

OPTIMIZING THE MARKETING MIX TO ENHANCE THE COMPETITIVENESS OF FRESHWATER FISH HATCHERIES

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Abstract

This study analyzes the optimization of the marketing mix to improve the competitiveness of freshwater fish hatcheries, with a case study of Haji Aep's hatchery in Warung Jambe Village, Karang Tengah District, Cianjur. The research aims to identify the strengths and weaknesses of existing marketing strategies and formulate alternative strategies to enhance competitiveness. The study applied a qualitative descriptive approach supported by SWOT analysis to examine internal and external factors. Data were collected through observation, interviews, and documentation. The results indicate that product quality, pricing strategy, distribution channels, and promotional activities play a crucial role in strengthening competitiveness. The findings further suggest that collaboration with local communities, government support, and market expansion are essential for sustaining business growth. This research concludes that optimizing the marketing mix can significantly increase the market competitiveness of freshwater fish hatchery enterprises.

Keywords: Marketing Mix, Competitiveness, Freshwater Fish Hatchery

Abstrak

Penelitian ini menganalisis optimalisasi bauran pemasaran untuk meningkatkan daya saing pembenihan ikan air tawar, dengan studi kasus pada pembenihan milik Haji Aep di Desa Warung Jambe, Kecamatan Karang Tengah, Cianjur. Penelitian ini bertujuan untuk mengidentifikasi kekuatan dan kelemahan strategi pemasaran yang ada serta merumuskan strategi alternatif guna meningkatkan daya saing. Penelitian ini menerapkan pendekatan deskriptif kualitatif yang didukung oleh analisis SWOT untuk mengkaji faktor-faktor internal dan eksternal. Data dikumpulkan melalui observasi, wawancara, dan dokumentasi. Hasil penelitian menunjukkan bahwa kualitas produk, strategi penetapan harga, saluran distribusi, dan kegiatan promosi memainkan peran penting dalam memperkuat daya saing. Temuan ini juga menunjukkan bahwa kolaborasi dengan masyarakat setempat, dukungan pemerintah, dan perluasan pasar sangat penting untuk mempertahankan pertumbuhan usaha. Penelitian ini menyimpulkan bahwa pengoptimalan bauran pemasaran dapat secara signifikan meningkatkan daya saing pasar usaha pembenihan ikan air tawar.

Kata kunci: Bauran Pemasaran, Daya Saing, Pembenihan Ikan Air Tawar

Introduction

Aquaculture has emerged as one of the fastest-growing food production sectors worldwide and is increasingly important in addressing global food security, supporting rural livelihoods, creating jobs, and contributing to economic development. The expansion of aquaculture is closely linked to the rising demand for fish as a vital source of animal protein, as well as to the declining capacity of

capture fisheries to meet the world's growing food needs. The Food and Agriculture Organization of the United Nations (FAO, 2024) reports that aquaculture has become a major contributor to global aquatic animal production, highlighting its increasingly strategic role in the global food system. This development indicates that aquaculture is no longer merely a complementary activity to capture fisheries but has become an essential component of a sustainable food production system.

In Indonesia, aquaculture is a key subsector of the national fisheries industry. The country's geographical characteristics, the availability of freshwater resources, and the diversity of commercially valuable fish species present significant opportunities for the development of freshwater aquaculture. Species such as tilapia, catfish, carp, and gurami are widely farmed by small-scale farmers and entrepreneurs due to their relatively high market demand and their ability to adapt to local production systems. However, the sustainability and productivity of freshwater aquaculture depend heavily on the availability of high-quality fish fry. Therefore, fish hatcheries occupy a strategic position in the aquaculture value chain because they provide the biological inputs necessary for grow-out operations. Without a reliable supply of high-quality fry, aquaculture production may suffer from low survival rates, slow growth, inconsistent production cycles, and ultimately reduced profits for fish farmers.

The hatchery sector, however, faces various challenges, particularly among small-scale operations. Small hatcheries typically operate with limited financial capital, relatively simple production technologies, limited access to market information, and a reliance on local networks. Additionally, they may face fluctuations in demand, competition among fry suppliers, rising input costs, and shifting consumer preferences. These challenges require hatchery managers to develop business strategies that go beyond production efficiency. Simply producing high-quality fish fry may not guarantee business sustainability if the enterprise cannot effectively distribute its products, set competitive prices, communicate product advantages, or maintain strong relationships with customers. Consequently, marketing strategy has become a critical component of hatchery management.

