JHSS (Journal of Humanities and Social Studies)
https://journal.unpak.ac.id/index.php/jhss
Volume 08, Number 03, Page 658-664
e-ISSN: 2598-120X; p-ISSN: 2598-117X

ANALYSIS OF RAW MATERIAL INVENTORY CONTROL OF FRESH FRUIT BUNCHES (FFB) OF PALM OIL USING THE CONTINUOUS REVIEW SYSTEM METHOD

Almi Rahmadani Siregar[a*)], Zuhrinal M.Nawawi[a)], Ahmad Muhaisin B.Syarbaini[a)]

[a)] *Universitas Islam Negeri Sumatera Utara., Medan, Indonesia*

[*)]*Corresponding Author: rahmadanisiregar226@gmai.com*

Article history: *received 13 August 2024; revised 01 September 2024; accepted 21 September 2024* *DOI: https://doi.org/10.33751/jhss.v8i3.10804*

Abstract. *The purpose of this research is to analyze the management of Fresh Fruit Bunch (FFB) raw material reserves at PT. Austindo Nusantara Jaya Agri (ANJ) Binanga. This is done to alleviate concerns about the decline in Crude Palm Oil (CPO) production and the rising costs of raw materials caused by less than ideal sales. The system used in this analysis is the Continuous Review System. Continuous Review is a technique employed that applies a quantitative and descriptive approach through observation and interviews. The research findings indicate that inventory costs amount to Rp. 315,092,755, which means that the total inventory costs can be reduced, even though previous inventory costs were recorded at Rp. 290,453,600, which appears to be lower. However, due to the minimal stock shortages and the management of waiting times thanks to the contracts agreed upon with suppliers, the effectiveness of the Continuous Review System in that analysis has been proven. This research highlights the urgency for smooth production, which requires the provision of stock and the quality of the final product, as well as offering practical guidelines to maximize inventory management in the palm oil industry.*

Keywords: *fresh fruit bunches; continuous review system; raw material inventory*

I. INTRODUCTION

In Indonesia, agricultural, forestry, and fisheries zones play a very important role in the lives of the community. [1]**.** Tropical countries, such as Malaysia, Papua New Guinea, Brunei, Brazil, Indonesia, and others, have a very important agricultural and agribusiness sector, resulting in the rapid growth of the palm oil industry because palm oil has become a primary raw material in the production of food, cosmetics, and biofuels. In this regard, the production of palm oil begins with the processing of Fresh Fruit Bunches (FFB), which are the direct results from palm oil plantations before being processed into oil. Palm oil has developed into a central economic pillar in Indonesia as it is one of the largest palm oil producers in the world and a source of agricultural export revenue (Nila 2023). In 2021, Indonesian palm oil plantations produced more than 19.50 million tons of Crude Palm Oil from smallholder plantations covering 42% of the area. (hendra,2023). Sumatra Island plays a role as the largest supplier of palm oil in Indonesia. Based on palm oil area data (2011-2020) processed by the Madani Berkelanjutan Foundation, it can be said that Sumatra and Kalimantan Islands are the largest palm oil centers in Indonesia. Sumatra is recorded as the island with the largest area of planted palm oil, covering 7,907,812 hectares. According to BPS North Sumatra, from 2017 to 2022, the area of palm oil planted in North Sumatra province reached 2,186,865.32 hectares, with fresh fruit bunch (FFB) production reaching 29,409,096.24. Therefore, managing the inventory of fresh fruit bunches (FFB) is crucial to ensure a smooth production process and the quality of the final product. In this situation, monitoring and managing the inventory of raw materials is essential for the smoothness of the production process [2]. This will be a big problem because the inventory levels will determine or influence how smoothly the business runs its production processes (Mahapatra, 2021). Companies have different inventory needs, and the amount of inventory currently available depends on the type of factory, production volume, and the processes involved. [3]. When determining the best time to schedule inventory, planning and controlling raw materials often become obstacles to preventing production delays and keeping material prices from skyrocketing (Geluh et al., 2023). Companies that implement raw material inventory strategies can increase their production output targets and minimize inventory costs as much as possible, both of which will enhance the company's profits. (Zhang, 2023). The occurrence of uncertainty in the quantity of raw materials needed, which is influenced by production quantity and harvest season timing. (Altamirano, 2020). The challenge

