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To Farm or Not to Farm: Cuniculture Issues Towards Green Marketing Practices at Hilir Perak, Malaysia

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Abstract

Climate change and population increase have sparked the need to reorient Malaysia's food security strategy by adopting green practices in agriculture. The paper explored green marketing practices among the small-scale cuniculture farmers at Cenderong Balai-Labu Kubong, Hilir Perak, Malaysia. From the qualitative method, the findings indicated lack of green marketing awareness and practice among the rabbit farmers. The study's implications showed that green marketing practices using eco-friendly packaging products will benefit the stakeholders and the environment. A balance has to be reached for the farmers to be more innovative in using technologies in farming methods for increased productivity and environmental sustainability

Keywords: Cuniculture; green marketing; food security; sustainability

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1.0 Introduction

The agricultural sector has consistently been the dominant supplier of food products for the global market. In the turn of the times after the coronavirus pandemic and the demand for fresh, organic food, agriculture has become the primary food security component (Zhang et al., 2023). The challenges experienced by farmers in recouping losses from the two-year lockdowns from early 2020-2021 require immediate actions to ensure that food demand and supply are at equilibrium (Tao et al., 2023). The cuniculture or rabbit farming sector had to multiply their stock to meet the demands for high-protein white meat (Alabi et al., 2019).

1.1 Background of Project

Agriculture for food security refers to producing an adequate and sustainable food supply to meet the nutritional needs of a population. When applied to agriculture, green marketing can significantly promote sustainable farming practices and ensure food security (Varughese, 2023).

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Agriculture for food security, sustainability, and socio-economic growth has become Malaysia's priority agenda. In the endemic phase, food issues and household-controlled items have been at the forefront of discussions to ameliorate the problem (Varughese, 2023). The current situation with chicken and egg shortages aggravated the food insecurity issue. As an alternative to chicken, rabbit meat is suggested. However, the cuniculture industry also suffered setbacks during and after the pandemic lockdowns (Tao et al., 2023). It is timely for the cuniculture industry in Malaysia to make a resurgent through a significant contribution to the food supply chain via digital technologies and green marketing practices (Rosnan & Yusof, 2023; Tan et al., 2023).

1.2 Problem Statement

The marketing of rabbit meat in Malaysia faces a dilemma due to its relatively low popularity and consumer awareness compared to other meat options, such as chicken or beef. The need for recognition poses a challenge in promoting rabbit meat as a viable and desirable choice in the Malaysian market. Consequently, the dilemma of farming or not farming rabbits for meat requires a comprehensive evaluation of market demand, dietary trends, economic viability, and environmental impact (Syam et al., 2023). Striking a balance between these factors is essential to make informed decisions regarding rabbit farming for meat production. Additionally, ongoing research, farming practice advancements, and stakeholder engagement can contribute to finding sustainable solutions (Langforth et al., 2023). Unlike the chicken shortages, the rabbit farmers in Sg. Manik, Perak, Malaysia, has surplus meat and live unsold animals. With supply and operation costs increasing, rabbit farmers must adopt paradigm shifts and embrace green marketing practices, such as green promotion, which is closely connected to society. Aside from that, the packaging of broiler meat using eco-friendly products such as bioplastic will reduce plastic pollution. Thus the study explored green marketing awareness practices among rural farmers in the cuniculture sector.

2.0 Literature Review

2.1 Cuniculture (Rabbit Farming) and Rabbit Research

In the cuniculture or rabbit farming sector, any research projects, whether in the laboratory or social science imbued, will have a profound impact on both parties (González-Mariscal, 2012). Hence, this study revolves around the social science niches of business management, entrepreneurship, and marketing strategies. Mutual support will result in finding common interests; effective interaction can be promoted (González-Mariscal, 2012). This paper extends a prior investigation on the marketing issues rabbit farmers face in the same district of Cenderong Balai, Hilir Perak, Malaysia (Aminuddin et al., 2023). Thus far, the entrepreneurship endeavors for rabbit farmers in this area have been limited. Like other farmers, the increased feed cost has slowed their expansion intention. Gidenne et al. (2019) show that feed represents 60% of production costs.

Consequently, rural rabbit farmers feel the pinch of acquiring processed feed for their rabbits. Carrying on from the pandemic lockdowns, these breeders leaned more toward subsistence farming. However, in the endemic phase, the farmers face socioeconomic issues that require them to embark on entrepreneurship. With that goal, marketing the rabbit meat and carcass has been complex.

