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The Promising Prospect of Banana Production and Marketing in Indonesia

Bambang Yudi Ariadi^{1✉}, Rahayu Relawati², Yohana Agustina³, Lorenta In Haryanto⁴ and Mohd Fauzi Kamarudin⁵

^{1,2,3}Universitas Muhammadiyah Malang, Indonesia

⁴Universitas Muhammadiyah Jakarta, Indonesia

⁵Faculty of Technology Management and Technopreneurship, Universiti Teknikal Malaysia Melaka, Malaysia

✉Correspondence email: bambang_y@umm.ac.id

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Abstract

Key Words:

Banana export;
banana flour;
fresh banana;
processed banana

Despite its well-run production and marketing in Indonesia, the development strategies of banana produce are in need of comprehensive scientific study. This present study aims to analyze the production and marketing prospects of Indonesian bananas. We employed the available data from the Central Bureau of Statistics (*Badan Pusat Statistik*) from 2017-2021. The obtained data for production prospects was analyzed through a descriptive analysis by compiling the numbers of production, productive crops, and productivity of bananas. Meanwhile, the marketing prospects were analyzed based on data on consumption, export volume and value, import volume and value, and exports and imports of banana flour. The results showed that the prospects for banana production in Indonesia are promising; however, the production development is in need of support from more planting areas to boost productivity. Marketing expansion into the importing-countries, such as Europe, the US, China, Russia, and Japan is facilitated through the export of fresh bananas. Our findings suggest that the marketing prospects can be increased through the support from banana processing industry. Furthermore, the opportunity for market expansion of processed banana products remains viable in both domestic and international markets, particularly when considering banana flour as a potential product.

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INTRODUCTION

Bananas are pivotal to Indonesian commodity due to their great contribution to horticultural food resources. In particular, the availability of large areas of land and tropical climate conditions support varietal diversity, supporting Indonesia with the capacity to increase its banana production. Banana production is spread across Indonesian provinces, with Jawa Timur as the largest banana-producing province, followed by Jawa Barat and Lampung (Badan Pusat Statistik Indonesia, 2021). Among the banana types that are potentially grown in Indonesia are Cavendish, *Raja*, *Kepok*, *Mas*, and others. In the international market, high demand for bananas – especially the Cavendish – that must be met with international quality standards and certification, opens up great opportunities for Indonesia to expand its market share. Meanwhile, in the domestic market, high banana consumption creates a stable and sustainable market, providing the potential to expand market reach.

In 2021, banana production reached 8,741.15 thousand tons, while household consumption of bananas reached 2,387.83 thousand tons, made up only 27.3% of the market share (Badan Pusat Statistik Indonesia, 2021). As a fruit, bananas are predominantly marketed in the form of fresh produce, both domestically and internationally. As a fresh agricultural product, bananas have a short lifespan from harvest to household consumption. Problems arise because bananas rot easily before they reach consumers and cause losses. Therefore, the abundant banana production at the farm level must be supported by marketing strategies, both for domestic and export markets. This is at odds with the low volume and value of banana exports, amounting to only 13,656.25 tons in 2021 (0.57% of production in the same year). This data signifies that the banana marketing strategy must be supported by industrialization of processed banana products that can maintain quality prior to regional and global distribution.

Countries like West Africa, Ecuador, and the Philippines rely on banana production as an important part of agricultural production, and thus they strive for its sustainability (Apolo, 2020; Olumba & Onunka, 2020; Thiers, 2019; Vijayan et al., 2023). Pakistan joins to continue developing banana production and marketing by growing new varieties through various research (Muhammad, 2017). In Indonesia,

banana production and marketing have been studied with satisfying findings in terms of performance and prospects in several places such as Pinrang (Naufal et al., 2021; Paridy et al., 2020; Vijayan et al., 2023), Bantul (Surya et al., 2021), and Lumajang (Zahrosa et al., 2020).

Additionally, previous research on banana marketing has been carried out in various countries. Ecuador and the Philippines are competing to improve the quality and sustainability of banana exports, with strategies of involving small-scale businesses and quality exports to minimize carbon emissions (Iriarte et al., 2014; Thiers, 2019). In Nigeria, research recommends the provision of fast market information and price stability, which are successfully followed by the use of applications on mobile phones for educated marketers with large marketing volumes (Ajayi et al., 2016; Olumba & Onunka, 2020).

