



Formulation of Hydroponic Green Vegetable Marketing Strategies in Indonesia as An Effort to Enhance Competitiveness

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Abstract

This comprehensive analysis focuses on crafting effective marketing strategies for hydroponic vegetables and fostering future development within the industry. Employing a SWOT analysis and adopting a holistic marketing approach, the goal is to create strategies that not only capitalize on strengths but also address weaknesses, seize opportunities, and mitigate threats. These strategies aim to empower industry producers by aligning with integrated economic benefits, ensuring their sustained success. The outcomes of this strategic analysis will serve as invaluable references for promoting hydroponic vegetables. The industry can showcase its sustainability and quality by leveraging strengths such as efficient resource utilization and controlled environments. Addressing weaknesses like public perception challenges and potential high start-up costs will be crucial in developing a well-rounded approach. Seizing opportunities in the growing demand for fresh, locally sourced produce and the increasing interest in sustainable agriculture, the strategies will position hydroponic vegetables as a forward-looking choice. Simultaneously, mitigating threats like market competition and regulatory hurdles will be integral to long-term viability. In essence, the resulting strategies aim to create a resilient marketing framework that promotes hydroponic vegetables and contributes to the overall economic prosperity of industry producers.

Keywords *Hydroponic Vegetables, Marketing Strategy, SWOT Analysis, Porter's*

INTRODUCTION

Land plays a crucial role in agriculture and settlements; however, population growth and declining agricultural productivity present challenges with changes in land use, especially towards built-up areas (Wahyuni et al., 2012). Land use decisions in Indonesia are influenced by economic and social needs, analyzed through SWOT for strategic guidance in the hydroponic vegetable sector in 2023. The horticulture subsector in Indonesia faces limited land but proves efficient with hydroponics in urban areas. Growing awareness of public health encourages the market for organic and hydroponic vegetables. Collaboration among the government, farmers, and the public is essential for food security and sustainability solutions. Conventional and hydroponic farming techniques differ, and government support, along with public awareness of hydroponic benefits, enhances competitiveness. Overcoming initial costs and infrastructure challenges is vital to optimizing the potential of hydroponic farming in Indonesia.

Rumah Hidroponik Tanjungpura Berdikari (Tanjungpura Independent Hydroponic House) or abbreviated as RHTB, a hydroponic vegetable farming initiative since 2021, is experiencing increased demand. Production costs need attention, but the shift in consumption patterns towards clean vegetables provides opportunities for hydroponic farmers. Training and education are key to improving efficiency, and flagship products like lettuce attract consumers. Hydroponic Farmers in Indonesia have significant opportunities to enhance competitiveness through innovation, collaboration, and market awareness, utilizing a holistic and green marketing strategy to optimize

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the potential of the hydroponic vegetable sector. The selection of appropriate indicators or factors will significantly assist in designing and determining strategies for farmers to enhance competitiveness (Larbi et al., 2019). Strategies are crucial to rekindle perceptions and provide support within an agricultural system (Sirikudta, 2013). In agriculture, improving farmers' knowledge is crucial, and marketing support is essential, which is integrated into the strategy (Srisuantang et al., 2011).

According to the background issue, this study will provide a research methodology that will comprehensively review existing literature on hydroponic vegetable farming, Diamond Porter, and SWOT analyses. Primary data will be gathered through interviews with key industry stakeholders, including hydroponic farmers, marketers, and experts. A survey was conducted to collect quantitative data on consumer perceptions and preferences. The application of Diamond Porter and SWOT analyses will provide insights into the external and internal factors affecting the hydroponic vegetable industry in Indonesia. This holistic approach aligns with the principles of green marketing, ensuring sustainability and environmental consciousness in the formulated strategies. The study will explore global marketing trends, identifying successful strategies implemented in other regions. Comparative analysis will aid in adapting and tailoring these strategies to the Indonesian context. Emphasis will be placed on promoting hydroponic cultivation as a solution to limited planting space, addressing environmental concerns and enhancing productivity. Academic literature and empirical evidence will be integrated to develop practical and effective marketing strategies for the industry. The research aims to contribute positively to the competitiveness, productivity, and sustainability of Indonesia's hydroponic vegetable farming sector, providing valuable insights for academia and industry practitioners.

LITERATURE REVIEW

Holistic Marketing

Holistic Marketing aims to fully understand customers to tailor products and services that can sell themselves (Chen, 2010). Marketing is the consideration of values that must be provided to meet market demand and create profit. In general, marketing is about satisfying demand and increasing profit; defines the five basic marketing steps are Research, Segmentation, Positioning, Targeting, Marketing Mix, Implementation, and Control (R/STP/MM/I/C) (Kotler, 2016). In the era of globalization and participatory society, marketing has evolved from "marketing 2.0" to "marketing 3.0," which emphasizes value. Holistic marketing, as a strategic approach, integrates all aspects of marketing to achieve overall business goals. It involves four factors: relationship marketing, integrated marketing, internal marketing, and responsible marketing. Coordination and consistency are critical in the entire company's marketing efforts, from understanding the relationship between marketing programs, procedures, and activities to developing and implementing marketing programs, procedures, and activities.

