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Analysis of External Factors Affecting the Rumah Anggur Ardo Nursery Business Using PESTEL and Porter's Five Forces

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Abstract

Objectives: This study aims to analyze the external factors affecting the sustainability of the Rumah Anggur Ardo nursery business in Medan, Indonesia, using the PESTEL framework and Porter's Five Forces. The study highlights how political, economic, social, technological, environmental, and legal conditions, as well as the competitive dynamics of the industry, shape opportunities and challenges for small agribusinesses based on urban farming.
Methods: The study used descriptive qualitative methods through in-depth interviews with business owners and literature review. Data were collected using a structured questionnaire that identified political support, market behavior, technological adaptation, environmental risks, and legal status, along with an industry competition analysis.
Findings: Results show that Rumah Anggur Ardo operates in a relatively favorable competitive environment with low rivalry and minimal threat of substitution. The main opportunity comes from the trend of urban farming as a hobby, while the biggest challenges are high rainfall that damages seedlings and the absence of material support from the government. Consumers prioritize seedling quality and post-sales consultation services over price, making service differentiation a key competitive advantage.
Originality/Value: Unlike previous studies that emphasized profit-oriented agribusiness and internal factors, this study presents a new perspective by analyzing hobby-based nursery businesses through an external environmental approach.
Practical/Policy Implications: The research findings emphasize the importance of government facilitation, development of local breeding farms, and investment in greenhouse facilities. For practitioners, strengthening community engagement and utilizing digital platforms are key strategies to maintain competitiveness.

Keywords: External, PESTEL, Porter, Agribusiness

JEL Classification: M42, M48 [author should add 1-3 JEL classification number, information guide for the Journal of Economics Literature (JEL) can be found ahttps://www.aeaweb.org/jel/guide/jel.php]

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Introduction

In recent years, there has been an increasing interest among Indonesians to grow fruit trees at home. Urban farming, which includes growing fruits, vegetables, and herbs on limited land, is increasingly popular among urban communities because it not only fulfills the family's food needs, but also supports local food security, environmental conservation, and a healthy and recreational lifestyle (Tani Merdeka, 2023). In line with global research findings, the practice of urban agriculture is proven to provide extensive benefits, ranging from strengthening food security, reducing carbon emissions due to shorter supply chains, to providing green spaces that have a positive impact on quality of life (Yan et al., 2022).

In Indonesia, urban farming has become an alternative in facing the challenges of urbanization and limited productive land. This activity serves not only as a source of food, but also a recreational, social interaction and educational tool that is often hobby-based. Recent research shows that urban farming contributes to nine important aspects: economic, social, environmental, health, cultural, food, education, tourism, and technology that support sustainable urban development (Armansyah et al., 2024).

One commodity that is in high demand is grapes, as it has both aesthetic value and health benefits. This has led to the emergence of nursery businesses, including Rumah Anggur Ardo in Medan, which since 2020 has focused on providing imported grape seedlings that have been adapted to the local climate as well as providing basic consultation services for consumers. However, the business faces external challenges, including seedling vulnerability due to high rainfall, limited government support that is still limited to morale and promotion, and legal aspects that have not been fully met. From a market perspective, the price of grapes has little impact on seedling sales as the majority of consumers pursue grape cultivation more as a hobby than a commercial activity, making seedling quality and long-term assistance a top priority.

A number of previous studies have highlighted the competitiveness of MSME-based urban farming with a focus on production factors, capital, labor, and digital strategies (Salim et al., 2023). However, as reminded (Andini et al., 2021), many studies emphasize less novelty than previous studies. This research seeks to fill this gap by examining hobby-based grape nursery businesses through external analysis using the PESTEL and Porter's Five Forces frameworks.The PESTEL framework allows researchers to examine the influence of political, economic, social, technological, environmental and legal factors (Rangkuti, 2016), while Porter's Five Forces emphasizes the five main competitive forces that influence the competitive position of businesses (Porter, 2008). Both frameworks have been widely used in agribusiness studies as they provide a strategic overview of opportunities and challenges (Lestari, 2018; Santoso, 2024).

