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Thai consumers' buying decisions for alternative plant-based foods: A means–end chain qualitative study

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ABSTRACT
The alternative plant-based foods (APBFs), such as plant-based meats and milks, are increasingly popular among conscious consumers. APBFs are designed to mimic the flavor and texture of animal-based products. This study explores why consumers choose plant-based foods and examines consumer behavior within the context of agricultural economics. A semi-structured interview was conducted in Bangkok from July to December 2024 with 31 experienced consumers. Using Schwartz's human value theory, the means-end chain framework guided the interviews. Content analysis and a hierarchical value map (HVM) were used to analyze the results. The HVM revealed associations among product attributes (A), consequences (C), and personal values (V). Key product attributes identified include ingredients, price, packaging, and taste. Prominent consequences were health, worthiness, and pleasant flavor. Four primary personal values emerged: security, hedonism, universalism, and benevolence. The findings highlight the importance of Thailand's agricultural supply chains and rural economy. As demand for plant-based foods increases, the need for agricultural ingredients such as beans, soy, peas, and rice becomes critical. The agricultural sector and Thailand's Bio-Circular-Green (BCG) economy model are heavily dependent on consumer demand. This study provides insights from theoretical, practical, and societal perspectives, emphasizing the role of consumer preferences in shaping agricultural and economic policies.

Contribution/Originality: This study is among the few that examine consumer buying decisions for APBFs in an emerging market like Thailand, using the means–end chain framework. It focuses on the agricultural economy by investigating demand. Understanding customer behavior and values enhances knowledge of agricultural policy design and improves overall agricultural business strategies.

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1. INTRODUCTION
Environmental degradation, driven by greenhouse gas emissions, deforestation, and water pollution, has heightened concerns about the sustainability of current consumption patterns (Romanello et al., 2021). One proposed strategy to mitigate these impacts and promote sustainable lifestyles is changing dietary habits (Fischler, 1988; Poore & Nemecek, 2018). As a result, consumer interest in plant-based foods has grown (Jahn, Furchheim, & Strässner, 2021). This shift influences markets, agricultural supply chains, and Thailand's food policies (Food and Agriculture

Organization of the United Nations (FAO), 2022; National Economic and Social Development Council (NESDC), 2020). The rising demand for plant-based products has led manufacturers to develop new items like plant-based meats and milks. This demand requires raw materials such as plant proteins, rice, wheat, coconut oil, and sunflower oil (Boukid, 2021). This trend offers new opportunities for farmers and aligns with Thailand's Bio-Circular-Green (BCG) economic model. Food and agriculture are key sectors prioritized by the Thai government (Chutipat, Sonsuphap, & Pintong, 2023).

Thai culinary culture has traditionally incorporated plant-based ingredients such as vegetables, tofu, beans, and nuts (Andreani et al., 2023; Fardet, 2017). However, recent technological advancements have led to the development of alternative plant-based foods. In this study, these are referred to as alternative plant-based foods (APBFs). APBFs are engineered to replicate the flavor, texture, and visual qualities of animal-based foods (Bryant, 2022; Bushnell, 2021; Langyan et al., 2022). These include plant-based meats, meals, dairy, and eggs. Unlike traditional plant-based foods, APBFs appeal to a broader consumer base, including those who are not vegetarians (Nolden & Forde, 2023; Tso & Forde, 2021), offering health benefits while reducing input use and environmental impact compared to meat production (Keoleian & Heller, 2018). Consuming APBFs allows consumers to better regulate their dietary intake (Nolden & Forde, 2023; Tso & Forde, 2021). Additionally, their production requires less land, water, and energy, minimizing environmental impacts (Keoleian & Heller, 2018). The rising demand for APBFs in Thailand highlights the need for agricultural sector development, which faces challenges in utilizing technology to optimize productivity (NSTDA, 2022). The BCG action plan for 2021-2027 aims to support this effort, promoting sustainable and inclusive growth in agriculture and food sectors (NSTDA, 2022).

