Target: Jurnal Manajemen Bisnis Volume 7 Issue 2 (2025) Page 149-158
e-issn: 2715-9361
journal.universitasbumigora.ac.id/index.php/target

Inventory Control in Operations Management: A Study on Wood Ear Mushroom

Aisyah Putri Caesari*, **Dewi Rohma Wati**
Universitas Syarif Hidayatullah Jakarta, South Tangerang, Indonesia

Submitted 5th September 2025; Revised 27th December 2025; Accepted 28th December 2025; Published 31st December 2025

Abstract

Wood ear mushroom is a high-value commodity with beneficial nutritional content and growing consumer demand, thanks to its high fiber, vitamins, and cholesterol-free status. However, CV. XYZ faces persistent inventory issues because it does not operate cultivation facilities and relies entirely on fixed purchases from farmers. This condition often leads to oversupply, quality deterioration, and high storage costs, indicating a mismatch between procurement decisions and actual market demand. This study aims to forecast demand using the Single Exponential Smoothing method, analyze inventory control through the Wagner-Within Algorithm and Silver Meal method, and compare their cost efficiency with the companys existing policy. The analysis uses historical data on demand, holding costs, ordering costs, and time periods from April 8, 2024, to June 1, 2025, followed by projections for 30 future periods. The results show that total forecasted demand reaches 160.195 kg with $\alpha = 0.1$, which produces the lowest forecasting error. Both the Wagner-Within Algorithm and Silver Meal method achieve 33% cost efficiency, generating an inventory cost of IDR 46,551,418 with 15 orders, compared to the existing policys IDR 60,849,090 with 30 orders. These findings indicate that the Wagner-Within Algorithm provides a more comprehensive and effective framework for formulating inventory policies. Optimizing order timing and quantities helps reduce storage costs, minimize quality losses, and enhance operational efficiency, making it a strategic approach for managing high-value and perishable commodities such as wood ear mushrooms.

Keywords: Cost Efficiency; Demand Forecasting; Inventory Control; Wood Ear Mushroom.

---

*Corresponding author. Tel: +62895385254054, E-mail: caesariaisyah@gmail.com
DOI: 10.30812/target.v7i2.5673

How to cite:

Caesari, A. P., & Wati, D. R. (2025). Inventory Control in Operations Management: A Study on Wood Ear Mushroom. *Target: Jurnal Manajemen Bisnis*, *7*(2), 149-158.

I. Introduction

Indonesian society in general still maintains the habit of consuming vegetables as part of their daily diet. One type of vegetable highly favored by Indonesians is mushrooms. Edible mushrooms are those that can be consumed and are commonly used as food ingredients. Mushrooms are rich in fiber and vitamins and are naturally cholesterol-free. Therefore, mushrooms are often promoted as a substitute for animal-based protein sources (Pashaei et al., 2024). In traditional Indonesian cuisine, mushrooms are commonly used as a flavorful vegetable in various dishes, such as stir-fries, sayur lodeh, and as an ingredient in soups (Widyastuti & Tjokrokusumo, 2022). Mushrooms are readily available in Indonesian markets because Indonesia provides ideal conditions for growth, with sufficient sunlight and year-round rainfall. The following shows mushroom production in Indonesia as presented in Figure 1.

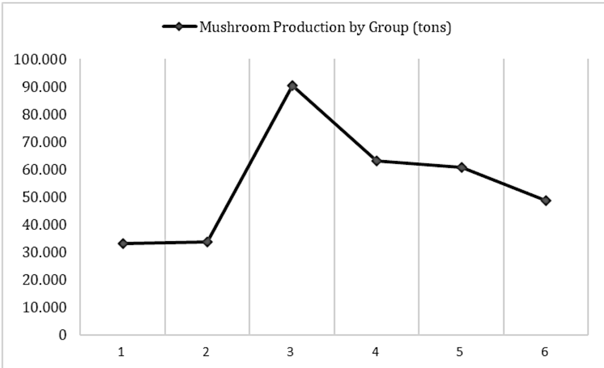

Figure 1. Mushroom Production by Group in Indonesia (20192024)

