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STRATEGY ANALYSIS OF GINGER PLANT DEVELOPMENT IN PANDERMAN FOREST FARMERS GROUP, BATU CITY USING SWOT METHOD

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Abstract

This study aims to evaluate the potential of ginger cultivation in the Panderman Forest Farmer Group (KTH Panderman) and to formulate strategies for developing ginger cultivation at the site. The research method used is SWOT analysis, with data collected through observation, interviews, questionnaires, accredited sources, and documentation. The results show that based on the IFAS and EFAS matrices, the weighted scores for strengths, weaknesses, opportunities, and threats are 1.77, 1.99, 2.13, and 1.04, respectively. In the SPACE matrix analysis, the Y-axis score is 1 and the X-axis score is 2, which places the strategy in the aggressive quadrant. This indicates that ginger cultivation in KTH Panderman has strong potential for development, with a favorable position to leverage internal strengths and external opportunities. The conclusion of this study is that ginger cultivation in KTH Panderman has significant potential, as reflected by its position in the aggressive strategy quadrant. The recommended development strategies for ginger cultivation include increasing production by utilizing human resources and local government support for infrastructure, improving production techniques, providing agricultural technology training, building water storage facilities, enhancing transportation options, and following guidance from agricultural extension workers.

Keywords: Development, Farmer Groups, Ginger, Potential

1. Introduction

Indonesia is a tropical country rich in flora diversity, making it one of the world's major producers of spices (Anggrasari et al., 2021). The majority of Indonesians have utilized spices as medicinal plants and as flavorings for food and beverages. One such plant is ginger (Achmad & Millaty, 2021). Ginger (*Zingiber officinale*) is a rhizomatous plant that grows in clumps with a pseudostem. The ginger rhizome has a finger-like shape, expanding at the middle joints. Ginger belongs to the Zingiberaceae family (the ginger family) and is one of the important spices (Slamat, 2023).

Ginger is a plant with relatively high production value compared to other crops, with significant demand for ginger used as a primary ingredient or as an additive in the production of processed products or for direct consumption (Maharani & Djuwendah, 2018). The types of ginger commonly consumed by Indonesians include three varieties: elephant ginger (*Zingiber officinale Rosc. var. officinale*), emprit ginger (*Zingiber officinale Rosc. var. rubrum*), and red ginger (*Zingiber officinale Rosc. var. amarum*) (Nugroho et al., 2020). Red ginger is widely used in traditional medicine, while elephant ginger and emprit ginger are often utilized as raw materials in the food and beverage industry (Kamalasari, 2018). Additionally, ginger is quite profitable for both domestic and international markets, making it a product consumed not only within the country. Ginger is exported in various forms, including fresh ginger, dried ginger, essential oil, oleoresin, and ready to drink beverages (Korua, 2020); (Sopian & Oesman, 2023).

The increasing demand for ginger has led to a rise in its consumption each year (Mazzlin et al., 2022). According to Batubara & Prastya, (2020), the demand for ginger in international markets continues to grow, driven by the global awareness of the health benefits of this plant.

Ginger products that are exported include fresh ginger, dried ginger, essential oil, oleoresin, and processed products such as ready-to-drink beverages. Indonesia's ginger exports show a positive trend, with the main destination countries being those in Asia, Europe, and America (Utama et al., 2020).

Despite having a large market, the ginger cultivation industry in Indonesia faces various challenges. One of the key challenges is improving productivity and quality through better management strategies. Aisyah, 2020, states that the demand for ginger in Indonesia continues to rise, as reflected in data from the Central Statistics Agency (BPS), which shows an increase in ginger demand in Batu City, with 314,185 kg in 2020, 318,670 kg in 2021, and 325,646 kg in 2022. Meanwhile, the total production in East Java province in 2020 was 45,092,555 kg. This indicates that the ginger market potential is vast; however, the biggest challenge lies in the management of cultivation and the enhancement of crop yields.