Thus, this research emphasizes its novelty in two aspects. First, in contrast to previous studies that were oriented towards profit and MSMEs, this study highlights hobby and recreation-based grape nursery businesses that have their own market dynamics. Second, previous studies emphasized internal factors, while this study prioritizes the analysis of external factors through PESTEL and Porter's Five Forces to describe the business environment. This focus is both a differentiator and a new contribution to the agribusiness literature in Indonesia. Based on this, this study formulates three main questions: (1) how do external factors affect the grape nursery business through PESTEL analysis? (2) what is the business environment of Rumah Anggur Ardo based on Porter's Five Forces framework? and (3) what strategies can be formulated to strengthen opportunities, overcome challenges, and improve business sustainability?

Literature Review

External Factors

External factors are everything that comes from outside individuals and organizations that affect the continuity of activities, performance, and strategies implemented. This factor usually cannot be controlled directly, but its existence needs to be considered because it can be an opportunity or a threat.

In line with that, Miradji, Yulianti, and Jamil (2023) emphasized that external factors include economic, social, political, legal, technological elements, and industrial competition. These factors are

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constantly evolving and must be considered in the preparation of organizational strategies to remain adaptive to environmental changes.

In addition to PESTEL, Porter (in Wardani, 2017) outlines the external factors of the industry through Porter's Five Forces framework, namely the threat of new entrants, the threat of substitute products, the bargaining power of suppliers, the bargaining power of buyers, and the intensity of competition. These five aspects show the competitive conditions faced by companies in an industry so that they are very relevant to be used to analyze external factors more specifically.

Thus, external factors are an important part that needs to be considered in strategy formulation. The PESTEL approach helps to look at macro conditions, while Porter's Five Forces highlights competitive conditions at the industry level.

PESTEL

PESTEL analysis is one of the important frameworks in strategic management studies that serves to understand the influence of external factors on an organization. PESTEL is an acronym for Political, Economic, Social, Technological, Environmental, and Legal, all of which represent dimensions of the external environment that cannot be controlled by the organization, but must be taken seriously in the strategy formulation process. Political factors include aspects of government policy, political stability, tax regulations, and international trade rules that can create opportunities or threats to the sustainability of the organization (Christodoulou & Cullinane, 2019). Meanwhile, economic factors relate to macro conditions such as inflation, economic growth, unemployment rates, people's purchasing power, exchange rates, and monetary policies that directly affect the performance and sustainability of organizational activities (Istichanah, 2022).

The social dimension in PESTEL refers to aspects of demographics, culture, values, norms, and changing trends in people's lifestyles that often affect consumption patterns and public needs. Changes in these social factors encourage organizations to constantly adjust their strategies to remain relevant to the development of society (Masturoh & Niswah, 2020).Furthermore, technological factors are very decisive in the modern era, considering that advances in digitalization and innovation can increase efficiency, productivity, and quality of services and products. Conversely, organizations that are slow to adopt technology have the potential to lose competitiveness (Bamatraf et al., 2024). Environmental factors also cannot be ignored, as sustainability issues, climate change, and demands for environmentally friendly practices are increasingly becoming major concerns at both national and global levels. Finally, legal factors relate to regulations and rules that bind an organization's activities, including labor laws, consumer protection, safety standards, and intellectual property rights. Compliance with legal aspects is important so that the organization can operate legally and avoid adverse legal risks (Istichanah, 2022).

Based on this description, PESTEL analysis provides a comprehensive overview of external factors that can be both opportunities and threats for the organization. This framework is general and flexible so that it can be applied in various sectors, including industry, services, health, education, and public services. Through systematic mapping of external factors, organizations can formulate strategies that are adaptive, innovative, and oriented towards sustainability in the midst of ever-changing environmental dynamics.

Porter's Five Forces

Competition in the business world is not only determined by the number of companies operating in an industry, but also by external forces that affect the attractiveness of the industry. To understand these dynamics, Porter's Five Forces framework is widely used in strategic management studies. This model explains that the intensity of industry competition is formed from five main dimensions, namely the threat of new entrants, bargaining power of suppliers, bargaining power of buyers, threat of substitute products, and rivalry between existing companies. These five aspects are interrelated and collectively determine the level of profitability and sustainability of an industry.

