

Influence of Meat Alternatives Usages on Customer Hotel Choice

Bachelor of Business Administration in

Tourism, Hotel Management and Operations

Submitted to Davis Gibbs

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Affidavit

I hereby affirm that this Bachelor's Thesis represents my own written work and that I have used no sources and aids other than those indicated. All passages quoted from publications or paraphrased from these sources are properly cited and attributed.

The thesis was not submitted in the same or in a substantially similar version, not even partially, to another examination board and was not published elsewhere.

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Abstract

The alternative meat market is growing day by day, and many stakeholders are interested in and switching to alternative meat consumption instead of existing livestock meat, influenced by various factors. This study investigates consumer perceptions and preferences based on livestock meat and three alternative meats such as plant-based meat, insect meat, and cultured meat. In this review, consumers still show lower acceptance of meat alternatives than livestock meat. Interest in plant-based meat shows high acceptance and interest compared to other meat alternatives. Cultured meat is not yet as popular as plant-based meat, but consumers' preference is higher than insect meat with a long history. Insect meat, which showed the lowest preference, seems to be due to insect aversion. Consumers' perceptions and preferences for these various types of meat alternatives are influenced by various factors in consumer purchasing behavior. In addition, the consumption of meat alternatives, which started from these behavioral factors, began to operate beyond the table of ordinary households to the hotel food and beverage industry. It investigates consumers' perceptions and hotel choices according to the use of alternative meat in hotels.

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List of Abbreviations

CM - Cultured Meat

ED - Environmental Destruction

EP - Environmental Protection

GGP - Greenhouse Gas Pollution

GW - Global Warming

IM - Insect Meat

LI - Livestock Industry

LIED- Livestock industry environment destruction.

LM - Livestock Meat

LS – Lifestyle

MA - Meat Alternatives

MC - Meat consumption

PBM - Plant-based Meat

1 Introduction

1.1 Background

Stabilizing climate change emissions is the biggest environmental challenge facing governments, businesses, and society. The global food system has a significant impact on climate change emissions, accounting for one-third of total global emission (Zhang et.al., 2022). Meat, which is a carbon intensive food, has more than 10 times higher carbon emissions than plant foods, and consumption of meat is increasing over time (Zhang et.al., 2022). Because of these factors, interest in alternative meat is increasing to achieve sustainable food consumption, and many stakeholders are demanding eco-friendly strategies from various companies (Bianco et.al., 2023). Sustainable and eco-friendly strategies in the hospitality industry increase consumer satisfaction and preference, reduce hotel environmental pollution through sustainable solutions, and demonstrate effective environmental strategies by creating a green image on their brand (Bianco et.al., 2023).

According to the World Commission on Environment and Development (WCED) 2019, the 2030 Agenda provides current challenges on sustainable issues and outlines 17 different sustainable development goals for sustainable social and economic development (1). These sustainability agenda define economic and social aspects to sustain and reproduce the well-being of society and economy (Oriade et.al., 2021). Among the 17 sustainable development goals, sustainable environmental protection and food security are currently one of the biggest challenges in the world. In particular, the Paris Agreement (UNFCCC,2015), which pledged to reduce the global temperature by 1.5 degrees through carbon neutrality by 2050, explains the importance of low carbon solutions and entry into new markets.

A growing world population is projected to require food for about 10 billion people by 2050, but current food production systems are straining too much to keep up (Hoehnel et.al., 2022). In addition, in the current situation where food production accounts for 34% of global greenhouse gas emissions, the increase in food from intensive food groups with high greenhouse gas emissions, such as meat, has a great

impact on environmental protection and sustainable development goals (Wu et.al., 2023). In response to these problems, hotel industries are implementing sustainable and eco-friendly strategies and marketing. Moreover, to provide a sustainable competitive advantage to hotels, customer consumption trends can be quickly identified through diversification of hotel corporate products and strategic management of consumer diversity and preferences (bianco et.al, 2023)

As concerns about environmental pollution have recently increased, more and more people are pursuing eco-friendly growth through sustainable development such as reducing the impact of carbon dioxide emission by reducing meat consumption and food production. However, the degree of environmental standards and compromises affected by consumers in the consumer decision process differs from person to person, and the choice of consumption of foods with a low carbon footprint may differ depending on the individual beliefs and aspects of consumers (Boer & Aiking, 2022).

In connection with sustainable food consumption, the interest of meat alternatives is significantly increasing, and it leads many enterprises to invest in sustainable production for fulfilling the customer satisfaction and food trends. The hotel industry is also following this trend, and as part of its strategy for sustainable food, food and beverage departments are increasingly interested in using meat alternatives.

1.2 Aim of the Thesis

This thesis aims to figure out the perception of customers towards meat alternatives and examines the usage of meat alternatives to affect consumer buying decisions at hotel industries. More and more industries are operating sustainable strategies by using environment friendly products, and meat alternatives is driven as one of the sustainable food trends by improving consumer's awareness. However, there is still a cognitive dissonance that people still prefer livestock meat while supporting meat alternatives as sustainable and environmentally friendly products. Moreover, there are many factors that affect consumer buying behavior. This thesis examines the influence of consumers' perceptions of alternative meat and consumers' choice of

hotels that serve alternative meat through consumers buying behavior factors such as cultural, social, personal, and psychological factors. This paper investigates the difference between customer preference for livestock meat and meat alternatives, the difference in consumer interest according to the type of meat substitute, and the factors that influence consumer purchase decision-making that affect the consumption intention of meat alternatives. In addition, this study compares hotels that offer livestock meat and hotels that offer meat alternatives to find out the difference in customers' choice of hotel.

1.3 Research Questions

Current research on hotel sustainability strategies has focused on rooms such as water, energy, and laundry. Currently, the food and beverage sector of hotels is not simply a place to provide food to guests but is the two largest sources of revenue for hotels along with the room sector. Customers' perception of sustainability and interest in the environment have now spread to various fields, and various strategies are being deployed, even in the food and beverage sector. In a situation where consumers' attention is focused on sustainable alternative meat consumption due to environmental pollution and greenhouse gas pollution caused by livestock farming, the question arises whether awareness of alternative meat can be operated in a trendy and entertainment industry such as the hotel industry. Through two research questions, it is possible to find out customers' actual perception of meat substitutes and to find out whether the use of alternative products in the hotel's food and beverage business has a positive effect on customers' purchase decisions.

1. What is the perception of customers towards meat alternatives?

2. How does usage of meat alternatives affect customer buying decisions at hotels?

2 Literature Review

2.1 Consumer Behavior

2.1.1 Consumer Buying Behavior

When consumers make buying behavior, they purchase carefully with their various aspects, buy new things, or purchase habitually (Kotler & Armstrong, 2022). Consumer buying behavior refers to the behavior by which consumers purchase products and services for personal spending (Kotler & Armstrong, 2022). These buying behaviors can be described as entire purchasing processes by seeking the product, determining the brand and purchasing for satisfying consumer's needs and arriving at a choice (Santos & Goncalves, 2021). Therefore, consumer buying process models are divided into three purchasing stages; pre-purchase (i.e., Awareness of product needs), purchase (i.e., Consumption), post-purchase (i.e., Sharing with others), and these three stages of process make to better understand the consumer decision journey (Santos & Goncalves, 2021). To fully understand consumer purchasing behavior, a consumer-centric perspective requires a holistic understanding of consumer experiences, decisions, and decision processes (Santos & Goncalves, 2021).

Consumers today have access to a variety of brands through multiple channels, and this diversity has made consumer buying behavior more dynamic (Santos & Goncalves, 2022). These consumer buying behaviors can be seen by distinguishing between consumer involvement in a purchase and perceived differences between brands (Santos & Goncalves, 2022). Furthermore, because consumers have different purchase perceptions and behaviors depending on the product and purchase situation, companies can use product-specific behavioral differences to devise strategies for consumer behavior, marketing, micro-segmentation, and sales forecasting (Santos & Goncalves, 2022).

Involvement depends on a variety of contextual factors and individual differences, based on consumers' individual needs, interests, and values (Santos & Goncalves, 2022). Consumers expend higher effort for high purchase involvement and lower effort for low purchase involvement (Santos & Goncalves, 2022). In other words,

consumers' involvement and commitment to products depend on their relatively high or low importance, habitual or infrequent purchases, and high or low prices (Santos & Goncalves, 2022). Generally, there are four types of this purchasing decision-making behavior (Kotler & Armstrong, 2022).

Complex purchasing behavior is consumer purchasing behavior when there is high involvement in purchasing and there is a clear difference between brands (Kotler & Armstrong, 2022). The buyer completes the learning process, develops a belief in the product, and forms an attitude and makes a prudent purchase choice (Kotler & Armstrong, 2022). While the importance of the product is high, the choice is wide, so consumers make a careful decision by collecting and evaluating product information (Kotler & Armstrong, 2022). Dissonance-reducing purchasing behavior is consumer purchasing behavior when involvement is high but differences between brands are insignificant (Kotler & Armstrong, 2022). That is, when the product is expensive, purchased occasionally, and carries risks (Kotler & Armstrong, 2022). There is not much difference between brands, so consumers can buy it relatively quickly (Kotler & Armstrong, 2022). The reaction of buyers can be shown by purchase convenience or product price (Kotler & Armstrong, 2022). After purchasing a product, buyers experience post-purchase dissonance if they discover some experience with the purchased product or gain favorable information about the product they did not purchase (Kotler & Armstrong, 2022). Habitual buying behavior is consumer buying behavior when involvement is low and there is little difference between brands (Kotler & Armstrong, 2022). Low-involvement products are products that are inexpensive and frequently purchased (Kotler & Armstrong, 2022). These products are purchased without high involvement, without researching or evaluating information about the brand, because consumers do not consider the product important (Kotler & Armstrong, 2022). When purchasing the same brand repeatedly, consumers create familiarity with the brand (Kotler & Armstrong, 2022). Diversity-seeking purchasing behavior is low involvement and consumer purchasing behavior when there is a difference between brands (Kotler & Armstrong, 2022). In this case, consumers often switch brands simply to pursue variety rather than dissatisfaction (Kotler & Armstrong, 2022).

2.1.2 The Buying Decision Process

Customers make buying decisions through five stages: need recognition, information search, evaluation of alternatives, purchase decision, and post-purchase behavior (Kotler & Armstrong, 2022). This process normally occurs in the complex buying situation and begins before the actual purchase and continues after, but in the situation that when a consumer determines not to buy or is perceived as of low importance, consumer may skip information research and evaluation and make a purchase decision (Kotler & Armstrong, 2022).

In the stage of need recognition, consumers feel a need or desire for the product when the consumer's desire rises to a high level due to internal or external stimuli (Kotler & Armstrong, 2022). In the process of information search, consumers gather information from a variety of sources, such as personal, commercial, public, and experiential sources (Kotler & Armstrong, 2022). These different sources are important for most product purchases (Pavlović-Höck, 2022). In particular, information provided by family, friends, acquaintances, and colleagues, as well as accurate knowledge and opinions from experts, have a great influence on the purchase decision process of consumers (Pavlović-Höck, 2022). Then, the information is intensively scrutinized to identify uncertainties and optimal alternatives, and to determine alternatives (Pavlović-Höck, 2022). Finally, after expressing the purchase intention, the purchase proceeds (Pavlović-Höck, 2022).

