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PROSPECTS FOR SHALLOTS AGRIBUSINESS DEVELOPMENT IN PAMEKASAN REGENCY

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ABSTRACT

Shallots have a strategic role in the local economy. Shallots are a staple food and essential seasoning, leading to high demand and strong market potential. As Indonesia is an agricultural country with rich natural resources, shallot farming can improve national food security and fulfil people's food needs. The research applies a descriptive quantitative method using trend analysis to examine shallot production in Pamekasan Regency. The data used are secondary production data from 2020 to 2023. This study aims to determine a. what factors influence the development of shallot farming in Pamekasan Regency, b. the prospects for developing shallot farming in Pamekasan Regency. The results showed that a. there are factors that dominate shallot production in Pamekasan Regency, such as land area, weather, fertilizer problems and agricultural technology. Shallots production data in Pamekasan Regency from 2020 to 2023 shows a significant downward trend. The area of shallot land in Pamekasan Regency is dominated by an area of less than equal to 1 Ha, so if there is a change in cropping patterns or farmers' attitudes in deciding which commodity to plant, it directly affects the level of shallot production. Shallots have high economic value and stable domestic and international demand. With appropriate planting and management patterns, shallots will become a commodity that can survive in the rainy and dry seasons. Onion derivative

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products, such as fried shallots, shallots paste, and shallots powder, have the prospect of increasing added value and farmers' income.

Keyword: *development, prospects, shallots*

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INTRODUCTION

As Indonesia is an agricultural country with rich natural resources, this sector can improve national food security and fulfil people's food needs (Rhofita, 2022). By providing raw materials for processing industries and trade, this sector helps maintain national food security and advances the regional economy (Susanto et al., 2024). Compared to other sectors, the agricultural sector remains the main driver of job creation in the Indonesian economy (Setiawan, 2023). In addition to being a significant source of income for farmers, trade, and employment, the horticulture subsector has enormous potential to drive economic growth (Mardial, et al., 2020). In the first and second quarters of 2021, the horticulture subsector grew by 3.01% and 1.84%, respectively, which shows that its contribution to the national GDP structure is outstanding (RI, 2021).

Indonesia's four main categories of horticultural crop commodities are ornamental, medicinal, vegetable, and fruit (Wahyudie, 2020). Vegetables play an important role among various horticultural commodities because they are often used daily and have added value to the country's growth. They can significantly increase people's income and welfare (Azizah, 2020). One of the important commodities in the horticultural subsector classified as spice vegetables is shallots (*Allium ascalonicum L.*). Shallots are in great demand as a staple food and the main seasoning for daily cooking (Rhofita, 2022). This explains why shallots have a high selling value and potential and are in great demand by the community.

National shallot production increased by 0.15% from 2022 to 1,985,233 tons in 2023, according to data from the Central Statistics Agency (BPS). This increase is expected to be sufficient to meet national shallot demand and encourage Indonesian shallot exports to other countries (Wibowo & Surbakti, 2023). However, price volatility and weather-related factors are often significant constraints in shallot production, affecting farmers' income and the stability of shallot supply (Anees et al., 2022). Pamekasan Regency is one of the shallots-producing areas in East Java. Indonesian shallot production, which is seasonal and susceptible to pests and diseases, causes limitations in meeting demand (Febriyanto & Pujiati, 2021). Given that Java Island is currently the primary

source of shallots, this condition can cause price fluctuations (Novita et al., 2019). The shallots farming sector significantly contributes to the Pamekasan Regency's regional economy. In 2023, the Agriculture, Forestry, and Fisheries sector contributed 6,616.49 billion rupiahs or 31.69 per cent to GRDP at current prices. ADHB GRDP of the Agriculture, Forestry, and Fisheries sector in 2019 amounted to 5,337.97 billion rupiah, an increase of 1,278.52 billion rupiah compared to the previous five years. This group has been the most significant contributor to the GRDP of Pamekasan Regency over the past five years, which amounted to 31-32 per cent (Central Bureau of Statistics of Pamekasan, 2024).