Volume 08, Number 03, Page 658-664
e-ISSN: 2598-120X; p-ISSN: 2598-117X

for the company lies in situations where the supply of Fresh Fruit Bunches (FFB) is either excessive or insufficient, resulting in less than ideal production outcomes. (Alsunaidi, 2021).(Farida, 2023). The actual purpose of raw material inventory is to expedite or simplify the company's procedures, which are carried out gradually and continuously during production activities. Thus, the role of raw material supply in the company's development efforts is quite important. (Jainuri, 2021). In the study (Erlina, 2002), the business effort to find the most prudent steps in fulfilling material demands so that production needs can be met with minimal risk is by controlling inventory.

In addition to being viewed as a useful natural resource, raw materials are also considered a gift from God that should be utilized carefully and wisely. The Quran instructs us to manage natural resources fairly and sustainably as stewards on this planet. As a result, when utilizing raw resources, it is necessary to pay attention to maintaining the natural order and preventing environmental damage. The emphasis on the importance of managing natural resources for the benefit of humanity, as well as the need to preserve and protect the environment for future generations, is also highlighted in Islam. Therefore, from an Islamic perspective, to maintain stability between human needs and environmental sustainability, the use of raw materials must always be carried out with moral and ethical awareness. As stated in the words of Allah in Surah Al-Hasyr, verse 18, which says, *"O you who have believed! Fear Allah, and let every soul look to what it has brought forth for tomorrow (the Hereafter), and fear Allah. Indeed, Allah is All-Aware of what you do."* In March 1986, PT. Autindo Nusantara Jaya Agri (ANJ) Binanga was established. Through Verdaine Investments Ltd., ANJ acquired ANJA in 2000. In 2006, ANJ gained direct ownership of ANJA's shares. In Binanga, North Sumatra, ANJA is the owner, manager, and operator of the North Sumatra I plantation. Its involvement in the development, production, and processing of palm oil results in palm kernel (PK) and crude palm oil (CPO), as well as activities related to the manufacturing and distribution of CPO/PK. Through its subsidiary, ANJA also owns six plantations and land reserves used for palm oil production. With a cultivated area of approximately 9,515 hectares, of which 7,283 hectares are oil palm plantations, ANJA has a land reserve of 9,988 hectares.

The palm oil mill owned by ANJA has a capacity of 60 tons per hour to process fresh fruit bunches from its own plantations as well as those purchased from third parties. The issue faced by PT Austindo Nusantara Jaya Agri (ANJ) Binanga is the fluctuation in the supply of palm oil raw materials, especially during the replanting phase in the central region, which covers an area of 773.33 hectares. This has resulted in a decline in crude palm oil (CPO) production and an increase in raw material inventory costs due to the company's ineffective inventory control. To address this problem, efforts are needed to improve inventory management and optimize the purchasing of raw materials in accordance with management needs. The amount of Fresh Fruit Bunches (FFB) received and processed during the year 2023 can be seen in the table below.

Table 1. Data of Fresh Fruit Bunches (FFB) received and FFB processed.

Month	Amount of FFB received (Kg)	Amount of FFB processed (Kg)	Difference (Ton)
Jan – 23	21.929.600	21.836.725	92.875
Feb – 23	16.486.980	16.488.309	-1.329
Mar – 23	15.185.980	15.212.475	-26.855
April -23	18.739.670	18.491.634	248.036
Mei – 23	24.123.270	24.359,803	-236.533
Jun – 23	23.776.210	23.153.858	622.352
Jul – 23	29.289.870	29.639.227	-349.357
Aug – 23	27.402.920	27.685.331	-282.411
Sep – 23	24.675.380	24.313.076	362.304
Oct – 23	31.259.720	31.073.495	186.304
Nov – 23	31.582.150	31.999.464	-417.314
Des – 23	26.001.850	26.944.585	-42.735
Amount	**290.453.600**	**291.197.982**	**155.260**
Average	**24.280**	**24.267**	

