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Analysis of Raw Material Inventory on the Sale of Hand Woven Gloves at UD. Ulos Tarutung Twins

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ABSTRACT

In a company engaged in manufacturing, the process of procuring inventory is a very important process, without the existence of inventory, the company will face the risk of difficulty in the continuity of the production process.The research method used is descriptive qualitative. The data collection techniques used were interviews and observation. The data analysis techniques used in this research are: (1) Collecting information about the amount of raw material inventory in 2019. (2) Processing these data to determine the control of raw material supplies based on company policy. (3) Analyzing the processed data using the Economic Order Quantity (EOQ) method. This research was based on the weaving supply system of UD. Ulos Tarutung's twins are not good enough so that the available supply is not optimal. The purpose of this research is to find out how the supply of raw materials using the EOQ method in determining the optimal number of orders, knowing the level of reorder (Re Order Point), as well as the amount of safety stock (Safety Stock). The conclusion of the results of this study is the results of the application of the EOQ method to the supply of cotton yarn as raw material proved to be more efficient. This can be seen from the cost efficiency before EOQ Rp. 2,813,968 and after the application of EOQ 1,403,909, the cost efficiency after applying the method was Rp. 1,410,059. To anticipate the fluctuation of demand for safety stock (Savety Stock), which is provided of 8 packs, and for re-order level (Re Order Point) 19 packs. The method used to calculate this forecast is the moment trend method. The purpose of this research is to design and build an application for sales forecasting using the Trend Moment method for decision making in knowing the number of sales of UD tenu sarongs. Ulos Tarutung twins. With the forecasting system for the sale of woven sarong goods using the trend moment method, it can assist the company in making decisions about the procurement of stock quantities and predicting the number of sales of goods in a certain period so as to minimize excess or shortage of goods stock at UD. Ulos Tarutung twins.

1. Introduction

A good production process requires a balance between production factors, which include: raw materials, capital, machines, methods, and human resources. Especially for raw materials, it is often an important factor, because the supply of raw materials is a major element in the smooth running of the production process. For this reason, every company must have a good planning for raw material requirements and must be aligned with every element in the company without exception. We know that every company has different ways to manage raw material inventories. Starting from the number of raw material units, time to use, and the amount of costs to buy raw materials.

There are several weaknesses if the raw material inventory is carried out in too small an amount out of stock, it will cause obstruction to the production process. Inventory of raw materials in quantities that are too small sometimes cannot meet the needs of the company to carry out the production process. If the company runs out of raw materials, the production process cannot run smoothly and as a result the quality of the final product is low. In addition, a relatively small amount of raw material inventory will result in a greater frequency of raw material purchases, so that the ordering costs borne by the company will be even greater.

Decisions made by company leaders will affect a company in the future. To find out how much demand for the next period and how much production must be done by a company, the company leadership must be able to predict the demand for the products it produces for the next period. Forecasting activities or

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forecasting the future is one of the company's efforts as a basis for making strategic decisions for business continuity. Apart from monitoring changes in the business environment, companies also need to develop specific knowledge about their markets.

This sales forecast is about the number of products to be ordered or requested in the coming period and the forecast is obtained from the product demand data in the previous period. With forecasting, the company can predict how much demand will come based on several variables. Forecasting activities require the application of methods, this is intended to be able to find out future demands and minimize forecasting errors.

The problems formulated are: How to analyze the raw material inventory on the sale of hand woven gloves at UD. Ulos Tarutung Twins? The purpose of this study is, "to find out how the analysis of the raw material inventory on the sale of hand woven gloves at UD. Ulos Tarutung twins. The research was conducted for 3 months, from June to August 2020.

2. Literature Review

2.1 Stock

Inventory is a general term that shows everything that is stored in anticipation of meeting fluctuating needs. Manufacturing companies usually classify inventories into three, namely raw material inventories, semi-finished goods, and finished goods. The supply of raw materials and semi-finished goods aims to facilitate production activities, while the finished goods inventory, which is a product output, is intended to meet market demand.