2.1.3 Factors influencing consumer behavior

In the consumer's decision-making process, consumer behaviors are greatly influenced by cultural, social, personal, and psychological factors (Kotler & Armstrong, 2022). As children grow up, they learn basic values, perceptions, needs, and behaviors from family and other institutions (Kotler & Armstrong, 2022). For example, groups of consumers from the same national background grow up in similar cultures and societies and show similar consumption patterns due to habits, attitudes and beliefs formed from an early age (Anderson & Reid, 2019). Furthermore, social factors such

as small groups, family, and social roles and status influence individual behavior (Kotler & Armstrong, 2022). All sorts of diverse social activities enable people to engage in social interaction and learn cognitive and normative adaptations to social change (Wang et.al., 2021). Due to this social factor, consumers value the information of others more than the information they collect, and this attitude has a significant impact on consumer decision making by sharing information from existing consumers to potential consumers (Wang et.al., 2021). Consumer behaviors are influenced by individual characteristics such as age, life cycle, occupation, economic situation, lifestyle, personality, and self-concept (Kotler & Armstrong, 2022). In a study comparing consumer consumption and personal characteristics, individual consumption patterns are formed by the consumer's culture, context, and socioeconomic status (Novi & Marenzi, 2022). Moreover, consumers' purchasing decisions are influenced by psychological factors such as motivation, perception, learning, beliefs, and attitudes (Kotler & Armstrong, 2022).

Another factor influencing consumer behavior is the consumer's value and perception of a product (Lee & Hwang, 2016). The importance of price, quality, and value perception in product selection and purchase behavior cannot be overemphasized (Lee & Hwang, 2016). Price, consumer's internal/external factors, and product quality affect consumers' perceived value, which is a direct determinant of consumer's purchase (Lee & Hwang, 2016). According to the cue utilization theory, which describes the evaluation of product quality through internal and external factors, consumers judge product quality by price, brand, name, and color (Lee & Hwang, 2016). However, many studies define that search, experience, and credential attributes have a more significant impact on consumer purchase intention (Lee & Hwang, 2016). Consumers can evaluate products through pre-purchase research and experience products through consumption, and the perceived value in this purchase process makes consumers trust the product (Lee & Hwang, 2016).

According to Maslow's hierarchy of needs, there are 5 stages which are basic physiological needs, safety needs, social needs such as sense of belonging and love, esteem needs, and self-actualization needs (Kotler & Armstrong, 2022). Ariely and Norton (2009) explain that various human needs are satisfied through consumption

experiences, and human consumption in modern society is influenced by psychological concepts (i.e., expectations) beyond conceptual physical consumption. Based on these concepts, modern people want consumption that meets psychological expectations based on the quality, service, and experience of corporate products, and these consumer behaviors are judged through cognitive, emotional, functional, social, and conditional values (D'Souza, 2022). Cognitive value is experienced when a product is purchased with a bit of curiosity, innovation and knowledge, and the quest for something new (D'Souza, 2022). Emotional value is experienced through emotional states such as emotional comfort, happiness, joy, excitement, and guilt, for example, when purchasing certain foods or products or services that evoke nostalgia for childhood (D'Souza, 2022). Emotions are the most important key factor in the purchasing process, and consumers are often more influenced by emotions than by functional merits (Sangroya & Nayak, 2017). Functional value is related to practical or physical performance, and includes the product's characteristics or properties, value for money consisting of tangible or intangible functions, and convenience (D'Souza, 2022). It can be extrapolated to a practical and rational analysis of consumers seeking to obtain maximum benefit at minimum cost (Sangroya & Nayak, 2017). Social values arise from conforming to or interacting with social groups and social pressures (D'Souza, 2022). Consumers often consider how social groups react to individual behavior, and sometimes want to secure their place in society and form a positive perception of themselves by purchasing and displaying products (Sangroya & Nayak, 2017). Conditional value is the utility that a consumer obtains in a specific situation, depending on various environmental circumstances that can enhance the social and functional value of a product (Sangroya & Nayak, 2017). Consumers act on the influence of others or social beliefs, and these beliefs and attitudes also influence their lifestyle (D'Souza, 2022).

2.1.4 Customer Perception and Preference

Customer preference and recognition are becoming more important than ever to respond to the dynamically changing needs of customers and to sell consumer

products amidst a wide variety of products (Wang & Hsueh, 2013). To derive customer preferences, industries should identify customer needs, understand customer perceptions, and exceed customer expectations in a variety of complex interrelationships with sustainable efforts in all activities including marketing, operation, and manufacturing (Wang & Hsueh, 2013).

Customer preferences can be better understood by: First, through historical data, customer preferences can be identified, and consumer sales forecasts can be made (Yang et.al., 2022). For example, demand for products that can be related to seasonal differences or substitutions can be predicted through historical data on sales volume and deadline (Yang et.al., 2022). Second, segmented sentiment analysis is an important key to uncovering customer specific preferences (Zhang et.al., 2021). Through online customer reviews, we learn customers' experiences and true opinions about products (Zhang et.al., 2021). The positive and negative opinions of customer reviews allow businesses to accurately identify and capture customer preferences as aspect-level sentiment (Zhang et.al., 2021). Furthermore, customer psychology can be evaluated the relationship between customer preference for quality and service by analyzing subjective psychological factors such as customer satisfaction, loyalty and attitude, habits, purchase intentions, and subjective norms (Eldeeb & Mohamed, 2022).

However, rapid changes in customer preferences cause companies to have uncertainty about market forecasts before selling products, making it difficult to establish sales strategies (Yang et.al., 2022). Therefore, it is important for companies to build positive relationships with stakeholders through value creation, give customers confidence in their brands and products, and give them positive recognition for corporate evaluation (Swaen et. al., 2021). Moreover, Standards and preferences for various values and perceptions of customers are not determined by companies but are determined by consumers' views and experiences and the mutual relationship between companies (Peng, et.al., 2022). Therefore, to gain competitive advantage in the market and build strong ties with customers, companies need to strategize through value creation mechanisms (Zacharias et.al., 2016). Relationship activities for corporate customers in the value creation process ensure customer

expectations, create customer value, and improve corporate performance by increasing customer satisfaction and loyalty (Ramos et.al., 2023). In addition, customers' positive perception of the company through these strategies increases their preference for the company, promotes purchase intention, and has a positive effect on customer attitude and brand value recognition (Bu et.al., 2022). Therefore, companies should focus on various factors such as product, brand, reputation, value, and ethics to study environmental, social, and economic considerations felt by consumers, and establish strategies for continuous purchase for corporate management that meets consumer trends (Calderon-Monge et. al., 2020). In addition, continuous monitoring of consumer value by companies can quickly update, understand, and respond to dynamic needs of consumers, so companies need to continuously research consumer segments and consumer preferences (Mahbubi et.al., 2019).

2.1.5 Food Consumption Trends

Consumers' food consumption behavior and food choice motivations change over time, but consumer attitudes and eating habits are subjective, and the desire to consume certain foods differs according to generation (Savelli & Murmura, 2022). Furthermore, same as other consumption behaviors, food consumption behavior is influenced by cognitive, personal, affective, psychological, and social factors (Savelli & Murmura, 2022). Since eating habits have a direct impact on a healthy lifestyle, consumer lifestyle is also important in understanding consumer food preferences (Savelli & Murmura, 2022). As an example of this, it is easy to expect consumers with healthy eating habits to choose and consume healthy foods (Savelli & Murmura, 2022). The perceived value of individuals compares and evaluates the attributes and benefits of food products according to the individual's subjective knowledge and feelings (Savelli & Murmura, 2022), and perceived values, such as emotional satisfaction in food consumption behavior, have a direct and positive impact in the food environment and food service industry (Savelli & Murmura, 2022). For the case of food industries, high quality and high customer satisfaction can create a successful

customer experience, resulting in repeat visits and high loyalty (Savelli & Murrura, 2022).

Therefore, aligning market supply according to consumer needs and preferences, and increasing consumer preference through important factors such as trust attributes (safety, environment, health, and quality) and physical or sensory attributes (taste and price) in consumers' food product selection is a very important food business strategy (Heuvel et. al., 2007). The customer-centric perspective in the food industry can create shared values with consumers, understand consumer preferences (Liu et.al., 2022). In the past, many consumers believed that the environmental impact of food consumption only appeared in packaging waste, but through environmental awareness education in various media and research by many researchers, consumers' awareness of the sustainability of food production and consumption has increased. (Boer & Aiking, 2022). As consumers' food consumption awareness evolves, food purchasing behavior patterns and consequent food consumption trends are influenced and developed by more external cues (Araujo, et.al., 2022). Due to external factors such as environmental issues, climate change, health concerns, ethical issues, and consumer perceptions, food consumption patterns in line with consumer dietary changes are increasingly focused on healthier and more sustainable products (Polzin et al. et al., 2023).

Many European countries also encourage consumers to choose sustainable foods, and national organizations that provide dietary guidelines recommend reducing or replacing animal protein intake (Boer & Aiking, 2022). In addition, consumers also have a growing desire for food companies to respond to environmental externalities through ethical and environmentally friendly production, and this desire is manifesting in lifestyle changes to reduce meat consumption (Rombach et.al., 2022).

According to a survey on meat consumption habits and sustainable meat consumption in European countries, 59% of consumer in France, 50% in Germany, 61% in Italy, and 58% of Spain consumers have reduced to consume meat products, and 16% of consumers in France, 31% of German, 21% in Italy, and 24% of consumers in Spain no longer consume meat products over the past five years (Astley, 2022). Additionally,

all respondents in all four countries believed that meat consumption should be reduced, citing environmental impact as a common reason for reducing meat consumption, with animal welfare, health, and price as other reasons (Astley, 2022).

As consumer awareness of reducing meat consumption increases, more and more vegans, vegetarians, and flexitarians (flexibility + vegetarians) are reducing meat consumption (Kempber et.al., 2023). Changes in meat consumption patterns appear to be due to consumers' belief in a meat-free diet, a preference for healthy eating habits, greater environmental awareness, and less importance to functional values such as price (Kempber et. al., 2023). Also, it is higher among women than men, and these individuals are found to consume more meat alternatives such as soybeans, plants, and tofu (Kempber et.al., 2023).

2.2 Carbon Footprint

2.2.1 Sustainable Development Goals

In 2015, the United Nations announced a total of 17 Sustainable Development Goals 2030 and 169 targets (Transforming Our World: The 2030 Agenda for Sustainable Development | Department of Economic and Social Affairs, n.d.). The basic concept of sustainability is defined by three main elements. According to the World Council on Environment and Development (WCED) (2019), the Sustainable Development Goals consist of three main components that balance the economic, environmental, and social dimensions of sustainable development. The United Nations Agenda 2030 and the Sustainable Development Goals (SDGs) consist of goals to build and develop a sustainable environment in which the production and consumption systems of many industries are responsibly accountable to climate change in terms of these three aspects (Mancini et. al., 2023). Moreover, to achieve sustainable development and goals, it is necessary to reduce environmental damage caused by human actions and improve the quality of life through various sustainable efforts (Wang et. al., 2022).