Adek Maryoga Febriwanto, Brav Deva Bernadhi, and Nuzulia Khoiriyah conducted the research. Titled "Control of Fresh Fruit Bunch (FFB) Palm Oil Raw Material Inventory Using the Q Method (Continuous Review System) and the Blanket Order System." The study findings indicate that the inventory of raw materials for the company's Fresh Fruit Bunches (FFB) is inconsistent as it depends on the availability of raw materials from suppliers. The supply of fresh fruit bunches from oil palm varies significantly during difficult times and the oil palm harvest season, which poses a challenge for this company. To identify ways to prevent shortages of fresh fruit bunches of oil palm raw materials, this research aims to organize the inventory of fresh fruit bunch raw materials from oil palm in order to produce solutions to avoid the lack of fresh fruit bunch raw materials from oil palm. The study "Analysis of Raw Material Inventory Using the Continuous Review System and Periodic Review System at PT XYZ" by Mahammad Hafizh Alim and Suseno focuses on PT XYZ, a company that produces plywood processing. (Plywood). The most sought-after product every month is plywood. Veneer, meranti wood, and sengon wood are the main raw materials used to make plywood. Every month, the company faces an excess of sengon wood due to poor inventory management of raw materials. High inventory costs and the accumulation of raw resources will stem from this. The purpose of this research is to compare the total inventory costs of plywood raw materials using the continuous review system and the periodic review system, as well as to understand how the planning of raw material inventory is carried out to minimize the costs incurred. While most previous studies have taken a traditional and secular approach, this study incorporates Islamic ideas and concepts into its analysis. This study aims to provide a deeper and more comprehensive understanding of the subject being discussed by examining aspects that may have been overlooked by conventional techniques through an Islamic perspective. The inventory management of Fresh Fruit Bunches (FFB) of oil palm at PT Austindo Nusantara Jaya Agri (ANJ) Binanga is discussed in this study. The Q technique (Continuous Review System) is the focus of this

Volume 08, Number 03, Page 658-664
e-ISSN: 2598-120X; p-ISSN: 2598-117X

research, with inventory being checked repeatedly and replenishment centered on order placement. It is important to consider the life cycle and the procedures for acquiring fresh fruit bunches (FFB) of oil palm. This also explains how technology, such as automation software, can be used to enhance productivity (Mahrivi et al., 2024). This research examines the effectiveness of the strategy through a case study of PT Austindo.Nusantara Jaya Agri (ANJ) Binanga, focusing on factors such as inventory costs, operational efficiency, and customer service. The expected outcome of this study is to provide practical recommendations to companies regarding the improvement of raw material inventory management of fresh fruit bunches used in palm oil, while considering the advantages and disadvantages of the Continuous Review System approach.

The quote "All raw materials encompass all materials used in manufacturing companies, except for materials that will be physically combined with the products produced by those manufacturing companies," stated Solechah, Yusianto, and Talitha. Therefore, one of the most active components in a company is raw materials, which are continuously purchased, processed, and then resold [3]. However, if the company stores raw materials based on its needs, it would be better [4].The inventory of raw materials for a company is always an important part of the production process [5]. There are several ways to handle raw materials with uncertain demand, including uncertain demand techniques that take into account reorder points and safety stock in the face of unpredictable demand. However, considering the optimal Q in the lot sizing method is also necessary in calculating the optimal Q. In addition, the periodic review and continuous review methods can be used in raw material planning to estimate excess or shortage of stock inventory (Hillier, 2016).

Munandar M. (1991: 56) states that "the stock of goods that is the main object of a company is referred to as inventory. This includes inventory of goods for trading companies and inventory of work in progress, finished goods, raw materials, and auxiliary materials for manufacturing companies." Conversely, Kasmir (2008) states that "Inventory is the storage of a certain amount of goods by a company at a specific location." (gudang). "Inventory is the company's reserve for the production or sales process when needed." A resource in inventory that is unused and waiting to be processed further is called inventory. According to (Syamil et al, 2018), this additional processing may involve marketing operations within distribution systems, production operations within manufacturing systems, or consumption activities commonly found in household systems, offices, and so on. In addition, inventory is a resource that is stored to meet current and future demand, according to (Mulyono, 2021). Because some people believe that inventory is a form of waste, it should be reduced or eliminated. On the other hand, low inventory levels increase the risk of being unable to meet demand, which can result in significant losses for a company. (Aditama & Associates, 2021). Furthermore, the company's inventory is experiencing a phenomenon known as probabilistic inventory due to inventory uncertainty caused by demand variability, delays in the supply of goods, and management's unreliability in resolving issues, as indicated by the risk factors. (Jaufanti et al., 2016). Therefore, controlling inventory is very important. Inventory control is the practice of monitoring the quantity of finished goods and raw materials available. By doing this, businesses can minimize production delays and maximize sales and purchases (Amrillah et al., 2016).

