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Optimizing Supply Chain Management and Stakeholder Collaboration to Increase the Export Potential of Gedong Gincu Mangoes

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Abstract: Gincu Mango as one of the superior varieties of fruit products in Indonesia shows high export potential. Although the export potential is very large, it is inversely proportional to export performance caused by limitations in the supply chain and stakeholder collaboration. This study aims to analyze strategies for improving supply chain management and stakeholder collaboration to increase the export potential of Gedong Gincu mango. This study uses a causal research methodology through the Structural Equation Modeling - Partial Least Squares (SEM-PLS) approach. This method was chosen because of its ability to examine complex relationships between latent variables and its efficiency in handling data with small sample sizes. A survey was conducted to collect data from 100 stakeholders involved in the distribution of Gedong Gincu mango. The results of the study indicate that collaboration between farmers, government agencies, and traders is essential to increasing export activities. One of the key factors found is the importance of accelerating the registration of gardens and packing houses as part of the technical requirements for export, which serve as important technical requirements for export readiness. Furthermore, effective supply chain management shows the capacity to improve coordination and optimize distribution efficiency. However, statistical analysis revealed that the impact of Supply Chain Management on stakeholder collaboration is minimal, although it does affect exports. This study underlines the importance of improving post-harvest infrastructure, educating farmers on export standards, and strengthening strategic partnerships in the supply chain to improve the competitiveness of Gedong Gincu mangoes in the global market.

Keywords: Gedong Gincu; Optimization; Supply Chain; Collaboration; SEM.

Introduction

The demand for quality agricultural products in Indonesia has continued to increase over the past decade, including Gedong Gincu mango, both in the domestic and international markets (Ariningsih, Ashari, et al., 2021; Maulida & Andriani, 2022; Muftiadi et al., 2023; Sulistyowati et al., 2016). Mango ranks third as one of the leading commodities after bananas and oranges, with a total production of 2.62 million tons in 2018 (BPS, 2020). Several regions in Indonesia, such as East Java, Central Java, and West Java, contribute significantly to mango production, with respective percentages of 40.4%, 16.9%, and 15.4%. However, despite having great export potential, the realization of Gedong Gincu mango exports is still far from optimal. As a commodity that has high economic value, mango commodities have the

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potential to improve farmers' welfare (Fizzanty & Kusnandar, 2012).

The Directorate General of Horticultural Production Development (Kementerian Pertanian, 2024), informed that the main areas for development of Indonesian mangoes are mainly directed at production centers that have been known so far, namely the provinces of East Java (Pasuruan and Situbondo Regencies), West Java (Cirebon, Indramayu and Majalengka Regencies), and South Sulawesi (Takalar and Jeneponto Regencies).

However, according to an online survey conducted by the United Nations Development Organization (UNIDO) in June-August 2020, there was a decline in social movements and economic productivity (UNIDO, 2020). These impacts occur in national and global supply chains, businesses and jobs. This problem is serious in addition to the classic problems faced by MSMEs such as competitive business competition (Prabowo & Sriwidadi, 2024).

In terms of competitive competition, especially agricultural businesses, innovation is very important for business development in the modern era, in terms of generating profits and competitiveness (Markovic et al., 2020), so that sustainable business growth can be achieved with innovation capabilities (Hermanto et al., 2023). Where the creation and renewal of knowledge plays an important role in positioning the company better in the global market to strengthen business performance amidst intense competition (Sukri et al., 2023).

Generally, mango farming is not managed intensively, but is more of a side business. This is due to the nature of the mango plant which can grow in the lowlands and highlands. Majalengka Regency in terms of mango production is still carried out using simple or conventional processing methods, some of them even tend to leave the mango plants without any maintenance. This often causes the mangoes produced to not meet the quality requirements set by consumers. The perception of mango farmers not being quality oriented causes most business actors not to implement Good Agricultural Process (GAP) and Good Manufacturing Process (GMP). This results in the quality of the mangoes produced being low, thereby reducing the competitiveness of mangoes.