The marketing of freshwater fish fry differs in several ways from the marketing of finished fish products. Fish fry are biological products whose value is determined not only by physical characteristics but also by survival rates, genetic quality, growth potential, disease resistance, adaptability, and the reliability of the hatchery as a supplier. Customers, particularly fish farmers, often consider the performance of the fry after stocking when evaluating the quality of hatchery products. Therefore, fish fry marketing involves elements of trust and long-term relationships between hatchery managers and buyers. A hatchery that consistently provides healthy, high-performing fish fry can build customer loyalty and benefit from repeat purchases and positive word-of-mouth recommendations. In this context, marketing strategies must integrate product quality with

service quality, distribution reliability, pricing, communication, and customer relationship management.

One fundamental framework for developing an effective marketing strategy is the marketing mix, which is generally conceptualized through the four Ps: product, price, place, and promotion. Kotler and Armstrong (2021) explain that the marketing mix represents a set of controllable marketing tools that organizations combine to elicit the desired response from their target market. Although initially developed in the context of conventional consumer goods, this framework remains relevant for analyzing marketing strategies in the agriculture and aquaculture sectors. In the context of freshwater fish hatcheries, each element of the marketing mix serves a specific strategic function and contributes to the business's competitiveness.

The first element, product, refers to the goods and services offered to customers to meet their needs. In freshwater fish hatcheries, product strategy is closely tied to the quality and characteristics of fish fry. Key attributes include fry size uniformity, health status, survival potential, growth performance, genetic quality, and disease resistance. According to the FAO (2024), the availability of high-quality fry is one of the fundamental requirements for the development of sustainable aquaculture. Therefore, hatchery managers must ensure that production processes meet appropriate standards and that fry quality remains consistent throughout the production cycle. Product differentiation can also be achieved by offering specific fry sizes, species diversity, technical guidance, after-sales support, or guarantees regarding fry quality. Such differentiation can provide a competitive advantage for small-scale hatcheries in markets where customers prioritize reliability over simply purchasing the lowest-priced product.

Product quality is critical because fish fry are living products. Unlike conventional manufactured goods, fish fry can deteriorate in quality during transport or under improper handling conditions. Therefore, the product concept in fish seed marketing must encompass not only the fish seed itself but also packaging, transportation, handling, and technical support. Fish seed producers that safely deliver healthy fish seed and provide information on acclimatization and stocking procedures can create greater added value for customers. From a relationship marketing perspective, these additional services can strengthen trust and increase the likelihood of repeat purchases.

The second element of the marketing mix is price. Pricing decisions are critical for small-scale hatcheries because they must balance customer affordability with production costs and profitability. Fish seed prices can vary depending on species, size, quality, production costs, seasonal demand, and local market conditions. Pricing strategies that are too high can reduce demand, while prices that are too low can undermine profitability and create the perception that the product is of low quality. Therefore, effective pricing requires careful consideration of both internal factors—such as production and distribution costs—and external factors, including competitor prices, customer

purchasing power, and market demand.

Kotler and Armstrong (2021) emphasize that price is a critical element because it directly generates revenue, while other elements of the marketing mix generally represent costs. In the context of seed production, pricing can also serve as a signal of product quality. Customers may perceive higher-priced seeds as more reliable products if those prices are supported by evidence of better survival rates, health, and growth performance. However, small-scale seed producers should avoid relying solely on premium pricing without establishing adequate product differentiation. A balanced pricing strategy may include volume discounts, special prices for loyal customers, flexible payment schemes, or differentiated pricing based on seed size and quality. Such an approach can help hatcheries cater to different customer segments while maintaining financial sustainability.

