Analysis of Raw Material Inventory Control Using the Eoq (Economic Order Quantity) Method in the "Sangrai R.O" Crackers Home Industry in Tegalwaru

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A R T I C L E I N F O

A B S T R A C T

This research is head to exam raw materials control analysis at "SANGRAI R.O" Home Industry. The result of this research are using descriptive kuatitative method, the result form of numbers from of calculation that have been impelemted and compared with company"s calculation, the sample for this research got by doing interview, observation, and company's file documentation. The result of this research reveals optimal raw materials by using EOQ (Economic Order Quantity) method with some calculations, that concern to ordering frequency, reoder quantity, economic order quantity, and total inventory cost, calculation with EOQ method help the company to save their cost with 2:15 compared to their konvesional policy

INTRODUCTION

In Indonesia, crackers have become part of every culinary delight served in every region. The crunchy and tasty texture of these crackers makes them everyone's favorite food. The price issue, it doesn't drain your wallet. Crackers are a popular food in Indonesia, especially as a side dish and as a snack to accompany when relaxing. One of the favorite crackers in Indonesia is roasted crackers. Unlike in other countries, crackers are considered a dry food with sauce, in Indonesia crackers are also served roasted.

If we talk about business matters, crackers can be produced within the scope of a home industry. With combined labor and marketing. As time goes by and many innovations emerge, today's crackers are not only made from tapioca flour, there are many other types. The increasing variety of types of crackers has created competition among cracker traders or producers. These producers expand their marketing to increase sales and production.

Every company, be it a goods or service company, must have the same goal, namely making a profit or gain. However, achieving this goal is not easy because it is influenced by various factors, one of which is the smoothness of production.

LITERATURE REVIEW

This production problem is an important problem for companies, because it affects the profits that will be obtained and the costs that will be incurred by a company. The smoothness of production is influenced by whether or not the raw materials to be used are available and the costs that will be incurred in procuring these raw materials. Therefore, there needs to be control in the supply of this raw material.

In achieving its goals, the company will face many certain obstacles so it must have good management. This good management will have a very important function in the company in order to make decisions regarding good raw material supplies. This good management will also be useful in monitoring company activities. In this research, raw material inventory control will use the EOQ (Economic Order Quantity) method. This method can answer the questions of how much to order and when to order again, so that the company can minimize problems related to raw materials. Apart from that, the EOQ method can reduce existing storage costs.

METHODOLOGY

1. Type of Research

The type of research carried out is descriptive quantitative because it produces data in the form of numbers or numbers. The data collected is data regarding the costs of raw materials which are needed in calculations using the EOQ (Economic Order Quantity) method.

2. Location and Time of Research

This research is located on Jl. Raya Waru-Loji Village. Wargasetra Tegalwaru Karawang.

3. Required Data

The data required in this research include:

a. General Data

- history of the founding of the company
- Capital structure

b. Custom Data

The data needed to calculate raw material inventory uses the EOQ (Economic Order Quantity) method.

4. Data Sources and Data Collection Techniques

A. Literature Research

Library research This research uses data collection techniques that refer to theories related to the research carried out. This data source is usually obtained from existing research reports, expert opinions, and related books

B. Field Research

This research was carried out by collecting data obtained directly from the Roasted Crackers Home Industry R.O which is related to the calculation of raw material inventory using the EOQ method

The Data Collection Technique is Carried Out by:

A. Interview

Interviews are a way to obtain data by holding questions and answers directly with the source. The resource persons here can be willing company owners or employees. With this method, it is hoped that we can obtain data about the company's general description, costs that affect raw material supplies and other data related to the problem.

B. Documentation

This is a data collection technique in which the investigation is aimed at deciphering and explaining, through documented sources.

RESULTS

From the research that has been carried out, the results are as follows:

1) Data on Purchasing Raw Materials for Crackers

The table below will show data on purchasing raw materials for crackers and also data on costs incurred for one production at the "Roasted R.O" Crackers Home Industry in Tegalwaru.

Table 1. Raw Material Purchase Data Home Industry "Roasted R.O" Crackers in Tegalwaru Year 2023

Raw material	price	Amount Material	Total
Tapioca flour	Rp. 588.000	2 bag	Rp. 1.176.000
Rose Brand flour	Rp. 138.000	2 So	Rp. 276.000
Amount		4	Rp. 1.452.000

Source: Research Data For 2023

Using 2 sacks of tapioca flour as raw material with a weight of 50 kg per sack in one production, the price per sack of these crackers is IDR 588,000,- while the use of Rose Brand Flour for these crackers is 2 boxes at a price of IDR. 138,000 per box.