At least 11 of the 2030 agenda are closely related to food systems, processing, and supply (Hassoun et.al., 2022). Food production systems report for 34% of global

greenhouse gas emissions (Wu et.al., 2023) and account for one-third of total global emissions (Zhang et.al., 2022). Meat production is a carbon-intensive food that appears to be the biggest contributor to climate change and environmental destruction due to greenhouse gas emissions (United Nations Environment Program, n.d.). However, per capita meat consumption has significantly increased from 26 kg to 39kg over the past 35 years (Zhang et.al., 2022), and total world meat production had reached 337 tons in 2019, which is a 44% increase (FAO, 2021). Furthermore, as the world population is predicted to exceed 10 billion people, the demand for meat will increase (Zhang et.al., 2022). The Food and Agriculture Organization has projected a 76% increase in global meat consumption by 2050, and the global meat industry is still growing over the time (Every Bite of Burger Boosts Harmful Greenhouse Gases: UN Environment Agency, 2020). Average demand for animal-based products is expected to rise from 14 tons to 2 billion tons within the next 30 years (Hassoun et.al., 2022).

Carbon dioxide emissions from the meat production process were 7.2 Gt in 2019 (FAO, 2021). Regions with the highest emissions by region were Latin America and the Caribbean, which had high emissions due to high production capacity for meat products, followed by East Asia, North America and Western Europe, and Africa (Gerber et.al., 2013). Additionally, the livestock with the largest emissions are beef cattle, dairy cattle, pigs, buffalo, and chickens (Gerber et.al., 2013). Although to a lesser extent than cattle, other non-ruminant livestock also produce environmental pollutants such as methane, and the excretion of livestock producers and release nitrogen dioxide during ammonia breakdown (Food and Agriculture Organization of the United Nation, n.d). Livestock has a significant impact on the environment, accounting for 14.5% of human-induced greenhouse gas emissions (Gerber et.al., 2013). Partial greenhouse gas emissions of these anthropogenic emissions include 45% from feed production and processing of livestock animals, 39% from intestinal fermentation of ruminants, 10% from the storage and handling of manure, and remaining amount of 6% of emissions are emitted in the processing and transportation of animal products (Gerber et.al., 2013). In addition, environmental pollution due to greenhouse gas emissions is also caused by pesticides from feed produced while

raising livestock, management, transportation, and processing of feed crops (Food and Agriculture Organization of the United Nation, n.d). Fertilization of forage crops and manure deposition in land use in livestock farming generate large amounts of nitrogen dioxide (Gerber et.al., 2013). Also, pasture expansion in feed production causes oxidation, which releases carbon dioxide, and organic or synthetic fertilizers applied on arable land release nitrogen dioxide (Gerber et.al., 2013). Furthermore, manure from livestock farming is managed in liquid form, in which ammonia from this process is later converted to nitrogen dioxide (Gerber et.al., 2013), and processing and transporting meat foods consumes energy and emits carbon dioxide (Gerber et.al., 2013).

Since water consumption, land and biomass use, and greenhouse gas emissions per unit of beef in ruminant meat food production process are less efficient than other food production methods, food security measures through policies on various sustainable food production are urgently needed. (Mosnier et. al., 2021). The increase in greenhouse gas emissions due to such a steep increase in demand for meat food has led to research on sustainable food production policies through various policies and strategies to prevent climate change due to environmental pollution (Climate Action, n.d).

2.2.2 Net zero targets and Livestock

Several scientific studies have defined that global temperature increase must be restricted to 1.5 degrees Celsius to prevent environmental degradation caused by climate change and food systems, and to make more favorable places to live for future generations (Climate Action, n.d). Therefore, the Paris Agreement was signed in 2015 to reduce greenhouse gas emissions by 45% by 2030 and to reach net zero, close to zero greenhouse gas emissions by 2050 (Climate Action, n.d). For this purpose, various influential countries and institutions around the world including China, the United States, and the European Union, are establishing many policies and making efforts to achieve net zero by 2050 (Climate Action, n.d). The Food and Agriculture Organization of the United Nations (FAO) defines efficient carbon management to reduce

greenhouse gas emissions from livestock production by reducing emissions through productivity enhancement, pasture management, and livestock integration. Improved livestock farming can reduce greenhouse gas emissions by as much as 30%. Technological evolution of ruminant feed can reduce methane produced during digestion and carbon dioxide and nitrogen dioxide released from manure decomposition (Gerber et.al., 2013).

To combat the environmental impacts of meat consumption and to decarbonize agriculture, a tax on livestock products with a high carbon footprint has been introduced (Caro et.al., 2017). This tax policy has been shown to reduce greenhouse gas emissions from meat products by 12% in Sweden (Caro et.al., 2017). In addition, all types of meat are taxed in Denmark, which is a government policy that encourages sustainable food consumption (Caro et.al., 2017). Meat taxes imposed on producers help consumers to achieve sustainable consumption, but put domestic producers at an economic disadvantage, so meat taxes should be imposed at the consumption level (Caro et.al., 2017).

In modern society, meat consumption causes various problems such as health problems, environmental problems, and animal welfare problems, and it is argued that meat consumption should be reduced due to these concerns and reasons (Font-i-Furnols & Guerrero, 2022). 26% of Spanish consumers claimed to feel guilty about eating meat products because of health problems caused by meat consumption, and 66% of consumers believed that meat products were unhealthy and should be reduced (Font-i-Furnols & Guerrero, 2022). In addition, 35% of consumers said they chose products produced with minimal animal cruelty, and many consumers preferred the improved meat production system over the existing animal system (Font-i-Furnols & Guerrero, 2022). Ironically, 42% of consumers defined that they love animals but do not consider them when purchasing meat products and have a cognitive dissonance that prefers animal-friendly products but is unwilling to pay a higher price for them (Font-i-Furnols & Guerrero, 2022). Sustainability strategies due to the environmental problems of current meat consumption are a major concern in the industry (Font-i-Furnols & Guerrero, 2022). 73% of consumers avoid or consume certain meat products for ethical and sustainable reasons (Font-i-Furnols & Guerrero,

2022). However, despite consumers' interest in consuming sustainable meat products, there are major barriers to sustainable meat production strategies such as limited information, lack of consumer confidence in corporate social responsibility, lack of commercial alternatives, and vested interest lobbying. (Font-i-Furnols & Guerrero, 2022).

Various issues such as environmental, health, animal welfare, and food security issues caused by excessive meat production and consumption have driven consumers to switch and choose a diverse and sustainable meat diet (Onwezen et.al., 2021). Although the market share of meat substitutes is still significantly lower than livestock meat, meat alternatives such as plant-based burgers, insect burgers and cultured meats are being introduced in places such as restaurants and supermarkets (Onwezen et.al., 2021).

2.3 Meat Alternatives

2.3.1 Plant-based Meat

Plant-based meat is a meat substitute made using pulses, grains, oils, other plants, and fungi as sources (Bhattacharyya et.al.,2023). Plant-based meat substitutes made from these ingredients provide good protein and can be made with the same texture, color, nutrition, and taste as meat (Ahmad et.al., 2022). In addition, plant-based meat contains nutrients comparable to livestock meat and reduces greenhouse gas emissions by up to 96% compared to livestock meat, making meat consumption sustainable (Bhattacharyya et.al., 2023). According to data from Statista (2021), the global plant food market is expected to reach \$77.8 billion in 2025 and more than double by 2030. In 2021, more than 200 plant-based meat products were sold in U.S. retail stores, with a growth rate of 19% (Ignaszewski, 2021). The top-selling types of plant-based meat products were burgers, followed by sausages and hot dogs, and patties (Ahmad et.al., 2022).

The attachment to meat in Western countries is strong and replacing meat with plant-based alternatives is culturally challenging (Nevalainen et.al., 2023). Nonetheless,

many European countries are moving toward reducing consumption of animal meat and increasing consumption of vegetable protein (Lehto et.al., 2022). Additionally, interest in plant-based meat alternatives is growing as more flexitarians, vegans and vegetarians prefer a plant-based diet (Nevalainen et.al., 2023). Therefore, there is a movement among consumers to reduce their meat consumption and increase their intake of alternative proteins (GFI, 2021). The shift to plant-based protein is driven by consumers seeking a more sustainable diet (Todd, 2019). As well as flexitarians, vegans, and vegetarians, millennials' concerns about environmental and climate issues fuel their willingness to switch from an animal-based diet to a plant-based diet (Todd, 2019). 63% of millennials try to include plant-based foods in their diet, and more than 60% are aware of and are working to reduce the environmental impact of their food choices (Shirvell, 2019).

Several studies have shown that consumers who hold high ethical and moral values are more likely to choose meat alternatives (Bhattacharyyaa et.al.,2023). Moreover, the groups most likely to purchase plant-based meats from a dietary perspective are flexitarians, vegetarians, vegans, consumers who actively reduce their meat consumption, and regular plant-based meat buyers (Keri, 2019).

In the United States, consumption of plant-based meat alternatives is widespread among Africans, Asians, Caucasians, and Hispanics, with over 75% of consumers eating or willing to try plant-based meats (GFI, 2021). In addition, 90% of consumers who have tried plant-based meat said they would repurchase, and 80% plan to replace some or all animal meat with plant-based meat (GFI, 2021). As for the reasons consumers do not choose plant-based meat, 51% prefer meat, 27% do not like the taste of plant-based meat, 25% are expensive, and 21% are over-processed. The remaining 20 % was investigated as not liking the texture (GFI, 2021).

Plant-based meat alternatives are an item with tremendous potential for market as well as sustainability aspects, but customer access to plant-based meat alternatives has only expanded by up to 1% since 2013 (Ahmad et.al., 2022). As an industry strategy to further accelerate plant-based meat substitutes, the need for the development of sustainable food systems through economic and environmental

strategies and institutional support from many stakeholders is being discussed (Ahmad et.al., 2022). It also promotes diverse consumption value propositions and sustainable consumption behaviors through marketing communications among consumers of plant-based meat alternatives (Bhattacharyya et.al., 2023). Finally, technological advances are important to increase consumer acceptance of plant-based meat substitutes by creating meat-like flavors in terms of appearance, taste, and texture to improve quality (Ahmad et.al., 2022).

2.3.2 Insect Meat

Insect-based foods were not permitted to be sold on the German market until 2018, but insect foods are already a traditional food culture in over 130 countries (Dupont et.al., 2020). Insects are emerging as meat substitutes for food security and environmental sustainability because of their land-use efficiency and nutritional benefits (Vauterin et.al., 2021). In the mass production of insect meat, it contributes to the bioconversion of food waste and is a sustainable food substitute with high potential to create a low carbon footprint, sustainable protein production system (Vauterin et.al., 2021). Insect-based foods are sold in the form of burger patties, pasta, muesli bars, and chocolate, and the most commonly consumed insect is the mealworm (Dupont et.al., 2020); In particular, mealworms are 100% edible, have very low carbon emissions and environmental pollution due to land use during production compared to cows, and on the contrary, their protein content is more than twice that of cows, making them a very efficient and sustainable substitute meat (Dupont et. al., 2020).