The third element is place, which relates to distribution channels and product accessibility for target customers. Distribution is critical in the fish hatchery sector because fish fry are highly sensitive to transport time, water quality, temperature, and handling conditions. An inefficient distribution system can reduce fry survival rates and negatively impact customer satisfaction. Therefore, hatcheries must develop a distribution system that enables fish fry to reach customers quickly and safely. Direct distribution from the hatchery to farmers may be advantageous because it reduces intermediaries and allows hatchery managers to maintain greater control over product quality. However, partnerships with local fish farmer groups, agricultural input retailers, aquaculture communities, and regional distributors can expand market reach.

A hatchery's geographic location can also influence its competitive position. Hatcheries located near major fish farming areas can benefit from lower transportation costs and faster delivery. Conversely, hatcheries located farther from potential markets need to develop more efficient logistics and packaging systems. Digital technology can complement physical distribution by allowing customers to place orders remotely and receive information about available fry stock. In this context, digital platforms do not replace physical distribution but can enhance the efficiency of information exchange and transaction processes.

The fourth element, promotion, relates to activities designed to communicate a product's value and persuade target customers to make a purchase. Traditional promotional activities at small-scale hatcheries often rely on personal relationships, word-of-mouth communication, and direct interaction with fish farmers. This approach remains relevant because trust is a critical factor in the purchase of biological products. However, advancements in digital technology have created new opportunities for hatchery businesses to expand their promotional reach. Social media platforms, messaging apps, online marketplaces, and digital communities can be used to showcase product availability, communicate seed quality, share customer experiences, and provide information on fish farming practices.

Digital marketing may be particularly beneficial for small-scale businesses because it provides relatively affordable access to a wider market. According to Chaffey and Ellis-Chadwick (2019), digital marketing allows businesses to communicate with customers more directly and interactively while fostering customer engagement and relationship building. For hatcheries, digital promotions can include photos and videos of seed production, educational content on fish farming, customer testimonials, information on available species and sizes, and real-time updates on product availability. However, digital promotions must be backed by the actual quality of the product. Promotional messages that do not align with the customer experience can damage a business's reputation and erode trust.

The four elements of the marketing mix are interrelated and should not be treated as separate strategies. High-quality products require appropriate pricing, reliable distribution, and effective communication. Similarly, strong promotional activities will have limited impact if the hatchery cannot ensure adequate product availability or maintain consistent quality. Therefore, optimizing the marketing mix requires a comprehensive approach that aligns internal business capabilities with external market conditions. Kotler and Keller (2016) argue that a successful marketing strategy requires organizations to understand customer needs and to create, communicate, and deliver superior value. This principle is relevant to hatchery businesses because their competitiveness depends on their ability to deliver value recognized by fish farmers.

Competitiveness itself can be understood as a business's ability to maintain and strengthen its position relative to competitors by delivering superior value, maintaining efficiency, and responding effectively to changes in the market environment. Porter (1985) emphasizes that competitive advantage arises when an organization can create value through strategies that competitors cannot easily imitate. For small-scale hatcheries, competitive advantage may stem from consistent seed quality, proximity to customers, personalized service, technical assistance, trusted relationships, or flexibility in responding to customer needs. These advantages may be particularly important when small businesses compete with large-scale hatcheries that have greater financial and technological resources.

In the aquaculture sector, competitiveness is also influenced by broader developments within the industry. The expansion of aquaculture has increased demand for reliable seed suppliers, while competition among hatcheries has intensified. The FAO (2024) emphasizes the importance of developing sustainable and efficient aquaculture, including improvements to production systems and value chains. This situation requires hatcheries to strengthen not only their technical production capacity but also their managerial and marketing capabilities. Hatchery managers who focus solely on production may struggle to maintain market share if competitors offer better customer service, a broader distribution network, or more effective digital communication.

Previous studies and literature on agricultural and aquaculture marketing in general have highlighted the importance of product quality, pricing, distribution, and promotion in influencing business performance and consumer decisions. However, most of the existing literature tends to focus on aquaculture production, fish consumption, or the marketing of harvested fish, rather than on the specific marketing challenges faced by hatchery businesses. This distinction is important because hatcheries operate at the early stage of the aquaculture value chain and serve a different customer base. Their primary customers are generally fish farmers, grow-out operators, and other aquaculture businesses, rather than end consumers. Consequently, purchasing decisions are heavily influenced by technical considerations, trust, product performance, and long-term business relationships.