Health concerns, sustainable perspectives, and product innovation are the factors that drive APBF market growth. The APBF market has increased gradually worldwide. IMARC (2025) projected that the market will increase to USD 32.2 billion in 2034. However, the Thai market differs from neighbouring nations such as Singapore and Malaysia, where the consumption and sales are higher (IMARC, 2025; Precedence Research, 2025). The factors that slow the rapid growth are the flavours, price, and culture (Shreya, 2023). Accordingly, Western consumers pay attention to environmental issues in their consumption (Hopwood, Bleidorn, Schwaba, & Chen, 2020; Rosenfeld, 2018) while Thai consumers relate more to health and family obligations (Walter, Utama-ang, Bai-Ngew, & Simapaisan, 2024; Winterstein, Zhu, & Habisch, 2024). Flavours, cultural practices, and price sensitivity are the factors that affect APBF adoption among Thai consumers (Shreya, 2023). Furthermore, while ethical and environmental issues primarily drive consumers in Western countries (Hopwood et al., 2020; Rosenfeld, 2018), Thai consumers seem to place more emphasis on health and family obligations (Walter et al., 2024; Winterstein et al., 2024). Therefore, the Thai market unveils a unique and context-specific case that requires further investigation.

Existing research has mainly examined attitudes and purchase intentions toward APBFs (Alcorta, Porta, Tárrega, Alvarez, & Vaquero, 2021; Arora, Brent, & Jaenicke, 2020). However, intentions often differ from actual behavior, as consumer decision-making is influenced by deeper motivational structures and values that traditional models do not fully capture (Carrington, Neville, & Whitwell, 2010). Therefore, understanding Thai consumers' value systems and cognitive structures is crucial. This understanding can strengthen Thailand's agricultural production system, which serves as a foundation for market development under the BCG model (NSTDA, 2022). The BCG action plan focuses on five key areas: agriculture and food, health and wellness, energy and biochemicals, tourism and creative economy, and circular economy (NSTDA, 2022). Emphasizing consumer behavior studies within this plan can improve understanding of demand in the agricultural and food sectors. Such insights enable producers to align crop cultivation with consumer preferences for plant-based ingredients, fostering more effective market strategies (NSTDA, 2022).

Hence, this study explores the factors influencing Thai customer preferences for APBFs. The research question for this study is why Thai consumers choose alternative plant-based foods. To address these questions, this research applies the means–end chain analysis together with Schwartz's human value theory to analyze the consumers' buying decision process. The process examines how product attributes are linked to consequences and personal values. This research framework analyzes consumer data to provide meaningful insights relevant to business. Businesses can develop marketing strategies that align with customer values and gain acceptance from them. This acceptance will then lead to a positive attitude and purchase intention (McDermott et al., 2015). Additionally, these consumer insights can guide government policy decisions for crop diversification and ingredient innovation. This paper is structured as follows: 1) Review of the literature on the BCG Model, Means-End Chain (MEC) Theory, and Schwartz Human Value Theory (SVT); 2) Explanation of the methodology; 3) Presentation of the results and the hierarchical value map; 4) Discussion of the findings in relation to agriculture and the BCG model; 5) Conclusion with implications and limitations.

2. LITERATURE REVIEW

2.1. Agricultural Policy and Economics: The BCG Model

Thailand has substantial agricultural strengths, and around 30% of its workforce is involved in the sector (BOT, 2025). However, its contribution to the nation's GDP has significantly decreased since 1960 (BOT, 2025). Thailand is aware of this regression, so the Bio-Circular-Green Economy Model to renew the industry and achieve sustainable development has been implemented. Agriculture and food are among the five sectors of the BCG model considered fundamental for sustainability. However, price volatility in this sector negatively affects farmers' incomes. This persistent challenge stems from dependence on limited crops such as rice, rubber, cassava, sugarcane, maize, and oil palm (NSTDA, 2022). These crops are highly susceptible to market volatility, limiting agricultural competitiveness

and stability. Consequently, the Thai government incorporates technology innovation and strategic planning into the BCG Model to address these issues.