One of the material management methods related to inventory is inventory control. Several factors are considered when managing materials in inventory, including demand, storage costs, and costs incurred when inventory shortages occur. In technical terms, inventory management refers to a process that involves determining how much material is needed to ensure the smooth operation of the production process, as well as planning procurement schedules and how much should be ordered by the company. One important concept that must be considered in inventory control is the calculation of the schedule and the quantity of orders that need to be placed. (Wahyuni et al., 2018). Because inventory control directly affects the expenses that a business must bear due to holding inventory, it is important to consider it. As a result, the company's current inventory must align with demand; otherwise, it will expose itself to the risks of spoilage, high storage costs, and substantial investment expenditures. On the other hand, a shortage of supply will lead to a less efficient production process. Therefore, it is hoped that there will be a balance in the supply acquisition process to keep costs as low as possible and ensure that the production process runs smoothly (Amrillah et al., 2016). Inventory levels are managed routinely using the Continuous Review approach [6]. The continuous review approach, as explained by Silver, Pyke, & Peterson (1998), is a method that continuously reorders inventory when it reaches or falls below the reorder point to control inventory levels. One characteristic of the Continuous Review inventory system is that orders are placed continuously until the inventory level reaches the maximum stock point; orders will keep coming in (Verawaty et al., 2015).

II. RESEARCH METHODS

The aim of this research is to examine how PT. Austindo Nusantara Jaya Agri (ANJ) Binanga manages the inventory of Fresh Fruit Bunches (FFB) of oil palm by applying a continuous review system approach. A solid and well-organized research approach is essential to achieve this goal. The quantitative research methodology with a descriptive approach is the appropriate method for this study. Data is divided into two categories: primary data and secondary data. The company provides secondary data in the form of profiles, a brief history, and a complete production process at PT Austindo Nusantara Jaya (ANJ) Binanga. The collection of primary data directly from PT Austindo Nusantara Jaya (ANJ) Binanga is carried out during the research process. Direct observations and interviews in the raw material sector provide researchers with data for studies using the Continuous Review System approach. The information collected is limited to the reforested areas and the raw materials obtained from PT ANJ, specifically Fresh Fruit

Volume 08, Number 03, Page 658-664
e-ISSN: 2598-120X; p-ISSN: 2598-117X

Bunches. This information includes the prices of raw materials, processing and receiving costs, storage costs, ordering costs, as well as expenses related to product shortages. Ethics will be strictly adhered to during the investigation. Honesty, objectivity, confidentiality, and accountability will be the foundation at every stage of the research process. Respondent privacy will be protected, and their data will be stored confidentially. This study is expected to produce relevant and responsible results that address the research questions and achieve the research objectives by using strong and well-organized research techniques that comply with ethical standards. It is hoped that the findings from this study will promote both science and the development of PT Austindo Nusantara Jaya Agri (ANJ) Binanga.

There is a resolution procedure from the Continuous Review System Method as follows: (Pulungan, 2018).

a. Determining the order quantity from the lot size (q01)
Using the Wilson formula to calculate the initial value of q01 as follows:

$$q_{01} = \sqrt{\frac{2AD}{h}} \quad (1)$$

b. Determine the shortage number of inventory (α) and then determine the reorder point. (r1)

$$\alpha = \frac{hq_{01}}{c_{uD}} \quad (2)$$

$$r_1 = DL + Z_a \, S\sqrt{L} \quad (3)$$

III.RESULT AND DISCUSSION

Analysis of the continuous review system method.