Studies on banana production and marketing reveals difficulties in meeting standardization and assessment at banana production levels (Paridy et al., 2020; Vijayan et al., 2023; Vincy, 2016). The difficulties include labor scarcity, high labor costs, unavailability of good quality, inadequate electricity supply, high input costs, inadequate water supply, inadequate credit facilities, and pest attacks and disease (Sakthiganesh & Dineshkumar, 2022). This is exacerbated by factors such as price fixation, lack of cold storage facilities, inappropriate weighing procedures, perishable bananas, price fluctuations, and inadequate transportation facilities as other prevalent challenges in banana marketing (Duth & Shashidhara, 2022). However, there is a dearth in the literature of the prospects for banana production and marketing in Indonesia. There is a need to provide a holistic finding based on the research that emphasizes the importance of overcoming obstacles in this matter. It has been suggested that product marketing must be specifically designed to support the growth of banana production (Duth & Shashidhara, 2022).

The novelty of this present study lies in the examination of production, consumption, and marketing of bananas in Indonesia to propose solutions to gaps in production data and market uptake. This present study offers important results that help successful marketing of bananas to keep pace with developments in production as scientific findings based on empirical data potentially become an objective basis for the development of banana agribusiness in Indonesia. The objectives of this research are to: 1) analyze the prospects for banana production in Indonesia; and 2) analyze the marketing prospects for bananas in Indonesia.

RESEARCH METHODS

The object of this present study is banana agribusiness in Indonesia, which are analyzed with a quantitative descriptive design. Ontologically, bananas are a high-value commodity, both for fresh and processed consumption. Epistemologically, banana commodities need to be managed well in the production and marketing aspects. Axiologically, the principle in developing banana production and marketing must prioritize prospects and sustainability.

The detailed framework is depicted in Figure 1.

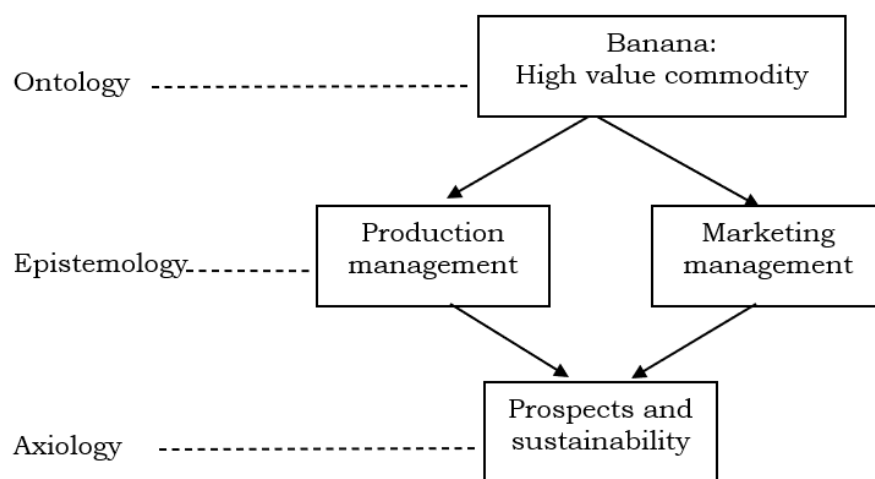


Figure 1. Conceptual framework

This present study employs the data obtained from BPS Indonesia from 2017-2021. The data analyzed includes production, number of productive banana trees, consumption, domestic marketing, banana export volume, and banana export value. Each data is in the form of a recap of data per year on a national scale.

The variables analyzed are described as follows:

- Production : thousand tons/ year
- Consumption (household) : thousand tons/ year
- Export volume : tons/year
- Export value : thousand US dollars/year
- Import volume : tons/year
- Import value : thousand US dollars/year
- Global export volume : million tons/year
- Global import volume : million tons/year
- Global banana flour export volume : tons/year
- Global banana flour import volume : tons/year

Our first research objective (the prospects for banana production) was answered through quantitative descriptive methods by compiling production data, number of productive plants and banana productivity. Meanwhile, the second research objective (the prospects for banana marketing) was answered through quantitative descriptive analysis based on a compilation of consumption data, export volume and export value, import volume and value, as well as opportunities for developing the banana processing industry.

FINDINGS AND DISCUSSION

Production and consumption of bananas in Indonesia

Banana production in Indonesia has increased over five years from 2017 to 2021. Figure 2 shows the increase in production and fluctuations in banana consumption (Badan Pusat Statistik Indonesia, 2021). The increase in national banana production was caused by an increase in average productivity because the number of productive plants that fluctuate. An increase in the number of productive plants occurred in 2020 and 2021.