Relationship Marketing

Holistic marketing focuses on building lasting connections with customers, suppliers, and partners, emphasizing continuous interaction and added value. It aims for customer satisfaction to cultivate loyalty and extends relationship management to various stakeholders, forming organizational assets such as marketing networks across three levels: customer, marketing channel, and partner relationships.

Integrated Marketing

Hydroponic farmer groups enforce marketing policies internally by handling tasks like recruitment, training, and resource support for optimal consumer service. The organization's entire

marketing function is customer-centric, encompassing public relations, advertising, fundraising, market research, and services aligned with integrated marketing principles. They instil a collective marketing culture as a holistic responsibility, emphasizing alignment throughout the organization. Efficiency, effectiveness, and productivity are paramount in production and operations, involving maintaining strong consumer relations, reliable logistics, strategic facility locations, technology application, systemic unity, innovation, and proactive approaches for potential breakthroughs in production and quality control.

Internal Marketing

The hydroponic farmer group must dedicate itself to internal marketing tasks, ensuring strict adherence to relevant policies. Priorities include customer-centric execution of all marketing functions, encompassing public relations, advertising, fundraising, and services, aligned with target markets and integrated marketing principles. Secondly, fostering a shared marketing culture across the entire organization is crucial. Finally, production and operations should adhere to efficiency, effectiveness, and productivity principles, considering customer relations, logistics, facility locations, technology, integrated systems, financing, innovation, and stringent quality control.

Socially Responsible Marketing

In analyzing the formulation of hydroponic vegetable marketing strategies, a socially responsible marketing approach can be pivotal. Emphasizing environmental sustainability practices, ethical advertising promotion and support for social initiatives can strengthen the brand image of hydroponic vegetables, positively impacting society and the environment while still achieving profit objectives.

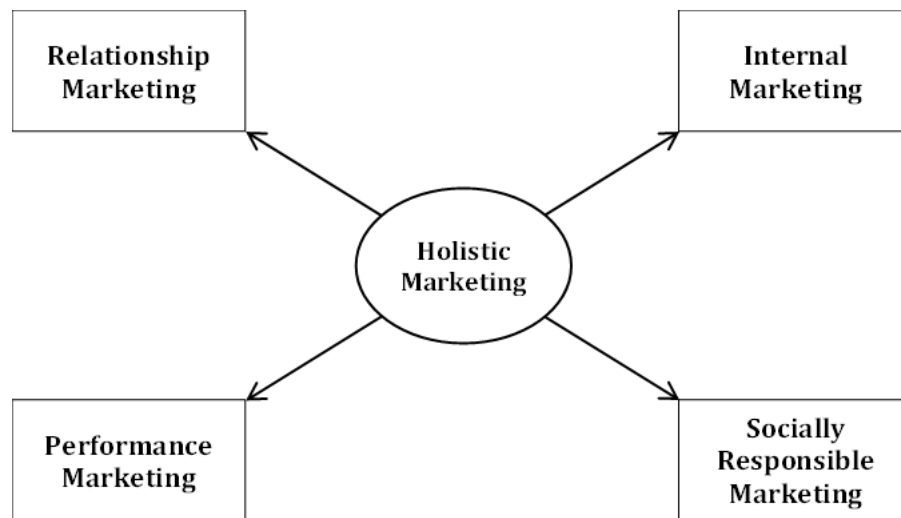


Figure 1. Holistic Marketing Components Framework

Green Operations Strategy Management

Strategies will be used to support the marketing mix strategy formulation (Pretita & Toha, 2022). The influence of competition prompts game ride services and similar businesses to enhance their competitiveness amid the ongoing wave of digitalization (Alam et al., 2024). Green marketing involves marketing practices, policies, and procedures that explicitly consider environmental concerns to achieve revenue goals and meet the objectives of both organizations and individuals

related to a product (Leonidou et al., 2013).

According to Chen (2010), green operational strategies often provide access to new markets, increase profits, and offer a competitive advantage. Companies that recognize green operations as a global trend and actively develop green strategies can seize crucial market opportunities, sustainable development, and maximum profits (Maxwell et al., 1997). Management efforts are needed to recognize the external environmental factors of dynamic technological changes and the internal environmental factors of innovation capability, which can be formulated in a strategy to cooperate with competitors, called a co-competition strategy. This strategy is formulated for competitiveness, where a previous study by Kant et al. (2023) noted that companies actively and systematically implementing green strategies can obtain numerous benefits, supporting overall performance improvement. Sarkis (2003) indicates that green operational management can enhance environmental performance while ensuring a company's compliance with environmental regulations and improving resource efficiency, thereby reducing operational costs. Other studies by Vachon and Klassen (2008) found that promoting environmental cooperation has a significant positive impact on the performance of the manufacturing industry.

Therefore, effectively managing products and services through green activities can help enhance a company's or group's operational performance (Liu & Hsu, 2009). In distribution programs, environmental efforts involve collaborating with channel partners to identify reduction and reuse opportunities. Green operational strategies encompass environmental protection throughout the supply chain, following the principles of 3R and 3E (Chai, 2017). Concerning this issue, the prior study by Chen and Gao (2005) proposed the 5R standard for implementing green principles. Bansal and Roth (2000) discovered that competitiveness and legitimacy drive green business management actions. Piasecki (1995) emphasized three critical factors in corporate environmental protection strategies: economic gain, legal practices, and responsibility. Chen (2010) further developed a framework for assessing green production and consumption systems, identifying six main elements. A study by Liu and Hsu (2009) believes that the development of the conference industry benefits from its strategic location, comprehensive transportation infrastructure, advanced information technology, and diverse natural beauty and culture.