The Panderman Forest Farmers Group (KTH Panderman), located in Batu City, is one of the active farming groups engaged in ginger cultivation, particularly of elephant ginger, red ginger, and emprit ginger. Although KTH Panderman has produced high-quality ginger, further development is needed to maximize production potential and address market challenges. According to research (Aldensi, 2016); (Aida & Nuswardhani, 2024), one way to improve the quality and quantity of ginger production is by using a SWOT analysis to evaluate the internal and external factors influencing the development of the commodity.

The development of agricultural commodities requires appropriate policies and management strategies that optimize local strengths and leverage external opportunities. In this context, development strategies based on a holistic approach and local data are crucial(Sopian & Oesman, 2023); (Slamat, 2023). While many studies have explored the potential of ginger cultivation in general, research that is in-depth and focused on development strategies for ginger cultivation at the farming group level, such as in KTH Panderman, is still very limited. The importance of SWOT analysis in formulating agricultural development strategies is well recognized, but its application specifically to ginger cultivation in farming groups has not been widely explored. Therefore, this study aims to identify the potential of ginger cultivation at KTH Panderman and formulate development strategies that can optimize production and enhance the competitiveness of the commodity in the market.

2. Methods

This research was conducted at the Panderman Forest Farmers Group (KTH Panderman), located on Jl. Jalibar, Oro-Oro Ombo, Batu District, Batu City. The location was chosen purposively, considering that ginger is the most productive commodity in KTH Panderman compared to other crops. The substantial income and adequate land area make it a promising potential for further development. The study was conducted from November 2023 to July 2024. The data collection methods used in this study include both primary and secondary data. Primary data was obtained through observation and interviews with ginger farmers at KTH Panderman, while secondary data was collected from relevant institutions, accredited sources, and previous research reports that support this study.

To address and analyze the problem formulation, a SWOT analysis (Strengths, Weaknesses, Opportunities, Threats) was used, considering the IFAS matrix, EFAS matrix, SWOT matrix, and SPACE matrix. According toWidowati & Andrianto, (2022), SWOT

stands for internal factors Strengths and Weaknesses and external factors Opportunities and Threats. The SWOT analysis compares the internal factors of strengths and weaknesses with the external factors of opportunities and threats.

3. Results and Discussion

3.1 IFAS Matrix Internal Factors (Strengths and Weaknesses)

The following is the IFAS matrix analysis table for ginger cultivation at KTH Panderman.

Table 1. IFAS Matrix

	Internal strategic factors (IFAS)			
No	**Strength**	**Weight**	**Rating**	**Value**
1	Availability of human resources for ginger cultivation development.	0.13	3	0.39
2	High-quality ginger, with potential for marketing beyond KTH Panderman.	0.13	4	0.52
3	Information and knowledge gained from agricultural extension services that can improve ginger cultivation skills.	0.10	3	0.29
4	Availability of fertilizer and seed assistance for farmers.	0.06	3	0.19
5	Land provided for ginger farmers at KTH Panderman.	0.10	4	0.39
	Subtotal	**0.52**	**17**	**1.77**
	Weakness			
1	Limited marketing opportunities for ginger.	0.10	2	0.19
2	Unstable ginger market prices.	0.13	3	0.39
3	Some farmers have not followed the guidance of agricultural extension workers.	0.06	2	0.13
4	Limited capital.	0.10	3	0.29
5	Farmers have not fully mastered the technological advancements.	0.03	2	0.06
6	Presence of pest attacks affecting ginger rhizomes.	0.06	2	0.13
	Subtotal	**0.48**	**14**	**1.19**
	The overall total	**1.00**	**31**	**2.97**

Source: Processed Primary Data (2024)

Based on Table 1, it shows that the internal factors consist of 5 strengths and 6 weaknesses found among ginger farmers at KTH Panderman in developing ginger crops. The weighting of the internal factors is adjusted according to their potential impact, arranged from most to least significant, with the total weight summing to 1.00 or 100%. The data in Table 1 indicates that the weight of the strengths is greater than the weight of the weaknesses in ginger farming at KTH Panderman, with a strength weight of 0.52 and a weakness weight of 0.48, totaling a weight of 1.00. Therefore, it can be concluded that ginger farming at KTH Panderman has greater strengths in developing ginger crops.