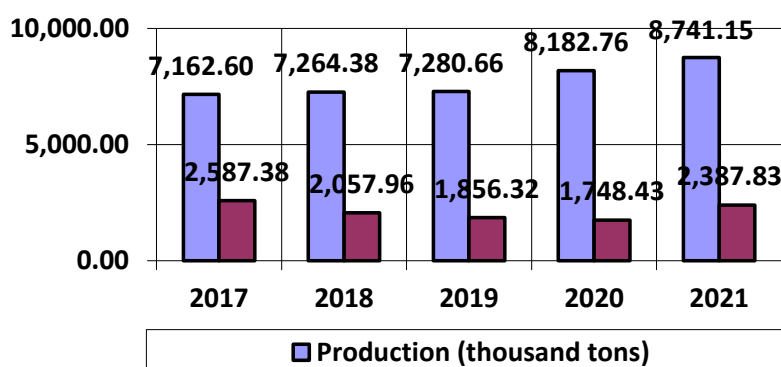


Figure 2. Banana Production and Consumption in Indonesia

Source: (Badan Pusat Statistik Indonesia, 2021)

Figure 2 shows the decrease in the number of productive banana plants from 2017 to 2019. The decrease in the number of productive plants is resulted from the decrease in banana cultivation. These findings are in line with research in the Tamil Nadu region, in which the decrease of banana planting areas has led to a decline in production (Sathiya et al., 2022). Similarly, in Mount Kenya region, a decrease in rainfall and temperature increase negatively impacted banana production among small farmers (Karienyne & Kamiri, 2020). In Southern Imenti, Kenya, the systematic transformation of land use for banana production results in a decrease in land area for other crops and an increase in for banana farming (Nyamamba et al., 2020). In Uganda, there has been a shift in banana production areas over the past five decades,

with a notable increase in the western region and decrease in the eastern region (Ochola et al., 2022). These findings highlight the importance of addressing factors such as climate variability, land use change, and access to quality planting materials to maintain and increase banana production.

Furthermore, a significant increase in the number of productive banana plants can only be seen in 2020 and 2021, which was followed by promising business prospects. Banana-importing countries always have a high demand, which has become a prospective market opportunity in the form of fresh bananas and particularly banana flour (Hidayati & Suhartini, 2018). To fulfill such demand, various drying methods like sun drying, solar drying, and oven drying, are commonly used to preserve bananas and produce banana flour (Adawiyah & Hasmadi, 2023). Banana flour is high in carbohydrate and can be used as processed food (Rakhmawati et al., 2023). Different banana cultivars can be used to make flour, and sensory analysis supports the industrial use of banana flour (Cândido et al., 2023). Banana flour from different varieties has varying physicochemical properties and can be a potential source of bioactive components (Chang et al., 2022). Processing bananas into flour can also extend their shelf life and increase their economic value (Wibowo et al., 2021).

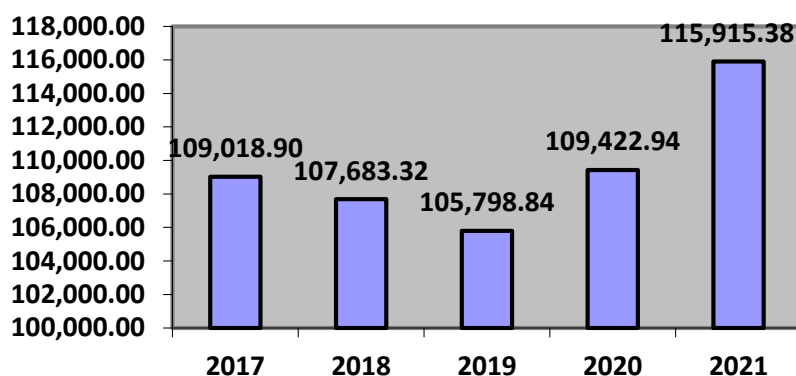


Figure 3. The total of productive banana plant (trees) in 2017-2021

Source: (Badan Pusat Statistik Indonesia, 2021)

A significant decline in banana consumption occurred from 2017 to 2020, and increased again in 2021. The increase in banana consumption in 2021 reached 33.81% compared to the previous year. Possibly, the high increase in 2021 was related to the Covid-19 pandemic. Changes in Indonesian people's lifestyles during the Covid-19 pandemic have led to an increase in functional food products, driven by public awareness of health (Burkhart et al., 2022; Olumba & Onunka, 2020; Wahyuningsih et al., 2023). Functional foods contain bioactive components and rich

natural resources, which has resulted in the vast growing request of local food ingredients such as corn, bananas, yams, sweet potatoes, and organic chicken eggs into functional food products that offer additional health benefits (Relawati et al., 2021; Wahyuningsih et al., 2023). These local ingredients potentially fulfill people's nutritional needs and contribute to improved health outcomes. Market and future opportunities for functional food products based on local ingredients are expected to expand, considering the potential of this resource (Amanda et al., 2023). By developing functional food products, Indonesia can increase food security and improve the overall health and well-being of its population (Destryana et al., 2023; Relawati et al., 2021).