CV. XYZ is an agricultural company specializing in the sale of fresh wood ear mushrooms. In its operations, the company does not own any cultivation land, CV. XYZ uses an inventory strategy with the primary purpose of maintaining mushroom stocks so that consumer demand can be fulfilled (Wibowo, 2020)). CV. XYZ purchases the mushrooms from suppliers with fixed schedules, quantities, and purchase prices. The minimum quantity of wood ear mushrooms ordered from the supplier is 6.000 kg. However, these mushrooms are often harvested prematurely, resulting in a shrunken form. To address this, CV. XYZ uses a soaking process to restore the mushrooms, making them plump, broad, and fresh before sale. The company has not yet been able to determine the purchase quantity of wood ear mushrooms based on a specific inventory control method. Inventory control refers to a companys activity in maintaining stock levels at the desired level (Zainul, 2019).

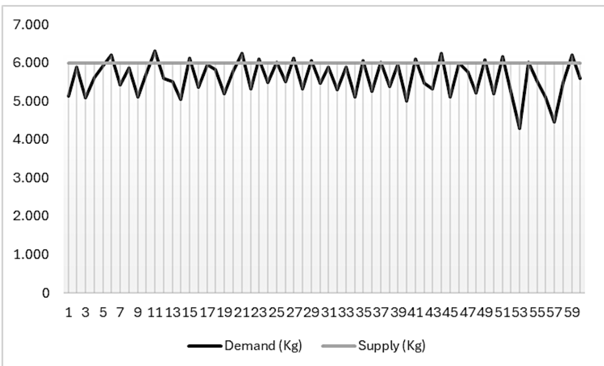

Figure 2. Demand and Supply of Wood Ear Mushrooms from Period 1, 2024 to Period 60, 2025

Market demand for wood ear mushrooms has fluctuated, resulting in an oversupply in 46 of 60 periods (77%), with an average oversupply of 444 kg per period. This indicates that the company has not yet adjusted its ordering decisions based on actual demand. CV. XYZ also does not implement a

DOI: 10.30812/target.v7i2.5673

FIFO (First In, First Out) system, leading to older stock accumulating and deteriorating in quality. Approximately 63% of the total oversupply is deemed unsuitable for resale. This issue arises because wood ear mushrooms lack a cuticle layer that protects them from mechanical damage, water loss, insect infestation, spoilage microorganisms, and fermentation. Fermentation occurs due to the activity of polyphenolase enzymes, which are influenced by air exposure. It is typically indicated by the appearance of slime on the mushrooms fruiting body and the emission of an unpleasant odor (Guo et al., 2023).

Previous studies have demonstrated that fluctuating demand and the lack of systematic inventory control in the agricultural sector result in significant losses from product spoilage and high inventory costs. Found that implementing structured inventory control methods at PT Masada Organik Indonesia achieved cost efficiency of up to 26% through optimization of order quantities and timing (Fitri et al., 2021). Similarly, addressed insufficient stock levels at Perum BULOG Kota Samarinda and demonstrated that implementing the Silver-Meal method achieved 28.691% cost savings by reducing order frequency from 32 to 24 and optimizing lot sizes. Based on these issues, research on inventory control at CV. XYZ is essential (Mubarog et al., 2024). This research not only focuses on ensuring the availability of wood ear mushrooms but also emphasizes determining the optimal order quantity, the right ordering time, and sustainable storage optimization. The ultimate goal is to achieve the lowest possible inventory costs while minimizing potential losses.

II. Method

The author conducted data analysis using a quantitative method. This method is intended to obtain data that will later be processed using several calculation techniques to determine the minimum inventory cost at CV. XYZ. The steps of this research are as follows:

1. Literature Review

Several references related to inventory management were studied to identify theories supporting this research, including the Single Exponential Smoothing forecasting method and inventory control theories under dynamic deterministic models. These include methods such as the Wagner-Within Algorithm and the Silver Meal heuristic.

2. Data Collection

Data were collected through interviews with the sales manager and warehouse head to obtain historical demand data over 60 weeks, ordering costs per order, operational storage costs, and handling processes for wood ear mushrooms, which are highly perishable in nature.