2.2 Green Marketing Concept in Agriculture

Climate change, global warming, and population increase have sparked the need to reorient Malaysia's food security strategy by adopting green marketing practices in agriculture production. Nevertheless, what is green marketing? According to Polonsky (1994), green marketing generally incorporates product modification, changes to the production process, packaging changes, and advertising. However, as a starting point, the early definition of green marketing has three critical components; 1) it is a subset of the overall marketing activity; 2) it examines both the positive and negative activities; and 3) a narrow range of environmental issues are examined (Polonsky, 1994). That said, for this study, the awareness of green marketing concepts and practices among rabbit farmers in middle Perak, Malaysia, was the objective for investigation. Gelderman et al. (2021) stated that many companies have green marketing strategies to promote and sell green environmental products as sustainability has become a business imperative. The packaging requirements of agriculture products on public health and environmental preservation are more critical now in the aftermath of the COVID-19 pandemic, further aggravated by climate change and global warming. As Qiu et al. (2021) noted, agricultural product packaging is associated with visual and aesthetic design and can significantly secure advantages in marketing and consumer behavior. Produce sold will visually remain the same; however, will consumers care about the environmentally sustainable attributes in the food supply chain? (Yang & Le, 2023). Practicing green farming (and marketing) is crucial to the supply chain values through reinforcing marketing efforts, awareness, and specific training programs for the different stakeholders (Xara-Brasil et al., 2023) as "green marketing subsumes greening products as well as greening firms" (Prakash, 2002).

2.3 Sustainable Farming and Food Security

The governance of subsidy-assisted farming in Malaysia should include sustainable performance measurements. Sustainability performance is essential to stakeholders, and organizations and agencies have invested resources to boost competitive advantage and entrepreneurship success (Islam & Shamsuddoha, 2023). However, behavioral factors in sustainable farming affect green practices (Dessart et al., 2019). Changing the mindset of farmers, that is, behavioral factors considerations enrich economic analyses of farmer decision-making that will eventually lead to more sensible and practical agri-environment policies (Dessart et al., 2019).

In the cuniculture sector, certain rural economies have shown success in rabbit farming compared to other ruminants (Bucur, 2020). The alternative of raising and valorizing the rabbit's economic potential as one of the activities generating growth and socio-economic development has been realized (Bucur, 2020). Nonetheless, the rabbit meat industry in other parts of the world has shown better economic gains than in Malaysia. However, with significant numbers of rabbit farmers, the industry needs extra support from the relevant agencies to thrive. In other words, rabbit meat requires a hat trick (Petracci et al., 2018).

From the food security futures perspective, the cuniculture industry is one of the sectors that would contribute to alternative menu offerings for picky eaters while providing nutrition and sustenance to the body. Rosegrant (2002) advocated that the global issues of food insecurity should explore policies and investments by identifying underlying or emerging trends in food, such as cereals and meat production and demand to assist with child malnutrition. Rabbit farming was proposed as an alternative food security strategy over a decade ago (Van Heerden & Mentani, 2010). The cuniculture sector will reduce unemployment, poverty, and chronic illness resulting from a lack of access to affordable food. The relevant stakeholders should consider various interventions, including alternative food farming strategies. During the coronavirus lockdowns, many individuals have embarked on gardening; this is one intervention where the promotion of household and communal gardens will provide for vegetables, poultry, and other meat consumption. Home-grown and home-reared agricultural activities are survival strategies that enable communities to access affordable, nutritious food enriched with vitamins and proteins (Van Heerden & Mentani, 2010). These are also advocated green living strategies. Also, the contributions of non-traditional meat (such as rabbit meat) to global food security and the agricultural economy is about sustainable farming (Suman & McMillin, 2014).

2.4 Use of Technology in Farming

In the Information Era, the world of work relies on the Internet. Information and Communication Technology (ICT) has become part and parcel of life. Even in agriculture, the technology used to assist farming has been improved and incorporated in leaps and bounds. For example, the Internet of Things (IoT) and the growing demand for quality and quantity of food requires technological intervention for a higher and faster success rate (Farooq et al., 2020). Automation in agricultural greenhouse technology's advancement includes IoT (Zhao et al., 2010). Aside from IoT, big data and artificial intelligence (AI) have brought new opportunities to monitor agriculture production and food processes (Misra et al., 2020). Drone technology, sensors, and big data from social media have become essential in the food industry, where the role of technology such as intelligent farming, supply chain modernization, social media in the food industry, food quality assessment, and food safety have impacted food security (Misra et al., 2020). Thus, it is high time that the cuniculture industry in Malaysia joins the IoT and AI bandwagon for increased rabbit meat production.

Going green in farming is essential in the green marketing concept. However, under what conditions will small-scale farmers, like the rabbit breeders in Cenderong Balai, embrace technology? As evidenced in the case of Thailand, the shift to a more sustainable farming method for small-scale farmers has been challenging (Moore & Donaldson, 2023). In the technology era, intelligent farming advocates for benefits such as eco-friendly and sustainable agriculture practices (Joo & Hwang, 2023).