Classification of Benefit

Green operational strategies in hydroponic farming yield functional benefits by addressing production challenges, improving product quality, and minimizing environmental impact. Symbolically, they enhance the company's image, gain social approval, and build a positive reputation. Experientially, efficiency in production and operational management aligns with the sustainability of the product life cycle. Financially, these strategies increase sales, business growth, and profitability through sustainability-focused marketing and product quality.

Table 1. Factors of The Diamond Model (Adapted from Porter (1990))

Components	Content
Major Factors	
Factor condition	Factors of production include human resources, capital resources, and research and development.
Demand condition	The construction market and its development help companies develop a competitive advantage.
Related and support industry	Measures of access to capable, financial support, and firms in related fields.
Firm strategy, structure, and rivalry	The local context and rules, the incentive systems, and open and vigorous competition

Components	Content
Accessorial factors:	
Government	The role of the host country government.
Chance	Events are occurrences that are outside of the control of a firm.

RESEARCH METHOD

The Management of Green Strategy

The business cultivates internal capabilities to effectively leverage externally acquired resources, enabling the pursuit of an innovation strategy (Sudarsono et al., 2022). The product needs to implement an effective marketing strategy and provide product information (Rasyid, 2022). The management of a Green Operational Strategy can be guided by employing the Porter Diamond Model. Michael Porter's diamond model is a technique that aids in identifying factors that companies need to consider when conducting business operations. The interaction among these factors considers organizational structure, external competition, and strategic decisions. Porter (1990) proposed four main and two additional factors in this diamond model for national competitive advantage. Primarily used to explore factors influencing competitive advantages in national industrial development, SWOT analysis is a method to develop the industry context by integrating and summarizing content from various aspects of the internal and external conditions of the company. It then analyzes the organization's strengths, weaknesses, opportunities, and threats. The diamond model reflects a dynamic system where interactions between factors reinforce each other. The elements in this system involve "factor conditions," "demand conditions," "related and supporting industries," and "firm strategy, structure, and rivalry," while "government" and "chance" become crucial factors influencing these elements, as shown in Figure 2.

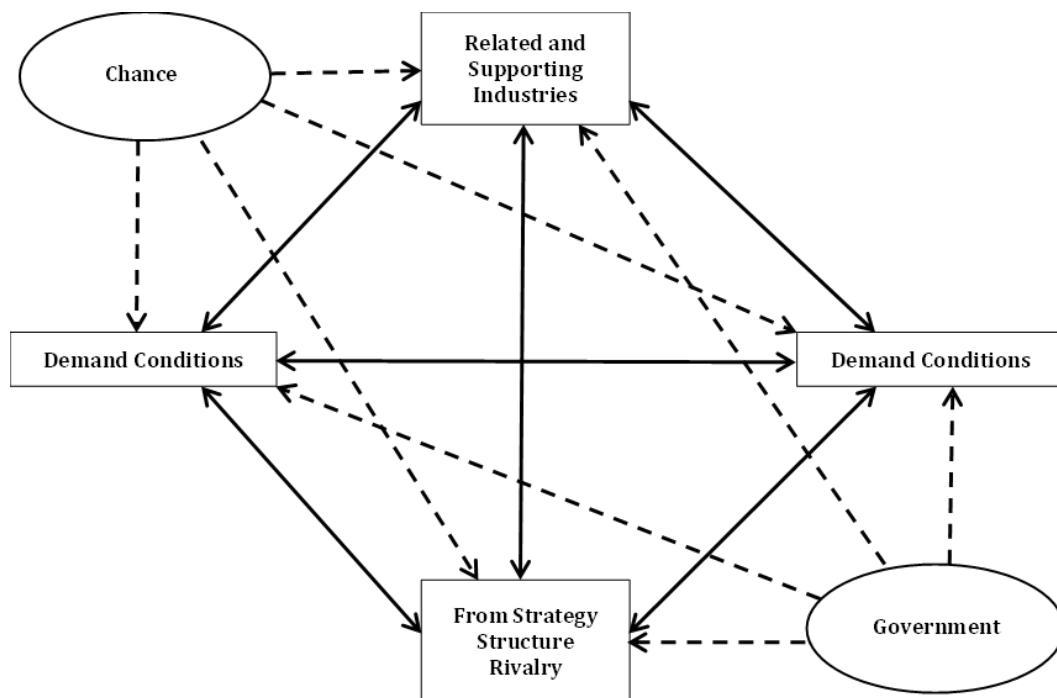


Figure 2. The Porter's Diamond Model Marketing Competitiveness Framework

1. Early competitive advantages in hydroponic vegetable farming include expertise in

hydroponic systems, soilless farming infrastructure, and capital for technology investments.

