quad (6)$$

f. The decision-making criteria is comparing L_{hitung} and L_{tabel}. so :

Hyphotesis:

H_0 : Normal distributed sample

H_1 : The sample is not normally distributed.

$L_{hitung} \leq L_{tabel}$: then H_0 accepted and the sample is normally distributed.

$L_{hitung} > L_{tabel}$: then H_0 rejected dan the sample is not normally distributed.

with L_{tabel} is the critical value of lilliefors normality test with a real level of α and the number of samples n .

2.4 Economic Order Quantity Method (EOQ)

The Economic Order Quantity method is one of the models of control that aims to determine the number of orders of goods or materials that are most economical according to the needs of the company. This model can increase the efficiency of inventory costs. So that the company can minimize the cost of production without reducing the target or profit to be achieved

2.5 Multi-Item Economic Order Quantity (EOQ)

Multi-item Economic Order Quantity (EOQ) is a technique of demand control or ordering some optimal types of items at the lowest possible inventory cost. The EOQ method can be done using the following assumptions [2]:

a. The needs of raw materials can be determined relatively fixed and continuously.
b. The booking deadline can be determined.
c. There is no shortage of supplies, meaning that after the need and grace period can be determined definitively means that shortage of supplies can be avoided.
d. Reservations come at once and will increase inventory.
e. The cost structure does not change, the booking fee is the same without paying attention to the amount of the booked. The cost of storage is based on a linear function against the average inventory, and the purchase price or purchase cost per unit is constant.
f. Warehouse capacity and capital are enough to accommodate and buy orders.

2.6 Total Inventory Cost

Total Inventory Cost TIC can be defined as the total amount of costs associated with inventory, but in the context of the EOQ method, TIC is the sum between the total cost of ordering and the total cost of storage. TIC values can be obtained with the following equation [6]. The total inventory cost (TIC) calculated by summing the total order cost (T S) and total storage cost (T H), are:

$$TIC = \text{Order Cost} + \text{Storage Cost}$$

$$TIC = \frac{D}{Q}.S + \frac{Q}{2}.H \quad (7)$$

2.7 Safety Stock

Safety stock is an inventory that is reserved as a safety of the company's production process. Simply put, safety stock is a prevention against stockouts (depleted inventory in the warehouse). Factors that affect the stockout such as changing demand, inaccuracy in

forecasting and varying waiting times from each raw material [7]. The calculation of safety supplies is as follows:

$$Safety\ Stock = \sigma\ .\ Z \tag{8}$$

Where: σ = Standard deviation ; Z = Safety factors used by the company

2.8 Reorder Point

A reorder point (ROP) is a point or limit to the amount of inventory available at a time at which the order must be held back. The calculation of ROP is as follows:

$$ROP = Safety\ Stock + (Lead\ Time\ .\ d) \tag{9}$$

Where: *ROP* = Reorder Point ; *Lead Time* = Waiting time; d =Average use of raw materials per day.

2.9 Calculating Q (Inventory) Optimal

The first derivative of the equation will be searched $TIC = \frac{D.S}{Q} + \frac{Q.H}{2}$, and since what will be found Q* (optimal Q value), then the equation $TIC = \frac{D.S}{Q} + \frac{Q.H}{2}$, and it will be lowered against Q.

$$TIC = \frac{D}{Q}.S + \frac{Q}{2}.H$$

$$TIC = \frac{D\ .\ S}{Q} + \frac{Q\ .\ H}{2}$$

$$TIC' = \frac{-D\ .\ S}{Q^2} + \frac{H}{2}$$

To find a minimum TIC value, when:

$$TIC' = 0 \text{ atau } TIC'' > 0$$

For,

$$TIC' = 0$$

So:

$$\frac{-D\ .\ S}{Q^2} + \frac{H}{2} = 0$$

$$Q^2 = \frac{2.D.S}{H}$$

$$Q = \sqrt{\frac{2 \cdot D \cdot S}{H}}$$

Since Q is the optimal value, it is symbolized to Q*. It can be written into:

$$Q^* = \sqrt{\frac{2 \cdot D \cdot S}{H}} \quad (10)$$

Where:

Q^* = Optimal number of bookings

D = Amount of use of raw materials

S = Booking fee for each order (rupiah/order)

H = Storage costs (units/rupiah/year)

3 Research Methodology

The analytical steps in this study are as follows:

a. Preliminary Study

Collect and study various information in the form of books or journals related to the EOQ method.

b. Data Collection

In conducting the study, the authors interviewed the administration directly and obtained secondary data from the company. The data obtained from Neko Neko Bakery & Cake are:

1. Types of raw materials at Neko Neko Bakery & Cake.
2. The amount of supplies of each type of raw material each month in the period January 2019 - December 2019.
3. The ordering cost of raw materials.
4. Cost of storage of raw materials.

c. Data Processing Stages carried out in data processing are as follows:

1. Test the normality of the data. Testing is done to find out whether the data is distributed normally or not. If the data is normally distributed it can then be used for inventory control models.
2. Find the optimal booking value and booking frequency.
3. Calculate the number of safety supplies (Safety Stock).

4. Calculate the number of reorder points.
5. Find the total inventory costs by the EOQ method and compare them with inventory costs issued by the company.

d. Making Conclusions

e. Make Conclusions and Suggestions

4 Results & Discussions

4.1 Data Collection

The data obtained is from direct observation of the company, record keeping, and company archives that match the data needed in solving. The problem is as follows:

a. The types of raw materials in Neko Neko Bakery & Cake are flour, butter, sugar, softener, and developer.
b. The each month supplies's amount of all raw material in the period January 2019 to December 2019.
c. Raw material ordering cost for the period January 2019 to December 2019.
d. Storage cost of raw materials for the period January 2019 to December 2019.

Table 1 Table of Raw Material Supplies at Neko Neko Bakery & Cake 2019

Month	Amount of Stocks				
	Flour (kg)	Butter (kg)	Sugar (kg)	Softener (kg)	Developer (kg)
January	1.255	770	1.250	55	10
February	1.300	830	1.400	65	13
March	1.250	760	1.200	50	10
April	1.260	780	1.200	65	12
May	1.150	570	1.000	25	8
June	1.500	1.100	1.450	80	15
July	1.350	860	1.300	70	12
August	1.400	900	1.300	70	14
September	1.100	550	1.000	20	9
October	1.210	700	1.180	58	12
November	1.250	790	1.200	60	10
December	1.850	1.470	1.600	120	18
Total	15.875	10.080	15.080	738	144

Table 2 Table of Raw Material's Using at Neko Neko Bakery & Cake 2019

Month	Amount of Using				
	Flour (kg)	Butter (kg)	Sugar (kg)	Softener (kg)	Developer (kg)
January	1.242	762	1.238	54	10
February	1.272	813	1.372	64	13
March	1.225	745	1.176	49	10
April	1.222	757	1.164	63	12
May	1.116	553	970	24	8
June	1.485	1.089	1.436	79	15
July	1.337	851	1.287	69	12
August	1.372	882	1.274	69	14
September	1.067	534	970	19	9
October	1.174	679	1.145	56	12
November	1.225	774	1.176	59	10
December	1.832	1.455	1.584	119	18
Total	15.571	9.894	14.792	724	143
Average	1.297,58	824,5	1.232,66	60,33	11,92

Table 3 Raw Material Ordering Cost at Neko Bakery & Cake 2019

Type of Cost	Cost/Fee (Rp)
Administration Cost	120.000
Transportation Cost	14.000.000
Telephone Cost	150.000
Total	14.270.000

The cost of booking is constant, where the amount does not depend on the amount of value or the amount of materials ordered so that every inventory item at Neko Neko Bakery & Cake requires the same booking cost. The frequency of bookings is 36 times made each year.

$$\text{Order Cost} = \frac{Total\ of\ Order\ Cost}{Frequency\ of\ Bookings\ in\ a\ Year}$$

$$= \frac{14.270.000}{36}$$

= Rp. 396.389 per pesan

So, the amount of booking fees for each raw material for every order is Rp. 396.389