3.0 Methodology

3.1 Research Design

Qualitative research methodologies can be applied to study various aspects of rabbit research, including the farmers' farming behavior, welfare, breeding techniques, nutrition, and human-animal interactions (Crovato et al., 2022; Gidenne et al., 2019; Lebas et al., 1997). The qualitative design was employed with data gathered through repeated interviews, observations, and a short online survey. The chosen procedure is justified as the research project's objectives were to explore the awareness and green marketing practices among rabbit farmers or the cuniculture industry in Cenderong Balai, Hilir Perak, Malaysia. Although a similar research design was undertaken, this study updated the primary data via another, the latest interviews via phone calls, and provided supporting statistics through an online survey (Google form). The qualitative design is deemed appropriate as this is a marketing research project (Alam, 2005; Carson et al., 2001; Kwapong et al., 2020). The sample size or number of respondents for the repeated interview consisted of two active rabbit farmers using the same guided protocol. At the same time, the online survey received 20 responses from rabbit farmers. Snowball sampling was the technique for getting responses through identifications in Facebook and Whatsapp groups. These methods allowed for consistency or data validity and reliability, as advocated by Morse (2006), Kalpokaite and Radivojevic (2019); Kyakuwa (2019), and, Aspers and Corte (2019).

3.2 Data Analyses

Content and thematic analyses of the interview transcripts were executed using NVivo (Release 1.7.1). As stated by Kolbe and Burnet (1991) (in Harrison and Reilly (2011)), content analysis is an observational technique that allows for a systematic evaluation of recorded communications. The content analysis extracted unique attributes (Roller, 2019), which allowed for creating the online survey and, ultimately, reporting the findings per the research objective. This study undertook repeated visits to verify interview inputs and observations with supporting empirical evidence from an online survey. In doing so, four stages in category or theme development were followed as described by (Roller, 2019) which were:

- i) Data organization by code or groups of codes.
- ii) Collecting and reviewing the notes from the coding form and deriving categories from the coding and content.

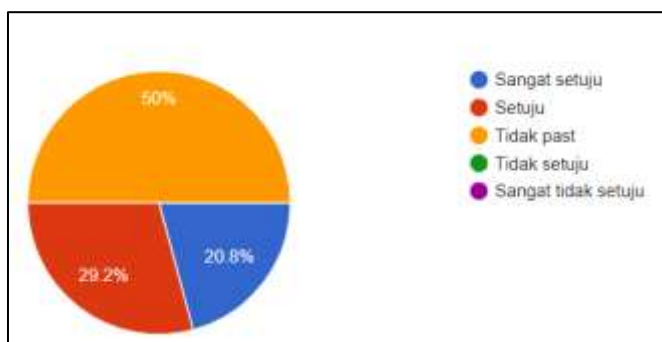
- iii) Reorganizing the data into meaningful clusters that represent central concepts that address the research objective
- iv) Finalizing the data clusters by explicitly defining and labeling the categories

The only survey used Google Forms to collect primary data. The form was organized into two sections, namely the green marketing awareness and practices, and the second section gleaned demographic data from the respondents. Nominal and ordinal data categories were the rabbit farmers' feedback with two long essay comments.

4.0 Findings

Two rabbit farmers consented to repeated phone interviews to validate the focus group data collected in an earlier session. For the online survey, eight responses were received and descriptively analyzed.

4.1 For the first research objective on green marketing practices, Figure 1 showed that 50% of the breeders were unsure if they do practice green marketing, followed by 29.2% who are agreeable to practicing it and 20.8% who strongly agree to the green marketing concept for the rabbit meat products.



*Note: Translation of keys-Strongly agree (Sangat setuju); Agree (Setuju); Not sure (Tidak pasti)

Fig. 1: Pie chart on rabbit farmers' green marketing practices

4.2 The demographic variables for the eight respondents who are rabbit farmers in the state of Perak, Malaysia, are shown in Table 1. The descriptive statistics were drawn from the online survey.

Table 1. Respondents' Demographic Breakdown

| Survey statements/items | Frequency | Percentage (%) |
|---|-----------|----------------|
| Gender: | | |
| Male | 6 | 75 |
| Female | 2 | 25 |
| Age group: | | |
| 26-35 years | 1 | 12.5 |
| 36-45 years | 2 | 25 |
| More than 46 years | 5 | 62.5 |
| Farming status: | | |
| Fulltime | 4 | 50 |
| Part-time | 4 | 50 |
| Reason for rabbit farming: | | |
| Side income | 5 | 62.5 |
| Income generation | 3 | 37.5 |
| Rabbit variety farmed: | | |
| New Zealand White | 8 | 100 |
| Rabbit farming experience: | | |
| 1 month-1 year | 1 | 12.5 |
| 1-3 years | 3 | 37.5 |
| 3-5 years | 3 | 37.5 |
| More than five years | 1 | 12.5 |
| Rabbit meat sales per month: | | |
| MYR 50-500 | 4 | 50 |
| MYR 501-1,000 | 3 | 37.5 |
| MYR 1,001-3,000 | 1 | 12.5 |
| The number of rabbits bred: | | |
| Less than 50 rabbits | 3 | 37.5 |
| 51-100 rabbits | 3 | 37.5 |
| 101-500 rabbits | 2 | 25.0 |
| Green marketing differentiates rabbit meat produced: | | |
| Strongly agree | 1 | 12.5 |
| Agree | 3 | 37.5 |