Cultural appropriateness has a significant impact on consumers' attitudes towards insect diets (Onwezen et.al., 2021). China has consumed insects since ancient times, so the Chinese people evaluate the affinity and acceptability of insect meat consumption more favorably and positively than other countries and have a high intention to consume them (Onwezen et.al., 2021).

In the case of insect meat, consumers' will to consume insect food decreases when insects are seen as direct images (Onwezen et.al., 2021). In addition, it was investigated that consumers prefer processed insects (Onwezen et.al., 2021). 41.9% of German consumers are willing to consume insects but prefer processed over unprocessed insects (Dupont et.al., 2020). In Belgium, only 19.3% of consumers reported that they were prepared to consume insects as a meat substitute (Dupont et.al., 2020). It appears to have been negatively impacted on consumption by fear of new foods and aversion to insects (Dupont et.al., 2020). Furthermore, aversion to insects had a negative impact on consumers' attitudes toward and willingness to consume insect meat (Dupont et.al., 2020).

Consumers are already aware of the positive environmental impact of insect meat and are aware of the health benefits of insect meat, but consumers are more willing to try it than substitute it for livestock meat (Dupont et.al., 2020). Consumer acceptance of edible insects is the biggest barrier to insect meat (Mancini & Antonioli, 2022). Insect meat has the lowest consumer acceptance compared to other meat alternatives (Onwezen et.al., 2021).

To successfully disseminate insect meat, it is necessary to give consumers the opportunity to experience it positively (Dupont et.al., 2020). Consumers' negative prejudice against insects should be eliminated, and familiarity should be improved through more contact with consumers (Dupont et.al., 2020). Overall education on insect-based foods can reduce consumers' aversion to insects, stimulate curiosity, and recognize positive attitudes toward consumption intentions (Mancini & Antonioli, 2022). In addition, food dissemination through improved technology of insect meat may help to introduce insect meat into the common diet by making insect meat imitate and popularize more familiar foods (Mancini & Antonioli, 2022).

2.3.3 Cultured Meat

Cultured meat is in vitro meat using animal cells from donor animals (Siddiqui et. al., 2022). It is composed of the same complex muscle fibers, connective tissue, fat,

vasculature, myotubes and multinucleated cells as normal meat, allowing meat production without environmental influences (Siddiqui et. al., 2022). Meat products grown in the laboratory with these extracted animal stem cells are called in vitro meat, cultured meat, or clean meat (Padilha et.al., 2022). Cultured meat was first introduced to consumers in Singapore in 2020, and 500 kg of cultured meat per day has been produced commercially in Israel since 2021 (Padilha et.al., 2022). By choosing cultured meats in their diets, consumers can reduce their carbon footprint, reduce greenhouse gas emissions, achieve animal welfare and food security, and create a more sustainable food consumption culture (Siddiqui et.al., 2022). However, consumers prefer other plant-based or livestock meats to cultured meats (Siddiqui et.al., 2022). Additionally, consumers were found to be willing to try cultured meat but not to switch to meat alternatives (Siddiqui et.al., 2022).

Despite the positive perception of the sustainability, animal welfare and health benefits of cultured meat, there are still many consumers who do not accept cultured meat due to negative public opinion such as genetic modification, definition of meat, taste and shape, impact on the agricultural industry, unnaturalness, and individual taste preferences (Siddiqui et. al., 2022). As for the non-natural production process of cultured meat, consumers perceive that the production method of meat through tissue engineering technology is dangerous, and the flavor and texture are perceived to be lower than that of regular meat even before experiencing the taste directly (Siddiqui et.al, 2022). These consumer perceptions and fear of new foods influence consumer behavior (Siddiqui et.al., 2022). Consumers' unwillingness to purchase cultured meat is due to aversion to cultured meat due to neophobia (Bryant, et.al., 2019). In addition, conspiracy theories, fears, phobias, disgust, general worldviews, conservatism driven by political preferences, naturalness bias, speciesism, social dominance orientation, and scientific distrust are defined as barriers to purchasing cultured meat (Siddiqui et.al., 2022). Cultured meat processed in a laboratory has a negative reaction to socially conservative people (Siddiqui et.al., 2022), and consumers with progressive tendencies seem to have less resistance to cultured meat (Bryant et. al., 2019).

For cultured meat to succeed in the market, consumers' response and acceptance of cultured meat is the most important key point (Siddiqui et.al., 2022). Consumers' perceptions of cultured meat combine with consumers' consumption attribute values to influence demand (Padilha et.al., 2022). Consumers' willingness to purchase and eat food depends on their familiarity with new food technology, and their acceptance also depends on their familiarity with the product. If familiarity increases and consumers become accustomed to and accept the product, there is a possibility that their purchase intention will increase over time (Bryant et.al., 2019).

Familiarity with cultured meat has been investigated with the United States showing lower acceptance, preference, and awareness than India (Bryant, et.al., 2019). In the US, 57.3% were unfamiliar with cultured meat, 31.8% were slightly or moderately familiar, and only 10.8% of US consumers were very familiar (Bryant et.al., 2019). In addition, according to the purchase intention survey on cultured meat, 23.6% of US consumers are not likely to purchase cultured meat at all, 46.6% are moderate, and 29.8% are very likely (Bryant et.al., 2019). This is a far cry from India, where 38.7% were very familiar with cultured meat and 56.3% said they were willing to consume cultured meat (Bryant et.al., 2019). This difference is predicted by Indian consumers to show higher purchase intentions because India has a lower attachment to meat than the United States, and because cultured meat, which is traditionally not slaughtered, is a product that has religious advantages (Siddiqui et. al., 2022).

To increase cultured meat consumption, the social benefits of cultured meat are being discussed according to socio-religious, cultural, and economic factors (Siddiqui et.al., 2022). In addition, a strategy to form a positive perception of cultured meat among consumers through marketing and reduce production costs through technological progress and innovation are being considered (Siddiqui et.al., 2022). Finally, it is being discussed that easy product labeling should be used to encourage consumers to be more open-minded about cultured meat production (Siddiqui et.al., 2022).

2.3.4 Livestock Meat

A meat-eating diet has been a key component of nutrition in many cultures since time immemorial, an indicator of social progress and a measure of prosperity (Wang et.al., 2022). Livestock meat is generally divided into red meat (beef, lamb, goat) and white meat (pork, poultry), and other meats composed of other processed meats such as birds, horses, camels, rabbits, etc. (Henchion et. al., 2021). According to the report on livestock and meat production in the European Union, 23.4 million tons of pork, 13.2 million tons of poultry meat, 6.8 million tons of beef, and 500,000 tons of mutton and goat meat were produced in 2021 (Eurostat, 2022).

In addition, the United States and China are currently the world's largest meat consumers, with the United States consuming 50.1 million tons and China 75.5 million tons per year (Wang, 2022). Since meat is one of the most important diets for humans, which supplies the most important proteins, essential vitamins, minerals, iron, and zinc, etc. to humans by eating meat (Araujo et.al., 2022), meat consumption has been steadily increasing, and animal protein diets are still highly valued in many countries (Vural et.al., 2023).

Regarding consumers' meat consumption habits, many countries have created food guidelines to reduce meat consumption (Arnaudova et.al., 2022). Although the Swiss Food Pyramid recommends a maximum of 1 portion (100-120 g) of meat per day, overconsumption of 137 g per day and 50 kg per year of meat has been reported (Arnaudova et.al., 2022). Per capita meat consumption in high-income countries has exceeded the recommended amount (Wang, 2022), and meat consumption is also increasing in emerging countries as meat becomes more widespread (Wang et.al., 2022).

Consumers generally expect healthy, fresh, tender, juicy, and flavorful flavors from meat products (Araujo et.al., 2022). Meat quality is subjectively classified as a consumer experience and perceived according to attributes such as texture, flavor, color, freshness, nutritional value, and satiety (Araujo et.al., 2022). Factors that have a high impact on consumer purchase intention are sensory and nutritional characteristics (Font-i-Furnols & Guerrero, 2022). Sensory attributes such as visual,

taste, and texture, along with positive emotional attributes, such as pleasure in eating meat, have a significant impact on meat consumption (Font-i-Furnols & Guerrero, 2022). In addition, consumers' meat purchase intentions also depend on the type of meat (Font-i-Furnols & Guerrero, 2022). Beef is influenced by experience, accountability, purchasing location, eating habits and willingness, while pork is influenced by eating habits and purchasing drivers (Wang et.al., 2022). Additionally, consumers' meat purchase decisions are strongly influenced by experience and quality attributes (Wang et.al., 2022). Meat purchases are strongly influenced by safety evaluations such as freshness, color, and origin, and consumers are willing to pay higher prices for better quality meat (Wang et.al., 2022). Personal values and social customs, including a variety of factors including safety, impact, health, and convenience, greatly influence consumers' attitudes towards meat and their meat purchases (Wang et.al., 2022).

2.4 Customer Hotel Choice

A customer's choice of a hotel is driven by a delicate decision-making process that is varied in terms of individual perceived customer service and value for money, or organizational factors such as facilities, location, ambiance, cleanliness, and safety (Tajeddini et.al., 2021). In general, customers' hotel selection criteria include price, service, quality of facilities, location, etc., but various recent studies explain that psychological factors such as values and attitudes play a large role in decision-making (Tajeddini et.al., 2021). The expression of values resulting from an individual's preference for eco-friendly attitudes or beliefs can be divided into altruistic and selfish values that pursue public values (eg, environmental protection) or individual values (eg, health concerns) (Sadiq et. al., 2022). Consumer values generated by these public and individual values have a great impact on determining customers' environmental attitudes and behaviors (Sadiq et.al., 2022).

Customer perception of environmental issues in the hospitality industry influences a variety of purchasing behaviors, and with this phenomenon, customer demand for environmentally friendly practices in the hotel industry is increasing (Han et.al., 2010).

79% of travelers worldwide prefer to visit green hotels, and approximately 33% of Hilton hotel guests report choosing a Hilton hotel for its green attributes (Sadiq et.al., 2022).

Sustainable actions by hotels to reduce their environmental footprint increase positive customer perceptions, increase customer satisfaction and loyalty, and indirectly improve corporate competitiveness (Acampora et.al., 2022). Accordingly, more and more hotel companies are emphasizing environmental sustainability and setting core brands as environmentally friendly strategies (Chen et.al., 2022). Green practices in the hospitality industry engage in environmental protection initiatives to implement business strategies that achieve added financial and commercial value while minimizing environmental impacts as much as possible (Acampora et.al., 2022).