Table 4 Raw Material Storage Cost at Neko Neko Bakery & Cake 2019

Type of Cost	Cost/Fee (Rp)
Rent a Warehouse	9.000.000
Electricity	6.500.000
Total	15.500.000

From : Neko Neko Bakery & Cake Pematangsiantar

The total storage cost of the raw material supply at Neko Neko Bakery & Cake is

$$\text{Storage Cost} = \frac{Total\ of\ Storage\ Cost}{Amount\ of\ All\ Supplies}$$

$$= \frac{15.500.000}{15.875}$$

$$= \text{Rp. } 369{,}78 \text{ per kg}$$

4.2 Liliefors Normality Test for Flour

Hypothesis:

H_0 : Supply of flour raw materials is normally distributed.

H_1 : Supply of flour raw materials is not normally distributed.

Table 5 Liliefors Normality Test Data of Raw Material Supplies (Flour)

No	X_i	Z_i	$F(Z_i)$	$S(Z_i)$	$\lvert F(Z_i) - S(Z_i) \rvert$
1	1.255	-0,34	0,3669	0,5	0,1331
2	1.300	-0,12	0,4522	0,6666	0,2144
3	1.250	-0,37	0,3557	0,4166	0,0609
4	1.260	-0,32	0,3745	0,5833	0,2088
5	1.150	-0,88	0,1894	0,1666	0,0228
6	1.500	0,90	08159	0,9166	0,1007
7	1.350	0,14	0,5557	0,75	0,1943
8	1.400	0,39	0,6517	0,8333	0,1816
9	1.100	-1,13	0,1292	0,0833	0,0459

Table 5 (Continue) Liliefors Normality Test Data of Raw Material Supplies (Flour**)**

No	X_i	Z_i	$F(Z_i)$	$S(Z_i)$	$\lvert F(Z_i) - S(Z_i)\rvert$
10	1.210	-0,57	0,2843	0,25	0,0343
11	1.250	-0,37	0,3557	0,4166	0,0609
12	1.850	2,67	0,9962	1	0,0038

From Table 5 can found that $L_0 = Max[|F(Z_i) - S(Z_i)|] = 0{,}2144$, $L_0 = L_{\alpha(n)}$ found from Table of Lilliefors Normality test with real levels α = 0.05 and n = 12. $L_{\alpha(n)} = L_{0{,}05(12)} = 0{,}2420$.

So, $L_{hitung} < L_{tabel}$, that means the supply's data of flour raw materials in Neko Neko Bakery & Cake in the period January - December 2019 followed the pattern of normal distribution inventory.

4.3 Liliefors Normality Test for Butter

Hypothesis:

H_0 : Supply of butter raw materials is normally distributed.

H_1 : Supply of butter raw materials is not normally distributed.

Table 6 Liliefors Normality Test Data of Raw Material Supplies (Butter)

No	X_i	Z_i	$F(Z_i)$	$S(Z_i)$	$\lvert F(Z_i) - S(Z_i)\rvert$
1	770	-0,29	0,3859	0,4166	0,0307
2	830	-0,04	0,4840	0,6666	0,1826
3	760	-0,33	0,3707	0,3333	0,0374
4	780	-0,24	0,4840	0.5	0,016
5	570	-1,10	0,1357	0,1666	0,0309
6	1.100	1,06	0,8554	0,9166	0,0612
7	860	0,08	0,5319	0,75	0,2181
8	900	0,24	0,5948	0,8333	0,2385
9	550	-1,18	0,119	0,0833	0,0357
10	700	-0,57	0,2843	0,25	0,0343
11	790	-0,20	0,4207	0,5833	0,1626

12	1.470	2,57	0,9949	1	0,0051

From Table 6 can found that $L_0 = Max[|F(Z_i) - S(Z_i)|] = 0{,}2385$, $L_0 = L_{\alpha(n)}$ found from Table of Lilliefors Normality test with real levels α = 0.05 and n = 12. $L_{\alpha(n)} = L_{0{,}05(12)} = 0{,}2420$.