2. Domestic market demand for hydroponic vegetables can drive innovation and marketing tailored to environmentally conscious consumers, enhancing competitive edges.
3. Supportive national industries, like hydroponic equipment manufacturers and tech solution providers, strengthen the hydroponic vegetable value chain, fostering operational efficiency through collaboration.
4. National environmental factors, regulations, and public interest in sustainable agriculture shape competitive trends, compelling farmers to enhance product quality and innovation.
5. Government support, through incentives and regulations promoting sustainability, plays a pivotal role in fostering competition in hydroponic farming.
6. External opportunities, like changing consumer trends favouring a healthy lifestyle, offer avenues for competitive advantages through sustainability-focused marketing strategies.

SWOT Alternative Strategy Formulation and Application

Hydroponic vegetable marketing, analyzed through SWOT, reveals strengths in technology, infrastructure, and industry collaboration. Advanced hydroponic tech boosts competitiveness, supported by a robust infrastructure and collaborative industry efforts fostering innovation. Weaknesses include intense competition and external dependencies on factors like weather. Sustainable strategies emphasizing eco-friendly branding and local marketing are crucial to address these. Capitalizing on opportunities and careful implementation stages are key for long-term success, ensuring adaptability and sustainability in a dynamic market. This approach balances strengths, mitigates weaknesses, and maximizes opportunities while addressing threats.

Guidelines For Green Marketing Strategy of Hydroponic Vegetables

Within the Porter's Diamond Model framework, Green Operations Strategy Management focuses on sustainable operational approaches viewed through an environmentally friendly lens. This strategy promotes eco-friendly and sustainable business practices in hydroponic vegetable marketing. Key strategies include emphasizing sustainability benefits, incorporating environmentally friendly branding, educating customers about the environmental advantages, adopting eco-friendly packaging materials, ensuring transparency in the supply chain's carbon footprint, encouraging local marketing, fostering partnerships with stakeholders to support sustainability initiatives, promoting the health benefits of hydroponic vegetables, and considering a transition to renewable energy sources. Implementation of these green strategies enables hydroponic vegetable producers to cultivate a sustainable brand image, improve operational sustainability, and appeal to environmentally conscious consumers. The strategy that should be employed by producers in each industry is the differentiation strategy, a precise and distinct strategy, followed by eco-friendly product strategy (green Strategy), innovation strategy, marketing strategy, employee strategy, and alliance strategy, in sequential rank order ([Srisuantang et al., 2011](#)).

Strategic Management with Diamond Potter's

Michael Porter's Five Forces model offers a framework for analyzing business strategy and the competitive landscape, aiding in understanding factors that contribute to competitiveness and gaining a competitive advantage ([Prisca & Wulandari, 2022](#)). Porter's Five Forces are used to analyze the competitor and industry condition, which consists of other resources, functions of each rival firm, new entrants, suppliers, buyers, and product substitution ([Ainiyah & Rustiadi, 2020](#)). In the Porter's Diamond Model context, analysis is conducted on four main determinants that form the

model and reinforce each other.

These four determinants are factor conditions, demand conditions, related and supporting industries, and the firm's strategy, structure, and rivalry. First, the analysis covers labour, natural resources, infrastructure, and research and development capabilities in the factor conditions determinant. This helps understand the competitive advantage of a region in an industry. Second, in the demand conditions determinant, factors such as buyer structure, market size and growth, buyer's ability to pay, level of domestic competition, and domestic product advantages are explored. This analysis aids in designing marketing and product development strategies. Third, in the related and supporting industries determinant, the focus is on the value chain, availability of facilities and supporting infrastructure, supply of raw materials, joint innovation and R&D, workforce skills and education, and government support and industry policies. This helps understand inter-industry connections and creates an ecosystem supporting growth. Fourth, in the firm's strategy, structure, and rivalry factor, aspects such as company strategy, organizational structure, corporate culture and values, innovation and adaptation, leadership and management, company size and scale, partnerships and alliances, and the level of internal competition are evaluated.

This analysis helps understand how internal decisions shape a company's competitiveness in the market. Additionally, there are two supporting factors: chance and government. The chance factor includes unexpected events or opportunities, while the government factor involves regulations, policies, and government support for a specific industry or business sector. Analyzing all these factors helps companies and governments understand the dynamics of competitiveness in a region or industry, enabling the creation of strategies that leverage local advantages and plan for sustainable growth.

Table 2. The Analysis of Factors in Porter's Diamond Model

Marketing Hydroponic Green Vegetables in Indonesia:
A. Factors:
AA1. Comprehensive Economic Level:
- Adjust pricing and marketing according to local economic conditions.
AA2. Local Environment:
- Understand local consumer preferences and habits for effective marketing strategies.
AA3. Natural Environment:
- Emphasize the advantages of hydroponic vegetables in terms of sustainability and the environment.
AA4. Cultural Environment:
- Tailor marketing campaigns to relevant cultural values.
AA5. Basic Urban Infrastructure:
- Utilize city infrastructure for efficient distribution and accessibility.
AA6. Human and Technological Resources:
- Enhance production with cutting-edge technology and leverage skilled human resources.
B. Demand Conditions:
BB1. Domestic Demand:
Develop engaging marketing campaigns to meet local market needs.
BB2. International Demand:
- Evaluate international market potential and adjust export strategies.
C. Related and Supporting Industries:

Marketing Hydroponic Green Vegetables in Indonesia:

CC1. Tourism Industry:

- Establish partnerships to create hydroponic green vegetable-based tour packages.