Pamekasan Regency holds excellent potential for the development of the shallots agribusiness. However, in the cultivation process and farm management, farmers in this area face various challenges, ranging from price fluctuations and the availability of quality seeds to dependence on unpredictable weather conditions. To understand its development prospects, it is essential to identify the inhibiting factors and the opportunities that can be optimized. In the research conducted by Maryati (2019), Prospects for the Development of Shallots Farming in Sape District, Bima Regency, farmers in this sector earn an average income of IDR 39,762,289.44/LLG and IDR 113,121,733.84/In Ha in In one In growing season. Second, based on the technical characteristics of shallots farming, including the suitability of cultivation and good market prospects due to high production volumes, favourable selling prices, and relatively easy marketing channels. Finally, the constraints farmers face are the lack of counselling, weather and climate, and the threat of pests and diseases. The approach taken was the descriptive method.

Using Microsoft Excel, the price of shallots in Alor Regency was analyzed through trend analysis and the least squares method. The results indicated that from January 2020 to December 2022, the price of shallots in Alor Regency experienced an average increase of Rp 259.59/kg per month, with a coefficient of determination (R^2) of 0.1064 or 10.64%. Based on Maure's analysis, the price of shallots in Alor Regency will continue increasing gradually throughout 2023 (Maure, 2023). Using a SWOT analysis approach, Ibnu Abbas (2023) found that production facilities are a strength and lack of funds is a vulnerability in his research, Development Strategy for Shallots Agribusiness in Banti Village, Baraka Sub-district, Enrekang District. Climate change is an element of threat, while opportunity factors, such as relatively high costs, are examples of external factors. Communication technology is used to collect data on price volatility and competition levels. Increasing crop tolerance to pests and diseases through training is one alternative strategy for developing shallot farming in Banti Village, Baraka Sub-district, Enrekang District. Cooperate with local government institutions through cooperatives to obtain business capital loans and utilize communication technology to collect market information.

Based on previous relevant studies, both focus on developing shallots agribusiness through understanding several factors that affect production. The research shows that effective agribusiness planning must consider market conditions, growth patterns and price dynamics. Previous research has highlighted the challenges of extended supply chains, which lead to significant price differences between farmers and consumers. In addition, previous studies have also shown that the demand for shallots tends to fluctuate due to seasonal factors, which impact market prices and supply stability. This study uses trend analysis based on secondary data to understand the development pattern of shallot production in Pamekasan Regency. The gap in this research lies in the lack of specific studies on the development of shallots agribusiness in Pamekasan Regency. Most previous researchers have focused on other regions with different characteristics regarding climate, cropping patterns, and government policies. By addressing this topic, I hope to provide a relevant scientific contribution to understanding the opportunities and challenges and support better decision-making.

RESEARCH METHOD

The location in this study is Pamekasan Regency, considering that the area is one of the producers of shallots commodities. The research was conducted from November to December 2024. The basic method of this research is the quantitative descriptive method, which aims to provide a clear and detailed description of the data that has been collected and then analyzed to facilitate interpretation and decision-making based on the information available. With this process, the data can provide a clear picture to make decisions more precise and directed (Aziza, 2023). The type of data used in this research is secondary data. Secondary data has existed before and is used as supporting data in research. This data was obtained through the Central Bureau of Statistics website of Pamekasan Regency. Using secondary data from BPS offers significant advantages in providing a comprehensive overview of agricultural conditions. However, as with any secondary data, inherent limitations should be acknowledged. These include the potential for a time lag between data collection and publication, which may not fully reflect the most recent conditions in the field. Therefore, careful consideration of these limitations is essential to ensure the relevance and accuracy of the research findings.