Calculation steps for palm oil with a continuous review system:

a. Utilize the equation to calculate the value q_{01}

$$q_{01} = \sqrt{\frac{2AD}{h}}$$

$$q_{01} = \sqrt{\frac{2(\text{Rp. } 562.600)(291.198)}{2.369.34}}$$

$$q_{01} = \sqrt{\frac{327.655.989.600}{2.369.34}}$$

$$q_{01} = \sqrt{138.406.816}$$

$$= 11.594 \text{ ton}$$

b. Calculating α and r_1 using the equation (I)

$$\alpha = \frac{hq_{01}}{c_{uD}}$$

$$\alpha = \frac{(2.369.34)(11.594)}{(82.678)(291.198)}$$

$$\alpha = \frac{27.470}{24,076}$$

$$= 1,14 \text{ ton}$$

c. After that, the value can be calculated using the following formula:

$$q_{02} = \sqrt{\frac{2D(A+C_u \int_{r_1}(x\text{-}r1) \int (x)dx)}{h}} \quad (4)$$

$$N = \int_{r_1} (x\text{-}r1) \int (dx) = SL \, [\int (z_a) - Z_a \, \Psi (Z_a)] \quad (5)$$

d. Recalculate the values of α and r².

$$r_2 = DL + Z_a \, S\sqrt{L} \quad (6)$$

e. Compare the values of r1 and r2

Comparing the values of r1 and r2, the iteration is complete when the price is relatively equal to r1, resulting in r1 = r2 and q2. Calculate the total inventory cost using the following formulation:

$$O_r = Dp + \frac{AD}{qo} + h\left(\frac{1}{2}qo + r - DL\right) + \left(\frac{CuDN}{qo}\right) \quad (7)$$

where:

P	= In unit counts for palm oil price
h	= Expenditure for storing palm oil (Rp)
D	= Total demand for palm oil (kg/ton)
A	= Ordering cost for palm oil (Rp)
L	= Lead Time
r	= Proposed reorder point (kg/ton)
q_(0)	= Lot size for each proposed order (kg/ton)
Cu	= Expenditure for financing palm oil shortages (Rp)
N	= Total palm oil shortage (Rp)

c. Based on the standard normal distribution table for α of 1.14, the value of z_a = 4.13 to determine the reorder point according to the equation (II)

$$r_1 = DL + Z_a \, S\sqrt{L}$$

$$r_1 = (291.198)(0.018) + 4.13(3,421\sqrt{0,018})$$

$$r_1 = 5.241.564 + 1.896$$

$$r_1 = 5.242/\text{ton}$$

After finding the value of r_1, the next step is to find the value of q_{02} with the following calculation:

$$q_{02} = \sqrt{\frac{2D(A+C_u \int_{r_1}(x\text{-}r1) \int (x)dx)}{h}}$$

$$N = \int_{r_1} (x\text{-}r1) \int (dx) = SL \, [\int (z_a) - Z_a \, \Psi (Z_a)]$$

d. From table B, we obtained $\int(Z_a) = 0.0087 \; dan \; \psi(Z_a)$ = 0,0007 thus we can calculate the value of N using the equation (III).

$$N = SL \, [\int (z_a) - Z_a \, \Psi (Z_a)]$$

$$= 430 \, [(0.0087)-(4.13(0.0007)]$$

$$= 430 \text{ x } (0.0087 - 0.002891)$$

$$= 430 \text{ x } 0.005809$$

$$= 2,410/\text{ton}$$

After the value of N is obtained, the subsequent calculation is the calculation of the value of q_{02} by utilizing the equation (IV)