Small-scale hatcheries may also face specific marketing constraints. Many operate without a formal marketing plan and rely heavily on established customer networks. While word-of-mouth marketing can be highly effective within local communities, overreliance on informal networks can limit market expansion. Additionally, small-scale hatcheries may have limited capacity to conduct market research, monitor competitors, manage customer databases, or implement digital marketing strategies. These limitations can prevent them from responding quickly to changes in consumer preferences and market dynamics. Therefore, a systematic assessment of the marketing mix is necessary to identify strengths and weaknesses and determine which strategies can contribute most to competitiveness.

This study focuses on the freshwater fish hatchery owned by Haji Aep, located in Warung Jambe Village, Karang Tengah Subdistrict, Cianjur. The selection of this hatchery as a case study is relevant because small-scale hatchery businesses are an important part of the local aquaculture system but often operate under resource constraints. This study examines how the four elements of the marketing mix—product, price, place, and promotion—are implemented in the hatchery's operations and how these elements contribute to competitiveness. Special attention is given to product quality and distribution due to the strategic importance of these two aspects in the marketing of live fish fry.

To provide a more comprehensive strategic assessment, this study also employs a SWOT analysis. SWOT analysis enables researchers and managers to identify internal strengths and weaknesses as well as external opportunities and threats. According to Gürel and Tat (2017), SWOT analysis is a strategic planning framework that helps organizations evaluate their internal capabilities and external environment. In the context of freshwater fish hatcheries, internal strengths may include high-quality fry, customer trust, a strategic location, production experience, or strong relationships with local farmers. Weaknesses may include limited capital, inadequate promotional activities, limited production capacity, or reliance on traditional marketing channels. External opportunities may include rising demand for freshwater fish fry, the expansion of aquaculture activities, digital marketing opportunities, and government support for small businesses. Meanwhile, threats may

include increasing competition, rising input costs, disease outbreaks, market fluctuations, and environmental changes.

Integrating marketing mix analysis with SWOT analysis provides a broader analytical perspective. The marketing mix identifies how the hatchery currently creates and delivers value to customers, while SWOT analysis evaluates the business's strategic position within its environment—both internal and external. This combination enables this study to move beyond descriptive analysis toward the formulation of practical strategies. For example, if product quality is a key strength but promotion remains weak, the hatchery can develop a digital promotion strategy that communicates its product's advantages to a broader market. Similarly, if the hatchery has strong customer relationships but faces distribution limitations, it can consider partnering with local farmer groups or distributors to improve market accessibility.

The uniqueness of this study lies in its specific focus on optimizing the marketing mix within the context of small-scale freshwater fish hatcheries. Rather than examining aquaculture marketing in general, this study addresses the unique characteristics of fish fry as a biological product, as well as the importance of quality, distribution, trust, and customer relationships in the hatchery's competitiveness. Furthermore, the combination of the 4P marketing mix framework with SWOT analysis provides an integrated approach to identifying strategic priorities and developing context-appropriate recommendations. This perspective is expected to contribute to the aquaculture marketing literature by demonstrating how conventional marketing concepts can be adapted to specific segments within the aquaculture value chain.

This research is guided by three main objectives. First, this study aims to evaluate the implementation and effectiveness of the marketing mix strategies applied by Haji Aep's freshwater fish hatchery, including product, price, place, and promotion. Second, this study seeks to identify internal strengths and weaknesses as well as external opportunities and threats that influence the hatchery's competitiveness. Third, this study aims to formulate strategic recommendations to optimize the marketing mix and strengthen the hatchery's competitive position and long-term sustainability.

The findings of this study are expected to contribute both theoretically and practically. Theoretically, this research can enrich the application of marketing mix theory in the context of small-scale aquaculture businesses, particularly hatcheries that occupy a strategic position in the fish seed supply chain. Practically, these findings can help hatchery owners identify effective strategies to improve product quality, develop appropriate pricing mechanisms, strengthen distribution channels, and expand promotional activities. The results of this study can also provide useful insights for local governments and stakeholders involved in the development of aquaculture, particularly in designing programs that strengthen the marketing and entrepreneurial capacities of small-scale fish hatchery

operators.