The literature review approach is a method used to collect data. Collecting materials relevant to the subject matter or issue under study is known as a literature review. It is usually done by referring to other people's books, journals, scientific publications, theses, and dissertations. The Central Bureau of Statistics of Pamekasan Regency provides secondary data, namely shallots production statistics for 2018-2023. The method used in this research is trend analysis, which helps understand the direction and long-term trends, making it easier to detect

consistent patterns or significant changes in a phenomenon. Another advantage is its ability to produce more accurate predictions, especially if historical data shows a stable pattern. By understanding past trends, decision-makers can plan more strategically, reduce uncertainty, and improve operational efficiency. Additionally, trend analysis tends to be simpler and easier to apply than more complex forecasting methods, such as ARIMA or machine learning models, which often require a larger dataset, advanced statistical knowledge, and more computational resources. While those advanced methods may offer higher accuracy in volatile or non-linear data cases, trend analysis remains a practical and reliable choice for identifying general patterns and making straightforward, time-based predictions, especially when working with limited data or needing quick insights.

RESULT AND DISCUSSION

Profile of Community Livelihoods

The livelihood profile of the people of Pamekasan Regency is strongly influenced by the agricultural sector, with part of the population depending on agriculture, plantations, and livestock. The Central Bureau of Statistics (BPS) of Pamekasan Regency shows that the agricultural sector dominates the livelihood of Pamekasan people, with a percentage of more than 60% of the total working population. Shallots are one of the leading commodities dominant in Pamekasan Regency. In the agricultural sector, some primary commodities besides shallots are rice, corn, soybeans, and vegetables (Central Bureau of Statistics of Pamekasan Regency, 2023).

In addition to farming, the community is also involved in the livestock sector, particularly raising cattle, buffaloes, and goats. Livestock farming is primarily carried out to meet local food needs, such as meat and milk, and to serve as a significant source of income in the region. Besides the agriculture and livestock sectors, there is also the fisheries sector. Coastal sub-districts like Tlanakan have significant fishery potential that the community can utilize.

Overview of Shallots Farming

Pamekasan Regency has a favourable climate and soil for shallot cultivation. Shallot cultivation in Pamekasan Regency depends on the soil condition and altitude. The soil in Pamekasan Regency consists of 2 types: limestone and red. Limestone soil is suitable for planting shallots during the rainy season because it requires much water. Meanwhile, limestone soil is suitable for planting shallots during the dry season due to minimal maintenance and water requirements. Most agricultural land in Pamekasan is located in areas with fertile soil. Pamekasan has several sub-districts that centre production, such

as Pamekasan, Proppo, and Pakong sub-districts. The soil in these areas has fertility that supports shallot cultivation. Proppo sub-district is one of the famous areas is the area around Proppo sub-district, which has a large area of land for shallot cultivation in addition to the Batumarmar sub-district (Government of Pamekasan Regency, 2019).

The varieties commonly planted by farmers are Bima and Tajuk. The Bima variety is popular among farmers due to its easy maintenance but low productivity. Shallot productivity depends on the variety and the cultivation and post-harvest handling provided by the farmer (Hartati et al., 2024). The Tajuk variety is a variety that has high productivity, but because of the pale colour of the bulbs, the selling price is lower (Nurawa et al., 2022). Besides the two varieties above, Biru Lancor, Biru Batu, and Rubaru are also available.

The post-harvest system and handling also determine onion productivity in Pamekasan. The usual post-harvest handling includes the harvesting process, harvesting method, drying, cleaning, sorting and grading, and storage. Afterwards, farmers sell the shallots directly or through middlemen. In addition, shallot farming in Pamekasan is now more developed, with the production of shallot derivative products, such as fried shallots, oven shallot snacks, shallot powder, shallot paste, shallot baseman, and freeze-dried shallots.