The threat of new entrants relates to the extent to which new firms can enter an industry. The lower the barriers to entry, the greater the likelihood of new competitors emerging that can tighten competition. Factors that often act as barriers include large capital requirements, access to distribution, government regulations, and product differentiation. On the other hand, if entry barriers are low, existing companies must continue to innovate in order to maintain market share.

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In addition, the position of suppliers is also one of the factors determining competitiveness. Suppliers have high bargaining power when they are relatively few in number, offer unique inputs, or when the firm is highly dependent on them. This condition can put pressure on the company through increased raw material prices or decreased supply quality. On the other hand, if there are many alternative suppliers, their bargaining power tends to be low and the firm has more flexibility in determining its procurement strategy.

The bargaining power of buyers also plays a major role in shaping industry competition. Buyers have high bargaining power when products are homogeneous, there are many alternative suppliers, and switching costs are relatively low. In this situation, consumers can demand lower prices, higher quality, or additional services. As a result, companies are required to improve product and service differentiation in order to maintain customer loyalty.

Another aspect to consider is the threat of substitute products. Substitute products are alternative products or services that can replace the function of the main product. The presence of substitutes limits potential profits because consumers have other options that may be cheaper or offer better benefits. If substitute products are increasingly numerous and easily accessible, then companies in the industry must develop innovations to maintain the attractiveness of their products.

Finally, competition among firms in the industry is usually the most dominant force. The intensity of competition will be high if there are many competitors of relatively the same size, industry growth is slow, and products are difficult to differentiate. This condition encourages companies to compete through various means, such as price reduction, quality improvement, product innovation, and aggressive marketing strategies. Increased rivalry often reduces the profitability of the industry as a whole.

Overall, Porter's Five Forces provides a comprehensive analytical framework to assess the attractiveness of an industry and the competitive position of companies within it. The model is contextualized, so each industry may exhibit different pressures on each of its dimensions. By understanding the five forces, companies can formulate adaptive strategies to capitalize on existing opportunities while anticipating threats from the external environment. Therefore, this framework remains relevant in research and business practice today (Eryogia et al., 2024; Foris & Mustamu, 2015; Paramadita & Hidayat, 2022).

Relationship between PESTEL and Porter's Five Force

The relationship between the PESTEL framework and Porter's Five Forces can be understood through their role in analyzing the company's external environment. PESTEL analysis is used to examine macro factors that are beyond the control of the organization, including political, economic, social, technological, environmental, and legal dimensions. These factors are external and cannot be directly influenced by the company, but have major implications for the direction of industry development (Yüksel, 2012). Meanwhile, Porter's Five Forces focuses on the competitive structure at the industry level, by assessing the five main forces that determine the intensity of competition, namely rivalry among competitors, the threat of new entrants, the threat of substitute products, and the bargaining power of suppliers and buyers (Dobbs, 2014).

These two frameworks complement each other through cause-and-effect relationships. Changes in PESTEL factors often trigger shifts in the dynamics of the Five Forces. For example, certain government regulations and political policies can raise the barriers to entry in an industry, thereby lowering the potential threat of new entrants. Economic factors such as inflation and declining consumer purchasing power can increase the bargaining power of buyers as consumers become more price-sensitive and tend to look for alternative products. Furthermore, technological developments can encourage the emergence of new substitute products which in turn change the pattern of competition and create different business models (Anastasiu, Gavris, & Maier, 2020).

Thus, PESTEL can be viewed as a framework that explains "why" changes in the industry occur, while Porter's Five Forces explains "how" these changes work in the form of competition at the industry level. The integration of these two frameworks is important in business strategy, as it provides a more comprehensive picture of external conditions. Through this approach, companies are not only able to understand the ongoing competitive structure, but can also predict the direction of future industry shifts. Therefore, the integrated application of PESTEL and Porter's Five Forces provides a stronger basis for

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organizations to formulate adaptive and sustainable strategies (Yüksel, 2012; Dobbs, 2014; Anastasiu et al., 2020).