Volume 08, Number 03, Page 658-664
e-ISSN: 2598-120X; p-ISSN: 2598-117X

$$q_{02} = \sqrt{\frac{2D\,[\,A + C_U\,N}{h}}$$

$$q_{02} = \sqrt{\frac{2(291.198)[(562.600) + 82.678\,(2{,}410)}{2.369.39}}$$

$$q_{02} = \sqrt{\frac{2(291.198)[(562.600) + 82.678\,(2{,}410)}{2.369.39}}$$

$$q_{02} = \sqrt{\frac{582.396 \text{ x } [(562.600) + 199.254}{2.369.39}}$$

$$q_{02} = \sqrt{\frac{327.656.189}{2.369.39}}$$

$$= \sqrt{138.287}$$

= 371 ton

Then after obtaining N from q_{02}, h recalculate the value of alpha (α) and r_2 using the formula:

$$\alpha = \frac{hq_{02}}{C_u D + hq_{02}}$$

$$\alpha = \frac{2.369.39 \text{ x } 371}{(82.678 \text{ x } 291.198) + (2.369{,}39 \text{ x } 371)}$$

$$\alpha = \frac{879.043{,}69}{24.075{,}668 + 879.043{,}69}$$

$$\alpha = \frac{879.043{,}69}{24.954.731}$$

= 0.03522

Za = 1-α = 1-0.03522= -0.96478

= 4,13 (from the normal distribution table)

$r_2 = DL + Z_a\, S\sqrt{L}$

r_2= (291.198) (0,018) + 4.13 (3.421 $\sqrt{0.018}$

r_2= 5.241.564+ 1.896

r_2= 5.242

After the values of $r1$ and $r2$ are obtained, the two results are compared. If they produce the same ratio, then $r1 = r2$ and $q01 = q02$, meaning the iteration is complete. Therefore, $r1 = r2$ = 5.244 tons and $q01 = q02$ = 437 tons.

Utilizing the continuous review system method to calculate fresh fruit bunch (FFB) palm oil raw materials, the following inventory policy is determined:Nilai safety stock (SS).

SS = $Z_a S\sqrt{L}$

SS = 4.13 (3.421$\sqrt{0.018}$

SS = 1.896 ton

a. Reorder point (ROP)

ROP = q x L + SS

ROP = 489.986 x 0.018 + 1.896

ROP = 8.821.567 = 8.822 ton

Frequency of orders = $\frac{D}{q}$

Frequency of orders = $\frac{291.198}{371}$

= 785 order times

If 1 year = 365 days then the order made is as follows:

= $\frac{785}{365}$

= 21 once a day

b. Service level

N = 1- $\frac{N}{DL}$ x 100%

N = 1- $\frac{2.410}{291.198 \text{ x } 0.018}$ x 100%

N = 0,954%

c. Maximum Inventory (S)

S = q0 + r

S = 5.242 + 372

S = 5.614 ton

d. Estimated cost of total inventory costs per cost year

- Purchase (Ob)

  Ob = P x D

  Ob = 1.065.000 x 291.198 ton

  Ob = 310.125.870
- Ordering fees (Op)

  Op = $\frac{AD}{q0}$

  Op = $\frac{(562.600)(291.198)}{5.242}$

  Op = 31.253
- Storage Costs (Os)

  Os = h($\frac{q0}{2}$ + r – DL)

  Os = 2.369.39 ($\frac{5.242}{2}$ + 372 – 291.198 x0.018)

  Os = 1.370.729
- Cost of deficiency (Ok)

  Ok = ($\frac{CuD}{q0}$ $\int$ r (x – r)(x) dx

  Ok = 82.678 x $\frac{291.198}{5.242}$ x 0.7762

  Ok = 3.564.903

Total inventory cost (TC)

Tc = Ob + Op + Os + Ok

Tc = 310.125.870 + 31.253 + 1.370.729 + 3.564.903

Tc = 315.092.755

The total inventory cost was found to be Rp. 315,092,755 per year by utilizing the Continuous Review System method after calculating the control of raw material inventory for Fresh Fruit Bunches.

Comparison of total inventory costs using the continuous review system method and company policy.

The overall expenditure on inventory financing through the continuous review system method is compared with the total costs of the company's policy. Based on the minimum total inventory costs, the best method is chosen in this procedure. Looking at table 2.

Table 2. Comparison of total palm oil inventory output using the continuous review system method and company policy.