Banana marketing prospects in Indonesia

From 2017 to 2021, the average consumption of fresh bananas reached 27.81% (Badan Pusat Statistik Indonesia, 2021). The largest household consumption of bananas is in the form of fresh fruit. The percentage of banana consumption is much greater compared to large banana-exporting countries such as Ecuador, where banana consumption is only 4% of its production (Iriarte et al., 2014). West Africa generally prioritizes banana production for export purposes over domestic consumption (Olumba & Onunka, 2020).

Figure 4 presents the percentage of fresh banana consumption and banana exports on national banana production of Indonesia. The consumption percentage ranges from 21% to 36%, with the average during 2017-2021 reached 27.81%. This figure is much greater than the percentage of fresh banana exports, which is in the range of 0.15% to 0.42% and an average of 0.26% of total production per year. If the total consumption and export of bananas is only around 28%, the question goes to the rest of 72% absorption. The answer lies in the creativity of Indonesian Micro, Small, and Medium Enterprises (MSMEs) that proceed bananas into various snacks from banana raw materials. However, we are unable to find the exact number of MSMEs' absorption of fresh bananas as industrial raw materials. The banana flour processing industry in Indonesia is small, and there is no statistical data that can be extracted or used as a reference.

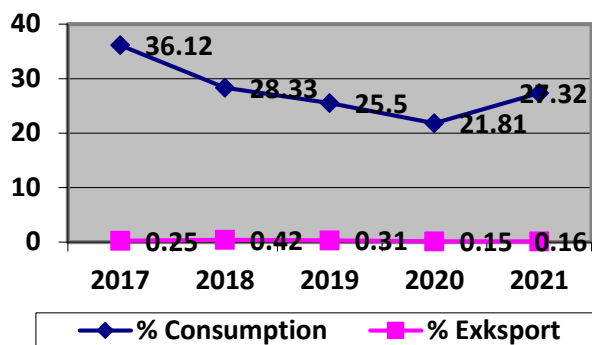


Figure 4. Percentage of banana consumption and export

Source: (Badan Pusat Statistik Indonesia, 2021)

Indonesia has a promising banana export prospects. The comparative competitiveness of Indonesian bananas in the ASEAN market from 1994-2013 was in fourth position after the Philippines, Malaysia, and Thailand (Hidayati & Suhartini, 2018). This position should be utilized to increase the export market, which will be useful for reducing the gap between production, consumption, and export markets in data for future years (see Figure 1, 3, and 4).

Figure 5 summarizes both the export and import volumes of fresh bananas during 2017-2021, with the import volume is much lower than the export volume. This means that as traded goods, Indonesian bananas are included as exported goods, where the export amount is greater than the import amount. As a comparison, banana imports in 2021 were roughly 0.000015% of banana exports.

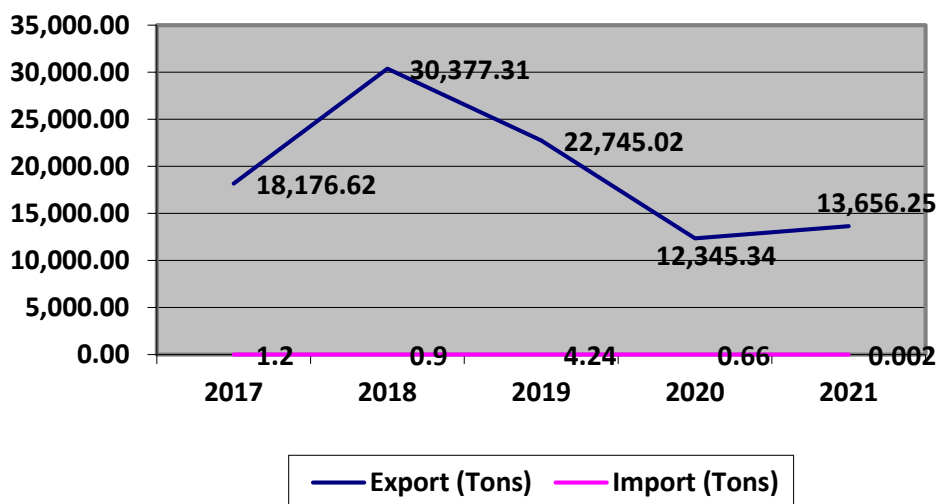


Figure 5. The volume of banana export and import (tons)

Source: (Badan Pusat Statistik Indonesia, 2021)

Figure 6 presents the export and import values of Indonesian bananas, with the export numbers fluctuated between 2017 and 2021. A sharp decline in export occurred in 2018-2020, with 2021 experienced a slight increase in banana exports.