According to the demographics of agricultural business managers published by the Central Bureau of Statistics of Pamekasan Regency (2023), 178,060 people fall into the category of individual agricultural business managers, of which 144,316 are men, and the remaining 33,744 are women. For farmers with horticultural crop farming, 80.21% are male and 20.01% are female and dominated by the age range of 45-54 years (48,958 people). The number of subsectors land-using individual farm businesses for horticultural crops is 76,618 people, while for subsector smallholder farm businesses, there are 58,604 people. Based on statistical data, individual farms using agricultural land and individual farm businesses of horticultural crops are most numerous in Batumarmar Subdistrict, totalling 14,326 people and 8,381 people. This is in line with research conducted by Santoso and Suprapti(2021) with the title "Technical efficiency of shallots in Batumarmar District, Pamekasan Regency", which explains that Batumarmar is the highest shallots producer in Pamekasan Regency and the largest land area in Pamekasan.

In general, the "socio-economic study of shallots farming in Madura" explains that the characteristics of farmers based on age in Pamekasan Regency are the youngest at 27 years and the oldest at 55 years, with an average age of 41.3 years. Based on educational characteristics, farmers in Pamekasan Regency are dominated by the elementary school level, as much as 42.5%, followed by the high school level, junior high school, and those who have not graduated from elementary school. Farmers' characteristics based on work experience are dominated by 1-5 years of experience, 35%, followed by 6-10 years and 16-20

years. 97.5% of farmers in Pamekasan Regency choose farming as their primary occupation, while the other 2.5% choose farming as a side job. For farmer group participation, 52.5% joined a farmer group to support their farming. Finally, the capital for farming is dominated by personal capital, as much as 92%, and the other 8% comes from loans (Hasan & Suprapti, 2020).

Factors Affecting the Development of Shallots Farming

Based on direct information from related agencies, several factors affect shallot farming in Pamekasan Regency. These factors include land area, fertilizer problems, agricultural technology, and weather. Primary data from open-ended interviews with several shallot farmers in the Pasean Sub-district stated that business capital for seeds, expensive fertilizers, and lack of land are constraints to shallot production in Pasean. Secondary data obtained from the pamekasan innovation research conducted in Pasean District states that of the seven groups of shallots farmers consisting of 13 farmers, there are 11 farmers with a land area of less than equal to 1 Ha, of which 8 of them only have a land area of less than equal to 0.5 Ha. The same constraints have been described by previous research by Santoso and Suprapti (2021) in Batumarmar District, where the study's results explained that land area affects the amount of shallots production produced. Irsad & Hasan's research (2021) conducted in Batumarmar District also presents production constraints due to limited land. The data shows that 37 out of 45 shallot farmers in Batumarmar have a land area of less than 1 Ha, and the rest have a land area of more than equal to 1 Ha. The size of the land area will affect shallot production and the welfare obtained by shallot farmers (Harini et al., 2019).

Onion production factors are also affected by the weather. Farmers mentioned that this constraint often occurs in the rainy season, where farmers lose money due to the poor quality of shallots and lack of guidance in processing derivative products from shallots. Constraints due to weather/climate are mentioned in the research of Yasa et al. (2022), where the weather will affect the shallot's production process (Bawarta et al., 2022). In the rainy season, shallots are at risk of pests and diseases. Farmers' attitude towards the risks they face determines the commodity they will cultivate. This study also found that some farmers in the Pamekasan district are neutral. Despite the risks associated with shallot cultivation, farmers are generally aware that it involves risks, and they use prevention and mitigation techniques to address these risks, such as planning planting patterns, using mulch, planting different seed varieties, and so on.

There are fertilizer problems in Pamekasan Regency, such as the scarcity of subsidized fertilizers due to the reduction of the subsidy budget from the central government, the elimination of fertilizer assistance in the hope that farmers can be more independent, dependence on chemical fertilizers as an

alternative, and low uptake of subsidized fertilizers. Quoted from several published news articles, the problem of fertilizer is ongoing. Apart from the dangers caused, the high cost of organic fertilizers compared to inorganic fertilizers makes farmers use inorganic fertilizers as an alternative due to the effectiveness of inorganic fertilizers on shallots. This aligns with Indriani's research (2022), which explains that inorganic fertilizers are more effective in increasing growth than organic fertilizers (POC). This is in line with the research of Permata (2024), which explains that in the superior factor, the application of NPK fertilizer provides the best growth and yield. In Santoso and Suprapti's research (2021), fertilizer has no significant effect on shallot production. The study also mentions that the excessive application of inorganic fertilizers that are not recommended will reduce production yields caused by easy leaf wilting and soil fertility.