In various industrial sectors, this approach has proven to enhance global competitiveness. For example, in the food and beverage industry, the digitalization of the supply chain has increased operational efficiency and accelerated product distribution (Saryatmo & Sukhotu, 2021). In horticultural agribusiness, stakeholder integration has been shown to enhance exports and augment product value-added (Ramírez Thomas L.; Fischer, Gerhard; Pinzón, Julio Cesar Augusto, 2010). It is essential to comprehend the application of these concepts within the supply chain of Gedong Gincu mangoes to enhance their potential in the international market.

There are problems in the mango supply chain, including obstacles in payments to farmers, information asymmetry, and a lack of sustainable partnerships between farmers and exporters. Where in general Supply Chain Management should integrate environmental, social and financial considerations into the procurement, production and distribution of goods and services (Muftiadi et al., 2023). A challenging problem in marketing mangoes in the West Java region, especially Indramayu, is the control of intermediaries who sell to exporters, modern or traditional markets, or producers of derivative products (Ariningsih, Saliem, et al., 2021; Ashari et al., 2021). The farmer's role mainly focuses on planting, fertilizing, spraying insecticides, caring for, and harvesting. Apart from that, they can be categorized into land owners, renters, and tree renters (Ambarwati et al., 2019; Karyani et al., 2016).

Through a joint framework of thinking between mango farmers and exporters, an agreement will be created to improve partnerships for business sustainability. The importance of understanding the value chain and increasing the marketing efficiency of the Gedong Gincu mango agribusiness even has the opportunity to increase export potential which emphasizes the importance of mutually beneficial collaboration between various parties in the supply chain. Even though there has been efficiency in marketing channels, there is still potential for improvement in stakeholder involvement and governance. A supply chain that highlights the importance of collaboration in harmony with the ecosystem for business success and sustainability requires an appropriate framework for increasing export potential to optimize added value and welfare of farmers and other stakeholders. Based on the challenges and opportunities, strategic steps can be taken to improve the marketing and sustainability of local and international Gedong Gincu mango businesses as well as efforts to increase partnerships, supply chain efficiency and develop export potential that supports.

This study aims to explore optimization strategies in supply chain management and the collaboration among stakeholders to enhance the exportation of Gedong Gincu mangoes, addressing identified gaps in existing research. This analysis employs the Structural Equation Modeling - Partial Least Squares (SEM-PLS) method to investigate the causal connections among critical elements in the supply chain and export operations. The findings aim to inform policymakers and industry stakeholders in developing more effective

export strategies for Indonesia's key horticultural products.

Method

This research uses a causal method to analyze the relationship between supply chain management and stakeholder collaboration on the enhancement of Gedong Gincu mango export potential. In this research, a schematic framework drawing of the research model was prepared describing the research problem as follows:

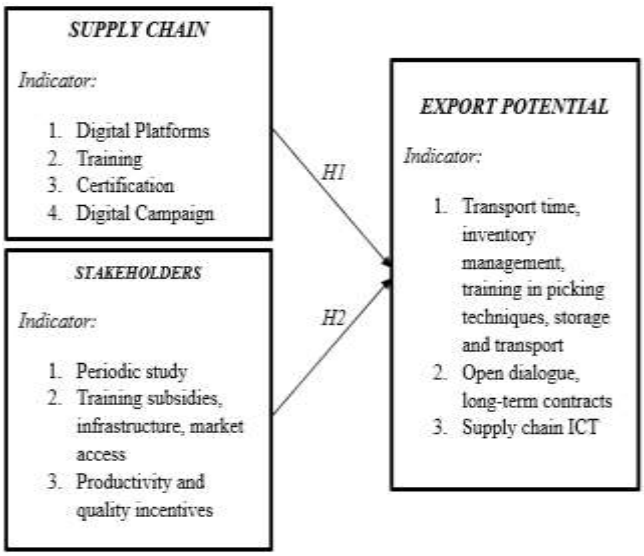

Figure 1. Research Framework

Primary data were obtained through a survey of 100 respondents who are stakeholders in the Gedong Gincu mango supply chain, such as farmers, distributors, exporters, and relevant government officials. The selection of respondents was carried out using purposive sampling techniques, which allows for the selection of participants based on specific criteria to ensure relevance to the research objectives. The criteria used in the sample selection include several key aspects. Respondents from the farmer group must have a minimum of three years of experience in cultivating Gedong Gincu mangoes. Meanwhile, the distributors and exporters involved in this research must have experience in mango trade, both in domestic and international markets. In addition, government officials and representatives from agricultural associations who are directly involved in the regulation and development of mango exports are also included. The purposive sampling technique was chosen because it is more effective in selecting respondents who have in-depth insights related to challenges in the supply chain and export.

Figure 2. Research Stages

Data analysis was conducted using the Structural Equation Modeling - Partial Least Squares (PLS-SEM) method with SmartPLS version 3.0 software. The selection of this method is based on several key considerations. First, PLS-SEM is more flexible in handling relatively small sample sizes compared to covariance-based SEM (CB-SEM). Second, this method does not require normally distributed data, making it more suitable for data that may not meet the assumption of normality. Third, PLS-SEM is capable of testing complex relationships between latent variables, including measuring direct and indirect influences between variables. In addition, this method is suitable for exploratory research, especially in developing theoretical models related to supply chain management and stakeholder collaboration in the agribusiness industry. This research uses SmartPLS with SEM which is shown in Figure 3.

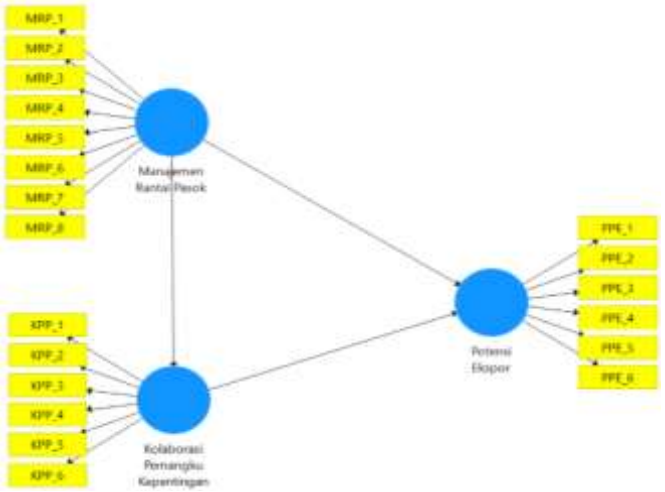

Figure 3. Inner Model

The analysis in this study is conducted through three main stages. First, multistage regression is used to analyze the relationship between observed variables and latent variables. Second, Confirmatory Factor Analysis (CFA) is conducted to test the measurement model and ensure that the latent construct can be well explained by its indicators. Third, structural regression (inner model) is conducted to measure the direct and indirect effects of supply chain management and stakeholder collaboration on the export potential of Gedong Gincu mangoes. The research model can be seen as follows:

Increase Export Potential:

$$(Y) = \beta 0 + \beta 1x1i + \beta 2x2i + e \quad (1)$$

Description:

β_0	= constant
β_1, β_2	= coefficient variable
〖x1〗_i	= supply chain management
〖x2〗_i	= stakeholder collaboration
e	= error

to ensure data quality, several statistical tests were conducted, including validity and reliability tests. The convergent validity test is conducted by measuring the loading factor of each indicator. Indicators with a loading factor value > 0.70 are considered valid, while indicators with a value between 0.50 - 0.70 are retained in the model because they still contribute to explaining the latent construct, especially in exploratory research (Hair et al., 2019). Although some indicators have values below 0.70, these indicators are still retained due to their relevance in the research context. Additionally, the Variance Extracted (AVE) test was conducted to further assess convergent validity. The reliability of the instrument was tested using Cronbach's Alpha and Composite Reliability (CR). All constructs have Cronbach's Alpha and CR values above 0.70, indicating that the research instrument has good internal consistency. Through this approach, this research is expected to provide a more comprehensive understanding of how supply chain optimization and stakeholder synergy can enhance the competitiveness of Gedong Gincu mango exports in the international market.