2.5 Hotel's Sustainable Strategies on Meat Alternative Usages

2.5.1 Case Study: Selina

Hotel Selina has partnered with Redefine Meat, an Israeli vegan meat brand, to provide plant-based New Meat menus at 155 hotels worldwide (Axworthy, 2022). Redefine Meat produces plant-based burgers, sausages, kebabs, and minced meat that are free of animals and animal by-products, and currently provides sustainable meat alternatives in locations across Israel, the United Kingdom, the Netherlands, and Germany (Low, 2022). The New Meat offering for Selina consists of vegan steaks made using 3D printing technology, as well as beef and lamb flanks made with plant-based proteins such as wheat, soy, and potato (Axworthy, 2022). Selina emphasizes its strong environmental social and governance values through its use of sustainable meat alternatives, and through this sustainable strategy it provides a high-quality, environmentally friendly experience for its millennial and Gen Z customers (Low, 2022). Selina's target customers, millennials, and Gen Z, create strong social media engagement, which goes a long way in gaining new customers. Half of Selina's overall revenue comes from a thriving food and beverage industry, with direct bookings approaching 50% (Weinstein, 2022).

Millennials and Gen Z are currently interested in sustainable meat alternatives and are driving the growth of plant-based meat (McLynn, 2021). According to the report, 1 in 5 adults want more plant-based foods in their diet, and this high interest is driving demand for meat alternatives (McLynn, 2021). In addition, as more and more people are aware of the negative environmental impact of carbon emissions, many companies are recognizing consumers' perceptions and are seeking solutions and alternatives (Bianco et.al., 2023).

The hotel's restaurant industry is an important source of hotel revenue, increasing repeat visits, and an important strategy for successful company management (Han & Hyun, 2017). The hospitality industry needs to focus on customer satisfaction for hotel restaurants to survive in a highly competitive society (Han & Hyun, 2017). Customer satisfaction is evaluated by various factors such as hotel product quality, image, service, etc., and based on these experiences, it influences the customer's decision-making on revisit (Han & Hyun, 2017). Customers evaluate the attributes such as beliefs and impressions of restaurant products and characteristics, service and food quality, physical environment, prior expectations, and experiences (Han & Hyun, 2017). These perceived customer evaluations have a decisive impact on future loyalty and preference, intention to revisit the restaurant, and intention to recommend to others (Han & Hyun, 2017).

3 Methodology

3.1 Research Design

This paper addresses two major questions in research on meat alternatives which are customers' perceptions of meat substitutes and willingness to visit based on the hotel's use of alternative meats. The purpose of this paper is to identify consumers' perceptions of alternative meat, and to address whether they are willing to make actual customer purchase decisions (hotel visits) when hotels implement alternative meat usage strategies. For this purpose, this thesis will be suitable to use surveys as a method of the quantitative methods such as convenience sampling. Convenience sampling, a type of non-probability sampling, is used to find out customer's attitudes and opinions. Therefore, customer's perception of meat alternatives and their willingness to visit will be collected by this quantitative survey. In addition, the survey can identify how customer preferences and intentions change depending on the type of alternative meat, and how this affects the hotel's sustainable alternative meat strategy.

3.2 Survey Development

The questions are investigated according to the following hypotheses: First, consumers prefer meat alternatives to livestock meat. Second, the use of alternative meat in hotels has a positive effect on consumer purchase decisions.

H1: There is a significant difference in customer preference for regular meat and meat alternatives.

H1: There is a significant difference in consumer interest in alternative meat types.

H1: There is a significant difference between consumer buying decision factors that affect willingness to consume meat alternatives.

H1: There is a significant difference in customer's hotel choice between hotels that serve Livestock meat and Meat alternatives.

H1: There is a significant difference in consumer's hotel choices between hotels that serve Plant-based meat, Insect Meat, and Cultured Meat.

The survey consists of multiple-choice questions and questions based on a Likert scale, and it is divided into a total of six sections. A Likert scale was given a scale of 1 to 5 which are 1 = strongly disagree, 2 = disagree, 3 = neutral, 4 = agree, and 5 = strongly agree. For the questions in the first section is starting with ethical consideration. Then, In the second section, multiple-choice questions are asked about the basic information of the respondent, such as age, gender, education level and employment status, and lifestyle and diet choice. In the third part, data are collected using a Likert scale on the respondents' awareness of greenhouse gas pollution, environmental destruction from the livestock industry, and their willingness to protect the environment. The fourth section examines the consumer's perception of alternative meat and the preference, consumption amount, and willingness to consume livestock meat and alternative meat. In the fifth, research survey asks why consumers decide to consume meat alternatives. Finally, in the sixth section, the use of meat alternatives by hotels and the resulting preference of customers for hotel choice are investigated.

3.3 Data Collection and Analysis

An online survey is conducted to collect data consistent with the purpose of the study. The survey was conducted in English, completed via Google Forms beginning on January 11, 2023, and closed on January 27, 2023. The target population sample was 100 people, but it ended with 84 responses. Survey links were distributed primarily through word of mouth and social media such as Instagram, Facebook, and LinkedIn, resulting in a diverse demographic sample. All responses from the collected surveys were recorded in Google Forms, and data were statistically analyzed, and calculated using data tools such as Excel and SPSS.

4 Data Results and Analysis

4.1 Background Statistics

During the two-week survey period, a total of 84 respondents participated in this survey. According to the Google Forms survey results, there were 46 female respondents and 38 male respondents. In terms of age group, Table 1 shows that the age distribution within the sample ranges from Teenagers to Late Adulthood. However, more than half of age distribution of the respondents, with 48 of 84 respondents, are between the ages of 18 to 29. This result appears to be due to the characteristics of the online survey that makes it more accessible to young people, and it is also the age group of the authors of the thesis.

Demographics	Sub-Category	Frequency	Percentage %
Gender	Female	46	55%
	Male	38	45%
	Prefer not to say	0	0%
	Others	0	0%
Age	under 18	4	5%
	18-29	48	57%
	30-45	20	24%
	46-65	8	10%
	66+	4	5%
Education level	High school diploma	10	12%
	Bachelor's degree	46	55%
	Master's degree	18	21%
	Doctorate	2	2%
	Others	8	10%
Employee Status	Student/ Unemployed	25	30%
	Part-time job	19	23%
	Internship	0	0%
	Full-time job	40	48%

Table 1 Demographic Profile of Respondents (n=84)

According to Table 1, 12% of respondents graduated from high school, 55% had a bachelor's degree, 21% had a master's degree, 2% had a doctorate, and 10% answered others. Furthermore, in the demographics profile for the employee status, 30% of respondents are students or unemployed, 23% of respondents are part-time, and 48% of respondents are full-time.

It is necessary to understand the respondents' current lifestyle and diet choice to figure out the preference for meat alternatives. For example, vegetarians are more accessibility to consume plant-based meat instead of meat eaters. Therefore, the respondents' lifestyle and diet choice were additionally investigated in the background statistics. Figure 1 indicates that 54.8% of respondents were meat eaters, 26.2% of respondents were flexitarians who are trying to reduce meat consumption, 11.9% were vegetarians, 2.4% were pescatarians, and 4.8% were other. Unfortunately, no vegan respondents were participated in the survey.

Current lifestyle/ diet choice of the Respondents.

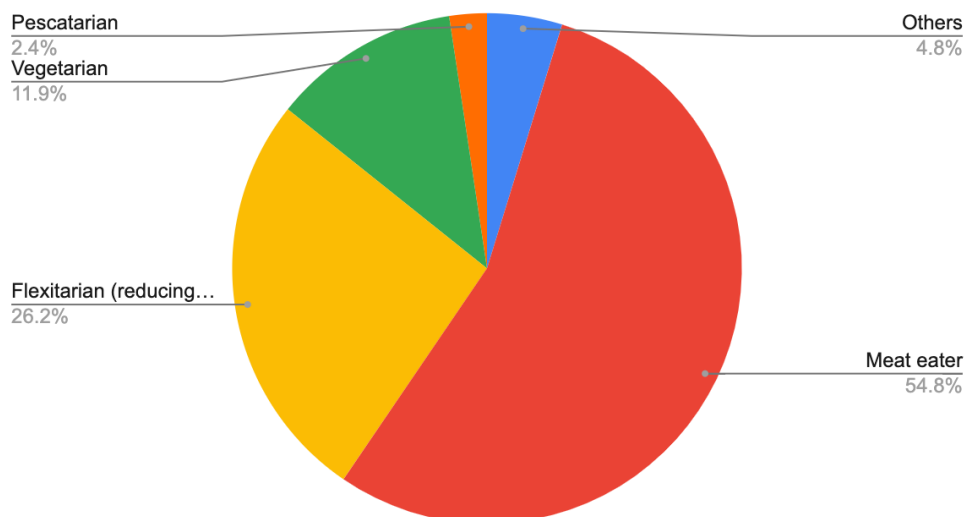


Figure 1 Current lifestyle and Diet Choice of the Respondents.

4.2 Environment Awareness

In this section, respondents' perceptions of greenhouse gas pollution and global warming and environmental pollution caused by the livestock industry were investigated based on the respondents' prior knowledge, and it is also investigated respondent's willingness to change one's lifestyle to protect the environment.

	N	Mean	Standard Deviation
GGP and GW	84	3.88	1.02
ED due to LI	84	3.40	1.09
Reduce MC due to LIED.	84	3.21	1.36
Willingness to change LS for EP.	84	3.38	1.10

Table 2 Mean and Standard Deviation of Environment Awareness.

Table 2 describes that the mean of this variable is 3.88, with most participants reporting that they are concerned about greenhouse gases and global warming. To compared concerning environmental destruction due to livestock industry, the mean is 3.40, which is smaller than environmental concerns of greenhouse gas pollution and global warming. It indicates that respondents have less awareness of environmental destruction from livestock industries. As an extension of concerning environmental pollution in the livestock industry, in response to a question asking whether respondents thought meat consumption should be reduced because of such environmental pollution, 11 people strongly disagree, 19 people do not agree, 13 people are neutral, and 23 people are agreed, the respondents of 18 are surveyed as strongly agree. The mean for this variable is 3.21. Finally, in response to the question of whether respondents would change their lifestyle to protect the environment, 5 participants did not strongly agree at all, 12 participants answered disagree, 26 respondents are neutral, 28 respondents agreed, and 13 respondents strongly agreed. The mean of this question is 3.38, which is higher value than previous question of reducing meat consumption due to livestock industry's environmental destruction. This result determines that many people recognize the need to change their lifestyles to protect the environment, and it means that awareness of the environmental

degradation of the livestock industry is needed to lead to a substantial reduction in meat consumption.

4.3 Perception and Preference of Meat Alternatives

In this section, participants were asked to rate whether they agreed whether they would like to consume livestock meat and meat alternatives, and the interest of consuming meat alternatives. Moreover, participants were asked about their current meat consumption, why they were reducing their meat consumption, and what motivated them to choose meat substitutes.

		N	Mean Rank	Sum of Ranks
LM - MA	Negative Ranks	22	30.41	669.00
	Positive Ranks	42	33.60	1411.00
	Ties	20		
	Total	84		
<i>Z = -2.52, Asymp. Sig. (2-tailed) = .012</i>				

Table 3. Preference of consuming Livestock Meat vs Meat Alternatives, Wilcoxon test

The test was conducted to determine participants' preference for consuming livestock meat versus alternative meat consumption. To find out the significant difference between the two variables, the Wilcoxon test was performed. The results are shown in Table 3 below. P-value is 0.012, and smaller than 0.05. It indicates a significant result in this test, reject H0 and accept H1.