3. Data Analysis Technique

The research object is wood ear mushrooms, which have an independent inventory model where market forces solely drive demand (Zulfikarijah, 2005). The demand fluctuates, while the purchase cost and lead time remain constant. Based on these characteristics, the inventory of wood ear mushrooms at CV. XYZ falls under the dynamic deterministic category, where the total demand is known with certainty, but the quantity varies in each period (Bahagia, 2006). To forecast demand, the Single Exponential Smoothing method is applied. For inventory control, the Wagner-Within Algorithm and Silver Meal method are used to determine the optimal inventory management strategy.

3.1. Forecasting Demand

Wood ear mushrooms fall under the independent inventory model, which is fully influenced by market forces and closely related to the uncertainty of customer demand. Therefore, the company needs to conduct forecasting to determine the independent demand for wood ear mushrooms, and the demand forecasting for wood ear mushrooms at CV.XYZ uses historical data from the previous 60 periods, covering the weekly period from the second week of April 8, 2024, to June 1, 2025. That is, the amount of historical data is double the length of the forecast period, since a greater volume of data generally leads to higher accuracy and a lower chance of the forecast missing the target (Rochmah, 2022). The

Single Exponential Smoothing method uses historical data by assigning greater weight to the most recent periods than to earlier ones. The forecast is continuously updated by combining the latest actual value with the previous forecast result, thereby generating an estimate of future demand for the next 30 periods, from June 2, 2025, to December 28, 2025 (Ginantra & Anandita, 2019). The Single Exponential Smoothing method will be selected based on the smallest error value calculated using Mean Absolute Deviation, Mean Squared Error, and Mean Absolute Percentage Error.

3.2. Wagner Within Algorithm

The Wagner-Within Algorithm method provides an optimal cost solution with a global minimum value (Bahagia, 2006). The steps for calculating the Wagner-Within Algorithm are as follows:

1. Calculate the total cost matrix. The formula for calculating the total cost is expressed as Equation (1):

$$B_{en} = A + h \sum_{t=e}^{n} (q_{en} - q_{et}) \tag{1}$$

Notation:

A : Ordering cost for wood ear mushrooms (IDR/order)
h : Holding cost per unit per period (IDR/unit/period)
q_{et} : $\sum_{t=e^n} D_t$ total demand from period e to period n
D_t : Demand for wood ear mushrooms in period t
e : Initial period included in order quantity q_{et}
n : Maximum period covered in order quantity q_{et}

2. The value of f_n represents the total cost and the optimal ordering decision, which is calculated using the following Equation (2):

$$f_n = \min \left(B_{\{en\}} + \ f_{\{e-1\}} \right) \\ \text{Where } e = 1, 2, \ldots, n \text{ dan } n = 1, 2, \ldots, N \tag{2}$$

3. The optimal solution for f_n is obtained through backward recursive calculations, which determine the optimal order quantity by finding the minimum value in each column that can cover the periods listed in the corresponding row. This process identifies the most cost-efficient ordering plan while minimizing total inventory costs across all periods.

3.3. Silver Meal

The Silver Meal Method provides an optimal cost solution, but at a local minimum value (Bahagia, 2006). The steps for calculating the Silver Meal method are as follows:

1. Mathematically, the Silver Meal method for determining inventory costs per unit in each period can be formulated as follows (Equation 3):

$$BST = \frac{A + h \sum_{t}^{t=1} \ t \cdot D_t}{T} \tag{3}$$

Notation:

A : Ordering cost for wood ear mushrooms (IDR/order)
h : Holding cost per unit per period (IDR/unit/period)
D_t : Demand for wood ear mushrooms in period t
T : Number of periods covered

2. Once the optimal value of T is determinated, the lot size is calculated using the following Equation (4):

$$qt = \sum_{\{i=1\}}^{T} D_i \tag{4}$$

Notation:

qt : Order lot size for period t up to period T
Di : Demand for wood ear mushrooms in period i

3.4. Plan Order Release

A Plan Order Release (POR) is a scheduling plan for releasing orders to ensure that demand in each period is fulfilled on time. It consists of several key components, including Dt, the demand in a specific period; qt, the quantity or lot size to be ordered; and POR, the order release schedule, which is adjusted based on net requirements and lead time.