CC2. Hotel Industry:

- Supply vegetable products to hotels and collaborate to supply their restaurant needs.

CC3. Transportation and Shipping Industry:

Optimize distribution systems to maintain vegetable freshness.

CC4. Communication Industry:

- Utilize effective communication channels to increase product awareness.

CC5. Advertising Industry:

- Be creative in advertising to capture consumer attention.

D. Firm Strategy, Structure, and Rivalry:

DD1. Support Measures for Exhibition Venue:

- Actively participate in exhibitions to enhance visibility and reputation.

DD 2. Planning and Strategy of Conference and Exhibition Industry:

- Develop unique and competitive marketing strategies.

E. Government:

E1. Create Conference and Exhibition System:

- Establish and utilize existing agricultural conference and exhibition systems.

E 2. Conference and Exhibition Policies:

- Collaborate with the government to create policies supporting the marketing of hydroponic vegetables.

F. Opportunities:

F1. Administrative Innovation and Service:

- Improve customer service and administrative processes for an excellent customer experience.

2. Integration of Environmental Protection, Energy Savings, and Communication Technology:

- Implement technology for sustainable and efficient vegetable production.

F 3. Industrial Upgrading with International Competitiveness:

- Form global partnerships and focus on enhancing competitiveness in the international market.
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Table 3. Analysis of Factors in Porter’s Diamond Model by American Society of Association Executives

A. Condition Factors	<ol style="list-style-type: none"> 1. Location and Venue Infrastructure (85%) 2. Marketing Activities (16%) 3. Other support purchases for hydroponic vegetable marketing (10%)
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	4. Climate (10%)
	5. Strategic location accessibility (17%)
B. Demand Factors	1. Government Support Level (53%)
	2. Overall Cost for Marketing (26%)
	3. Agricultural Technology Industry (54%)
	4. Scenic Agriculture Tourism (12%)
	5. Location Attractiveness (42%)
C. Related and Supporting Industries	1. Agrotechnology Industry (54%)
	2. Transportation Convenience (32%)
	3. Service Quality (27%)
	4. Marketing and Branding Activities (11%)
D. Firm Strategy, Structure, and Competition	1. Product Design (41%)
	2. Quality and Efficiency of Services (64%)
	3. Local Environmental Safety and Hospitality (33%)

FINDINGS AND DISCUSSION

SWOT Analysis: Empirical Application with Carbon Footprint

The ensuing discussion and evaluation constitute a SWOT Analysis for the empirical application of carbon footprint metrics within the context of hydroponic vegetable marketing.

1. Strengths

The adoption of hydroponic cultivation methods for growing vegetables brings forth a multitude of advantages, with sustainability at the forefront. As consumer preferences shift towards eco-friendly and sustainable products, hydroponic vegetables emerge as a compelling choice, showcasing environmentally friendly cultivation practices. This essay delves into the sustainable practices, reduced carbon footprint, and year-round production benefits of hydroponic vegetable farming, shedding light on the implications for producers and consumers.

a. Sustainable Practices

Hydroponic vegetable farming embraces sustainable practices that resonate with the contemporary environmental consciousness. Unlike traditional farming methods that rely heavily on soil, hydroponics utilizes nutrient-rich water solutions, thereby minimizing soil erosion and depletion. The absence of soil also mitigates the risk of soil-borne diseases, reducing the need for pesticides and herbicides. This approach aligns with the growing consumer demand for products cultivated through methods that preserve and enhance the environment. Moreover, hydroponic systems allow for efficient water usage compared to conventional farming. Hydroponics significantly reduces water consumption by recirculating and reusing nutrient solutions, addressing concerns about water scarcity in agriculture. The controlled environment of hydroponic systems further optimizes resource utilization, minimizing waste and maximizing yield, contributing to sustainable agricultural practices.

b. Reduced Carbon Footprint

One of the compelling attributes of hydroponic vegetable farming is its significantly lower carbon footprint compared to traditional farming methods. Traditional agriculture often involves extensive land use, deforestation, and transportation of produce over long distances, contributing to greenhouse gas emissions. In contrast, hydroponic systems can be implemented closer to urban centers, reducing the need for extensive transportation and decreasing associated emissions. Furthermore, the controlled environment in hydroponics allows for precise control over factors such as temperature, humidity, and light.

This precision minimizes energy consumption compared to the unpredictable conditions of open-field farming. As the world grapples with the urgent need to mitigate climate change, the reduced carbon footprint of hydroponic vegetable farming positions it as a sustainable and climate-friendly alternative. Hydroponic vegetable farming revolutionizes the concept of seasonal limitations by enabling year-round production. Traditional farming methods are often subject to the whims of weather conditions, affecting crop growth and yield. Hydroponics, on the other hand, operates in a controlled environment, offering a consistent and reliable production cycle throughout the year. This uninterrupted supply of hydroponic vegetables addresses challenges related to seasonality and external factors like extreme weather events. Consumers can access a steady and diverse fresh produce supply irrespective of external conditions.