Result and Discussion

A new transition period will soon begin in various aspects of life. Integrated system-wide strategies are needed to reduce the socio-economic and environmental impacts of energy systems. Synergy and collaboration have been proven to be able to improve welfare in various aspects of life, especially agroeconomics. Agribusiness is an activity that covers the entire input materials sector, farming, companies that supply agricultural inputs, are involved in the production process and ultimately handle processing, distribution of wholesale sales and retail sales of products to final consumers including agricultural credit and other financial institutions.

In this research model, there is an examination of the influence of supply chain management and stakeholder collaboration on the export potential of gedong gincu mangoes in Majalengka Regency. It is proven that there is an influence on all these variables, both partially and simultaneously. Below are some of the analyzes we used in this research:

Outer Model Analysis

Figure 4. Outer Model Results

a. Convergent Validity Test

The Convergent Validity Test is an important part of the Partial Least Squares Structural Equation Modeling (PLS SEM) analysis. Convergent validity measures the extent to which the indicators (observed variables) used in the PLS SEM model reflect the construct (latent variable) that you want to measure. In other words, convergent validity evaluates whether the indicators actually measure the construct they represent.

Table 1. Convergent Validity Test Results Based on Loading Factor

Variable	Indicator	Loading Factor	Nilai Kritis
Stakeholder Collaboration	KPP_1	0,612	0.70
	KPP_2	0,521	0.70
	KPP_3	0,625	0.70
	KPP_4	0,700	0.70
	KPP_5	0,701	0.70
	KPP_6	0,754	0.70
Supply Chain Management	MRP_1	0,638	0.70
	MRP_2	0,856	0.70
	MRP_3	0,616	0.70
	MRP_4	0,606	0.70
	MRP_5	0,640	0.70
	MRP_6	0,758	0.70
	MRP_7	0,535	0.70
	MRP_8	0,638	0.70
Increased Export Potential	PPE_1	0,559	0.70
	PPE_2	0,576	0.70
	PPE_3	0,635	0.70
	PPE_4	0,648	0.70
	PPE_5	0,594	0.70
	PPE_6	0,770	0.70

There are two main metrics used to test convergent validity: Factor Loadings (Outer Loadings): Correlation values between indicators and constructs. High factor loadings indicate that the indicators well reflect the construct being measured. Next is Average Variance Extracted (AVE): The AVE value measures how much variation in indicators can be explained by the construct. The AVE value should be at least 0.5 to demonstrate adequate convergent validity. Based on this table, it can be concluded that the majority of indicators for each variable have a Loading Factor value > 0.70, so it can be said to be based on the initial assumption that the data is valid in the Convergent Validity test based on Loading Factor. However, in some underdeveloped research fields, a value of 0.5 to 0.6 is also acceptable. So, if the loading factor value is below 0.70.

Table 2. Convergent Validity Test Based on AVE

Variable	Rata-rata Varians Diekstrak (AVE)
Stakeholder Collaboration	0.431
Manajemen Rantai Pasok	0.445
Potensi Ekspor	0.402

The table above shows that all variables have an AVE value < 0.5. In this research, the two convergent validity testing criteria which include loading factor and Average Variance Extract (AVE) are not appropriate and meet the predetermined criteria so that convergent validity can be met, which means that all indicators have a relationship with each variable. Thus, it is feasible to carry out testing to the next stage

b. Discriminant Validity Test

Discriminant validity measures the degree to which two constructs that are supposed to be different actually differ in measurement. In the context of Partial Least Squares Structural Equation Modeling (PLS SEM) analysis, discriminant validity ensures that the constructs measured by certain indicators are truly different from each other.