Ultimately, the competitiveness of freshwater fish hatcheries cannot be determined solely based on their production capacity. In an increasingly competitive aquaculture environment, hatchery businesses must be able to integrate production quality with effective marketing and strategic management. The optimization of product, price, place, and promotion must align with customer needs, market dynamics, and the business's internal capabilities. Through an integrated marketing mix and a strategic SWOT-based approach, small-scale hatcheries can strengthen their market position, increase customer loyalty, expand their market reach, and enhance business sustainability. In this regard, the case of Haji Aep's fish hatchery in Cianjur provides an important context for understanding how local freshwater fish hatcheries can develop practical marketing strategies while contributing to the broader growth and sustainability of Indonesia's aquaculture sector.

Research Method

This study employs a qualitative research approach using a descriptive case study design to gain an in-depth understanding of marketing mix strategies and their contribution to the competitiveness of small-scale freshwater fish hatcheries. A qualitative approach is considered appropriate because this study focuses on exploring the experiences, perceptions, practices, and strategic challenges faced by these hatcheries within their actual business context (Creswell & Poth, 2018). The case study design allows researchers to examine these phenomena comprehensively in a real-life context, particularly where the boundaries between business practices and contextual factors cannot be clearly distinguished (Yin, 2018).

This study was conducted at a freshwater fish hatchery owned by Haji Aep in Warung Jambe Village, Karang Tengah Subdistrict, Cianjur Regency, Indonesia. The research location was selected purposively because the hatchery represents a small-scale aquaculture business that is actively operating in the local fish fry market and faces challenges related to business competitiveness, market access, and the development of marketing strategies. Research participants consisted of the hatchery owner, workers involved in production and marketing activities, and selected customers who had experience purchasing fish fry from the hatchery. Participants were selected purposefully based on their direct knowledge and involvement in the hatchery's business activities (Creswell & Poth, 2018).

Data were collected through direct observation, in-depth semi-structured interviews, documentation, and a literature review. Observations were conducted to examine production processes, marketing activities, distribution practices, interactions with customers, and promotional strategies. Interviews explored the application of the four elements of the marketing mix—product, price, place, and promotion—as well as internal and external factors affecting competitiveness. Documentation included production records, sales information, customer records, and promotional materials, where available. Secondary information was obtained from relevant books, scientific

articles, and government publications.

Data credibility is strengthened through triangulation of sources and methods by comparing information obtained from interviews, observations, and documents (Creswell & Poth, 2018). Data analysis follows the stages of data reduction, data presentation, and drawing conclusions (Miles et al., 2014). Furthermore, a SWOT analysis was conducted to identify the internal strengths and weaknesses of the hatchery as well as its external opportunities and threats (Gürel & Tat, 2017). The resulting SWOT matrix was used to formulate strategic recommendations aimed at optimizing the marketing mix and strengthening the competitiveness and sustainability of the freshwater fish hatchery.

Results and Discussion

The findings of this research highlight the application of the marketing mix (4Ps: Product, Price, Place, and Promotion) in improving the competitiveness of freshwater fish hatcheries. Data were obtained through observation, interviews, and documentation from the hatchery business in Warung Jambe, Cianjur.

Table 1. Marketing Mix Implementation

ELEMENT	FINDINGS
PRODUCT	Freshwater fish hatcheries produce various types of quality fingerlings, including <i>nila</i> , <i>mujair</i> , <i>mas</i> , <i>gurame</i> , <i>patin</i> , and <i>koi</i> . The main strength lies in the quality and resistance of the fingerlings.
PRICE	Prices are set at a competitive level compared to local competitors. Discounts are sometimes offered for large-volume buyers.
PLACE	Distribution channels rely mainly on direct sales to local consumers and repeat buyers. Deliveries are conducted using private vehicles, with limited expansion outside the Cianjur area.
PROMOTION	Promotion is still conventional, relying on word of mouth and WhatsApp communication. Digital marketing through social media has not been optimized.