In the same year, the export value reached US\$ 6.09 million, increasing from 7.78% (US\$ 0.44 million) from 2020. Countries that experienced increase in banana exports in the same period were Ecuador (Apolo, 2020; Thiers, 2019), and the Philippines with the same target market of ASEAN countries. This follows the data where the Philippines is the main competitor for Indonesia in the ASEAN market. India also experienced an increase in banana exports in the previous period (2011-2015) (Landge & Ingle, 2018; Shivam et al., 2021), and has become another important competitor to Indonesian bananas. Hence, efforts to increase the Indonesian banana export market must be accompanied by increasing competitiveness through competitive advantages.

The following figure displays the export and import values of Indonesian bananas during 2017-2021. The values in the US dollars is to underscore the fluctuations in the export-import value graph that resembles the fluctuations in the export-import volume graph. This means that the price of bananas on the international market is relatively the same in the period analyzed.

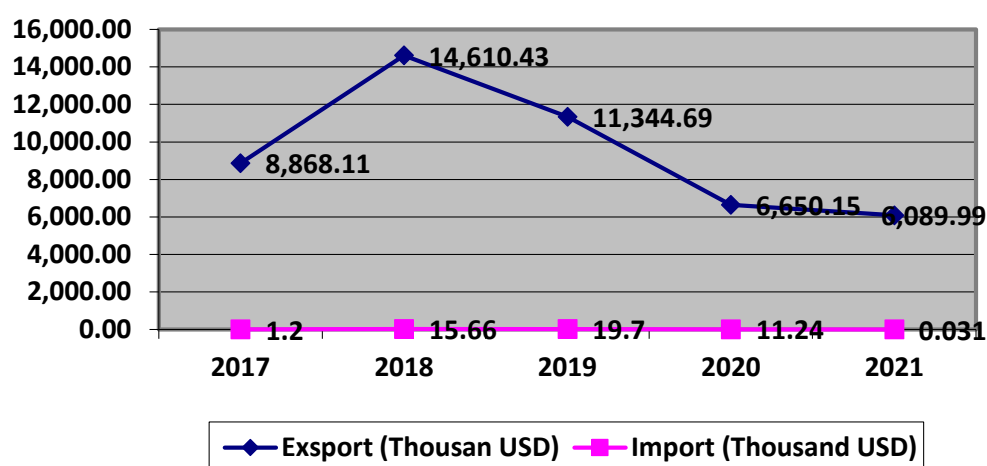


Figure 6. The value of banana export and import 2017-2021

Source: (Badan Pusat Statistik Indonesia, 2021)

In 2021, the value of banana imports reached US\$ 31, down 99.72% (US\$ 11.21 thousand) from 2020 (see Figure 6). The value of banana imports is much smaller than banana exports. Hence, Indonesia has a big opportunity to expand its export market reach. In so doing, the prospects for Indonesian banana market must be analyzed by comparing production potential and its increase, consumption percentage, and export market opportunities. Discussion on the prospects for Indonesian banana exports can be linked to the global export players for fresh banana commodities and processed forms, for example, banana flour.

The world’s largest exporters of fresh bananas are Ecuador, Philippines, Costa Rica, Guatemala, Colombia, Dominica, Mexico, and India (FAO, 2022). Several banana-exporting countries experienced a decline in export volume in 2021 compared to 2020. The decline in exports can be attributed to the Covid-19 pandemic situation which caused an economic crisis and several countries restricted mobility between countries. The decline in banana production also occurred in Malaysia, even though Malaysian bananas have a competitive advantage compared to regional countries and various challenges must be overcome (Tan, 2022).

Next, Figure 7 presents the export volume of fresh bananas from several exporting countries in Asia. Banana exports from Asia are dominated by the Philippines (90% of Asia’s total supply), the second leading global banana exporter after Ecuador. Indonesia is a country that exports fresh bananas, but the number is extremely low; it is not even visually visible in the graph because the figure is too small compared to the largest exporter (Philippines) and other countries, namely Vietnam, India, and Pakistan. Even so, the potential for Indonesian banana exports is quite large because Indonesian banana exports in 2021 reached 0.16% of production volume (Graph 3). The use of bananas for consumption in the same year was only 27.32%.