The first objective of the BCG Model is to use digital technologies to reduce operational expenses in the agriculture sector. The second area focuses on market diversification by shifting focus from low-cost crops to premium-value or niche crops (NSTDA, 2022). Alongside these supply-side objectives, the model emphasizes the demand side, specifically understanding consumer behaviour. This is supported by Deng (2024), who highlights that market intelligence and a good grasp of consumer preferences are key to driving innovation in agriculture. The BCG model addresses both supply and demand. On the supply side, the government implements technological innovations to reduce costs. Additionally, the model promotes market diversification by supporting farmers in producing premium-value or niche crops (NSTDA, 2022). On the demand side, consumer behaviour studies are integrated into development efforts. This aligns with Deng (2024), who suggests that understanding consumer behaviour advances agricultural innovation. Consequently, insights into customer demand inform crop policies and marketing strategies. Identifying the values and motivations of Thai consumers regarding APBFs is essential for effective marketing and promoting agricultural diversification within the BCG model.

2.2. Means-End Chain (MEC) Theory

To understand the consumer motivational and cognitive structure of buying behavior, Gutman (1982) presented the Means-End Chain Theory (MEC) for understanding how consumers link product attributes (e.g., ingredients or packaging) to benefits (e.g., health or convenience) and then to personal values (e.g., security or hedonism). Hence, MEC analysis effectively answers what and why consumers value. Various previous research studies using MEC analysis have shown its effectiveness in revealing consumer motivation in different scenarios (Oliveira, Souki, & Vilas Boas, 2024). For example, vegetable eating was researched by Kirchhoff, Smyth, Sanderson, Sultanbawa, and Gething (2011), who established that Australian consumers associate freshness and convenience with health and happiness. Others believe that U.S. consumers perceive the "naturalness" of plant-based beverages as environmental and ethical advantages (McCarthy, Parker, Ameerally, Drake, & Drake, 2017). Findings have been expanded in European research to include health and naturalness as factors influencing consumer choices when buying bread (Wang, Hempel, & Roosen, 2024) and in the case of sheep and goat dairy products, where pleasure and health are primary values (Mandolesi et al., 2024).

Besides, Jaeger, Chheang, and Bredahl (2023) questioned in Singapore and Germany how vertical farming is viewed as an initiative and a method of implementation, concluding that such initiatives reflect sustainability and egoistic motives. Surprisingly, although few studies have explored plant-based diets within the MEC framework, there has been significant interest and awareness regarding this issue. This increased focus reflects a growing consciousness of the environmental, health, and ethical benefits of adopting a plant-based lifestyle. For example, Ghaffari, Rodrigo, Ekinci, and Pino (2022) noted that in the United Kingdom, individual consumers who adopt a vegan diet associate the costs of plant-based foods and their freshness with a higher level of compassion for animals. This relationship indicates that ethical values influence food choices, such as sensitivity to animal welfare and sustainable food culture. Winterstein et al. (2024) conducted a comparative study in Thailand and Germany on consumers' organic food preferences, finding that both groups valued quality of life and personal well-being. Additionally, Germans were more sensitive to social responsibility, while Thais prioritized family responsibility as motivators. Despite these developments, the application of MEC to study plant foods remains underdeveloped, especially in non-Western developing nations like Thailand. This limitation highlights the need to introduce MEC to Thai consumers, whose motivations may be driven by complex social and cultural factors.

2.3. Schwartz Human Value Theory (SVT)

The means–end chain (MEC) model serves as a valuable framework for uncovering the structure of consumer motivation by connecting product characteristics to practical outcomes and, ultimately, to broader objectives. However, MEC does not clarify the types of values that influence consumer decision-making. In this context, Schwartz's Human Value Theory (SVT) is used to identify which personal values are prevalent in consumers' buying decisions, comprising ten universal human values: self-direction, stimulation, hedonism, achievement, power, security, conformity, tradition, benevolence, and universalism (Schwartz, 1992; Schwartz et al., 2012). These values are structured around motivational aims common to all cultures and influence behavior across areas, such as food selection.