III. Results and Discussion

Inventory plays a crucial role in ensuring the smooth flow of both production and distribution processes (Nabila et al., 2025). Optimal inventory control helps companies minimize total inventory costs, including ordering and holding costs associated with stock management. Therefore, companies need a method that can accurately predict future inventory requirements. One commonly used approach is forecasting, which functions to estimate demand so that decisions related to order quantities and storage can be made more efficiently (Pratama et al., 2025).

1. Forcasting

The demand and inventory costs for wood ear mushrooms at CV. XYZ will be projected for the upcoming 30 periods. Therefore, demand forecasting is carried out using the Single Exponential Smoothing method. Historical demand data over 60 periods exhibit a horizontal pattern, with values fluctuating around a constant average without a long-term upward or downward trend. In this case, the average demand is 5.5005.600 kg, with most values clustered around that range. This suggests that the data movement does not show a specific trend but rather remains stable around the mean.

The demand data for wood ear mushrooms has been converted into shrinkage form or adjusted to the condition in which the product is purchased from suppliers. The Single Exponential Smoothing method uses a parameter (α) designed to capture horizontal patterns that fluctuate randomly around a mean value. In this method, the (α) value ranges from 0.1 to 0.9. Based on the results, the Single Exponential Smoothing method with the smallest error value was achieved at (α)= 0.1 producing a total forecast of 160.195 kg. The differences in error values are shown in Table 1.

Table 1. Results of Forecasting Error Parameter Values

SES	MAD	MSE	MPE (%)
α 0.1	410.05	233613.48	7.39852
α 0.2	425.48	238536.80	7.69966
α 0.3	446.14	255325.05	8.07069
α 0.4	467.54	277384.47	8.45039
α 0.5	493.48	303965.60	8.90976
α 0.6	521.77	335338.17	9.40967
α 0.7	554.47	372240.80	9.98760
α 0.8	590.62	415901.57	10.62532
α 0.9	629.57	468205.70	11.31181

2. Ordering Cost and Holding Cost of Wood Ear Mushroom at CV. XYZ

The ordering cost refers to the expenses incurred by CV. XYZ for each ordering process. In this context, there are three cost components: administrative fees, transportation costs, and telephone charges, totaling IDR 2,028,303 for each order. Meanwhile, the holding cost represents the expenses required to support storage, including depreciation of cold storage and electricity costs. The total holding cost is IDR 201.46 per kilogram of wood ear mushrooms per week, as the period considered in this study is weekly.

3. Wagner Within Algorithm

This method uses two main input variables: an ordering cost of IDR2,028,303 for each order, and holding cost of IDR 201,46 for each kilogram of wood ear mushrooms per week. With a total projected demand of 165.195 kilograms for the next 30 weeks. the Wagner-Within Algorithm is applied to determine the minimum total inventory cost for wood ear mushrooms at CV. XYZ.

$$
\begin{aligned}
f0 &= 0 \\
f1 &= \min\,[B11 + f0] \\
&= 2{,}028{,}303 \text{ for } O11 + f0 \\
F2 &= \min\,[B12 + f0, B22 + f1] \\
&= \min\,[3{,}121{,}425 + 0,\ 2{,}038{,}303 + 2{,}038{,}303] \\
&= 3{,}121{,}425 \text{ for } B12 + f0 \\
&\vdots \\
F30 &= \min\,[B130 + f0, B230 + f1, \ldots, B3030 + f29] \\
&= 46{,}551{,}418 \text{ for } B3030 + f29
\end{aligned}
$$

The Wagner Within Algorithm method resulted in a minimum cost of IDR 46,551,418, providing a recursive solution to determine the ordering frequency (Katias & Affandi, 2018). Based on the calculation, it was determined that ordering should be carried out 15 times over 30 periods, with each order fulfilling the demand for two periods. Both the Wagner-Within Algorithm and the Silver Meal method apply holding costs only to materials stored for more than one period. Based on these calculations, the Plan Order Release (POR) policy for wood ear mushrooms is presented in Table 2.