2.2 Sales

Sales are an effort or concrete steps taken to move a product, whether in the form of goods or services, from producers to consumers as the target. The main purpose of sales is to bring profit or profit from the product or goods produced by the producer with good management. In practice, sales alone cannot be carried out without the presence of actors working in it, such as agents, traders, and marketing personnel.

Making a sale is an activity aimed at finding buyers, influencing, and providing buyers so that purchases can match their needs with the production offered and enter into agreements offered and enter into agreements regarding prices that benefit both parties .. so the conclusion is that selling is an activity and a way to influence the person so that there is a purchase (delivery) of the goods or services offered, based on a price that has been agreed by both parties in the activity.

3. Research methods

3.1 Place and time of research

This research will be conducted at UD Kembar Ulos Tarutung. The research time was carried out from May to July 2020.

3.2 Population and Sample

The population in this study is specifically UD craftsmen. Ulos tarutung twins numbered 12 people. So the sample is specifically UD craftsmen. Ulos Tarutung twins as many as 12 people.

3.3 Data Collection Techniques

a. Observation (observation), namely the technique that is done by making direct observations (direct observation) of the hand woven glove business at UD. Ulos Tarutung twins. During the observation, the writer observes the material processing process and the selection of quality materials that can be made into the handicraft art of woven sarongs in Tarutung District. A series of direct observations, the writer also held a participatory manner which was carried out by participating in the material processing process and selecting quality materials to be used in making woven sarongs.

b. Interviewing is a technique that is done by holding direct question and answer activities in making hand woven gloves, especially regarding things that the author did not have time to find in the observations made. This activity is carried out to obtain data that will strengthen data from observations.

3.4 Data Analysis Method

a. Descriptive Analysis Method

The data analysis method in this research is descriptive qualitative data research method.

According to Sugiyono (2015: 335) "Qualitative data analysis is the process of systematically searching and compiling data obtained from observations, observations, and interviews by organizing data, feeding into patterns, choosing which ones are important and which ones will be studied and making conclusions so that easily understood by oneself and others ".

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b. Deductive Analysis Methods

It is an analysis that draws a conclusion based on a theory that is generally accepted as truth and as a consideration for drawing conclusions.

c. Trend Analysis

Trend analysis is a data analysis method that aims to estimate the future to see an increasing or decreasing trend in a variable over a certain period of time.

4. Results and Discussion

4.1 Inventory Analysis of Hand Woven Raw Materials Against Sales of Hand Woven Gloves at UD. Ulos Tarutung twins

a. Purchase of Raw Materials

According to an interview with the owner of UD. Ulos Tarutung twin is one of the businesses engaged in woven sarongs in Tarutung. The raw materials used are woven threads and weft threads, while the products used are woven sarongs and various other types of ulos.

The need for thread raw materials in these crafts has a large percentage compared to other raw materials. The use of yarn reaches 75% of the total production raw material. From the data collected it is known that the raw material needs for yarn at UD. ULOS Tarutung twins per year amounting to 1104 kg with a frequency of 24 purchases made twice a week.

b. Order Fee

The following ordering costs in this craft include administrative costs, delivery and telephone. Following are the storage costs incurred by the company:

Table 1
Order Fee Per Year

Type of Fee	total
Telephone Fee	IDR 90,000
Bank Administration fee	IDR 120,000
Shipping costs	IDR 1,104,000
Total	IDR 1,314,000

From the data above, it can be calculated that the ordering cost per unit per year is

Cost Booking (s) = $\frac{TotalBiayaPemesanan}{FrekuensiPemesanan}$ = $\frac{Rp\ 1.314.000}{24}$

= IDR 54,750 per message

c. Storage Costs

Storage costs are costs incurred to protect and maintain raw materials. The following is the storage data for weaving crafts at UD. Ulos Tarutung Twins:

Table 2
Storage Cost Per Year

Type of Fee	total
Electricity cost	IDR 240,923
Warehouse maintenance costs	IDR 4,000,000
Warehouse employee costs	IDR 9,600,000
Warehouse depreciation fee	IDR 1,900,000
Cost of damage to goods	IDR 2,500,000
Total	IDR 18,000,000

From the data above, the cost per unit per year can be found by dividing the storage costs per year by the total raw material requirements. Storage cost per unit:

$= \frac{TotalBiayaPenyimpanan}{TotalPenggunaanBenang}$

$= \frac{18.000.000}{1104}$

= IDR 16,034 per unit / year

4.2 Data analysis using the EOQ (economic order quantity) method

This analysis is needed to determine the number of economic orders per purchase.