2) Ordering Fees

Ordering costs consist of ordering costs and shipping costs. For further clarity, the table below contains data regarding ordering costs.

Table 2. Raw Material Ordering Costs Crackers Home Industry "Roasted R.O" Crackers in Tegalwaru Year 2023

No	Information	Cost
1.	Ordering Fees	Rp. 100.000.00
2.	Shipping costs	Rp. 150.000.00
	Amount	Rp. 250.000.00

Source: Research data 2023

The ordering costs referred to in the table are the transportation costs incurred to order raw materials, this is because the producer goes directly to the seller's location to order their raw materials. Orders are made if raw material supplies run out. The costs incurred in one delivery of goods are IDR. 50,000 and transportation costs around Rp. 75,000. So the total cost incurred in one order is Rp. 125,000. while the time period from installation until the goods arrive is only around 1 day.

3) Storage Costs

This home industry carries out production in their personal homes but there is space provided to carry out the production process. Also, the material storage area is in the same room as the production area but has a different area that is quite large. The table below will show the total storage costs for R.O. Roasted crackers

Table 3. Storage and Maintenance Costs for the "Roasted R.O" Crackers Home Industry in Tegalwaru in 2023

N0	Information	Cost
1.	Storage Fees	Rp. 650.000
2.	Maintenance Costs	Rp. 60.000
Amount		Rp. 710.000

Source: 2023 Research Data

Storage costs consist of building costs which are calculated from the estimated depreciation costs of the building and the cost of electricity used during production. Meanwhile, for maintenance costs, the existing raw materials will first be dried in the sun using rattan mats.

DISCUSSION

From the research results obtained, to find out the optimal inventory costs incurred by the company, according to the title of this article we will use the EOQ (Econmic Order Quantity) method. In running this business the owner does not use any calculation methods, decisions are taken from the results of personal calculations and previous experience. The things taken into account in this research are:

1. Economical purchase of raw materials
2. Frequency of purchasing raw materials
3. Total raw material inventory costs
4. Reorder / Reorder Point

And what will be used as data in this calculation is:

1. The amount of raw materials needed
2. Storage costs
3. One-time ordering fee
4. Number of items ordered each time
5. Time period for goods to arrive
6. Working time in one period

Table 3. The Results of the Calculated Analysis Obtained the Following Results: Comparison of Company Policies with the EOQ Method

No	Information	Company policy	EOQ Method
1.	Economical purchase of raw materials	160 kg	1.228 kg
2.	Frequency of purchasing raw materials	30	4
3.	Total inventory costs	Rp. 1.353.360.00	Rp. 313.117.00
4.	Reorder point	-	1.350 kg

From the table above, it can be seen that the difference between company policy and the EOQ method is very visible. The costs incurred by the company amounted to Rp. 1,353,360,- while the total inventory cost when using the EOQ method is Rp. 313,117,-, you can see a cost savings of Rp. 1,040,243,- when using the EOQ method.

Meanwhile, the obstacle faced in this research is that the EOQ method cannot be used because capital is not always available every time a purchase is made. Even if we look at it in terms of storage facilities, it is still adequate for the storage limits that have been calculated using the EOQ method if the results of this research are to be implemented.

Therefore, the use of the EOQ method in the "SANGRAI R.O" Crackers Home Industry in Tegalwaru is an Opportunity Cost for the company because by implementing the raw material inventory policy that the company has been running all this time, the company has sacrificed cost savings when using the EOQ method.

CONCLUSIONS AND RECOMMENDATIONS

Based on the results of the research and discussion, it can be concluded that determining raw material control policies using the EOQ (Economic Order Quantity) method is more optimal. We can see this from:

1. The frequency of purchasing raw materials using the EOQ method is 4 times in one period, whereas according to the policy implemented by the company the frequency of purchasing raw materials is 30 times in one period.
2. The calculated reorder point is 1,350kg or 135 pillows.
3. The company's total raw material inventory costs are IDR 1,535,360,- whereas if using the EOQ method the total raw material inventory costs are only IDR. 313,117,-
5. With this EOQ method, there is a cost savings of Rp. 1,040,234,-

FURTHER STUDY

This research still has limitations, so it is necessary to carry out further research related to the topic of Analysis of Raw Material Inventory Control Using the Eoq (Economic Order Quantity) Method in the "Sangrai R.O" Crackers Home Industry in order to improve this research and add insight to readers.

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