So, $L_{hitung} < L_{tabel}$, that means the supply's data of butter raw materials in Neko Neko Bakery & Cake in the period January - December 2019 followed the pattern of normal distribution inventory.

4.4 Liliefors Normality Test for Sugar

Hypothesis:

H_0 : Supply of sugar raw materials is normally distributed.

H_1 : Supply of sugar raw materials is not normally distributed.

Table 7 Liliefors Normality Test Data of Raw Material Supplies (Sugar)

No	X_i	Z_i	$F(Z_i)$	$S(Z_i)$	$\|F(Z_i) - S(Z_i)\|$
1	1.250	-0,04	0,4840	0,5833	0,0993
2	1.400	0,83	0,7967	0,8333	0,0366
3	1.200	-0,33	0,3707	0,5000	0,1293
4	1.200	-0,33	0,3707	0,5000	0,1293
5	1.000	-1,49	0,0681	0,1667	0,0986
6	1.450	1,12	0,8686	0,9167	0,0481
7	1.300	0,25	0,5987	0,7500	0,1513
8	1.300	0,25	0,5987	0,7500	0,1513
9	1.000	-1,49	0,0681	0,1667	0,0986
10	1.180	-0,44	0,3300	0,2500	0,0800
11	1.200	-0,33	0,3707	0,5000	0,1293
12	1.600	1,99	0,9767	1	0,0233

From Table 7 can found that $L_0 = Max[|F(Z_i) - S(Z_i)|] = 0{,}1621$, $L_0 = L_{\alpha(n)}$ found from Table of Lilliefors Normality test with real levels α = 0.05 and n = 12. $L_{\alpha(n)} = L_{0{,}05(12)} = 0{,}2420$.

So, $L_{hitung} < L_{tabel}$, that means the supply's data of sugar raw materials in Neko Neko Bakery & Cake in the period January - December 2019 followed the pattern of normal distribution inventory.

4.5 Liliefors Normality Test for Softener

Hypothesis:

H_0 : Supply of softener raw materials is normally distributed.

H_1 : Supply of softener raw materials is not normally distributed.

Table 8 Liliefors Normality Test Data of Raw Material Supplies (Softener)

No	X_i	Z_i	$F(Z_i)$	$S(Z_i)$	$\|F(Z_i) - S(Z_i)\|$
1	-0,25	0,4013	0,3333	0,0680	0,25
2	0,14	0,5557	0,6666	-0,1109	0,14
3	-0,45	0,3300	0,25	0,0800	0,45
4	0,14	0,5557	0,6666	-0,1109	0,14
5	-1,43	0,0764	0,1666	-0,0902	1,43
6	0,72	0,7642	0,9166	-0,1524	0,72

Table 8 (Continue) Liliefors Normality Test Data of Raw Material Supplies (Softener)

No	X_i	Z_i	$F(Z_i)$	$S(Z_i)$	$\|F(Z_i) - S(Z_i)\|$
7	0,33	0,6293	0,8333	-0,2040	0,33
8	0,33	0,6293	0,8333	-0,2040	0,33
9	-1,62	0,0526	0,1666	-0,1140	1,62
10	-0,14	0,4443	0,4166	0,0277	0,14
11	-0,06	0,4761	0,5	-0,0239	0,06
12	2,29	0,989	1	-0,0110	2,29

From Table 8 can found that $L_0 = Max[|F(Z_i) - S(Z_i)|] = 0{,}2040$, $L_0 = L_{\alpha(n)}$ found from Table of Lilliefors Normality test with real levels α = 0.05 and n = 12. $L_{\alpha(n)} = L_{0{,}05(12)} = 0{,}2420$.

So, $L_{hitung} < L_{tabel}$, that means the supply's data of softener raw materials in Neko Neko Bakery & Cake in the period January - December 2019 followed the pattern of normal distribution inventory.

4.6 Liliefors Normality Test for Developer

Hypothesis:

H_0 : Supply of developer raw materials is normally distributed.

H_1 : Supply of developer raw materials is not normally distributed.