There are two main metrics used to test discriminant validity: Factor Loadings (Outer Loadings): Correlation values between indicators and constructs. High factor loadings indicate that the indicators well reflect the construct being measured. Next is Average Variance Extracted (AVE): The AVE value measures how much variation in indicators can be explained by the construct. The AVE value should be at least 0.5 to demonstrate adequate discriminant validity. In testing this, the following are the results of the Discriminant Validity test in this study.

Table 3. Discriminant Validity Test Based on Cross Loading

AVE	Stakeholder Collaboration	Supply Chain Management	Export Potential
KPP_1	0.612	0.533	0.535
KPP_2	0.521	0.429	0.507
KPP_3	0.625	0.633	0.567
KPP_4	0.700	0.628	0.672
KPP_5	0.701	0.610	0.597
KPP_6	0.754	0.788	0.680
MRP_1	0.600	0.638	0.598
MRP_2	0.794	0.856	0.767
MRP_3	0.621	0.616	0.581
MRP_4	0.519	0.606	0.518
MRP_5	0.581	0.640	0.582
MRP_6	0.736	0.758	0.653
MRP_7	0.527	0.535	0.528
MRP_8	0.548	0.638	0.556
PPE_1	0.520	0.451	0.559
PPE_2	0.515	0.507	0.576
PPE_3	0.592	0.669	0.635
PPE_4	0.622	0.519	0.648
PPE_5	0.538	0.508	0.594
PPE_6	0.657	0.735	0.770

The table shows that the cross loadings value for each variable/construct has values above and below 0.70. Those the majority of data can be said to be valid. A good factor loading value in Partial Least Squares Structural Equation Modeling (PLS SEM) analysis shows how well the indicators (observed variables) reflect the construct (latent variable) that you want to measure. Factor loading measures the correlation between indicators and constructs. A high factor loading value (usually above 0.7) indicates that the indicator well reflects the construct being measured. This indicates good convergent validity.

Table 4. Discriminant Validity Test Based on Fornell-Larcker Criteria

	Stakeholder Collaboration	Supply Chain Management	Export Potential
Stakeholder Collaboration	0.657		
Supply Chain Management	0.934	0.667	
Export Potential	0.908	0.903	0.634

According to the table above Square Root AVE > Correlation between Latent Constructs. So that these criteria can be met. This criterion states that a latent variable shares more variance with the underlying indicator than with other latent variables. The Root Average Variance Extracted (AVE) value for each latent variable must be greater than the correlation value of the construct with other latent variables.

Based on the two discriminant validity test criteria that have been carried out, the results obtained are that the cross loading value is > 0.70 and the AVE Square Root value > Correlation between Latent Constructs means that the discriminant validity test can be fulfilled. This means that each existing indicator is different from the indicators in other variables.

c. Reliability Test

Table 5. Reliability Test

	Cronbach's Alpha	Reliabilitas Komposit	Rule of Thumb
Stakeholder Collaboration	0.732	0.818	0.70
Supply Chain Management	0.817	0.863	0.70
Export Potential	0.699	0.800	0.70

The table shows that all variables have Cronbach's Alpha and Composite Reliability values > 0.70, so it can be said that all statement items in each construct are reliable.