The year-round production capability of hydroponic systems meets consumer demand and provides economic stability for farmers, reducing the vulnerability associated with seasonal fluctuations. Hydroponic vegetable farming stands as a beacon of sustainability in modern agriculture, offering a trifecta of benefits – sustainable practices, reduced carbon footprint, and year-round production. The alignment with environmentally friendly cultivation methods positions hydroponics as a frontrunner in meeting the increasing demand for sustainable products. The significantly lower carbon footprint addresses climate concerns, making hydroponic vegetables an appealing choice for environmentally conscious consumers. Additionally, the year-round production capability ensures a stable and consistent supply, addressing seasonality and weather-dependent agriculture challenges. As the world seeks more sustainable and resilient agricultural practices, hydroponic vegetable farming emerges as a promising solution, fostering a paradigm shift towards a greener and more sustainable future.

2. Weakness

a. High Initial Investment

The journey into hydroponic farming presents a significant hurdle in the form of a high initial investment. Establishing hydroponic systems requires substantial upfront capital for acquiring technology and building the necessary infrastructure. The sophisticated equipment, nutrient delivery systems, and controlled environment setups contribute to the elevated costs. This financial barrier could be daunting for potential entrants, particularly small-scale farmers or those operating in resource-constrained environments. However, it is essential to recognize that this initial investment is an integral part of the transition to hydroponics. The long-term benefits, such as increased efficiency, higher yields, and resource optimization, often outweigh the upfront costs. Policymakers and industry stakeholders might consider avenues for financial support or incentives to facilitate a smoother adoption process, ensuring that the potential benefits of hydroponic farming are accessible to a broader spectrum of farmers.

b. Technical Expertise Needed

Another challenge in hydroponic farming is the requirement for technical expertise.

Successful implementation and management of hydroponic systems demand specialized knowledge in areas such as nutrient solutions, environmental control, and crop management. This poses a potential barrier, particularly for newcomers or traditional farmers transitioning to hydroponics. There is a need for comprehensive training programs and educational initiatives to address this challenge. Providing accessible and tailored training to farmers can bridge the knowledge gap, empowering them with the necessary skills for effective hydroponic farming. Collaboration between agricultural institutions, governmental bodies, and industry players can contribute to the development of such educational programs, fostering a supportive environment for farmers to acquire the technical expertise required.

c. Perception Challenges

Despite its numerous benefits, hydroponic farming faces perception challenges that may hinder market acceptance. Some consumers may not fully understand or trust hydroponic methods, perceiving them as unnatural or less authentic compared to traditional soil-based farming. This perception challenge can influence purchasing decisions and consumer acceptance of hydroponically grown produce. To overcome this obstacle, concerted efforts in consumer education and awareness are essential. Marketing campaigns highlighting the sustainability, reduced environmental impact, and quality of hydroponically grown vegetables can reshape perceptions.

Engaging with consumers through various channels, including social media, educational events, and partnerships with retailers, can foster a positive perception and build trust in hydroponic farming methods; while hydroponic farming offers compelling benefits, it comes with its challenges. The high initial investment poses a financial barrier that needs addressing through support mechanisms. The requirement for technical expertise necessitates educational initiatives to empower farmers with the necessary knowledge. Perception challenges can be addressed through targeted consumer education efforts, highlighting the merits of hydroponic farming. By addressing these challenges, the agricultural industry can unlock the full potential of hydroponics, contributing to sustainable and efficient food production in the long run.

3. Opportunities

The burgeoning trend of environmental consciousness among consumers has paved the way for innovative and sustainable choices in various sectors. In agriculture, the rise of hydroponic vegetables presents a unique opportunity for businesses to align with the growing eco-conscious consumer base. One key factor contributing to the appeal of hydroponic vegetables is their environmentally friendly nature.

As consumers become increasingly aware of the environmental impact of traditional farming methods, marketing hydroponics as a sustainable alternative gains significance. Hydroponic systems utilize significantly less water compared to traditional soil-based farming, addressing concerns about water scarcity. Additionally, the controlled environment of hydroponics reduces the need for pesticides and herbicides, minimizing the ecological footprint associated with conventional agriculture. Government incentives further bolster the attractiveness of hydroponic farming. Various initiatives supporting sustainable agriculture aim to incentivize farmers to adopt environmentally friendly practices. Financial benefits, such as subsidies or tax breaks, can be significant drivers for businesses considering the transition to hydroponics.

By aligning with these government programs, businesses not only contribute to sustainable practices but also enhance their economic viability. Educational campaigns are pivotal in fostering acceptance and demand for hydroponic vegetables. Many consumers may be unfamiliar with the benefits of hydroponics and may harbour misconceptions. Therefore, there is a need for targeted

educational initiatives to inform consumers about the efficiency, resource conservation, and nutritional advantages of hydroponically grown produce.

These campaigns can be conducted through various channels, including social media, workshops, and partnerships with educational institutions. Highlighting the nutritional benefits of hydroponic vegetables is crucial in consumer education. Hydroponic systems allow for precise control over nutrient levels, resulting in more nutrient-dense produce than conventionally grown counterparts. Communicating these advantages to consumers can contribute to a shift in preferences towards hydroponically grown vegetables. Moreover, emphasizing the year-round availability of hydroponic produce addresses concerns about seasonal limitations. This consistent supply can further enhance the marketability of hydroponic vegetables, positioning them as reliable and accessible choices for consumers. The rising eco-conscious consumer base, government incentives, and educational campaigns collectively create a favourable environment for marketing hydroponic vegetables as a sustainable and attractive choice. By strategically aligning with these trends, businesses can contribute to environmental conservation and capitalize on the growing demand for eco-friendly agricultural practices.