Method

This research uses a descriptive qualitative method with the main objective of analyzing various external factors that influence the activities of the nursery business at Rumah Anggur Ardo through the PESTEL approach and Porter's Five Forces. The choice of this method is considered appropriate because it provides an opportunity for researchers to obtain more in-depth data through interviews and literature

review, so as to present a comprehensive picture of the external conditions faced by the business. The research location was determined at Rumah Anggur Ardo, which is located at the Al Barakuda TNI Service Housing, Tj. Mulia Hilir, Medan Deli District, Medan City, North Sumatra 20241. The field data collection process was conducted online through the Zoom Meeting application with the main informant, namely the business owner, Mrs. Sarah Jawak Saragih, on September 20, 2025. The subject of this research was determined purposively, namely Mrs. Sarah Jawak Saragih, given that she has direct experience and relevant knowledge regarding business management and the external factors that influence it. Data collection techniques included in-depth interviews using structured question guidelines to stay focused on the analysis based on the PESTEL and Porter's Five Forces frameworks, as well as literature studies by collecting references from reputable national journals, academic books, and other scientific publications related to the concepts studied.

Discussion

PESTEL Analysis

In terms of politics, interviews showed that government support is still moral and promotional, not material support. The sub-district head once visited and encouraged Rumah Anggur Ardo to become an example, especially for housewives who want to be productive at home. This confirms that the political aspect plays a role as motivation and recognition, although it does not yet provide financial incentives. This condition can be optimized by establishing closeness to the agriculture office through farmer groups, so that access to assistance programs is more open.

Economically, the market price of grapes has no effect on seedling sales. According to the owner, consumers buy seedlings not for commercial purposes, but as a hobby. This means that the business is less affected by fluctuations in commodity prices, but more by the purchasing power of urbanites and their interest in farming. A suitable economic strategy is to maintain the quality of the seedlings while providing a variety of purchase packages to suit consumers' financial capabilities.

The social aspect is very prominent in this business. The main consumers are hobbyist gentlemen who are looking for a recreational activity at home. In addition, the attraction is not only the seedlings, but also the ongoing consultation services provided by the business owner. This shows that social relationships, interactions and mentoring have a higher value than just the price of the seedlings. Therefore, building customer communities and strengthening educational services are important strategies to maintain loyalty.

In terms of technology, Rumah Anggur Ardo has implemented a simple grafting method to propagate seedlings. Although equipment is still limited, this technique has succeeded in producing quality seedlings. The challenge arises because it does not yet have a modern greenhouse; meanwhile, the need for a greenhouse is very important to protect the seedlings from heavy rain. Gradual investment in modern nursery facilities such as transparent greenhouses can improve production quality.

The environment is also a determining factor. The owner emphasized that high rainfall is very damaging to young seedlings, so protection is needed. Mitigation efforts have been made with a simple greenhouse, but more professional facilities are still needed. This shows that the sustainability of the business depends on adapting to the unpredictable tropical climate. Meanwhile, from a legal perspective, Rumah Anggur Ardo does not yet have a formal business license individually, but is registered as a farmer

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group under the agriculture office. This status provides institutional legitimacy as well as institutional access. The legal position is quite secure for an MSME scale, but development towards seedling certification and brand protection could strengthen competitiveness in the future.

Porter's Five Forces Analysis

Based on interviews, the threat of new entrants is relatively low. In the Medan Deli area, there are only two to three other grape breeders, and the relationship between businesses tends to be one of cooperation rather than direct competition. Even so, the potential for new players to enter remains, so differentiation in the form of quality imported seedlings, honesty in variety sales, and consulting services must be maintained as a competitive advantage.

In terms of suppliers, Rumah Anggur Ardo has a regular supplier for growing media, while polybags and pots are obtained manually from farm shops. Dependence on suppliers is still quite high, although not too risky because raw materials are easily available. To reduce the risk, it is important to build more stable partnerships with local suppliers as well as start developing a brood garden to reduce dependence on imported seedlings.