Trend Analysis of Shallots Farming

Year-on-year Production Development

In 2019 Pamekasan Regency could contribute 4.71% of the total shallots production in East Java. This shows that Pamekasan Regency is an area that has the potential to support an increase in national shallots production. Although it had experienced a decline in production from 2018 to 2019, now the shallots production rate has increased (Irsad & Hasan, 2021) . Based on data from the Central Bureau of Statistics of Pamekasan Regency, there was an increase from 2019 to 2020 from 157,113 quintals to 201,491 quintals. This increase was due to the implementation of better irrigation technology and intensive education on efficient farming practices.

The decline in shallots production occurred from 2020 to 2024. in 2021 it was 191,866 quintals, decreased again in 2022 to 185,671 quintals, and in 2023 it was 177,696 quintals. One of the causes of the decline in production figures is due to the reduction in shallots production land from year to year. Quoted from the Central Statistics Agency of Pamekasan (2024), shallots planting land in 2021 was 2,36 Ha, decreased to 2,581 Ha, and in 2023 to 2,447 Ha. The decline in shallots production also has an impact on shallots price fluctuations.

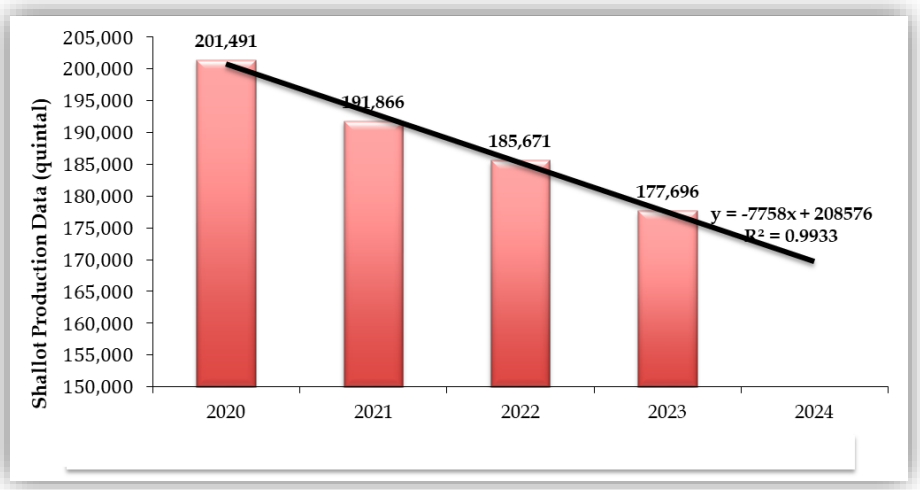

Figure 1.
Production Data of Shallots in Pamekasan Regency (2019-2023)

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Production Potential and Challenges

The shallots commodity in Madura is one of the substitute commodities for tobacco in Madura, especially Pamekasan. The potential and challenges of production are described in "Socio-Economic Study of Shallots Farming in Madura" by Hasan and Suprapti (2021); planting shallots is one of the government's efforts to diversify superior commodities in Madura. Some potential shallots that can be developed are superior seed varieties such as manjung, tajuk, pilipin, and brebes seedlings. These varieties have high resistance and good productivity, with yields reaching 6-10 tons per hectare. In addition, there is potential in terms of geography, where Pamekasan has fertile soil and a climate that supports shallots' growth so that shallots can survive even in rainy and dry conditions. Pamekasan also has the potential to contribute as a shallots producer in East Java. Risk management and management of shallot derivative products can be a way to optimize shallot production while improving the welfare of farmers in Pamekasan Regency. This potential can also be maximized with the participation of farmers in farmer groups.