Table 2. POR of Wood Ear Mushroom Inventory Using the Wagner-Within Algorithm

T	Dt (Kg)	qt (Kg)	POR (Kg)
0			10.858
1	5.432	10.858	
2	5.426		10.833
3	5.420	10.833	
4	5.413		10.808
:	:	:	:
26	5.273		10.526
27	5.266	10.526	
28	5.260		10.501
29	5.254	10.501	
30	5.247		

4. Silver Meal

The Silver Meal method uses the same input as the Wagner-Within Algorithm, and the results are shown in Table 3.

Table 3. Wood Ear Mushroom Matrix Using the Silver Meal Method

T	Total Period	Dt (Kg)	Ordering Cost (A) (IDR)	Holding Cost (h) (IDR)	Total Cost (IDR)	Average Cost/Periode (IDR)
1	1	5.432	IDR2,028,303		IDR2,028,303	IDR2,028,303
1,2 *	2	10.858	IDR2,028,303	IDR1,093,121,96	IDR3,121,425	IDR1,560,712
1,2,3	3	16.278	IDR2,028,303	IDR3,276,948,36	IDR5,305,251	IDR1,768,417
3	1	5.420	IDR2,028,303		IDR2,028,303	IDR2,028,303
3,4 *	2	10.833	IDR2,028,303	IDR1,090,502,98	IDR3,118,806	IDR1,559,403
3,4,5	3	16.240	IDR2,028,303	IDR3,269,091,42	IDR5,297,394	IDR1,765,798
:	:	:	:	:	:	
27	1	5.266	IDR2,028,303		IDR2,028,303	IDR2,028,303

DOI: 10.30812/target.v7i2.5673

T	Total Period	Dt (Kg)	Ordering Cost (A) (IDR)	Holding Cost (h) (IDR)	Total Cost (IDR)	Average Cost/Periode (IDR)
27,28*	2	10.526	IDR2,028,303	IDR1,059,679,60	IDR3,087,983	IDR1,543,991
27,28,29	3	15.780	IDR2,028,303	IDR3,176,621,28	IDR5,204,924	IDR1,734,975
29	1	5.254	IDR2,028,303		IDR2,028,303	IDR2,028,303
29,30*	2	10.501	IDR2,028,303	IDR1,057,060,62	IDR3,085,364	IDR1,542,682

The Silver Meal method is then inteIDRreted using a POR table, which is presented in Table 4.

Table 4. POR Of Wood Ear Mushroom Inventory Using the Silver Meal

T	Dt (Kg)	qt (Kg)	POR (Kg)
0			10.858
1	5.432	10.858	
2	5.426		10.833
3	5.420	10.833	
4	5.413		10.808
:	:	:	:
26	5.273		10.526
27	5.266	10.526	
28	5.260		10.501
29	5.254	10.501	
30	5.247		

5. Inventory Cost Comparison

A comparison is made between the Wagner-Within Algorithm and the Silver Meal method, using the existing method currently applied by CV. XYZ as a benchmark. This comparison assumes that the company maintains the same practices regarding quantity, timing, and purchase costs as in the current policy. The results of this comparison are shown in Table 5.

Table 5. Inventory Cost Comparison of Wood Ear Mushrooms

Wood Ear Mushroom	Lot Size (Kg)	Frequency	Ordering Cost (IDR)	Holding Cost (IDR)	Total Cost (IDR)	Efficiency (%)
Existing (CV. XYZ)	160.195	30	60,849,090	8,753,034	69,602,124	
Wagner Within Algorithm	160.195	15	30,424,545	16,126,873	46,551,418	33
Silver Meal	160.195	15	30,424,545	16,126,873	46,551,418	33

These results are based on the assumption that the ordering cost remains constant it is considered the same for every order and depends solely on the ordering frequency, not on the size of the quantity ordered. Conversely, the holding cost varies each period because it is only incurred when a material is stored for more than one period (Kusuma, 2002). The results with the same efficiency align with the statement of Bahagia (2006) which explains that, in some cases, the Silver Meal method can produce results that are very similar or even identical to those of the Wagner Within Algorithm.