SVT has substantial implications for food intake since dietary habits go beyond mere survival to represent fundamental life values and self-concept (Lindeman & Väänänen, 2000). When it comes to plant-based foods, several of these values prove highly influential. Security addresses health, well-being, and financial security; universalism emphasizes environmental and animal protection; hedonism prioritizes pleasure and sensory enjoyment of consumption; and benevolence highlights responsibility for family and close social groups (Blake et al., 2023; Brümmer & Zander, 2020; Bryła, 2021). These values provide meaning for why consumers embrace plant-based food, articulating consumption as moral, healthy, and social orientations.

Combining MEC with SVT creates a comprehensive theoretical model that enhances understanding of power in consumer choices. MEC examines how product features like taste, price, and packaging relate to functional outcomes such as health and enjoyment. SVT categorizes the personal values underlying these decisions. Together, they provide a clearer insight into consumer motivations, especially regarding plant-based food adoption within Thai culture, explaining what consumers choose and why.

More importantly, several gaps still exist. Firstly, most studies on plant-based foods have been conducted in Western markets, where substitutes are common and consumer motivations are well understood (Bryant, 2022; He, Evans, Liu, & Shao, 2020). Conversely, there is limited insight into consumers in emerging markets like Thailand, where cultural beliefs and trends may differ (Szenderak, Frona, & Rakos, 2022). Additionally, much literature emphasizes purchase intentions rather than actual buying behaviors, even though intentions do not always lead to ongoing consumption (Carrington et al., 2010; Sheeran & Webb, 2016). This is especially significant because experienced consumers exhibit more complex motives and decision-making processes than newcomers (Hoek et al., 2011; Solomon, 2020). Third, the theoretical framework is limited. Research often relies on the Theory of Planned Behaviour (TPB) to explain food choices (McDermott et al., 2015), but few studies combine MEC laddering with SVT to explore how product attributes link to functional consequences and values.

To address the gaps, this study explains customer behavior using MEC and SVT as an integrated model. The study aims to identify the relationship between product attributes, consequences of use, and customer personal values. The analysis of these relationships can reflect cognitive and motivational factors for Thai consumers. This knowledge leads to an in-depth understanding of consumer behaviors in emerging markets such as Thailand, where APBF adoption remains in its infancy.

3. MATERIALS AND METHODS

3.1. Research Design

To establish the reasons why consumers choose APBFs in Thailand, a semi-structured interview method was utilized (Reynolds & Gutman, 1988). The MEC framework was significant in revealing how consumers connect product attributes to consequences and, ultimately, to their personal values (Olson & Reynolds, 2001). MEC explains how consumers link a product's attributes to the consequences of using it and the personal values guiding their choices. Laddering interviews mapped these links, with results shown in a Hierarchical Value Map. Most recent research uses classical models like the Theory of Planned Behaviour to measure buying attitudes, focusing on intention (Arora et al., 2020; McDermott et al., 2015). This study explores MEC for deeper insights into real buying decisions (Reynolds & Gutman, 1988). It also enhances understanding of customer values by integrating Schwartz's Human Value Theory to classify values.

3.2. Sampling and Recruitment

Plant-based food consumers are a niche and hard-to-reach group in Thailand. Participants were recruited from an extensive Facebook group dedicated to plant-based diets, consistent with prior research on elusive consumers (Baltar & Brunet, 2012; Thornton et al., 2016). Purposive and snowball sampling techniques were employed. Purposive sampling identified experienced consumers of APBF, while snowball referrals expanded participants through their networks (Goodman, 1961; Parker, Scott, & Geddes, 2019).