Table 9 Liliefors Normality Test Data of Raw Material Supplies (Developer)

No	X_i	Z_i	$F(Z_i)$	$S(Z_i)$	$\lvert F(Z_i) - S(Z_i)\rvert$
1	10	-0,74	0,2296	0,4166	0,1870
2	13	0,37	0,6443	0,75	0,1057
3	10	-0,74	0,2296	0,4166	0,1870
4	12	0,00	0,5000	0,6666	0,1666
5	9	-1,11	0,1335	0,1666	0,0331
6	15	1,11	0,8665	0,9166	0,0501
7	12	0,00	0,5000	0,6666	0,1666
8	14	0,74	0,7704	0,8333	0,0629
9	9	-1,11	0,1335	0,1666	0,0331
10	12	0,00	0,5000	06666	0,1666
11	10	-0,74	0,2296	0,4166	0,1870
12	18	2,22	0,9868	1	0,0132

From Table 9 can found that $L_0 = Max[|F(Z_i) - S(Z_i)|] = 0{,}1870$, $L_0 = L_{\alpha(n)}$ found from Table of Lilliefors Normality test with real levels α = 0.05 and n = 12. $L_{\alpha(n)} = L_{0{,}05(12)} = 0{,}2420$.

So, $L_{hitung} < L_{tabel}$, that means the supply's data of developer raw materials in Neko Neko Bakery & Cake in the period January - December 2019 followed the pattern of normal distribution inventory.

4.7 Determination of Optimal Booking by EOQ Method

Through calculations using the equation formula (9) then obtained the optimal ordering value for each raw material.

Table 10 Optimal and Booking Frequency for Each Raw Materials

Raw Materials	$\boldsymbol{Q}^*$ (kg)	F(every order)
Flour	5.777,80	3
Butter	4.605,64	2
Sugar	5.631,42	3
Softener	1.245,87	1
Developer	257,98	1

4.8 Determination the Amount of Safety Stock

To determine the number of safety supplies, standard deviation is needed for the use of each raw material in 2019 and also safety factors (Z) used by the company. The company expects the stock out to be only 5%, so the value of the Z safety factor used is 1,65.

So that the order value of each raw material can be seen in table 11.

Table 11 Table Optimal Order of Raw Material According to EOQ 2019

Raw Materials	$\mathbf{Q}^*$ (kg)	*Safety Stock* (Kg)	*Reorder Point* (Kg)	Total of Storage Cost (Rp)
Flour	5.778	325	375	2.157.370,14
Butter	4.606	405	436	1.719.082,03
Sugar	5.631	284	331	2.102.656,62
Softener	1.246	42	44	465.152,76
Developer	258	4	5	268.949,44
Total				6.713.210,99

The comparison of Total Inventory Cost (TIC) inventory by company with Total Inventory Cost (TIC) based on the EOQ method can be seen in the following table:

Table 12 Comparison of Raw Material Cost at Neko Neko Bakery & Cake with EOQ Method **2019**

TICper	*TIC* EOQ	Selisih
9.699.331,24	6.713.210,99	2.986.120,25

From the table above, the total cost of raw material supplies according to neko Neko Bakery & Cake company is amounted to Rp. 9.699.331,24. While according to EOQ amounted to 6.713.210,99. And there is a difference of Rp. 2.986.120,25 from the calculation of Total Inventory Cost.

5. Conclusion

Based on Lilliefors Normality Test, it found that raw material inventory data in 2019 is normal distribution. The optimal number of orders of each raw material are, for flour of 5,778 kg with a booking frequency of 3x, for butter of 4,606 kg with a booking frequency of 2x, for sugar of 5,631 kg with a booking frequency of 3x, for softeners of 1,246 kg with a booking frequency of 1x, and for developers of 258 kg with a booking frequency of 1x. The total cost of raw material supplies according to Neko Neko Bakery & Cake company was amounted to Rp. 9,699,331.24 While according to EOQ amounted to Rp. 6,713,210.99. And there was a difference of Rp. 2,986,120.25 from the Total Inventory Cost.

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