Both methods achieved an efficiency value of 33% when compared to the company's approach, with a total cost of IDR 46,551,418. The companys current ordering practice involves a high ordering frequency, resulting in ordering costs of IDR 60,849,090. Furthermore, if CV XYZ continues with its existing ordering practice of 6.000 kg per order, it will incur lower holding costs of IDR 8,753,034 compared to the Wagner Within Algorithm and Silver Meal methods. This cost discrepancy arises due to oversupply and poor timing in the arrival of wood ear mushrooms. Therefore, both the Wagner Within Algorithm and the Silver Meal method are considered efficient and ideal inventory control methods for managing the wood ear mushroom inventory at CV XYZ.

The Silver Meal and Wagner Within Algorithm methods produced identical results; however, in this study, the Wagner Within Algorithm was selected. This is because the Wagner Within Algorithm provides a more precise and systematic approach to determining when and how much to order, considering all periods globally. This method also offers the most mathematically efficient solution, rather than relying on averages like the Silver Meal method. Thus, even though the results are similar, the Wagner Within Algorithm is considered more comprehensive as a basis for inventory decision-making (Ullah & Parveen, 2010).

Based on the Wagner Within Algorithm, which was determined to be the most effective inventory control method, CV XYZ should place orders with larger lot sizes than its previous practice, with an average order quantity of 10.680 kg over the next 30 periods. This lot size meets the suppliers minimum purchase requirement of 6.000 kg per order. The cold storage unit owned by CV XYZ has a capacity of 35 mş. The storage layout for the wood ear mushrooms is arranged vertically in baskets, with a maximum capacity of 8.000 kg. With an average inventory of 5.430 kg, the cold storage space remains optimal for product rotation and handling activities.

According to CV XYZ, the stored wood ear mushrooms can last up to two periods. However, even when stored in cold storage, they still undergo fermentation, which eventually leads to spoilage characterized by unpleasant odors, sliminess, and a mushy texture (Castellanos-Reyes et al., 2021). Therefore, the Wagner Within Algorithm can be applied by limiting storage to only one subsequent period to maintain product quality. This method assumes that there will be neither a shortage nor an oversupply of products. Hence, the Wagner Within Algorithm is suitable for implementation in CV XYZ, considering the cold storage capacity, ordering capabilities, and the perishable nature of the wood ear mushrooms.

IV. Conclusion

The demand for wood ear mushrooms at CV. XYZ was forecasted using the Single Exponential Smoothing method. The lowest error value was achieved using α=0.1. The total forecasted demand serves as the basis for the quantity of wood ear mushrooms to be managed over the next 30 periods, amounting to 160.195 kg, which was then used for inventory control calculations using the Wagner Within Algorithm and Silver Meal methods. Inventory control of wood ear mushrooms at CV. XYZ used two dynamic deterministic methods, namely the Wagner-Whitin Algorithm and Silver-Meal, resulting in a total of 15 ordering cycles and a total inventory cost of IDR 46,551,418 for both methods. The most efficient method for minimizing inventory costs was the Wagner Within Algorithm, with a total cost of IDR 46,551,418 and an efficiency rate of 33% compared to the companys existing ordering approach, which incurred a total inventory cost of IDR 69,602,124.

Acknowledgment

The author would like to express sincere gratitude to all parties who contributed to the completion of this research. Special appreciation is extended to the academic advisor for their invaluable guidance, as well as to CV XYZ for providing the necessary data and support throughout the research process. The author also thanks colleagues and peers for their constructive feedback, which has significantly enriched the quality of this work.

Declaration

The primary author was responsible for developing the research concept, collecting and analyzing data, and writing the manuscript. The co-author contributed by providing direction, critical reviews, and manuscript refinement. Authors affirm that this research was conducted independently and objectively, supported by constructive collaboration.

References

Bahagia, S. N. (2006). *Sistem inventori senator nur bahagia.* Penerbit ITB.