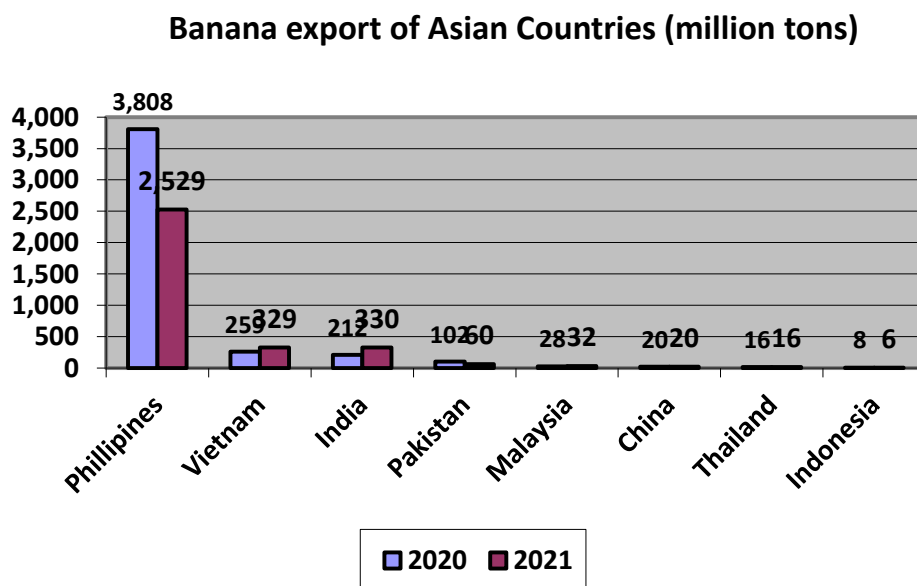


Figure 7. Banana exporting-countries in Asia

Source: (FAO, 2022) analyzed

Discussion on the prospects for Indonesian banana exports is related to data on banana-importing countries. Figure 8 presents data on countries importing fresh bananas. Europe and the USA are the largest banana-importing countries that tend

to be stable in 2020 and 2021, reaching 5.2 million tons and 4.1 million tons, respectively. Apart from the large volume of demand in importing countries, trade distance can also be a consideration. Countries importing bananas from Asia, which are also quite large, are China, Russia, and Japan. Therefore, the target market for fresh banana exports from Indonesia must target the markets of these three countries. FAO data shows that in the Asian market, banana imports by China and Japan increased in 2021 compared to 2020; while banana imports by Russia are quite stable with a larger amount compared to the Japanese market (FAO, 2022). Hence, the target market for Indonesian banana exports to Asia is important, taking into account the shorter transportation distance for the commodity, and the relatively large competitor in the Asian market is only from the Philippines.

Discussion on the prospects for Indonesian banana exports must also be linked to data on banana flour exporting countries. Figure 9 shows data on the export volume of banana flour from several banana-exporting countries globally. It can be seen that the export volume of banana flour is not yet as large as the export volume of fresh bananas. The world's largest exporter of banana flour is the Netherlands, with export volume in 2021 reaching 432,778 tons (ITC, 2022a, 2022b). Other countries that export banana flour in much lower volumes are Germany, Belgium, and France. This signifies Indonesia's needs to consider the European exporter competitors when it wants to extend trades of the banana flour aside from the targeting importing-countries.