4. Threats

a. Market Competition

Increased popularity may lead to more hydroponic producers, intensifying market competition.

b. Perceived Quality

Concerns about the nutritional quality of hydroponic vegetables may affect consumer preferences.

c. Dependency on Technology

Reliance on technology exposes the industry to risks associated with technological failures or disruptions

Implementing a SWOT analysis reveals that the hydroponic vegetable industry has strengths in sustainability and a low carbon footprint. Despite challenges such as high initial investment and consumer perception, strategic opportunities lie in the growing environmentally conscious consumer base and government support. Overcoming weaknesses and leveraging opportunities can position hydroponic vegetable marketing as a sustainable and thriving sector in the agriculture industry.

Marketing Strategy for Green Vegetable Hydroponic

In the context of green vegetable marketing strategy in Indonesia, the holistic marketing concept remains relevant. Integrating environmentally friendly and energy-saving concepts can enhance product value, expand market share, and increase consumer acceptance. Holistic strategic marketing planning is necessary to implement effectiveness comprehensively, with interconnections between marketing plans, activity development, design, and implementation. The goal is to present a comprehensive and holistic marketing argument, achieving a balance between philosophy, methodology, and marketing framework. These aspects can encompass four main topics, as seen, which can be adapted to the context of marketing green vegetables in Indonesia.

Integration of SWOT Analysis to Formulate Marketing Strategies

Marketing Strategy S-O (Growth)

1. Social Media Campaign

- a. Create engaging contests around green vegetables, like a recipe contest, to encourage user

- participation.
 - b. Organize giveaways with free samples or exclusive access to products for added excitement.
 - c. Foster user-generated content by encouraging followers to share photos, recipes, or tips related to green vegetables.
 - d. Host live sessions, like Q&A or behind-the-scenes glimpses, to enhance transparency.
 - e. Use social media analytics tools to track KPIs and engagement rates.
 - f. Monitor sentiment analysis to adjust the campaign strategy based on brand perception.
 - g. Optimize posting schedules using data insights for maximum impact.
2. Local Agricultural Exhibition
- a. Design interactive booths with visuals and Q&A sessions about green vegetable products and sustainable farming practices.
 - b. Collect attendee contact data for follow-up marketing and offer incentives for information sharing.
 - c. Create visually appealing branding materials showcasing sustainability commitment.
 - d. Collaborate with local experts or influencers to enhance booth credibility.
 - e. Set up live demonstration areas to showcase farming processes and product features.
 - f. Generate post-event content like blog posts and social media updates to highlight success.
 - g. By integrating these strategies into the social media campaign and local agricultural exhibition, a comprehensive marketing approach is formed, fostering lasting relationships with online and offline audiences

Marketing Strategy S-T (Diversification)

1. Training Program for Traditional Farmers:
- a. Implement live streaming sessions for real-time training on platforms like Facebook Live or YouTube.
 - b. Design a comprehensive training program with sustainable farming modules and offer certifications upon completion.
 - c. Collaborate with agricultural experts to lead training sessions and enhance program credibility.
 - d. Develop multimedia learning materials and provide downloadable resources for ongoing learning.
2. Nutritional Benefits and Sustainability Workshop/Webinar
- a. Create workshops/webinars on nutritional benefits and sustainability, diversifying content into podcasts.
 - b. Host sessions on popular platforms, promote through social media and collaborate with experts.
 - c. Encourage participant engagement during workshops and repurpose content into podcasts and blog articles.
 - d. Develop a robust marketing strategy with incentives for participation, such as exclusive access or discount codes.
 - e. This multifaceted approach ensures accessibility, credibility, and motivation for traditional farmers and consumers, contributing to sustainable agriculture education and nutritional awareness.

Marketing Strategy W-O (Turnaround)

1. Collaboration with Local Celebrities/Influencers

- a. Engage influencers for authentic social media content, including recipe videos and testimonials.
 - b. Feature influencers at offline events for a tangible brand connection and consider interactive sessions.
 - c. Collaborate with influencers in product development, showcasing the process and emphasizing their role.
 - d. Encourage influencers to share personal stories for relatability and trust-building.
2. Policy Lobbying with Stakeholders
- a. Publicize lobbying success through a communication plan, utilizing press releases and social media.
 - b. Forge media partnerships for broader outreach through interviews, articles, and collaborative content.
 - c. Initiate online petitions for public support, using the data as a powerful tool during policy discussions.
 - d. Collaborate with NGOs for credibility and coordinated efforts, including joint campaigns and events.
 - e. Maintain transparent communication with stakeholders through newsletters, social media, and dedicated website updates.
 - f. These initiatives, involving influencers and policy lobbying, contribute to a comprehensive and sustained green vegetable marketing strategy, creating a personal brand connection and a positive impact on sustainable agriculture policies.