Methods used	Total inventory cost
Continuous review system method	315.092.755
Company policy	290.453.600

Table 1 shows that the total inventory costs are higher in the continuous review system compared to the company's policy system. The company's savings have the following status:

a. Peminiman Cost savings from the continuous review system method

Volume 08, Number 03, Page 658-664
e-ISSN: 2598-120X; p-ISSN: 2598-117X

Cost savings = Or Company method– Or CRS method= 24.639.155

With the following percentage of savings:

1. Cost elimination percentage

$$= \frac{O_r\ company\ method - O_r\ \text{CRS}\ method}{O_r\ company\ method}\ x\ 100\%$$

$$= \frac{290.453.600 - 315.092.755}{290.453.600}\ x\ 100\%$$

$$= \frac{24.639.155}{290.453.600}\ \text{x}\ 100\%$$

$$= 8.48\%$$

The overall inventory cost using the continuous review system method is 1.27% lower. The costs of inventory incurred are influenced by the total amount of raw material inventory and ordering habits. The increase in inventory prices and the use of other costs are affected by excess inventory. Therefore, the supply of raw materials should not be overlooked as it plays a crucial role in the development of the palm oil industry. This research provides an explanation that the Continuous Review System method can minimize the quantity of ordering fresh fruit bunches as raw materials and can also reduce the costs of ordering raw materials in determining policies for controlling raw material inventory.

IV. CONCLUSIONS

Based on the calculations conducted at PT Austindo Nusantara Jaya Agri (ANJ) Binanga using the Continuous Review System approach, it was found that this method can reduce the total inventory of fresh fruit bunches used as raw materials for palm oil. Because this method can reduce overall inventory costs lower than the current business policy, it is the ideal choice for calculating fresh fruit bunch inventory. The company can use this research as a reference or something to consider when managing raw material inventory in the future. The Continuous Review System calculation approach results in a total inventory cost of Rp. 315,092,755, which can save Rp. 24,639,155 compared to the previous policy implemented by the company. Since there is no reorder point, the quantity ordered in the Continuous Review System technique is based on prior agreements with suppliers through a contract system. This approach aims to minimize the waiting time for each order placed and to prevent shortages of raw materials. However, the company does not need to worry about a shortage of raw materials because there is already a reserve stock and prior agreements to supply the raw materials at the agreed time and quantity.

REFERENCES

[1] Aditama, Ikhsan. (2016), "Perencanaan Kebijakan Persediaan Bahan Kimia Menggunakan Metode Continuous Review Pada Departemen Printing-Dyeing Di Pt. Kusumahadi Santosa. Seminar Nasional Ienaco", Issn: 2337-4349, Surakarta

[2] Ahmadi, N., & Dharma, B. (2023). Analisi Manajemen Rantai Pasokan Industri Rumahan Tahu Di Dusun I Sidorukun Kabupaten Labuhanbatu. *Jurnal Ilmiah Mea (Manajemen, Ekonomi, Dan Akuntansi*, *7*(2), 1553–1567.

[3] Aisyah, S., Evira, N., Indah, A., & Nasution, L. (2022). *Utilization Of Yard Land Through Horticultural Agriculture In Increasing Farmers ' Income After The Covid-19 Pandemic In Cengkeh Turi Village , North Binjai District*. *6*(2), 400–405. Https://Doi.Org/10.32832/Pkm

[4] Alim, M. H. (2022). Analisa Persediaan Bahan Baku Menggunakan Metode Continuous Review System Dan Periodic Review System Di Pt Xyz. *Jurnal Teknologi Dan Manajemen Industri Terapan (Jtmit)*, *1*(3), 163–172.

[5] Alsunaidi, B. (2021). A Review Of Non-Invasive Optical Systems For Continuous Blood Glucose Monitoring. In Sensors (Vol. 21, Issue 20). Https://Doi.Org/10.3390/S21206820

[6] Altamirano, A. (2020). Review Of Small-Capacity Single-Stage Continuous Absorption Systems Operating On Binary Working Fluids For Cooling: Compact Exchanger Technologies. International Journal Of Refrigeration, 114, 118–147. Https://Doi.Org/10.1016/J.Ijrefrig.2020.02.033

[7] Amrilah, Azmi Fahma. (2016), "Analisis Metode Economic Order Quantity (Eoq) Sebagai Dasar Pengendalian Persediaan Bahan Baku Pembantu (Studi Pada Pg. Ngadirejo Kediri-Pt. Perkebunan Nusantara X)", Jurnal Administrasi Bisnis, Vol. 33, No. 1.