The ratings for strengths and weaknesses are assigned values rounded from 1 to 4, with a total rating of 17 for strengths and 14 for weaknesses. Next, to obtain each score, a multiplication is performed between the weight column and the rating column for each internal factor (strengths and weaknesses). To calculate the total score, the sum of all values from the internal factors (strengths and weaknesses) is taken, resulting in an overall total of 2.97.

3.2 EFAS Matrix External Factors Opportunities and Threats

The following is a table of EFAS matrix analysis on ginger plants at KTH Panderman.

Table 2. EFAS Matrix

External Strategy Factors (EFAS)				
No	**Opportunity**	**Weight**	**Rating**	**Value**
1	Local government support for the development of ginger at KTH Panderman.	0.13	4	0.52
2	Growing interest in ginger cultivation.	0.09	3	0.26
3	Increasing demand for ginger from the public.	0.13	3	0.39
4	Opening opportunities for ginger in the global market.	0.17	4	0.70
5	Easy access to infrastructure and facilities.	0.09	3	0.26
	Subtotal	**0.61**	**17**	**2.13**
	Threat			
1	Lack of water sources, making it difficult for ginger to thrive.	0.09	3	0.26
2	Unfavorable weather conditions at times, leading to a decrease in production.	0.17	3	0.52
3	Inadequate transportation for farmers.	0.13	2	0.26
	Subtotal	**0.39**	**8**	**1.04**
	The overall total	**1.00**	**25**	**3.17**

Source: Processed Primary Data (2024)

Based on Table 2, it shows that there are 5 opportunities and 3 threats faced by ginger farmers at KTH Panderman in developing ginger. From Table 2, it is evident that the weight of opportunities is greater than that of threats, with a weight value of 0.61 for opportunities and 0.39 for threats, resulting in a total external factor weight of 1.00. This indicates that ginger farmers at KTH Panderman have more opportunities than threats in developing the potential of ginger at KTH Panderman. The ratings for external factors (opportunities and threats) are assigned values rounded from 1 to 4, with a total rating value of 17 for opportunities and 8 for threats. Next, to obtain each score, the multiplication of the weight column and the rating column is performed for each external factor (opportunities and threats). The total score is then calculated by summing all values from the external factors (opportunities and threats), resulting in a total value of 3.17.

Table 3. SWOT Matrix of Ginger Plants at KTH Panderman

IFAS / **EFAS**	**STRENGTH (S)**	**WEAKNESS (W)**
	1. Availability of human resources for ginger cultivation development. 2. High-quality ginger with potential for marketing outside of KTH Panderman. 3. Information and knowledge gained from agricultural extension services that can enhance ginger cultivation skills. 4. Availability of fertilizer and seed assistance for farmers. 5. Land provided for ginger farmers at KTH Panderman.	1. Limited opportunities for ginger marketing. 2. Unstable ginger market prices. 3. Some farmers have not followed the guidance of agricultural extension workers. 4. Limited capital. 5. Farmers have not fully mastered technological advancements. 6. Pest infestations affecting ginger rhizomes.
OPPORTUNITIES (O)	**STRATEGY SO**	**STRATEGY WO**
1. Local government support for the development of ginger at KTH Panderman.	1. Enhance ginger farming development by utilizing human resources and the support of infrastructure provided by the local government (S1+O1+05).	1. Increase public demand by expanding the marketing area (W1+O3+O4).

2. Growing interest in ginger cultivation. 3. Increasing public demand for ginger. 4. Opening opportunities for ginger in the global market. 5. Easy access to infrastructure and facilities.	2. Maintain and improve the quality of ginger by taking advantage of opportunities to penetrate the global market (S2+O4). 3. Increase interest in ginger cultivation and make use of the land, seeds, and fertilizer provided (S4+S5+O2). 4. Sustain ginger production by applying the knowledge provided by agricultural extension services (S3+O3).	2. Enhance training on agricultural technology to boost interest in ginger cultivation (W5+O2). 3. Local government support will ease farmers' access to additional capital loans outside of KTH Panderman (W4+O1).
THREATHS (T)	**STRATEGY ST**	**STRATEGY WT**
1. Lack of water resources, making it difficult for ginger to thrive. 2. Unfavorable weather conditions at times, leading to a decrease in production. 3. Inadequate transportation for farmers.	1. Apply the knowledge provided by agricultural extension workers, use superior seeds, and regularly fertilize during adverse weather conditions (S4+S3+T2). 2. Try to create water storage facilities by utilizing available human resources (S1+T1).	1. Increase the number of transportation options to market ginger outside of KTH Panderman (W1+T3). 2. Farmers follow the guidance of agricultural extension workers in ginger farming, ensuring that adverse weather and pest infestations do not hinder ginger development (W3+W6+T2).