3.3. Data Collection

The interview took place in Bangkok from July to August 2024. The total number of participants was 31, exceeding the minimum of 20 valid ladders suggested for MEC analysis (Grunert & Grunert, 1995; Reynolds, Dethloff, & Westberg, 2001). Most interviews were conducted online via Facebook Messenger, as it was the primary data collection channel. Of these, 21 were online and 4 in person. Prior to the interviews, participants were asked about their familiarity with APBFs, including consumption frequency and related spending. An experienced consumer was defined as someone who consumed APBFs at least twice monthly for three months before the interview. The study used a free elicitation approach, allowing interviewees to identify product attributes influencing buying decisions (Brandt & Shook, 2005). The interviewer asked "why" questions to explore links between attributes, consequences, and values. Data saturation was employed, meaning interviews ceased when no new relevant information emerged (Guest, Bunce, & Johnson, 2006; Saunders et al., 2018).

3.4. Data Analysis

The first step of data analysis is to categorize and code data into attribute (A), consequence (C), and value (V) (Olson & Reynolds, 2001); content analysis is applied in this step. This model is called the A-C-V model. The second step involves feeding the A-C-V model into LadderUX software to build an implication matrix (Kilwinger & Van Dam, 2021). The software analyzes the A-C-V model into a Hierarchical Value Map (HVM) that visually captures key relations between product attributes, the consequences of using the products, and the personal values underlying buying choices (Abeele, Hauters, & Zaman, 2012; Foolen-Torgerson & Kilwinger, 2021). To simplify the HVM, a cut-off level is designed to filter meaningful relationships. Considering the modest sample size, a threshold of three relations is used to balance clarity and completeness (Borgardt, 2020; Veludo-de-Oliveira, Ikeda, & Campomar, 2006).

4. RESULTS

The total number of participants in this study is 31, including 26 females and 5 males. The age range is from 20 to 57, with an average of 38 years. Most participants are company employees with bachelor's degrees, indicating a highly educated group aware of health and environmental issues. Regarding eating habits, there are 10 flexitarians, 10 omnivores, 9 vegetarians, and 2 vegans. Flexitarians and omnivores together comprise 64.5% of participants, showing that APBFs are not only for vegetarians and vegans but also for meat-eaters. Participant characteristics are detailed in Table 1.

Table 1. Participant characteristics (n = 31).

Characteristic	Category	Number of participants
Gender	Male	5
	Female	26
Age group	20–29	4
	30–39	7
	40–49	11
	50–59	9
Diet type	Flexitarian	10
	Omnivore	10
	Vegetarian	9
	Vegan	2

The A-C-V model categorizes data into concrete and abstract attributes (A), functional and psychological consequences (C), and values (V), as shown in Table 2. Schwartz's Human Value Theory is used to analyze values (V) in this study. The content analysis highlights the importance of ingredients, price, and packaging at the attribute level. Participants relate their consumption to health concerns, a sense of worthiness, and pleasant flavor at the consequence level. These patterns indicate the values of security, hedonism, universalism, and benevolence.

The A-C-V model is coded as a number; for example, price was coded as 01 at the attribute level, while packaging was coded as 02. The coded elements are then entered into the LadderUX software to visualize the relationship among the elements, both directly and indirectly (Veludo-de-Oliveira et al., 2006). To determine the weight of each element, the centrality scores are presented in Table 2. Centrality represents the total number of direct and indirect connections an element has within the network of A–C–V linkages. Elements with higher centrality are more influential because they appear more often across participants' ladders.

Table 2. Content codes for plant-based food consumption.

Variables	Names	Code	Frequency	Centrality
Concrete attributes	Price	01	20	0.062
	Packaging	02	12	0.037
	Taste	03	10	0.031
	Ingredients	04	22	0.068
	Product origin	05	2	0.006
	Information on packaging	06	1	0.003
	Texture	07	2	0.006
	Product diversity	08	1	0.003
	Quantity	09	1	0.003
Abstract attributes	Brand	10	9	0.028
	Ethical product	11	1	0.003
Functional Consequences	Health	12	35	0.216
	Worthiness	13	16	0.099
	Convenient	14	6	0.037
	Pleasant flavour	15	11	0.068
	Money saving	16	6	0.037
Psychological Consequences	Helping environment	17	5	0.031
	Religious beliefs	18	1	0.006
	Premium feeling	19	1	0.006
Values	Security	20	43	0.133
	Hedonism	21	24	0.074
	Benevolence	22	8	0.025
	Universalism	23	6	0.019

The health element is the most central (0.216), indicating it has the greatest influence on purchasing decisions, while security (0.133) is also important but secondary. This relates to the third order of centrality, which is worthiness (0.099). Consumers perceive health and worthiness as key to their sense of security value (0.099).