H1: there is a significant difference in customer preference for regular meat and meat alternatives.

In addition, there are 22 of negative ranks (prefer to consume MA are higher compared to consume LM), 42 of positive ranks (prefer to consume MA smaller compared to LM), and 20 of ties (prefer to consume MA are same as LM).

	Mean	Std. Dev	Mean Rank
Plant-based Meat	3.40	1.43	2.55
Insect Meat	1.65	1.00	1.46
Cultured Meat	2.50	1.30	1.99
<i>N = 84, Chi-Square= 62.52, df= 2, Asymp. Sig= .000</i>			

Table 4. Interest of Meat Alternatives.

Table 4 presents participants' interests according to plant-based meat, insect meat, and cultured meat consumption. A Friedman test was conducted to figure out if there was a difference in participant's interest in each type of meat alternatives. In addition, the mean values of the participants were provided for comparison for each variable.

The mean value for plant-based meat was 3.40, indicating higher interest than other meat alternatives. To the question of interest in plant-based meat consumption, 27 participants strongly agreed, 17 agreed, 14 neutral, 15 disagreed, and 11 strongly disagreed. Cultured meat is of the next highest interest, with a mean value of 2.5. 25 participants strongly disagreed, 22 participants disagreed, 12 participants were neutral, 20 participants agreed, and 5 participants strongly agreed. The type of meat alternatives that showed the least interest was insect meat, with a mean value of 1.65. Considering that the lowest scale is "1 = strongly disagree", many participants do not prefer insect meat. In the case of insect meat, a total of 63% of participants of 53 participants responded that they strongly disagreed. 22 participants answered that they do not agree, 8 people were neutral, and 8 people were agreed. Furthermore, it was investigated that there is no participant who strongly agreed to have interest of consuming insect meat.

According to the Friedman test, p-value is 0.0001, less than 0.05. therefore, there is a significant difference in consumer interest regarding types of meat alternatives, reject H0 and accept H1.

H1: There is a significant difference in consumer interest in alternative meat types.

How often do you eat meat diet in a week?

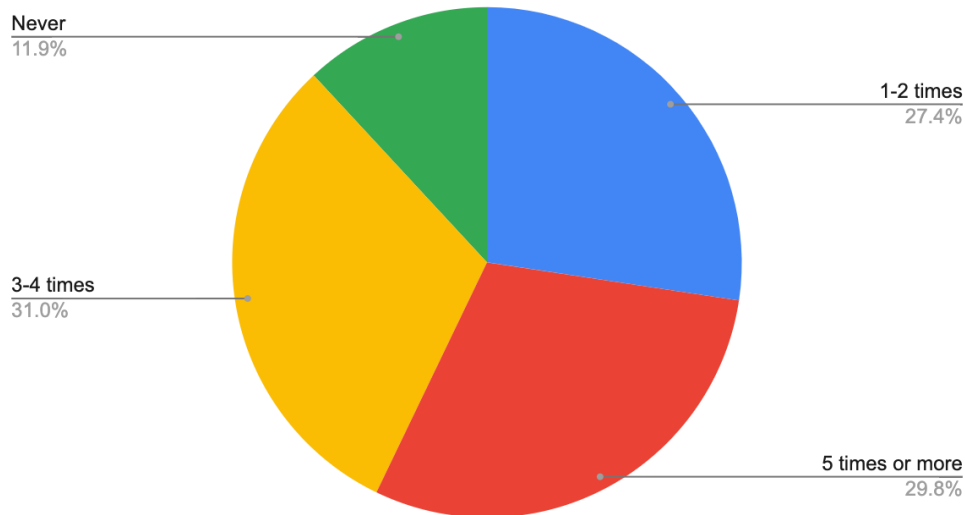


Figure 2 Meat diet in a week.

Figure 2 shows that 29.8% of the participants were surveyed to eat meat diet more than five times, 31.0% 3 to 4 times, 27.4% 1 to 2 times, and 11.9% answered that they did not eat meat.

According to Figure 3, the biggest reason for reducing meat consumption was health at 47.6%, followed by animal welfare at 14.3%, environmental issues at 13.1%, price at 1.2%, and other reasons at 4.8%. In addition, the remaining 19.0% of the participants did not want to reduce their meat consumption and showed no interest or plan. This shows that most people value personal factors such as health.

If you are interested or planning to reduce the amount of your meat consumption, what is your main reason?

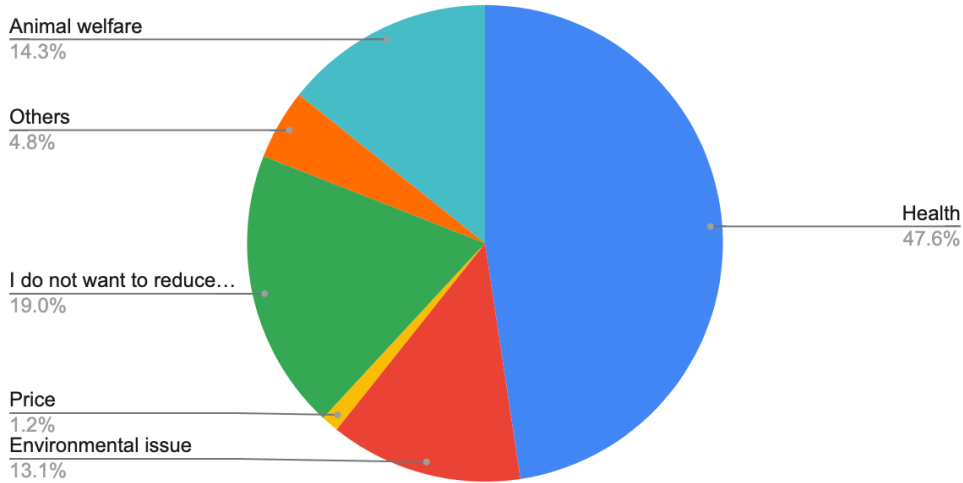


Figure 3 Reasons to reduce meat consumption.

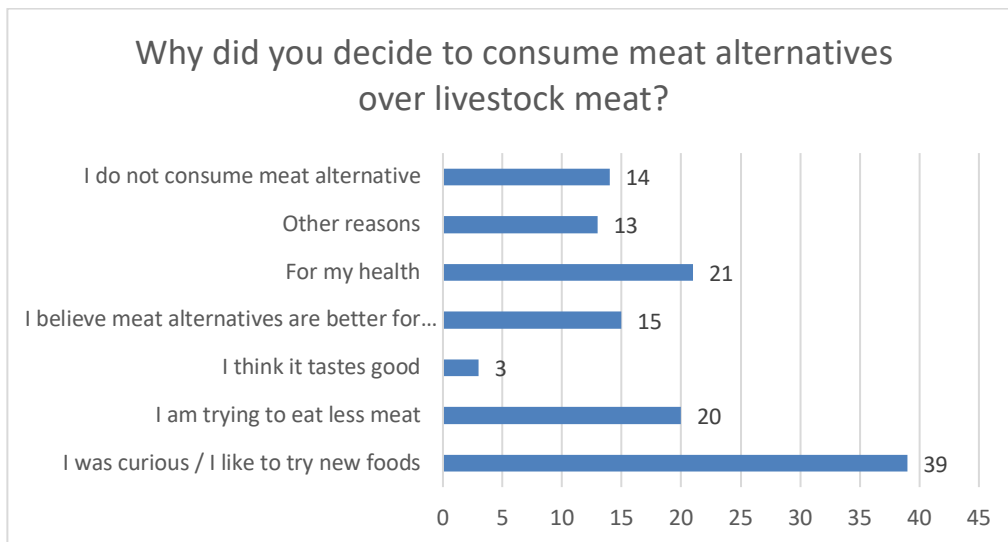


Figure 4 Reasons to consume Meat Alternatives.

Multiple-choice questions with duplication answers were conducted to explore why participants decided to consume alternative meat instead of livestock meat. Figure 4 indicates the opinions of the participants on these questions. 39 participants

answered that the reason for consuming alternative meat was curiosity, 21 participants said for health, 20 participants said they were reducing meat consumption, and 15 participants answered to protect the environment by consuming meat alternatives, 3 participants responded because of good taste, and 13 of participants were replied to it as other reasons. Additionally, 14 people responded that they did not consume meat alternatives.

4.4 Consumer Buying Decision

Factors	Mean	Std. Dev
Social	2.88	1,34
Cultural	2.13	1.15
Personal	3.65	1.38
Psychological	2.69	1.43
<i>N=84, Chi-Square 69.12, Df 3, Asymp. Sig = .000</i>		

Table 5 Reasons to consume Meat Alternatives.

The Friedman test was conducted as a way to compare the factors that determine four consumer buying decision. Participants were provided with an explanation of each factor along with examples. As examples for each factors, it has linked cultural, social, personal, and psychological factors to examples such as religious reasons, environmental issues, health, and animal welfare. The purchase decision factor with the highest mean value was the personal factor, with a value of 3.65. The social factor was 2.88, the psychological factor was 2.69, and the cultural factor was 2.13.

When analysed by linking Figure 3 and Table 5 above, consumers' willingness to consume alternative products due to environmental impact is lower than factors such as personal factors of health, which has the highest rate, but it can be seen that there is some significant influence. The p-value was 0.0001 as a result of examining the difference between the groups through the Friedman test for each of the four purchasing decision factors. This is less than 0.05, so it is rejected the null hypothesis and accepted the alternatives hypothesis.

H1: There is a significant difference between consumer buying decision factors that affect willingness to consume meat alternatives.

4.5 Hotel Choice

	Mean	Std Dev
MA Hotels	2.93	1.41
LM Hotels	3.36	1.21
<i>Z = -1.96, Asymp. Sig (2-tailed) = .050</i>		

Table 6 Choosing Meat alternatives hotels vs Livestock meat hotels.

The Wilcoxon test was used as a method to investigate the influence of using meat alternatives in hotels on customers' hotel choice. A mean of 2.93 participants said they would go to a hotel that offered meat substitutes instead of livestock meat, while 3.36 said they would go to a hotel that only offered livestock meat. As a result of the Wilcoxon test, the p-value was .050. In this case, a statistically significant test result ($P \leq 0.05$) means that the alternative hypothesis is true or should be accepted. Thus, H0 is rejected and H1 is accepted.

H1: There is a significant difference in customer's hotel choice between hotels that serve Livestock meat and Meat alternatives.