Inner Model Test

Inner model (also known as structural model) is part of the PLS SEM model that connects latent variables (constructs) with each other. The inner model describes the causal relationship between latent variables that have been built based on the substance of the theory. Meanwhile, the purpose of the Inner Model Test is to test the relationship between latent constructs. Some aspects evaluated in the inner model include: Path coefficients which describe the strength of the relationship between constructs. R-squared value (R2) to see how much variability in endogenous variables can be explained by exogenous variables. Effect size (f2) to measure the goodness of the model.

a. Coefficient of Determination (R-Square/R^2)

Table 6. Coefficient of Determination

	R Square
Stakeholder Collaboration	0.872
Export Potential	0.849

Based on this table, the Stakeholder Collaboration variable has an R square value of 0.872 so it is included in the Very High category. However, according to Chin (1998) this figure is considered moderate. This means that the ability of the independent variables (Stakeholder Collaboration and Supply Chain Management) in explaining the dependent variable (Export Potential) is 0.872 and the rest is explained by other variables that are not included in the research model. Then, Export Potential has an R square value of 0.849 which is also included in the Very High category. This means that Export Potential can be explained by the Stakeholder Collaboration and Supply Chain Management variables of 0.849 while the rest is explained by other variables not included in the research model.

b. Goodness of Fit (GoF) Index

Goodness of Fit (GoF) Index is a measure used to validate the combined performance of the measurement model (outer model) and structural model (inner model) in Partial Least Squares Structural Equation Modeling (PLS SEM).

Table 7. Average AVE dan R^2

	AVE	R^2
Stakeholder Collaboration	0.431	0.872
Supply Chain Management	0.445	0.849
Export Potential	0.402	
Average	0.426	0.8605

From this table, the following calculations can be made:

GoF $= \sqrt{AVE \times R^2}$

GoF $= \sqrt{0.426 \times 0.8605}$

GoF $= \sqrt{0.3665}$

GoF = 0,6054

From the results above, a GoF value of 0.6054 is obtained, which indicates a GoF higher than 0.36 as a requirement for a good instrument. The GoF value of 0.6054 indicates that the data sample taken is in accordance with the model studied, where the higher the GoF, the more appropriate the model will be so that hypothesis testing can be carried out. The hypothesis in this research can be known from model calculations using the PLS bootstrapping technique. From the results of the bootstrapping calculations, the statistical T value for each relationship or path will be obtained.

c. Direct Effect Test

Table 8. Hypothesis Test Direct Influence Test

	Sampel Asli (O)	T Statistik (|O/STDEV|)	P Values	Information
Stakeholder Collaboration -> Export Potential	0.506	0.497	0.003	Accepted
Supply Chain Management -> Stakeholder Collaboration	0.934	0.937	0.000	Accepted
Supply Chain Management -> Export Potential	0.431	0.446	0.010	Accepted

This test was carried out to determine the direct influence of the Stakeholder Collaboration and Supply

Chain Management variables on the Gedong Gincu Mango Export Potential variable. With the test criteria, if t count > t table (1.96) and p values < 0.05 then Ha is accepted.

1) The Stakeholder Collaboration variable has a calculated t value of 0.497 < t table, namely 1.96 with a p value (0.003) < 0.05 and a path coefficient value of 0.506 and has a positive sign. The interpretation of these findings shows that despite the cooperation between farmers, exporters, the government, and other parties in the supply chain, its impact on Gedong Gincu mango exports is still limited. One factor that can explain this is the lack of effective coordination and the differences in interests among stakeholders. Several previous studies, such as those conducted by Ariningsih et al. (2021), show that strategic partnerships in agribusiness can increase export competitiveness, but only if accompanied by supportive policies and adequate infrastructure. In addition, (Ikhwana & Maulana, 2023) found that in several mango producing areas, the role of intermediaries or middlemen is often more dominant than the direct relationship between farmers and exporters, which can hinder the effectiveness of collaboration. Therefore, although collaboration between stakeholders has been implemented, without a stronger mechanism in integrating the roles of each party, its impact on exports is still not optimal.
2) The Supply Chain Management variable has a calculated t value of 0.937 < t table, namely 1.96 with a p value (0.000) < 0.05 and a path coefficient value of 0.934 and has a positive sign. This indicates that although improvements in the supply chain management system can help in coordination and distribution efficiency, other factors are still more dominant in influencing the effectiveness of collaboration between stakeholders. The study by (Saryatmo & Sukhotu, 2021) in the context of the food and beverage industry shows that supply chain digitalization can improve operational efficiency and accelerate product distribution. However, in the context of agriculture, the adoption of technology in the supply chain is still limited, especially at the farmer level, which causes the supply chain system to not be fully integrated.