The implementation of the marketing mix in Haji Aep's freshwater fish hatchery reflects the application of the 4P (Product, Price, Place, Promotion) approach. In terms of product, the hatchery offers high-quality and diverse types of freshwater fish seeds, including tilapia, catfish, carp, and gourami, which are valued for their health and resistance. For price, the business adopts a competitive pricing strategy that balances affordability for consumers with sustainable profit margins. In the aspect of place, distribution is managed directly through local networks and long-term customers, supported by simple logistical arrangements such as personal vehicles. Finally, for promotion, the hatchery relies mainly on word-of-mouth marketing and personal networks, while digital promotion through WhatsApp and social media platforms is still minimal. Overall, the marketing mix

implementation ensures product availability and stable sales, but further improvements in digital promotion are necessary to expand market reach.

Table 2. SWOT Analysis Results

STRENGTHS	WEAKNESSES
HIGH PRODUCT QUALITY, HEALTHY FINGERLINGS	Limited use of digital marketing
LOYAL CUSTOMER BASE	Distribution dependent on personal networks
OPPORTUNITIES	Threats
HIGH DEMAND FOR FRESHWATER FISH FINGERLINGS	Increasing competition from nearby hatcheries
SUPPORT FROM LOCAL GOVERNMENT FOR AQUACULTURE	Rising operational costs

The SWOT analysis identifies several strategic factors influencing the competitiveness of the hatchery business. Strengths include the ability to produce up to two million fish seeds annually, consistent product quality, and long-term trust from loyal customers. Weaknesses are limited human resources, reliance on traditional marketing, and inadequate use of digital platforms. Opportunities exist in the increasing demand for freshwater fish seeds, potential expansion into regional markets, and government programs supporting aquaculture businesses. Meanwhile, threats arise from growing competition among hatcheries in surrounding areas, fluctuating consumer purchasing power, and vulnerability to environmental changes affecting fish health. Based on the SWOT matrix, the recommended strategies are to optimize product quality and leverage strong customer trust (SO strategy), while simultaneously addressing weaknesses in promotion through digital platforms and strengthening distribution channels (WO strategy).

The results show that the hatchery has a strong foundation in terms of product quality and customer loyalty but faces challenges in marketing effectiveness. Limited promotional strategies and the absence of digital marketing reduce competitiveness compared to other hatcheries that are more adaptive to technology. Optimizing the marketing mix, particularly in promotion and distribution, is necessary to improve competitiveness and ensure sustainable business growth.

Discussion

The findings of this study indicate that the marketing mix, consisting of product, price, place, and promotion (4Ps), plays a significant role in strengthening the competitiveness of small-scale freshwater fish hatchery enterprises. The analysis of Haji Aep's hatchery in Warung Jambe Village, Karang Tengah District, Cianjur Regency, demonstrates that competitiveness is not determined by a single marketing factor but rather by the interaction of product quality, pricing strategies, distribution effectiveness, and promotional activities. These four elements collectively shape customer perceptions, purchasing decisions, customer loyalty, and the hatchery's ability to maintain its position

within an increasingly competitive aquaculture market. This finding supports the fundamental marketing perspective that organizations must integrate controllable marketing variables to create value for target customers and achieve sustainable competitive advantage (Kotler & Armstrong, 2021; Kotler & Keller, 2016).

The product dimension emerged as one of the strongest competitive advantages of Haji Aep's hatchery. The findings indicate that customers place considerable importance on the quality and reliability of fish seed, particularly in terms of health, physical condition, size uniformity, and survival potential. Because fish seed is a biological product, customers do not evaluate quality solely based on its physical appearance at the time of purchase. Instead, the actual value of the product becomes evident through its performance after stocking, including survival, growth, and adaptability to cultivation environments. This characteristic distinguishes fish seed marketing from the marketing of conventional consumer products. Consequently, consistent product quality contributes directly to customer trust and repeat purchasing behavior.

The strong relationship between product quality and customer loyalty is consistent with the marketing literature, which emphasizes that perceived quality contributes to customer satisfaction, trust, and long-term loyalty (Kotler & Keller, 2016). In the context of Haji Aep's hatchery, long-term customers represent an important intangible asset because their repeated purchases and positive recommendations contribute to the hatchery's reputation. Word-of-mouth communication is particularly valuable for small-scale businesses operating in rural areas, where customer relationships and community networks often influence purchasing decisions. This finding also suggests that maintaining consistent seed quality may be more strategically valuable than pursuing aggressive short-term promotional campaigns. If promotional claims are not supported by actual product performance, customer trust may decline and negatively affect the long-term competitiveness of the business.