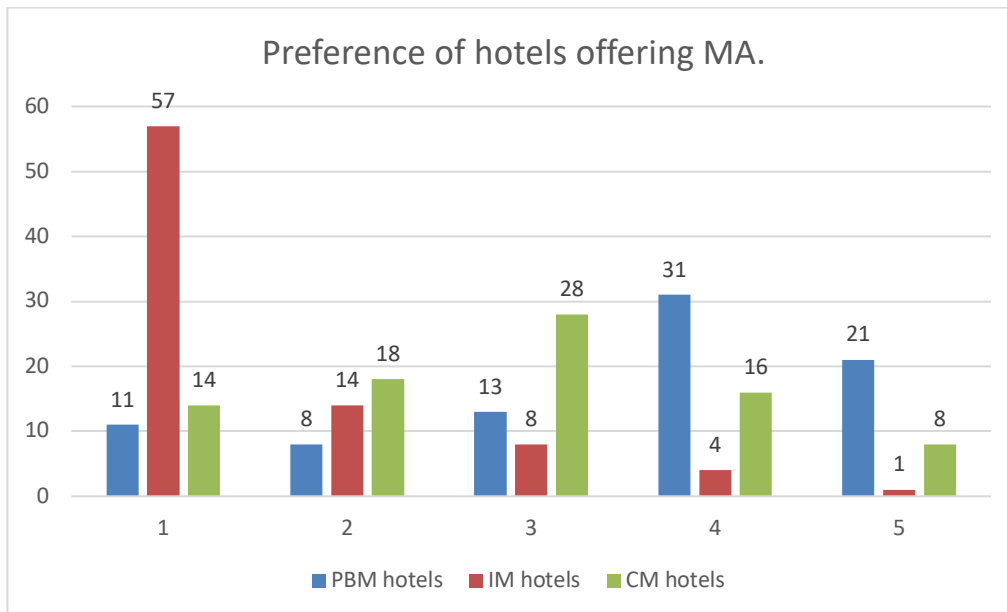


Figure 5 Preference of hotels offering regarding Plant-based Meat, Insect Meat, and Cultured Meat.

Figure 5 describes a preference for hotels serving plant-based meat, insect meat, and cultured meat. It was surveyed by Likert scale, scale of 1 to 5 (1=Strongly disagree, 2=Somewhat disagree, 3=Neutral, 4=Somewhat agree, 5=Strongly agree). According to this Figure 5, it shows that participants' dislike of insect meat is higher than that of other meat alternatives. 57 people strongly disagreed with the hotel's serving of insect meat at all, while compared to 11 for plant-based meat and 14 for cultured meat. Most participants responded positively to the plant-based meat offering. Regarding the provision of cultured meat, a high level of neutral response was found.

	Mean	Std Dev
PBM	3.51	1.32
IM	1.55	.94
CM	2.83	1.20

N=84, Chi-Square 85.78, df 2, Asymp. Sig. .000

Table 7 Mean and Standard Deviation of Plant-based Meat, Insect Meat, and Cultured Meat.

By using the Friedman test for plant-based meat, insect meat, and cultured meat, participants' willingness to visit the hotel was compared according to the type of alternative meat. Plant-based meat has a mean value of 3.51, indicating consumers' high preference for plant-based meat offerings in hotels. Cultured meat ranks next at 2.83, followed by insect meat at 1.55. As a result of the Friedman test, the p-value was 0.000, which was smaller than 0.05. Therefore, the participant's hotel visit according to the alternative meat type has a significant result. H0 is rejected and H1 is accepted.

H1: There is a significant difference in consumer's hotel choices between hotels that serve Plant-based meat, Insect Meat, and Cultured Meat.

5 Discussion

This section discusses the results of combining a literature review with survey data analysis. The purpose of this study is to identify consumers' perceptions of using alternative meat in hotels as part of sustainable meat consumption strategies. Based on the literature review, the factors influencing consumer's purchasing behavior and customer journey were investigated, and the current livestock industry's environmental impact and latest policy trends were researched. Moreover, it is intended to find out consumer's perceptions and preferences according to the types of meat alternatives by limiting the type of meat to three main categories such as plant-based meat, insect meat, and cultured meat. Since the food and beverage department of hotels is one of the great revenue resources of hotels rather than simply supporting services for the room division department (Han & Hyun, 2017), it is important to figure out how sustainable meat alternative strategies at hotels affect consumer's choice of hotels.

Consumer buying behavior is dependent on each person's experiences and perceptions, so understanding the overall consumer journey and examining their needs is necessary (Santos & Goncalves, 2021). In general, the purchase behavior journey in the process of consumer decision-making is influenced by cultural, social, personal, and psychological factors, and their value perception, belief, attitude, socioeconomic factor, internal and external factors, experience, and desire (Kotler & Armstrong, 2022). Therefore, understanding consumer behavior is an important role in the industrial activities of companies. To understand consumer's food purchasing behavior, companies need to investigate the overall consumer's food consumption process including various attributes such as personal subjective, emotional satisfaction, preference of taste, price value, and food reliability (Heuvel et. al., 2007).

Today's consumer lifestyles and diet choices are influenced by more complex factors including environmental, health, ethical, emotional, and personal (Polzin et al. et al., 2023). Many countries are promoting sustainable and safe food measures, and alternative meat is emerging as the sustainable food that will be responsible for the meat industry of the future (Boer & Aiking, 2022).

This paper examines three alternative meats: Plant-based meat, Insect meat, and Cultured meat. Table 7 presents the types of raw materials and products used to make each meat alternative including three main categories such as plant-based meat, insect meat, and cultured meat. It also includes their strengths and weaknesses, and suggestions for improvement to be accepted by consumers in the future.

Meat Alternatives	Plant-based Meat	Insect Meat	Cultured Meat
Material	Pulses, Grains, Oils, Other plants, Fungi (Bhattacharyya et.al.,2023).	Mealworms (Dupont et.al., 2020)	Meat grown in a laboratory by culturing animal cells (Siddiqui et. al., 2022).
Product Types	Burger, Sausages, Hot dogs, Patties (Ahmad et.al., 2022).	Burger patties, Pasta, Muesli bars, Chocolate (Dupont et.al., 2020)	Vitro meat, cultured meat, clean meat (Padilha et.al., 2022).
Pros	Contains high nutrients, Easy accessibility, and Acceptability (Bhattacharyya et.al.,2023),	Land-use efficiency, Nutritional benefits, High protein content (Vauterin et.al., 2021).	Sustainability, Animal welfare, various flavors (Siddiqui et. al., 2022).
Cons	The taste and texture are inferior to that of livestock meat, Overprocessing, high price (GFI, 2021).	Aversion to insects, Poor consumer acceptance of edible insects (Mancini & Antonioli, 2022).	Depends on the consumer's familiarity and acceptance, Negative public opinion such as genetic modification, Impact on the agricultural industry, Unnaturalness, initial high cost (Siddiqui et. al., 2022).
Improvement	Improving quality by creating meat-like flavors in appearance, taste, and texture (Ahmad et.al., 2022).	Consumers' negative prejudice against insects should be eliminated (Mancini & Antonioli, 2022).	Gaining Consumer Confidence in Food Safety (Bryant et.al., 2019).

Table 8 Plant-based Meat, Insect Meat, and Cultured Meat.

According to the data collected in the survey, it determines that most participants are aware of environmental protection and that some changes in their lifestyle are necessary for the sake of the environment. However, despite many environmental pollution education and policies, awareness of environmental pollution in the livestock industry has declined compared to other environmental pollution awareness.

It was a natural result that the preference for livestock meat was higher than the preference for meat alternatives. However, consumers' interest and preference for the type of alternative meat was highest in plant-based meat, followed by cultured meat, and insect meat was the least preferred alternative meat. This is expected to be due to consumers' aversion to insects (Dupont et.al., 2020), as shown in the literature review. Easy access to plant-based meat appears to have a high impact on plant-based meat preference. Also, given that over half of all participants surveyed as meat eaters, only about 30% of people consume meat more than 5 times per week, and only 19% did not want to reduce meat consumption. This indicates that there is a perception among many consumers that meat consumption should be reduced or trying to reduce it.

Consumers' awareness was investigated to be more interested in factors such as personal health than social environmental issues. In addition, it determines that the consumer's approach to alternative meat consumption is due to high curiosity about new foods and enjoying trying new foods. Therefore, the resistance to substitute meat due to the fear of new foods found in the previous study showed different results from the actual investigation.

It was also discovered that the type of meat served at the hotel influenced the choice of the hotel. Consumers have a high preference on livestock meat. Compared to the size of the alternative meat market and the scale of the livestock industry, it is an inevitable result that it is difficult to follow the high preference of livestock meat. Therefore, the survey is conducted on plant-based meat, insect meat, and cultured meat excluding livestock meat. There is a significant difference in consumer's hotel choices between hotels that serve plant-based meat, insect meat, and cultured meat. As a previous perception and preference questionnaire for meat alternatives, the

results of willingness to visit hotels that serve meat alternatives were released the same result. Therefore, the preference and perception of alternative meat were the same regardless of places such as hotels. In the results excluding livestock meat, plant-based meat showed the highest preference, followed by cultured meat and insect meat. Contrary to the content of the literature review, participants' interest in plant-based and cultured meat was higher than expected result. However, consumer's rejection of insect meat was examined to be too high for use by the Hotel's Food and Beverage Industry Department.

6 Conclusion

Meat alternatives are not just a food trend, but one of the important future foods, and it is the direction that the global food industry should go to supply the future meat market. These alternative meats currently have a variety of types, including not only plant-based meat, but also insect meat and cultured meat. Moreover, the technology of meat alternatives has not only made a lot of progress, but it continues to evolve. According to consumers buying behavior, consumers have a need and desire to purchase products from various factors, and they make purchase intentions and decisions influenced by various values. Focusing on cultural, social, personal and psychological factors, companies can identify consumer behavior and consumer values in the market and have a stronger competitive advantage in the market. Environmental damage caused by livestock industry can be effectively and efficiently reduced by supplying sustainable alternative meats such as plant-based meat, insect meat, and cultured meat.

As a result of a survey on consumers' perception of alternative meat use, it was found that there was a deep concern about environmental destruction and environmental destruction of the livestock industry, and that it also affects changes in consumers' future lifestyle. In the comparison between alternative meat and general livestock meat, it was investigated that the preference for livestock meat was high. Satisfaction and preference for substitute meat are low for various reasons, such as high prices, poor taste and texture, lack of acceptance, and aversion to new foods. According to the survey, plant-based meat was the most preferred, overtaking cultured meat and insect meat, followed by cultured meat and insect meat. It also showed that consumers try meat alternatives out of curiosity or consume them for health. The same result was found in the preference survey for meat provided by the hotel's food and beverage department, in the order of livestock meat, plant-based meat, cultured meat, and insect meat.

To sum up, although the preference for livestock meat is still high in hotel meat offerings, interest in alternative meat such as plant-based meat and awareness of health have increased. The use of meat alternatives is encouraged for environmental

protection and sustainability in the hotel industry. In areas such as marketing, if the organization actively advertise the environmental protection characteristics of alternative meat and consumers' desire for health, raising consumers' awareness of sustainability and enhancing perception of alternative meat consumption, the use of meat alternatives in hotels will have a positive impact.

6.1 Significance

The purpose of this thesis is to identify consumer's perception of meat alternatives and its impact on the consumer buying decision according to the usage of meat alternatives at hotels. This study provides the hospitality and food and beverage industries with an overall knowledge of meat substitutes and consumer acceptance and perception. In the literature review, it explores knowledge about consumers' purchasing behavior, current various environmental pollution problems, and how the use of substitute meat as a solution to these problems has an impact on environmental protection and sustainability. The data collected through the online survey examines consumer's lifestyle and diet choice, the environment awareness that whether how people recognize the environmental pollution, perceptions and preference of meat alternatives types, individual's interest of meat alternatives, and insight into customer hotel choice regarding the sustainable meat alternatives uses. As a result, the literature review and questionnaire survey were analyzed to identify consumers' perceived environment, awareness, preference, main reasons for consuming meat alternatives, and the optimal type of alternative meat that can be provided by hotels.