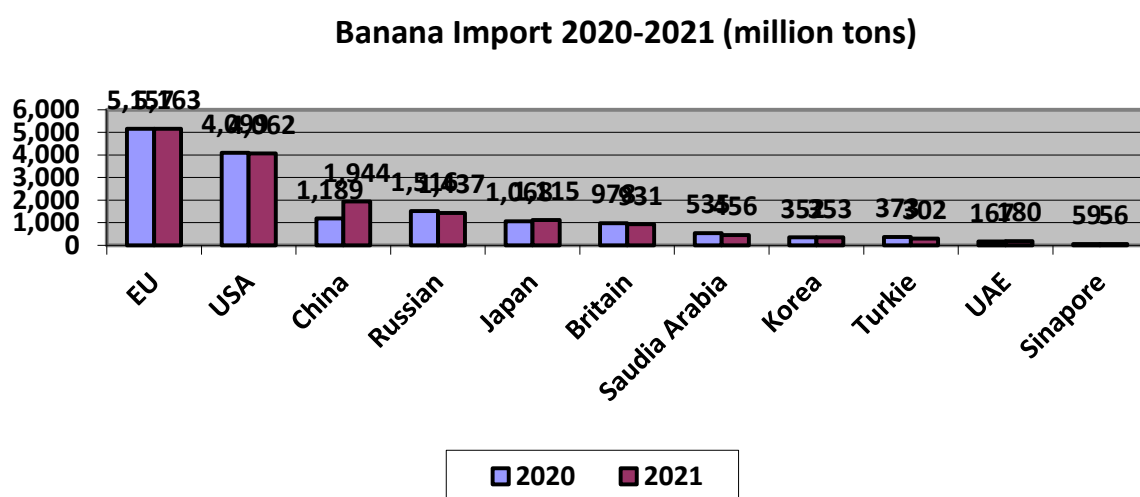


Figure 8. Global banana-importing countries.

Source: (FAO, 2022) analyzed

Data on the banana flour trade is restricted, so the information obtained may not provide a holistic picture. Banana flour exports from the Netherlands are still the largest among other countries (ITC, 2022a, 2022b).

Banana Flour Export 2020-2021 (tons)

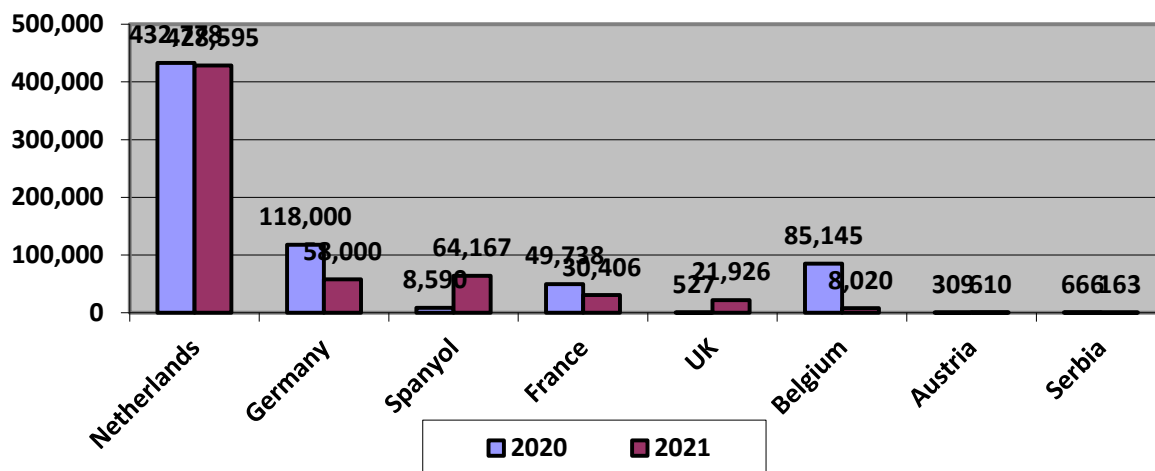


Figure 9. Banana-exporting countries in 2020-2021

Source: (ITC, 2022a, 2022b).

Discussion on the export prospects of Indonesian banana flour is closely related to the data on banana flour importing countries. Figure 10 presents data on countries importing banana flour. The largest importers are Germany, the USA, and the Netherlands (ITC, 2022e, 2022g, 2022c, 2022h, 2022f, 2022d).

The world’s largest importers of banana flour are Germany, France, the USA, the Netherlands, Belgium, Russia and Italy. According to data from the International Trade Center (ICT), there was a significant increase in export volume from the USA, which was 29.6%, approaching the value of imports from Germany which reached 657 tons.

Banana Flour Import 2020-2021 (tons)

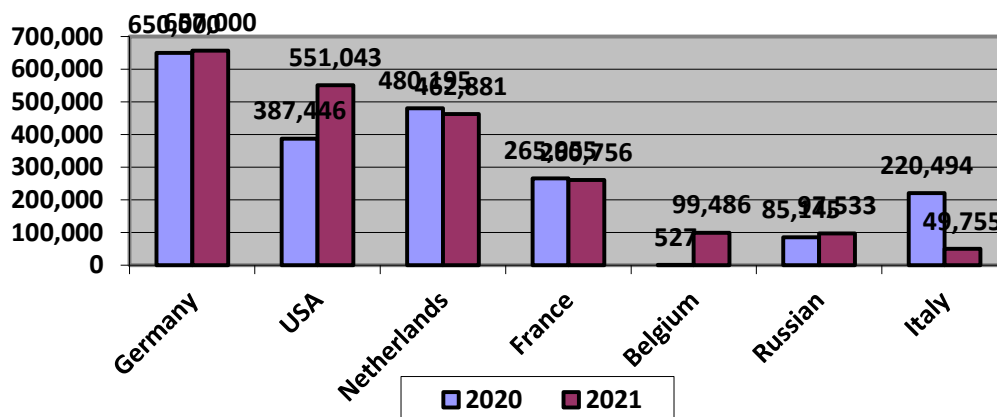


Figure 10. Banana-importing countries in 2020-2021

Source: (ITC, 2022e, 2022g, 2022c, 2022h, 2022f, 2022d)