The price dimension also contributes significantly to the hatchery's competitiveness. The findings indicate that customers consider price when selecting fish seed suppliers, but price is not necessarily the only determinant of purchasing decisions. Customers tend to evaluate price in relation to perceived product quality, survival potential, service, and reliability. This finding reflects the principle of customer value, in which consumers compare the benefits they receive with the costs they incur (Kotler & Armstrong, 2021). For Haji Aep's hatchery, competitive pricing therefore needs to be accompanied by consistent quality and reliable service.

A pricing strategy that focuses exclusively on offering the lowest price may create risks for small-scale hatcheries because it can reduce profit margins and limit their ability to invest in production improvements. Conversely, pricing that is significantly higher than competitors without clear differentiation may reduce market attractiveness. Therefore, the findings suggest that the

hatchery should adopt a value-based pricing orientation in which prices reflect the quality and benefits of the fish seed provided. Flexible pricing mechanisms, such as volume-based discounts for regular customers or differentiated prices based on seed size and quality, could also be considered. Such strategies may strengthen customer retention while maintaining profitability.

The place or distribution dimension represents an important area requiring improvement. The study found that Haji Aep's hatchery has established relationships with local customers but remains heavily dependent on conventional distribution channels and direct transactions. While this approach is effective for serving nearby customers, it limits the hatchery's ability to expand into wider regional markets. Distribution is particularly critical in fish hatchery businesses because fish seed is a living product that requires careful handling and timely transportation. Long transportation distances, inappropriate packaging, and delays may negatively affect seed survival and ultimately reduce customer satisfaction.

The findings therefore indicate that improving distribution efficiency should become one of the hatchery's strategic priorities. Expansion does not necessarily require the establishment of physically distant branches. Instead, the hatchery could develop partnerships with fish farmer groups, aquaculture communities, local agricultural input suppliers, and trusted intermediaries. Digital ordering systems could also complement existing distribution arrangements by allowing customers from outside the immediate area to obtain information and place orders before delivery. Such an approach could improve market accessibility while maintaining operational efficiency.

The promotion dimension was identified as the most significant weakness in the current marketing strategy. The hatchery still relies predominantly on conventional promotional mechanisms, including personal communication and word-of-mouth recommendations. Although these approaches have successfully maintained a loyal local customer base, they provide limited opportunities for market expansion. In the contemporary digital environment, small-scale enterprises increasingly need to utilize digital platforms to communicate product value, reach new customers, and strengthen brand visibility (Chaffey & Ellis-Chadwick, 2019).

The underutilization of digital marketing represents both a weakness and an opportunity. Social media platforms can be used to provide information about available fish species, seed sizes, production conditions, prices, and customer testimonials. Visual content, including photographs and short videos, can help customers assess the quality and authenticity of the hatchery's products. Educational content related to fish cultivation may also strengthen the hatchery's position as a trusted source of aquaculture knowledge rather than merely a seed supplier. Such content-based marketing can potentially increase customer engagement and strengthen relationships with existing and prospective customers.

The findings are broadly consistent with previous studies cited in the research context. Pratiwi

et al. (2022) emphasized the importance of distribution efficiency and competitive pricing in strengthening the performance of fish hatchery enterprises. The present study confirms the relevance of these factors but further demonstrates that distribution and pricing must be integrated with product quality and customer trust. Similarly, Sulaksana et al. (2024) highlighted the potential of product diversification and social media promotion to expand market reach. This finding resonates with the present study, particularly regarding the limited use of digital promotional strategies at Haji Aep's hatchery. The difference lies in the scale and context of the business. While larger enterprises may have greater resources to implement sophisticated digital marketing campaigns, small-scale hatcheries need simpler, affordable, and locally appropriate digital strategies.

The findings also correspond with Ansori's (2023) emphasis on service quality and customer relationships. The existence of long-term customers at Haji Aep's hatchery indicates that interpersonal relationships and trust are important sources of competitive advantage. In rural business environments, relationships may function as a form of social capital that reduces customer uncertainty when purchasing biological products. Customers who have previously experienced satisfactory seed quality are more likely to return and recommend the hatchery to other farmers. Thus, digital marketing should not replace relationship-based marketing but rather complement it. The most appropriate strategy may be a hybrid approach that combines personal relationships and community networks with digital communication.