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a. Determining the economic order (EOQ)

To determine the economical amount of raw material inventory according to the economic order quantity (EOQ) method is as follows:

- Annual demand in units of supply (D) = 450
- Storage cost per unit per year (H) = IDR 16,304
- Ordering cost per unit per year (S) = IDR 54,750

Based on the data above, it can be formulated as follows:

EOQ = $\sqrt{\frac{2DS}{H}}$

= $\sqrt{\frac{2.450.54.750}{16.304}}$

= $\sqrt{7414,62}$

= 86 kg

b. Purchase Frequency

To find the frequency of purchases, it is calculated by dividing the raw material needs by the calculation of the most optimal raw material inventory. Following are the frequency of purchases after using the EOQ method:

-Annual demand for inner goods – unit (D) = 450

-The optimal number of items for ordering– (Q *) = 35

Formulated as follows:

Purchase Frequency $= \frac{D}{Q}$

$= \frac{1104}{86} =$ = 12.83

= 13 purchases (rounding)

c. Safety Stock (safety stock)

Standard Deviation can be calculated in the following manner:

SD $= \sqrt{\frac{\sum(x-\bar{x})2}{N}}$

$= \sqrt{\frac{224}{12}}$ = 4,31

To determine the safety stock, the standard deviation is multiplied by the standard deviation value, namely 1.65, so the amount of safety stock is:

Safety stock (safety stock):

SD x Z

= 4.31 x 1.65 = 7.11

= 8 Kg (rounding)

d. Reorder point

In UD. Ulos Tarutung twins are far apart between suppliers and craftsmen so that the time between ordering and the arrival of raw materials is quite long. Usually the distance between the order and the arrival of the raw materials is 3 days. With this it can be seen that the lead time or lead time in ordering raw materials is 3 days.

After knowing the waiting time between orders, the next thing to do is look for the average usage per day. The average usage per day can be found in the following ways:

Average Usage Per Day

$= \frac{Kebutu\ hanBa\ hanbaku}{HariEfektifPerTa\ \ hun}$

$= \frac{1104}{300}$

= 3.68 Kg

4.3 UD Glove Marketing Strategy. Ulos Tarutung twins

Below will be explained in detail about the strategy carried out by UD. Ulos Tarutung twins to increase sales:

a. Choose a market

In choosing the market the company targets marketing and sales to the public, because the products sold by UD. Ulos Tarutung's twins are always updated, so as to attract buyers and increase sales.

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b. Product strategy

In the product strategy, Mrs. Rina self-assesses each product to be marketed and in order to get a positive response and attract potential customers. So Mrs. Rina assessed the product from 2 things as follows:

1) Product appearance, product appearance is the most important thing for consumers, because appearance is a very visible physical characteristic. Therefore the company pays close attention to product packaging
2) Product ingredients, if there are ingredients that make consumers lose or disappointed, then Mrs. Rina is always careful in choosing the ingredients in her products.

c. Distribution channel

In selling UD. Ulos Tarutung twins made direct sales to UD. Ulos Tarutung twins. If there are consumers who want woven goods to be sent, then UD. Ulos Tarutung twins agreed with the condition for the shipping cost to be borne by the buyer.

d. Promotion

In promoting UD. Ulos Tarutung twins do it in various ways so that potential consumers know about the existence of these products so as to attract consumer purchasing power. The following are ways of promotion carried out by UD. Ulos Tarutung Twins:

1) Brochure
2) Publications, publications conducted by UD. Ulos Tarutung's twins by showing off their products on social networks, including: Fb, Instagram, Youtube.