Castellanos-Reyes, K., Villalobos-Carvajal, R., & Beldarrain-Iznaga, T. (2021). Fresh Mushroom Preservation Techniques. *Foods*, *10*(9), 2126. https://doi.org/10.3390/foods10092126

Fitri, F., Dwi Satya, R. R., & Hunusalela, Z. F. (2021). Analisis Pengendalian Persediaan Komoditas Sayur Organik untuk Efisiensi Biaya Persediaan dengan Menggunakan Wagner-Within Algorithm dan Heuristic Silver-Meal Method pada PT Masada Organik Indonesia. *Jurnal Teknik Industri*, *11*(3), 235–242. https://doi.org/10.25105/jti.v11i3.13074

Ginantra, N. L. W. S. R., & Anandita, I. B. G. (2019). Penerapan Metode Single Exponential Smoothing Dalam Peramalan Penjualan Barang. *J-SAKTI (Jurnal Sains Komputer dan Informatika)*, *3*(2), 433–441.

Guo, Y., Chen, X., Gong, P., Wang, R., Han, A., Deng, Z., Qi, Z., Long, H., Wang, J., Yao, W., Yang, W., Wang, J., & Li, N. (2023). Advances in the Role and Mechanisms of Essential Oils and Plant Extracts as Natural Preservatives to Extend the Postharvest Shelf Life of Edible Mushrooms. *Foods*, *12*(4), 801. https://doi.org/10.3390/foods12040801

Katias, P., & Affandi, A. (2018). Implementasi Algoritma Wagner-Within pada Manajemen Inventori di PT X. *Business and Finance Journal*, *3*(1), 63–76. https://doi.org/10.33086/bfj.v3i1.420

Kusuma, H. (2002). *Manajemen Produksi: Perencanaan dan Pengendalian Produksi*. Andi.

Mubarog, R., Wahyuda, W., & Suh Utomo, D. (2024). Analisis Pengendalian Persediaan Beras Menggunakan Metode Silver-Meal pada Perum Bulog Kota Samarinda. *Industri Inovatif : Jurnal Teknik Industri*, *14*(1), 107–115. https://doi.org/10.36040/industri.v14i1.9405

Nabila, K., Komaro, M., & Puspanikan, S. K. (2025). Strategi Revolusioner dalam Manajemen Persediaan untuk Optimalisasi Rantai Pasok. *Journal Industrial Engineering and Management (JUST-ME)*, *6*(01), 35–38. https://doi.org/10.47398/justme.v6i01.106

Pashaei, K. H. A., Irankhah, K., Namkhah, Z., & Sobhani, S. R. (2024). Edible mushrooms as an alternative to animal proteins for having a more sustainable diet: A review. *Journal of Health, Population and Nutrition*, *43*(1), 205. https://doi.org/10.1186/s41043-024-00701-5

Pratama, M. R. Y., Negoro, Y. P., & Hidayat. (2025). Peramalan Permintaan dan Pengendalian Persediaan Bahan Baku Pupuk ZA Menggunakan Metode Time Series dan EOQ: (Studi Kasus : PT Petrokimia Gresik). *Jurnal Teknologi dan Manajemen Industri Terapan*, *4*(2), 282–292. https://doi.org/10.55826/jtmit.v4i2.636

Rochmah, S. (2022, August 1). *Buku ajar manajemen operasi 1*. Penerbit NEM.

Ullah, D. H., & Parveen, S. (2010). A Literature Review on Inventory Lot Sizing Problems. *Global Journals of Research in Engineering*, *10*(5), 21–36. https://engineeringresearch.org/index.php/GJRE/article/view/52

Wibowo, A. (2020). *Manajemen Operasional*. Yayasan Prima Agus Teknik.

Widyastuti, N., & Tjokrokusumo, D. (2022). Manfaat Jamur Konsumsi (Edible Mushroom) Dilihat dari Kandungan Nutrisi Serta Perannya dalam Kesehatan. *Jurnal Teknologi Pangan dan Kesehatan (The Journal of Food Technology and Health)*, *3*(2), 92–100. https://doi.org/10.36441/jtepakes.v3i2.562

Zainul, M. (2019). *Manajemen Operasional*. Deepublish.

Zulfikarijah, F. (2005). *Manajemen Persediaan*. UMM Press.

[This page intentionally left blank.]