Lastly, the implication matrix is analyzed and visualized in a hierarchical value map, as shown in Figure 1. The purpose of creating the HVM is to map all the relations of the ladders with the cut-off level, capturing the most frequently mentioned elements and establishing an informative set of relations (Reynolds & Gutman, 1988).

The key parts of HVM (Figure 1) include attributes (A), which are product characteristics or features; consequences (C), which are outcomes or benefits perceived by consumers; and values (V), which are deep personal values or life goals. The HVM maps out the cognitive linkages from concrete attributes to functional/psychological consequences to personal values. The concrete and abstract attributes serve as starting points in consumer thinking that consumers immediately perceive, triggering outcomes that link to deeper values, including price, packaging, taste, ingredients,

and brand. Among the attributes, consumers mostly focused on ingredients (n=22), the price (n=20), and the packaging (n=12).

Secondly, functional consequences are the practical benefits of consuming plant-based food, including *worthiness* – e.g., value for money or a good decision; *money-saving* – e.g., perceived cost-effectiveness; *convenience* – e.g., ease of use or preparation; *pleasant flavour* – e.g., sensory enjoyment; and *health* – e.g., a strong central node repeated across multiple chains. Notably, "health" is a central hub in this map (n=35), linking many attributes to high-level values. In addition to the functional consequences, the psychological consequences represent internal or emotional outcomes, which are the helping environment. This suggests that some consumers experience a sense of ethical concern from their plant-based choices. Finally, the ultimate life goals or guiding principles are values, including security, universalism, hedonism, and benevolence. Security (n=43) and hedonism (n=24) are most strongly connected, especially in terms of health and worthiness.

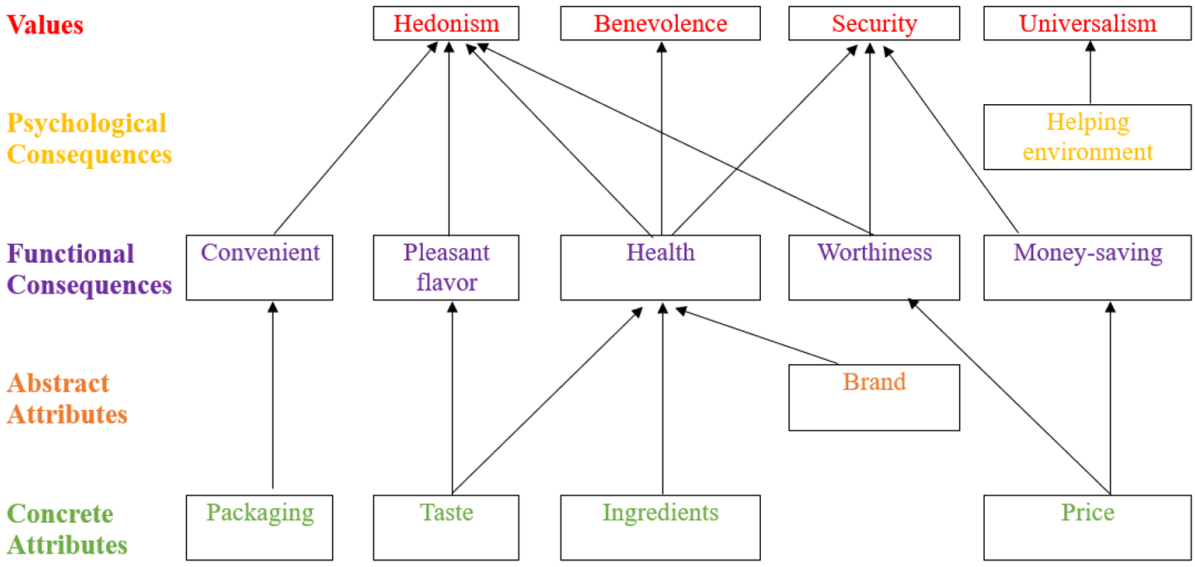

Figure 1. The hierarchical value map (HVM) for plant-based food consumption in Thailand.