However, in carrying out a marketing strategy many factors influence, namely driving and inhibiting factors experienced by UD. Ulos Tarutung's twin in carrying out his marketing strategy.

1) Supporting factors
   a) An extensive communication network, by having a wide communication network, will make it easier for businesses to carry out their marketing strategies.
2) Obstacle factor
   a) Lack of commitment from business actors in marketing. When there is a lot of market demand, but from business customers are not ready to serve these consumer demands.
   b) Lack of information on market conditions.
   c) Weak consumer desires. This can occur due to the lack of interest in consumers for the product and also because of economic factors from the consumers themselves.
   d) Marketing costs. Minimal marketing costs so that the marketing can not be maximized.

4.4 Data on the sales of weaving gloves UD. Ulos Tarutung twins

With the passage of time in marketing in order to increase sales of UD products. Ulos Tarutung twins. The following is a report on the sales of UD products. Ulos Tarutung twins every January to December 2019.

4.5 Trend Analysis

This study aims to predict the sales of goods, namely woven sarongs in 2020. Next, an example of calculation using the Trend Moment method will be explained.

5. Conclusion

Based on the results of the analysis that has been carried out, the conclusions obtained are as follows

a. The optimal amount of raw material for cotton yarn purchases at UD. Ulos Tarutung twins are 86 kg with the frequency of ordering raw materials 13 times from the original 24 orders.
b. Inventory safety stock (safety stock) used to deal with fluctuations in demand, delays in raw materials and other things are 8 packs.
c. The company can find out when the reorder point must be made, namely when the inventory is 19 Kg left.
d. The total inventory cost after EOQ is lower than the inventory system implemented by the company. the total cost of the company's inventory costs Rp. 2,813,968, while the EOQ method costs Rp. 1,403,903 so that the EOQ method costs Rp. 1,410,059.

6. Reference

[1] Arikunto, Suharsimi. 2006. *Prosedur Penelitian Suatu Pendekatan Praktek.* Jakarta: Rhineka Cipta
[2] Assauri,S 1999. *Manajemen Produksi dan Operasi* Edisi Revisi. Jakarta : Lembaga Penerbit Fakultas Ekonomi Universitas Indonesia.Jakarta.
[3] Ahyari, A 1999. *Manajemen Produksi dan Pengendalian Persediaan.* BPFE. Yogyakarta.

Accredited "Rank 4"(Sinta 4), DIKTI, No. 36/E/KPT/2019, December 13th 2019.

[4] Handoko T.H 2000. *Dasar-Dasar Manajemen Produksi dan Operasi*. BPFE. Yogyakarta.
[5] Prawinsentono, Sujadi 2001. *Manajemen Produksi dan Operasi*. Jakarta: Bumi Aksara.
[6] Gitosudarmo, Indriyo dan Hasan. 2002. Manajemen Keuangan Edisi 4. Yogyakarta : BPFE.
[7] Sumayang, Lalu . 2003. *Dasar-dasar Manajemen Produksi dan Operasi*. Jakarta : Salemba Empat
[8] Riyanto, Bambang. 2001. *Dasar-dasar Pembelanjaan Perusahaan*. Yogyakarta : BPFE.
[9] Home, James C. Van and Wachowicz, JR.,Jhon M. 2005. *Fundamentals Of Financial Management.* Jakarta: Salemba Empat.
[10] Heizer, J and Render. 2005. *Operation Management* (Manajemen Operasi). Edisi Ke-7.Salemba Empat. Jakarta
[11] Slamet, Achmad. 2007. *Penganggaran Perencanaa Dan Pengendalian Usaha*.
[12] Semarang: UNNES PRES
[13] Cita Tenun Indonesia. 2000. *Tenun: Hndowoven textiles of Indonesia*. Jakarta
[14] Enie, Herlosison dan Karmayu. 1980 *Pengantar Teknologi Textil.* Jakarta:Departemen pendidikan dan kebudayaan.
[15] Kartiwa, Suwati.1993 *Tenun Ikat/Indonesia Ikats* . Jakarta: djambatan.

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