Source: Processed Primary Data (2024)

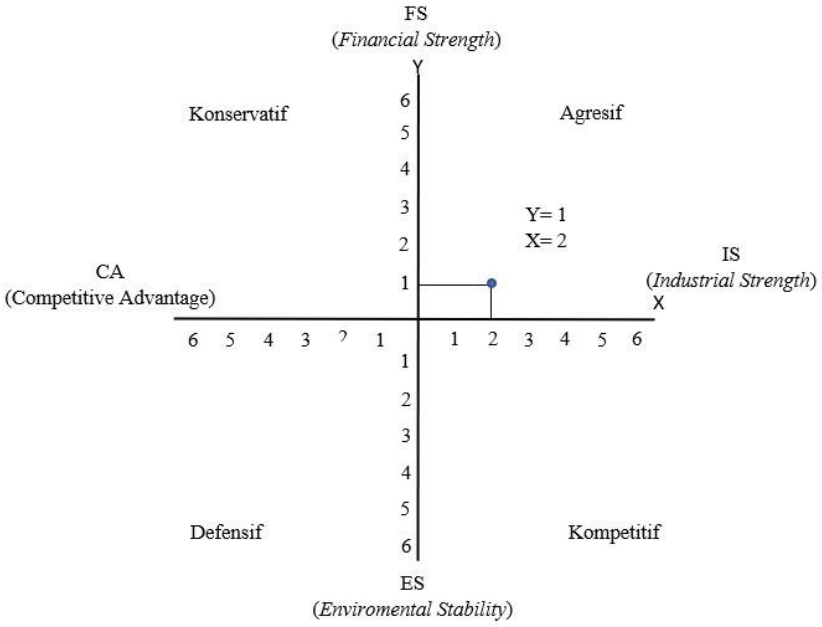

Figure 1. Ginger Plant Space Matrix at KTH Panderman

Based on the results of the SPACE matrix analysis in Figure 1, it was found that the most appropriate strategy for ginger cultivation at KTH Panderman is an aggressive strategy. This means that ginger cultivation at KTH Panderman is in a favorable position to leverage internal strengths and take advantage of external opportunities. When compared with the results of the SWOT matrix analysis, this aligns with the S-O strategy (Strengths and Opportunities), which focuses on utilizing existing internal strengths to maximize external opportunities for exploiting the potential and development of ginger cultivation at KTH Panderman.

Therefore, backward integration, forward integration, horizontal integration, market penetration, market development, product development, and diversification can all be applied, depending on the specific conditions faced by the ginger farmers at KTH Panderman. Given the situation of the ginger farmers at KTH Panderman, the aggressive strategies that can be implemented are backward integration, market development, product development, and diversification.

4. Conclusion

The potential for ginger cultivation at KTH Panderman is in an aggressive position, meaning that ginger can be cultivated successfully at KTH Panderman. The farm is also well-positioned to utilize internal strengths and take advantage of external opportunities. The development strategies for ginger cultivation at KTH Panderman that can be implemented by farmers include enhancing ginger farming development by utilizing human resources and the support of infrastructure from the local government, maintaining and improving ginger production, increasing agricultural technology training for farmers, creating water storage facilities, increasing transportation options, and following the guidance of agricultural extension workers in ginger farming. Based on the findings, the recommendations for future research focus on developing infrastructure and improving access to ginger markets, particularly to expand both domestic and global market networks. Additionally, it is recommended to explore the long-term impacts of agricultural technology on farmer productivity and the potential for diversifying processed ginger products to add value.

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