Based on the concept of Schwartz (1992), the values found in this study are as follows: 1) Security is about ensuring peace, stability, and safety, whether for an individual or a larger community. 2) Hedonism focuses on pursuing pleasure and enjoyment, driven by fulfilling basic needs for personal satisfaction and happiness. 3) Benevolence is the meaning of individual values, as some people may focus more on emphasizing care, loyalty, and support for the well-being of individuals with whom one has frequent close relationships, such as friends and family members. 4) Universalism is the deeper individual value of responsibility, which focuses on the welfare of all people and nature, promoting global and environmental concerns.

5. DISCUSSION

The HVM illustrates the hierarchical linkages from product attributes such as ingredients, price, packaging, taste, and brand through functional and psychological consequences, ultimately connecting to terminal personal values. This pathway provides insights into the cognitive structures of Thai APBF consumers. The health factor emerged as a primary functional consequence mediating product attributes like ingredients, brand, and taste to higher-order values such as security, hedonism, and benevolence. This finding aligns with studies by Teangsompong and Sawangproh (2024) and Andreani, Banovic, Dagevos, and Sogari (2024), emphasizing health concerns as critical for plant-based consumption. Consequently, health becomes a key driver for well-being, influencing broader life goals like career sustainability and family responsibilities.

The HVM presents security as the main value, indicating that APBF consumers prioritize both financial and physical stability. Consumers associate good health with disease prevention, which can reduce illness risk and support long-term security. This insight aligns with Lindeman and Väänänen (2000), who suggest that the pursuit of predictability and control influences food choices. Additionally, security is reflected in perceptions of worthiness and money-saving, directly linked to price. This is supported by Walter et al. (2024), who found that price significantly influences plant-based food adoption.

Hedonism as the enjoyment of sensory pleasure was one of the values involved in the consumer cognitive process. Obviously, consumers linked the pleasant flavor and convenience to hedonism. This aligns with Ares and Gámbaro (2007), who suggested the importance of sensory appeal in consumer acceptance of plant-based food. Moreover, health and worthiness were also factors influencing hedonism.

Universalism means caring for the environment and others. Some participants relate their APBFs consumption with feelings of responsibility for the environment and animals. They believe that consuming APBFs will reduce negative effects on the environment and save animal lives. This finding aligns with Chen (2022), who found a significant effect of environmental concerns on plant-based food consumption. Another value that emerged in this study is

benevolence, which focuses on preserving and enhancing the welfare of close ones, such as friends and family (Schwartz, 1992). Health factors also drive benevolence, meaning consumers adopt APBF consumption to maintain good health for their loved ones. This healthy expectation is facilitated by product ingredients, as mentioned in the study by Hoek, Luning, Stafleu, and De Graaf (2004), who linked product ingredients to quality and benefits. Overall, this concept is relevant to Grunert (2006), who found food choice reflects ethical values.

6. IMPLICATIONS AND LIMITATIONS

6.1. Theoretical Implication

The use of the MEC framework in a culturally specific context like Thailand has significant implications for this study. As a result of the MEC analysis, a Hierarchical Value Map was developed to illustrate how consumers relate their choices to personal values. This study contributes to MEC literature by applying it in the Southeast Asian market, where socio-cultural factors are critical and often influence food decisions. The main finding emphasizes health as an expected outcome of APBF consumption. Health acts as a mediator linking product attributes with higher-level values such as security, enjoyment, and commitments related to work and family. This pattern of motivation is observed in other settings as well. However, for Thai consumers, health appears to carry additional social and economic significance. Notably, the value of security was the strongest belief concerning well-being and financial stability.