6.2 Limitations

In the process of literature review of the study, there are many studies on meat alternatives, but research on consumer awareness and preference for the use of meat alternatives are lacking. Moreover, even though there are being implemented many sustainable strategies and policies, there is a lack of research and cases on consumer

buying behavior for meat alternatives. In addition, since cultured meat is a product that has not yet been licensed in European countries, the awareness of cultured meat is much lower than that of plant-based meat. Therefore, it is difficult to measure that a survey on consumer choice for each alternative meat provided by hotels was conducted under the same conditions. Furthermore, the survey in this study was conducted for the purpose of collecting more population samples by setting the survey period to two weeks, but the target population of 100 was not reached and the survey was completed with 84 participants. Also, although the population sample should be conducted with participants with diverse eating habits, vegans did not participate in the survey, and meat eaters accounted for a high percentage than other eating habits such as vegetarians and vegans. In addition, although there are many different factors in hotel and restaurant menu choices, it is conducted a limited survey focusing on preferences for using meat alternatives.

6.3 Future Research Implications

In the future, there may be an environment where livestock meat cannot be sufficiently supplied due to various problems such as population growth and environmental pollution. However, as alternative meat becomes popular in the market, it is developing into a variety of food consumption trends. In addition, awareness of alternative meat is increasing because of various factors such as technological advancement, environmental issues, personal beliefs, health, animal welfare issues, and religious reasons. In line with the current situation where sustainable meat consumption through alternative meat is in the limelight, the hospitality industry should also introduce a variety of dishes and menus using alternative meat. However, although meat alternatives are becoming commonplace in the market, consumers awareness of meat alternatives varies greatly depending on the type of meat. Therefore, a thorough investigation of preferences and perception of meat alternatives and research to improve consumer's perceptions are necessary for future development in the hospitality industry. The fast-changing and trendy characteristics of the hospitality industry can more quickly identify consumers' actual

evaluation of the use of meat alternatives, and it is possible to create a more positive perception of meat alternatives with consumers through an active sustainable meat alternative strategy.

6.4 Recommendation

Environmental awareness showed lower awareness than factors such as personal health, but nevertheless, many participants agreed that personal lifestyle changes (reducing meat consumption) are necessary to protect the environment. There is high preference for livestock meat, and it is too high for the alternative meat market to follow, but the accessibility and preference of plant-based meat consumers are high, and their interest in cultured meat is high. Therefore, there is a lot of potential for future development. Insects have been used as food for a long time in many countries, but it is expected that it will still take a long time before they appear on the table of consumers as insect meat. As a result of the study, considering the high consumer preference for using plant-based meat in hotels, the use of alternative meat in hotels is expected to be positive. Therefore, in order to develop a sustainable strategy while satisfying consumers' interest in and desire for new foods, menus can be developed with a focus on plant-based meat in the hotel and food and beverage industries.

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Appendices

Appendix 1 - Survey

This survey is conducted as data collection for research by MODUL University Vienna undergraduate student. The purpose of this survey is to collect quantitative data on consumers' actual perceptions of meat alternatives and the impact of the use of meat alternatives in the hotel's food and beverage business. Please, read the consent below carefully before participating in this survey.

Informed Consent

If you choose to participate in this study, it is important to note that the participation and completion of the survey is completely voluntary, and you may choose to stop at any point. Your participation will provide valuable information for this research. Please note that this survey is completely anonymous and the data you provide will stay completely confidential. The survey, research, as well as data collection are being processed in accordance with the data protection regulations currently set in place in Austria. By answering 'Yes' below, you are consenting to participate in the study.

1. I agree to voluntarily participate in this study.
 - 1) Yes
 - 2) No

2. Demography

In this section, I would like to obtain a sample population of respondents and examine their basic food / lifestyle.

- 1) What is your age? (Population sample?)
 1. Under 18

2. 18-29
3. 30-45
4. 46-65
5. 66+

2) What is your gender?

1. Male
2. Female
3. Others
4. Prefer not to say

3) What is the highest degree or level of education you have completed?

1. High school diploma
2. Bachelor's degree
3. Master's degree
4. Doctorate
5. Other

4) What is your current employment status?

1. Student / Unemployment (if you are working while studying, please check other options)
2. Part-time job
3. Internship
4. Full-time job

5) How would you describe your current lifestyle/ diet choice?

1. Vegan
2. Vegetarian
3. Pescatarian
4. Meat eater
5. Flexitarian (reducing meat)
6. Others

3. Environment awareness

Please rate how strongly you agree or disagree with the following statements on a scale of 1 to 5 (1=Strongly disagree, 2=Somewhat disagree, 3=Neutral, 4=Somewhat agree, 5=Strongly agree).

- 1) I am concerned about greenhouse gas pollution and global warming.
 1. Strongly disagree
 2. Somewhat disagree
 3. Neutral
 4. Somewhat agree
 5. Strongly agree

- 2) I am concerned about the environmental destruction due to livestock industry.
 1. Strongly disagree
 2. Somewhat disagree
 3. Neutral
 4. Somewhat agree
 5. Strongly agree

- 3) As concerned about destruction due to livestock industry, do you agree that meat should be reduce?
 1. Strongly disagree
 2. Somewhat disagree
 3. Neutral
 4. Somewhat agree
 5. Strongly agree

- 4) Will you change your lifestyle for environment protection?
 1. Strongly disagree
 2. Somewhat disagree
 3. Neutral

4. Somewhat agree
5. Strongly agree

4. Perception and Preference: Meat alternatives

Currently, meat alternatives are gaining significant interest in the food and beverage industry as a sustainable strategy. Please choose the option that matches you or rate how strongly you agree or disagree with the following statements on a scale of 1 to 5 (1=Strongly disagree, 2=Somewhat disagree, 3=Neutral, 4=Somewhat agree, 5=Strongly agree). respondents' consumption of meat alternatives.

1) I prefer to consume livestock meat.

1. Strongly disagree
2. Somewhat disagree
3. Neutral
4. Somewhat agree
5. Strongly agree

2) I prefer to consume Meat alternative meat.

1. Strongly disagree
2. Somewhat disagree
3. Neutral
4. Somewhat agree
5. Strongly agree

3) I am interested in consuming Plant-based Meat.

Plant-based meat is meat alternatives that are made using pulses, grains, oils, other plants, and fungi.

1. Strongly disagree
2. Somewhat disagree

3. Neutral
4. Somewhat agree
5. Strongly agree

4) I am interested in consuming Insect Meat.

Insect meat refers to meat alternatives that are made from insects such as mealworms.

1. Strongly disagree
2. Somewhat disagree
3. Neutral
4. Somewhat agree
5. Strongly agree

1. I am interested in consuming Cultured Meat.

Cultured meat is meat grown in a laboratory by culturing animal cells.

1. Strongly disagree
2. Somewhat disagree
3. Neutral
4. Somewhat agree
5. Strongly agree

2. Number of times a week, how often do you eat meat diet?

1. Never
2. 1-2 times
3. 3-4 times
4. 5 times or more

6) I am very interested in reducing the amount of my meat consumption.

1. Strongly disagree
2. Somewhat disagree

3. Neutral
4. Somewhat agree
5. Strongly agree

7) If you are interested or planning to reduce the amount of meat, what are your main reasons for reducing meat in your diet?

1. Health
2. Environmental issue
3. Price
4. Animal welfare
5. Others
6. I do not want to reduce meat consumption

3. Have you eaten a meat alternatives product?

1. Yes
2. No

4. What kind of meat alternatives have you consume/ tried?

1. Plant-based meats
2. Insect meats
3. Cultured Meats
4. Others
5. None

5. How often do you consume meat alternative?

1. I consume them daily
2. Weekly
3. Monthly or less often
4. Didn't consume them over the past year
5. Never

6. Why did you decide to eat a plant alternative to livestock meat?
 1. I was curious / I like to try new foods
 2. I am trying to eat less meat
 3. I think it tastes good
 4. I believe meat alternatives are better for environment
 5. For my health
 6. Other reasons

7. Are you willing to consume meat alternatives in the future?
 1. Strongly disagree
 2. Somewhat disagree
 3. Neutral
 4. Somewhat agree
 5. Strongly agree

6. Will you consume Meat alternative if it is helpful in the environmental protection?
 1. Strongly disagree
 2. Somewhat disagree
 3. Neutral
 4. Somewhat agree
 5. Strongly agree

6. If you are agreed to the question above, what kind meat alternatives will you prefer?
 1. Plant-based meat
 2. Insect Meat
 3. Cultured meat
 4. Others

Customer buying decision

There are four factors that influence consumer buying decisions: cultural, social, personal, and psychological factors. In below questions, each of the four factors can be exemplified: Cultural (religious reasons), Social (environmental issues), Personal (health), and Psychological (animal welfare). Please rate how strongly you agree or disagree with the following statements on a scale of 1 to 5 (1=Strongly disagree, 2=Somewhat disagree, 3=Neutral, 4=Somewhat agree, 5=Strongly agree).

1) I would consume Meat alternatives because of cultural reasons.

1. Strongly disagree
2. Somewhat disagree
3. Neutral
4. Somewhat agree
5. Strongly agree

2) I would consume meat alternatives because of social reasons.

1. Strongly disagree
2. Somewhat disagree
3. Neutral
4. Somewhat agree
5. Strongly agree

3) I would consume meat alternatives because of personal reasons.

1. Strongly disagree
2. Somewhat disagree
3. Neutral
4. Somewhat agree
5. Strongly agree

4) I would consume meat alternatives because of psychological reasons.

1. Strongly disagree
2. Somewhat disagree
3. Neutral
4. Somewhat agree
5. Strongly agree

5) Hotel choice

Please rate how strongly you agree or disagree with the following statements on a scale of 1 to 5 (1=Strongly disagree, 2=Somewhat disagree, 3=Neutral, 4=Somewhat agree, 5=Strongly agree).

1) I will visit hotels that serve meat alternatives instead of livestock meat.

1. Strongly disagree
2. Somewhat disagree
3. Neutral
4. Somewhat agree
5. Strongly agree

2) I will visit hotels that do not serve meat alternatives.

1. Strongly disagree
2. Somewhat disagree
3. Neutral
4. Somewhat agree
5. Strongly agree

3) I prefer to visit hotels that serve Plant-based meat rather than other meat alternatives.

1. Strongly disagree
2. Somewhat disagree
3. Neutral

4. Somewhat agree
5. Strongly agree

4) I prefer to visit hotels that serve insect meat rather than other meat alternatives.

1. Strongly disagree
2. Somewhat disagree
3. Neutral
4. Somewhat agree
5. Strongly agree

5) I prefer to visit hotels that serve cultured meat rather than other meat alternatives.

1. Strongly disagree
2. Somewhat disagree
3. Neutral
4. Somewhat agree
5. Strongly agree