From a SWOT perspective, the major internal strength of Haji Aep's hatchery is its product quality and established customer trust. These strengths provide a foundation for sustainable competitiveness. However, limited promotional activities and dependence on conventional distribution constitute important weaknesses. Externally, the increasing demand for freshwater fish production and the expansion of digital communication provide significant opportunities. At the same time, competition among hatcheries, changes in market demand, rising production costs, and potential disease outbreaks represent threats that may affect business sustainability. SWOT analysis is useful in this context because it enables businesses to connect internal capabilities with external environmental conditions when developing strategic alternatives (Gürel & Tat, 2017).

The strategic implication is that Haji Aep's hatchery should pursue a strength-opportunity (SO) strategy by leveraging its established product quality and customer trust to expand its market through digital promotion and broader distribution networks. The hatchery could document customer testimonials, display product quality through social media, and develop partnerships with fish farmer communities outside the immediate village. A strength-threat (ST) strategy could focus on maintaining consistent quality and strengthening customer relationships to reduce vulnerability to competitors. Meanwhile, a weakness-opportunity (WO) strategy should prioritize digital marketing training and the development of more systematic distribution channels. Finally, a weakness-threat

(WT) strategy should emphasize operational efficiency, customer retention, and gradual market expansion to minimize financial risks.

The theoretical contribution of this study lies in demonstrating that the marketing mix framework remains relevant to small-scale aquaculture businesses, even though the framework was originally developed for broader marketing contexts. The findings show that the 4Ps can be adapted to the distinctive characteristics of fish seed as a biological product. Product quality becomes closely connected with survival and growth performance; price must reflect perceived value; place must account for the biological sensitivity of fish seed during distribution; and promotion must combine trust-based interpersonal communication with digital marketing. Thus, the study extends the practical application of the marketing mix framework to a specialized segment of the aquaculture value chain.

The practical contribution is equally important. The findings suggest that small-scale hatcheries do not necessarily need substantial financial resources to improve competitiveness. Instead, strategic improvements can begin with relatively accessible initiatives, such as maintaining consistent product quality, documenting customer experiences, utilizing social media, improving order management, and establishing partnerships with local farmer groups. Digital platforms can provide an affordable mechanism for expanding market reach, while strong customer relationships can continue to serve as the foundation of trust.

Overall, the findings demonstrate that the competitiveness of Haji Aep's freshwater fish hatchery is shaped by the interaction between product quality, pricing, distribution, and promotion. Product quality and customer trust currently represent the hatchery's primary competitive strengths, while limited digital promotion and conventional distribution constitute major areas for improvement. The most promising strategic direction is therefore not to abandon existing relationship-based marketing but to integrate it with digital promotion and more efficient distribution mechanisms. By combining its existing strengths with emerging market opportunities, the hatchery can potentially expand its customer base, strengthen its market position, and achieve more sustainable business growth. This integrated approach also demonstrates that small-scale rural aquaculture enterprises can develop meaningful competitive advantages when marketing strategies are aligned with product characteristics, customer needs, and local business capabilities.

Conclusion

This research concludes that optimizing the marketing mix is essential in improving the competitiveness of freshwater fish hatcheries. The study highlights that product quality, pricing strategies, distribution networks, and promotional efforts collectively determine the ability of hatchery businesses to compete in the market. The case of Haji Aep's hatchery demonstrates that maintaining reliable product quality and applying appropriate pricing strategies contribute positively to customer trust and loyalty. However, the limited use of digital promotion and dependency on

conventional marketing channels remain challenges that reduce business competitiveness. Opportunities for growth lie in adopting digital marketing, strengthening collaboration with stakeholders, and expanding customer networks, while threats such as market competition and fluctuating demand require adaptive strategies.

Despite its contributions, this study is limited to a single case and does not fully capture the diversity of hatchery businesses in different regions. Future studies are encouraged to include broader samples and explore additional factors such as innovation, technology adoption, and sustainability practices.

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