The marketing prospects for Indonesian bananas are widely open by developing export markets, both in the form of fresh bananas and banana flour. Banana exports are already underway and have experience with cold storage technology for export. Meanwhile, market opportunities for banana flour exports must be supported by the development of domestic flour industry innovation. Although studies on the banana flour global market are limited, but can be used as a reference. For example, studies in Indonesia on the potential of the Raja Lawe and Raja Labu banana varieties as ingredients for banana flour (Wibowo et al., 2021).

CONCLUSION

The prospects for banana production in Indonesia are quite promising with notable increase over the last five years. Such increase in production development must be supported by optimizing land use to increase banana planting area. Banana market prospects must also be improved, especially in the export market in the form of fresh bananas to Europe, the US, China, Russia, and Japan. The growing banana market requires innovation in the development of the banana processing industry, for example, banana flour. In particular, market prospects for banana flour as a raw material for the food industry is still open for domestic and foreign markets.

SUGGESTIONS

The development of banana flour industry is prevalent to increase the added value of Indonesian banana exports, aside from the fresh bananas. The trade relations in the fresh banana export market needs to continue in the Asian export market, while the banana flour trade relations needs to be expanded to markets in European and American countries. The limitation of this present study lies in our inability to study the competitiveness of Indonesian bananas in various export destination countries. Further research is needed to examine the competitiveness of Indonesian exports of fresh bananas and banana flour to Asian countries and global markets. Moreover, we were also unable to assess the competitiveness of Indonesian bananas in various export destinations, as well as collecting primary data from banana industry players. This is an area of investigation for future researchers to provide a better understanding of the problems and challenges in the banana industry at a higher level. Further research is also needed to assess the competitiveness of exports of fresh Indonesian bananas and banana flour to Asian countries and global markets.

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AUTHOR CONTRIBUTIONS

1	Dr. Ir. Bambang Yudi Ariadi, MM	
	Institution	Associate Professor of Agribusiness, Universitas Muhammadiyah Malang. Jl. Raya Tlogomas no 246 Malang, Jawa Timur, Indonesia.
	Contributions	Coordinating activities for preparing proposals, conducting research and reports, as well as preparing published research articles.
	Homepage	https://sinta.kemdikbud.go.id/authors/profile/6030033
2	Prof. Dr. Ir. Rahayu Relawati, MM	
	Institution	Professor of Agribusiness, Universitas Muhammadiyah Malang. Jl. Raya Tlogomas no 246 Malang, Jawa Timur, Indonesia.
	Contributions	Assisting in searching field data and data analysis, and assisting in the completeness of the preparation of published research articles.
	Homepage	https://sinta.kemdikbud.go.id/authors/profile/6032932
3	Yohana Agustina, SP, MSc.	
	Institution	Lecturer of Agribusiness, Universitas Muhammadiyah Malang. Jl. Raya Tlogomas no 246 Malang, Jawa Timur, Indonesia.
	Contributions	Assisting with data collection and field data compilation and interpretation.
	Homepage	https://sinta.kemdikbud.go.id/authors/profile/6757988
4	Lorenta In Haryanto, S.E., M.Sc.	
	Institution	Lecturer of Agribusiness, Universitas Muhammadiyah Jakarta. Gedung Fakultas Pertanian, Jl. K.H. Ahmad Dahlan, Cirendeu, Ciputat, Tangerang Selatan 15419 Indonesia.
	Contributions	Assisting with data collection and field data compilation and interpretation.
	Homepage	https://sinta.kemdikbud.go.id/authors/profile/6737016
5	Dr. Mohd Fauzi bin Kamarudin	
	Institution	Faculty of Technology Management and Technopreneurship, Universiti Teknikal Malaysia Melaka, Malaysia
	Contributions	Help find references for supporting research data and publications.
	Homepage	https://scholar.google.com.my/citations?user=-2oVnasAAAAJ https://www.scopus.com/authid/detail.uri?authorId=56673836500

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