Marketing Strategy W-T (Defensive)

1. Mobile App/Inventory Monitoring Website:
 - a. Collect user feedback and regularly update the app for improved user experience.
 - b. Provide incentives for customer reviews and offer responsive in-app customer support.
 - c. Integrate interactive inventory monitoring with notifications for restocks and personalized recommendations.
 - d. Use data analytics for personalized user recommendations and a user-friendly interface.
2. Partnership with Local Logistics Providers:
 - a. Partner with eco-friendly logistics providers and highlight environmental benefits to customers.
 - b. Educate customers about sustainability through marketing materials and showcase collaborative efforts.
 - c. Utilize logistics data for efficient delivery routes and provide accurate delivery time estimates.
 - d. Collaborate on joint marketing initiatives to reach a broader audience and foster community engagement.

These strategies create a seamless and sustainable customer experience, combining user engagement through the app with eco-friendly delivery options, reinforcing your commitment to sustainability.

CONCLUSIONS

The success of hydroponic green vegetables relies on a holistic marketing strategy encompassing various strategic components. A robust foundation is established to propel the industry towards sustainability and enduring success by integrating growth, diversification,

turnaround, and defensive strategies. Regarding growth strategies, engaging social media campaigns enriched with contests and prizes create a dynamic connection with consumers. Leveraging analytical tools to measure impact ensures continuous improvement, positioning hydroponic green vegetables as an appealing and sustainable choice. Additionally, active participation in local agricultural events with interactive Q&A sessions deepens consumer knowledge and enables effective follow-up marketing strategies through collected contact data.

Diversification strategies involve embracing varied formats, such as podcasts and blog articles derived from workshops and webinars. This approach broadens the reach of marketing efforts, making information accessible across extensive online platforms to a diverse audience interested in hydroponic green vegetables. Turnaround strategies include online and offline collaboration with local celebrities or influencers, injecting novelty and excitement into the campaign. Involving them in the development of new products or limited editions has the potential to shift consumer perceptions positively. Simultaneously, lobbying for policies with stakeholders and garnering support through online petitions endorses government incentives, aligning with broader systemic changes for positive industry impact.

Defensive strategies focus on enhancing the overall customer experience. Regular updates to mobile apps and websites ensure that consumers benefit from the latest features and improvements, fostering loyalty and satisfaction. Collaborations with local logistics providers contribute to a better and environmentally friendly delivery experience, utilizing accurate logistics data and sustainable delivery options for a competitive edge and market resilience.

In conclusion, the comprehensive integration of these growth, diversification, turnaround, and defensive strategies creates a resilient marketing framework for hydroponic green vegetables. This holistic approach addresses various facets of the industry, from consumer engagement and farmer empowerment to policy advocacy, to secure enduring success and promote sustainability in the agriculture sector.

Recommendation

Establishment of Specialized Marketing Institution

The recommendation suggests that the government should proactively enhance hydroponic vegetable marketing by establishing a specialized marketing institution. This institution would involve relevant departments, fostering collaboration and coordination to promote the strategy effectively. By centralizing efforts, the government can streamline communication, allocate resources efficiently, and provide a unified front in support of hydroponic vegetable marketing initiatives. This can include targeted campaigns, educational programs, and financial incentives to encourage the adoption of hydroponic farming methods.

Orientation of Existing Organizations toward Policy Guidance

To improve international competitiveness and foster sustainable innovation, existing organizations should pivot their focus toward policy development and guidance for hydroponic vegetable farmers. This could involve the creation of guidelines, standards, and best practices for sustainable hydroponic farming. By actively shaping policies, these organizations can contribute to creating an enabling environment for the hydroponic vegetable industry, ensuring that practices align with international standards, environmental sustainability, and innovation.

Strategic Definition of Combinations for Development

The government is recommended to strategically define combinations that promote the development of hydroponic vegetables with a clear tendency towards a sustainable holistic marketing strategy. This involves integrating elements such as eco-friendly practices, nutritional

benefits, and consumer awareness into a cohesive marketing approach. By strategically defining these combinations, the government can guide the industry toward a unified and sustainable direction, aligning marketing efforts with broader environmental consciousness and consumer well-being goals.

Utilization of Cross-Island Exchange Mechanisms

The recommendation emphasizes the importance of cross-island exchange mechanisms to increase market share and promote the international position of Indonesia's hydroponic vegetables. This could involve establishing platforms for collaboration, knowledge sharing, and resource exchange between different regions or islands within Indonesia. By facilitating collaboration, farmers can learn from each other's experiences, share best practices, and collectively contribute to the growth of the hydroponic vegetable industry. Additionally, this collaboration can enhance the collective bargaining power when entering international markets.

These recommendations highlight the need for a collaborative and strategic approach involving government institutions, existing organizations, and cross-regional collaboration. Indonesia can enhance its hydroponic vegetable marketing strategy by establishing a specialized marketing institution, orienting existing organizations toward policy guidance, strategically defining combinations for development, and utilizing cross-island exchange mechanisms, ensuring sustainability, competitiveness, and international recognition.

LIMITATIONS AND FURTHER RESEARCH

The hydroponic vegetable industry in Indonesia is constrained by economic scale and political situations, limiting opportunities to showcase advantages. Researchers are committed to obtaining commentary status through academic platforms to enhance competitiveness.

Future research should focus on creating a mutually beneficial and prosperous environment through partnerships with global and regional organizations to support the sustainability of hydroponic vegetables in Indonesia.

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