6.2. Practical Implications

The findings are practically useful for three parties: marketers, government policymakers, and agricultural cooperatives in Thailand and other developing countries. As discussed, health is the primary factor for APBF consumption. APBF brands should highlight credible health benefits and make ingredient and nutrition information stand out, especially with this newly launched product. The price factor is an insight that marketers should use to design promotional campaigns to help consumers see better value, such as bundle deals or temporary discounts. Another critical factor is flavor, as consumers link good flavor not only to enjoyment but also to the idea of healthy food. Therefore, improving flavor sensory can lead to satisfaction and stimulate purchases. Packaging that is recyclable, biodegradable, or communicates environmental impact could resonate with consumers who align with universalist values. In addition, the study by Walter et al. (2024) found different perceptions among generations in Thailand, as younger consumers associate plant-based food with contemporary dietary trends, whereas older consumers view it as traditional, plant-based local dishes. Marketing practitioners should then differentiate these targets to design effective communication strategies.

For government policymakers, this study emphasizes the need to develop innovations in plant-ingredient processing. Such development could help the government optimize public campaigns supporting the processing of specific Thai-grown crops, like rice protein or mung bean-based products. It is crucial to ensure that public investment aligns with market demand and the Bio-Circular-Green (BCG) model's goal of innovating the agriculture and food sector.

For agricultural cooperatives, understanding the importance of plant-based food products and demand can aid in predicting and planning agricultural production. Policymakers can reduce imports and support domestic production to minimize price volatility. This approach enhances farmers' livelihoods and promotes healthy agricultural economics. It is crucial for the Thai government to align plant-based food initiatives with the Bio-Circular-Green (BCG) Economic Model to improve food sustainability in health and agricultural sectors.

6.3. Societal Implications

By uncovering how Thai consumers connect health and price-worthiness to a deeper need for security, this study pinpoints practical levers that advance UN Sustainable Development Goals (SDGs) (United Nations Department of Economic and Social Affairs, 2015), including SDG 2 (zero hunger) and SDG 3 (good health and well-being). This finding is useful for promoting plant-based food consumption. Campaigns should consider setting affordable prices with clear, evidence-based nutrition labels, helping low-income families meet healthy consumption. This directly supports the government's National NCD Roadmap. Regarding the agriculture sector, the rise in APBF demand creates opportunities for farmers to collaborate with ingredient processors. Government agencies should consider these opportunities and provide training, financial support, and platforms for farmers, processors, and producers to work together as a sustainable ecosystem.

6.4. Limitations

Although this study reached a theoretical contribution, some limitations arose. First, the limitation of sample size. This study collected data online based on the Bangkok area. The samples used are knowledge and experienced consumers. However, the result couldn't explain the attitudes of APBF consumers in rural areas or smaller towns across Thailand. Second, the study limits itself to 31 respondents, which might not be enough to represent Thai consumers and compare subgroups like vegans versus flexitarians. Thus, a large-scale survey with a diverse background is recommended. Finally, since the data were collected at just one point in time, we could not explore how people's values and perceptions might shift over time. A follow-up or longitudinal study could help track how attribute–value connections evolve as plant-based products become more familiar and mainstream (Michel, Hartmann, & Siegrist, 2021).

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Institutional Review Board Statement: This study was approved by the Institutional Review Board of Assumption University, Thailand, under protocol number (IRB No. 3/2024), dated June 13, 2024. Informed verbal consent was obtained from all participants, and all data were anonymized to protect participant confidentiality.
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Competing Interests: The authors declare that they have no competing interests.
Authors' Contributions: Both authors contributed equally to the conception and design of the study. Both authors have read and agreed to the published version of the manuscript.
Disclosure of AI Use: The authors used Gemini 2.5 Pro and ChatGPT (version November 2025) to scan for useable data sources for the literature review section, and used QuillBot (version November 2025) to improve the writing for all sections. All content was reviewed and verified by the authors.

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