Buyer power is high as they are sensitive to quality and service. Based on interviews, consumers are willing to pay higher prices as long as they receive continuous assistance. This factor shows that the competitive advantage of Rumah Anggur Ardo is not only the product, but also the post-sale service. The most appropriate strategy is to strengthen online communication, provide regular consultations, and guarantee the quality of seedlings according to the promised varieties.

The threat of substitution from local seedlings is relatively low, as local seedlings are usually only used as rootstocks, while consumers want imported varieties with sweet taste and high aesthetics. This shows that substitute products are not a big threat. Even so, Rumah Anggur Ardo still needs to prioritize education on the advantages of imported seedlings so that consumers are more convinced of the added value obtained.

Finally, competition among competitors in the grape nursery industry is still relatively low in Medan, as the number of players is limited and the relationship between them is more complementary. However, the rising trend of urban farming may bring new competitors in the future. Therefore, strengthening the brand as a trusted, honest, and proven quality grape seedling provider will be the main bulwark in facing long-term competition.

Conclusion and future direction

This research concludes that the sustainability of Rumah Anggur Ardo is influenced more by external dynamics than market price fluctuations. Political support comes in the form of moral, not material. Economically, the demand for seedlings is relatively stable because it is a hobby, not a commercial orientation. Socially, consumers place sustainable assistance as a key factor, outweighing price sensitivity. Seedling technology is still simple with manual grafting methods, making greenhouse investment an urgent need. Environmental factors, especially high rainfall, are the main risk, while the legal aspect is relatively safe as the business is organized under a farmer group although it does not yet have seedling certification or a trademark. In terms of the industry, the threat of substitution and rivalry is low, but differentiation through service and credibility must be maintained.

Future directions of research can be directed towards the development of nursery technology innovations that are more resistant to extreme climates, measuring the long-term economic potential of hobby-based agribusiness, and the role of digital communities in building consumer loyalty. Comparative studies between hobby-based and profit-oriented businesses also have the potential to enrich agribusiness literature in Indonesia.

Implications

The implications of this research can be seen from three main dimensions, namely theoretical, practical, and policy. From a theoretical perspective, this research enriches the agribusiness literature by

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emphasizing that hobby-based urban farming businesses require a different strategic approach from profit-oriented businesses. The integration of PESTEL and Porter's Five Forces also proved to provide a comprehensive understanding of the interaction between macro factors and the dynamics of industry competition in niche markets. From a practical perspective, the findings emphasize the importance of service differentiation, honesty in variety sales, and community involvement as keys to business sustainability. Strategies that can be implemented include the provision of bundled product packages, gradual investment in modern greenhouses, and the development of local breeding farms to reduce dependence on imported seedlings. Furthermore, in terms of policy, the government is expected to not only provide moral support and promotion, but also expand material facilitation in the form of technical assistance, seedling certification programs, and access to funding. More targeted and sustainable policies are believed to be able to encourage the growth of urban farming communities while strengthening urban food self-sufficiency.

Limitations and Further Research

This research has a number of limitations that need to be noted. First, the research was only conducted in one case study, Rumah Anggur Ardo, so the scope of the analysis is still limited. This makes the results of the study not fully generalizable to other grape nurseries in different regions. Secondly, the research method used is descriptive qualitative in nature, relying on interviews as the main source of data. This limitation makes the research unable to provide quantitative evidence regarding the relationship between external factors and business performance. As a result, the conclusions are more descriptive and exploratory, rather than inferential. Third, the research has not measured consumer perceptions directly through surveys or quantitative data. This has implications for the lack of information on the level of customer satisfaction, loyalty, and price preference, so that the analysis of marketing strategies is still based on the views of business owners.

Based on these limitations, further research can be directed to use mixed methods by involving quantitative data such as financial performance, consumer surveys, and comparisons between similar businesses in various locations. Future research can also examine the effectiveness of digital marketing strategies, examine the impact of climate change on nursery sustainability, and explore the role of digital urban farming communities in building customer loyalty. This research direction is expected to provide a more comprehensive and applicable picture for the development of hobby-based agribusiness in Indonesia.

Conflict of Interest

The authors confirm that the research was conducted without any commercial or financial affiliation that could be construed as a potential conflict of interest.

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