Farmers recognize that growing shallots is challenging due to price fluctuations. It was noted that throughout 2024, the price of shallots declined. This is due to surplus production, a big challenge for farmers. The marketing channel of shallot farmers in Madura can be done directly and indirectly. While indirect marketing involves producers reaching consumers through intermediaries, direct marketing can be done directly from producers to consumers. More extended marketing channels generally result in lower prices at the producer level, which is less profitable for producers, and higher prices at the consumer level, which is detrimental to consumers (Yelfiarita et al., 2020). The weather is another challenge that is an external factor affecting shallot production. Shallots are a commodity that, if cultivated, will provide large profits and relatively significant risks compared to other food commodities such as rice and secondary crops (Suprapti & Santoso, 2021).

CONCLUSION AND SUGGESTION

Conclusion

Some factors dominate shallot production in Pamekasan Regency, such as land area, weather, fertilizer problems and agricultural technology. The area of shallot land in Pamekasan Regency is dominated by an area of less than equal to 1 Ha, so if there is a change in cropping patterns or farmer's attitudes in deciding which commodity to plant, it directly affects the level of shallot production. Although the weather does not affect significantly, weather factors are also one of the reasons for the decline in shallots production in Pamekasan Regency. Farmers tend to plant shallots in the dry month compared to the rainy month. The issue of subsidized fertilizer and agricultural technology still needs to be studied among farmers, so this factor indirectly affects shallot production. The prospects for developing shallots agribusiness in Pamekasan Regency still face price fluctuations and land limitations, which affect production stability and farmer welfare. To overcome this, policies that support the sustainability of shallots agribusiness are needed, such as strengthening storage and distribution systems to reduce price volatility and optimizing agricultural land by applying more efficient cultivation technology. In addition, government support in providing production facilities, agricultural input subsidies, and fostering farmer groups can increase the competitiveness of local farmers.

Market inefficiencies, such as information asymmetry, price fluctuations, and limited market access, often harm farmers, especially smallholders. Farmers tend to receive lower crop prices when markets do not function efficiently due to dependence on middlemen or intermediaries. In addition, price uncertainty caused by a lack of market transparency makes it difficult for farmers to optimally plan their production and agricultural investments. In the long term, this can lead to low-profit margins, declining farmer welfare, and even reduced

interest in agricultural activities. Solutions that can be implemented include strengthening market information systems to ensure price transparency, developing cooperatives to improve farmers' bargaining power, and implementing price stabilization policies to protect against extreme fluctuations. Access to financing and input subsidies is also essential to boost productivity without exposing farmers to excessive market risks. Shallots have high economic value and stable demand, both domestically and internationally. With appropriate planting patterns and management, shallots will be a commodity that can survive in both rainy and dry seasons. Onion distribution can be done evenly with government assistance. Onion derivative products, such as fried shallots, shallots paste, and shallots powder, have the prospect of increasing added value and farmers' income. This can be realized with direct and indirect marketing, using digital and e-commerce platforms and marketing through bazaars.

Suggestion

Increasing investment in cold storage infrastructure for shallots to reduce price fluctuations and post-harvest losses. By maintaining the quality and freshness of the produce over a more extended period, farmers would no longer be pressured to sell their crops immediately at low prices during harvest seasons. This strategy could stabilize supply in the market and ensure more consistent income for farmers. A subsidized agricultural insurance scheme tailored for shallots farmers to mitigate climate-related risks, such as crop failure due to drought, excessive rainfall, or pest outbreaks. This insurance would offer financial protection, allowing farmers to recover from unexpected losses while encouraging them to invest in sustainable and innovative farming practices without fear of losing their livelihoods. Strengthening digital marketing platforms as an efficient and modern distribution channel for shallots, enabling farmers to reach broader markets beyond local intermediaries. By utilizing online marketplaces or agricultural e-commerce platforms, farmers could gain better access to real-time market information, negotiate more competitive prices, and reduce their dependence on traditional supply chains that often lead to price suppression and unfair profit distribution.

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