In addition, in the context of mango exports, there are various obstacles in the supply chain that are not only related to logistics management, but also involve aspects of regulation, product quality, and government involvement. Budirokhman (2016) stated that without improvements in post-harvest infrastructure and access to global markets, collaboration between stakeholders will continue to face obstacles even though the supply chain has been improved (Budirokhman, 2016). Thus, the results of this study indicate that improvements in supply chain management alone are not enough to improve collaboration without additional support from stronger policies and incentive systems.

3) The Supply Chain Management variable has a calculated t value of 0.446 < t table, namely 1.96 with a p value (0.010) < 0.05 and a path coefficient value of 0.431 and has a positive sign. This finding indicates that improvements in the supply chain system are not enough to directly increase Gedong Gincu mango exports. Several factors that can explain this result include limited market access, imbalances in product distribution, and lack of quality standardization in accordance with international market demand. Chu & Pham (2024) stated that in international trade, good supply chain management needs to be supported by external factors such as regulatory stability and supply sustainability, which in the case of Gedong Gincu mango still face challenges (Chu & Pham, 2024).

In addition, in a study by Cristian et al. (2016) on the horticulture industry, it was found that although supply chain efficiency can improve product competitiveness, without an aggressive marketing strategy and extensive distribution network, the impact on exports remains limited (Cristian et al., 2016). Therefore, although improvements in the supply chain can help improve distribution efficiency, this study shows that other factors, such as strengthening business partnerships, international certification, and export market diversification, are still needed to significantly increase the export potential of Gedong Gincu mangoes.

Discussion

Gedong Gincu mango has the potential to become a leading agricultural export product in Indonesia, but in reality the export process of Gedong Gincu mango is currently still facing several challenges and problems in its development. In line with the obstacles and challenges outlined in this research, the researcher suggests that:

a. Improvement of Supply Chain Management

Although the research results indicate that supply chain management (SCM) does not have a significant impact on export potential, this aspect remains a crucial factor in supporting the efficiency and smooth distribution of Gedong Gincu mangoes. A well-structured supply chain will ensure that the product remains available in sufficient quantities, with quality maintained from the farmers to the hands of the consumers. SCM optimization can be achieved by strengthening coordination between producers, distributors, and traders, so that each party has a clear

role in maintaining supply stability. In addition, the implementation of technology-based product tracking systems can enhance transparency in the supply chain, ensure quality standards, and minimize the risk of loss or delays in distribution. With better coordination, the supply of Gedong Gincu mangoes will remain stable and have higher competitiveness in the export market.

b. Improvement of Quality and Sustainability of Production

Quality and continuity of production are the main factors in enhancing the export potential of Gedong Gincu mangoes. One of the main challenges faced by farmers is the fluctuation in harvest yields due to weather factors and suboptimal cultivation practices. To address this issue, farmers need to implement Good Agricultural Practices (GAP) to improve the productivity and quality of the fruits produced. Some important steps in the implementation of GAP include: (1) Selection of superior seeds that meet export standards; (2) The implementation of an irrigation and fertilization system that is appropriate to maintain the nutritional balance of the plants. Integrated pest and disease control, ensuring the quality of the fruit is maintained; (3) Harvesting and post-harvest handling in accordance with export standards, to ensure the mangoes remain fresh until they reach the destination market.