[8] Erlina. 2002. Manajemen Persediaan. Medan: Usu Digital Library.

[9] Erianto, R., & Nawawi, Z. M. (2024). *Palm Farmers ' Strategies In Increasing Income Reviewed From Post Transformation Maqashid Syariah*. *5*(2), 600–614.

[10] Fadilah, Muhammad Faiz, & Enny Aryanny. 2021. "Pengendalian Persediaan Bahan Baku Minyak Sawit Dengan Menggunakan Metode Continuous (Q) Dan Periodic (P) Review Di Pt. Xyz." Juminten 2(4):97–108. Doi: 10.33005/Juminten.V2i4.309.

[11] Jainuri, Varid, & Tedjo Sukmono. 2021. "Optimization Of Inventory Costs Using The Continuous Review System (Crs) Method In Controlling The Need For Raw Materials For The Crimean Industry." Academia Open 5:1–14. Doi: 10.21070/Acopen.5.2021.2205.

[12] Jaufanti, Dian Audina. (2016), "Perencanaan Kebijakan Persediaan Untuk Meminimasi Stockout Dengan Pendekatan Continuous Review (S,S) Dan Continuous Review (S,Q) Pada Persediaan Bahan Baku Pt Arka Footwear", Prosiding Issn: 2355-9365, Vol. 3, No. 2, Bandung.

[13] Joseph, J. I. (2020). Review Of The Long-Term Implantable Senseonics Continuous Glucose Monitoring System And Other Continuous Glucose Monitoring Systems. Journal Of Diabetes Science And Technology, 15(1), 167–173. Https://Doi.Org/10.1177/1932296820911919

[14] Kholil, Muhammad. 2022. "Inventory Control Of Vegetable Oil Products Using Continuous Review System (Q) Approach And Periodic Review System (P)

Volume 08, Number 03, Page 658-664
e-ISSN: 2598-120X; p-ISSN: 2598-117X

Methods In Retail Companies: A Case Study Of Indonesia." International Journal Of Scientific And Academic Research 02(04):11–16. Doi: 10.54756/Ijsar.2022.V2.I4.2.

[15] Mahapatra, A. S. (2021). A Continuous Review Production-Inventory System With A Variable Preparation Time In A Fuzzy Random Environment. Mathematics, 9(7). Https://Doi.Org/10.3390/Math9070747

[16] Mahrivi, I., Alifatuzzahra, N., Nurbaiti, N., Islam, U., & Sumatera, N. (2024). *Persiapan Perusahaan Di Indonesia Dalam Menghadapi*. *2*, 244–251.

[17] Mulyono, Sri. (2017), "Riset Operasi Edisi 2", Penerbit Mitra Wacana Media Jakarta

[18] Pratiwi, A. I., Fariza, A. N., & Yusup, R. A. (2020). *Evaluasi Persediaan Bahan Baku Dengan Menggunakan Pendekatan Metode Continuous Review System Dan Periodic Review System*. *13*(2).

[19] Pulungan, Dian Serena, & Erika Fatma. 2018. "Analisis Pengendalian Persediaan Menggunakan Metode Probabilistik Dengan Kebijakan Backorder Dan Lost Sales." Jurnal Teknik Industri 19(1):39–48. Doi: 10.22219/Jtiumm.Vol19.No1.40-51.

[20] R. R. Solechah, R. Yusianto, And T. Talitha, "Perencanaan Dan Pengendalian Persediaan Bahan Baku Obat Coparcetin Kid Cough Syrup Dengan Menggunakan Metode Material Requirements Planning (Mrp) Berbasis Sistem Informasi Pada Pt. Sampharindo Perdana," 2015

[21] Sangeetha, N. (2020). Optimal Control Of Postponed Demands In A Continuous Review Inventory System With Two Types Of Customers. International Journal Of Information And Management Sciences, 31(1), 1–14. Https://Doi.Org/10.6186/Ijims.20200331(1).0001

[22] Sukanta. (2017). Pengendalian Persediaan Bahan Baku Menggunakan Metode Continous Review System. *Jiem*, *2*(1), 25–31.