With more stable production and consistent quality, the export potential of Gedong Gincu mangoes can increase significantly. In addition, the international standard certification system such as GlobalG.A.P. also needs to be strengthened so that this product can be more easily accepted in the global market.

c. Global Market-Oriented Marketing

Currently, most of the marketing of Gedong Gincu mangoes still relies on collectors who are oriented towards the local market. In order for exports to increase, a shift in marketing strategy towards the international market is necessary. Several steps that can be taken to expand global market access include: (1) Identifying market opportunities abroad by analyzing demand trends and consumer preferences in the target export countries; (2) Strengthening product branding and positioning, for example by highlighting the unique taste and quality of Gedong Gincu mangoes compared to other varieties; (3) Collaboration with international business partners, such as importers and distributors abroad who have extensive marketing networks; (4) Utilization of international digital and e-commerce platforms, making products more accessible to global consumers.

With a more strategic and innovative approach to marketing, Gedong Gincu mangoes can become better known in the international market and have stronger competitiveness among other horticultural products.

d. Strengthening Infrastructure and Institutions

The success of exporting Gedong Gincu mangoes also heavily relies on adequate infrastructure and institutional support. Currently, there are still various obstacles such as the lack of post-harvest facilities, limited transportation, and the suboptimal role of farmer institutions in supporting exports. Several steps that need to be taken to improve infrastructure and institutions include: (1) The construction and modernization of post-harvest facilities, including cold storage and sorting centers to ensure the quality of mangoes is maintained; (2) Improving access to transportation and export logistics by enhancing distribution routes from production centers to export ports to reduce logistics costs; (3) Strengthening farmer institutions, such as cooperatives and agribusiness associations, so that farmers can more easily access financing, receive training, and expand market networks; (4) Regulatory support and incentives from the government, such as simplifying export procedures and providing incentives for farmers who implement export standards.

With better infrastructure and strong institutions, farmers can be more empowered to scale up production and expand access to international markets.

Conclusion

Based on the results and discussion above, Based on the results of data collection obtained from the observation process, there are various problems that are still faced by MSME actors in Mangga Gedong Gincu in their efforts to develop export potential. In 2024, Indonesia will export the Gedong Gincu mango variety to Japan for the first time. The market potential for this mango in Japan is estimated at 7,000 tons per year with an economic value of around IDR 140 billion per year. Currently, the export potential of Gedong Gincu mangoes from West Java is around 2,500 tons per year, with an estimated economic value of between IDR 45 and 50 billion. The price of mangoes in Japan varies depending on the season, but for small sizes, the price can range between IDR 30-40 thousand per fruit.

Collaboration between stakeholders, including farmers, local governments and quarantine agencies, is very important in accelerating the export of Gedong Gincu mangoes to Japan. Apart from that, local governments need to speed up the registration of plantations and container houses as one of the technical requirements for export. In this way, mango exports can improve the welfare of society and the economy in the region, as well as expand its positive impact.

Supply Chain Management has a crucial role in optimizing the distribution and coordination process between various parties involved in the supply chain of a product or service. However, it seems that in this context, its effect on stakeholder collaboration is not significant. This can be caused by other factors that influence stakeholder collaboration, such as organizational culture, internal policies, or external factors that are not included in the analysis model.

Export Potential of Gedong Gincu Mango is a mango variety that is quite well known in Indonesia. However, even though it has promising potential, Gedong Gincu mango exports have still not reached optimal levels. Constraints on Indonesian Mango Exports Several factors that influence the weak exports of Indonesian mangoes, including Gedong Gincu mangoes, are as follows: (1) Fruit Condition: Fruit quality is the main factor. Gedong Gincu Mango has different characteristics from other varieties, such as sweet fragrant mango. The brownish green skin color of the Gedong Gincu mango is sometimes considered unripe or unattractive by consumers in foreign markets; (2) Regulations: Export regulations and procedures also influence. Several regulations related to quarantine, quality standards and certification often become obstacles for mango producers and exporters.

However, it should be noted that Supply Chain Management is not the only factor influencing mango exports. However, other factors such as efforts to improve fruit quality, educating producers regarding export regulations, and effective product promotion also need to be carried out.

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Conflicts of Interest

The authors declare no conflicts of interest in this research.

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