| | | |
|--|---|------|
| Not sure | 4 | 50 |
| Eco-labels used in rabbit product marketing: | | |
| Strongly agree | 2 | 25 |
| Agree | 1 | 12.5 |
| Not sure | 5 | 62.5 |
| Rabbit product advertising uses eco-friendly methods: | | |
| Agree | 5 | 62.5 |
| Not sure | 3 | 37.5 |

*Note: As of May 30, 2023, the exchange rate for Malaysian Ringgit (MYR) is equivalent to USD\$0.22 (Source: xe.com)

The gender breakdown among the eight respondents to the online questionnaire consisted of six male and two female rabbit farmers from Perak, Malaysia. The age group showed that five rabbit farmers are above 46 years old, followed by two in the age bracket of 36-35 years, while only one farmer is between the 26-35 years range. The following demographic variable is the farming status, where equal portions of the respondents are involved in full-time and part-time rabbit breeding. The reasons for farming rabbits evidenced 62.5% as a side income and 37.5% are full-time rabbit farmers focusing on one variety of rabbits, the New Zealand White (100%). The length of time that these farmers have been breeding rabbits showed that 37.5% have equal parts of one to three years and three to five years of experience, followed by 12.5% who have less than a year or more than five years of farming rabbits. The rabbit meat sales per month showed that 50% have less than MYR500, followed by 37.5% with less than MYR1,000 rabbit meat sold. Only one farmer had high sales of more than MYR1,000 per month. As for the number of rabbits bred per farmer, 37.5% have fewer than 50 or between 51-100 rabbits reared in their respective barns. Farmers agreeing to green marketing practices had 37.5%, while those who were unsure had 50%. Using eco-labels in rabbit packaging was evidenced by 37.5% of those agreeing and 25% strongly agreeing to this practice, with 50% of farmers uncertain of this activity. Lastly, 62.5% agreed to rabbit product advertising using eco-friendly methods, with 37.5% unsure of this practice. The following section will discuss the findings and implications of the study.

5.0 Discussion and Implications of Findings

5.1 The implications for the study were multi-pronged, where suggestions to alleviate the situation would be through green marketing practices as advocated in the reviewed literature. By creating innovative, organic products from environmentally-conscious farming methods, sustainable food production from recycled materials and products will reduce waste from the cuniculture sector while creating green campaign awareness that spills into green marketing and promotional awareness for alternative food sources, such as substituting chicken meat for rabbit meat. However, the findings showed that the farmers still need to gain awareness of green marketing practices, as evidenced by those still determining this strategy. The issue requires agency intervention as these rural farmers are into rabbit production as a side income and a full-time endeavor. The impediments of green marketing in farming are not an isolated case. In Pakistan, motivational factors such as legislation, competitiveness, and ethical reasoning have impeded the country's green marketing implementation (Siddique et al., 2013). Political intervention and stability in capacity building are crucial in socioeconomic growth and the stakeholders' interest in the rural community's welfare and well-being. With the state and federal government's agenda of uplifting the socio-economy of rural communities, more should be done to assist them. Furthermore, the rabbit meat producers' plight should receive more assistance as the sector has great potential to flourish and reinforce the country's food security programs.

5.2 Climate change, global warming, and population increase have sparked the need to reorient Malaysia's food security strategy by adopting green marketing practices in agriculture production. Going green is the way forward. Consequently, the Perak state has mulled over banning plastic bags and polystyrene packing (Bernama, 2023; Editor, 2023) and reconsidering enforcing the use of biodegradable plastic bags or bioplastics towards responsible household waste disposal for environmental preservation (Hashim et al., 2022). To reiterate, the paper explored green marketing awareness practices among the small-scale cuniculture farmers at Cenderong Balai-Sg. Manik, Hilir Perak, Malaysia. From the qualitative method in rabbit research, the analysis indicated that the rabbit farmers needed to be aware of and practice green marketing strategies. The study's implications showed that eco-friendly packaging products, for instance, will benefit the environment. A balance has to be reached for the farmers to be more innovative in selling their products and contribute to the food security agenda for environmental sustainability. Overall, green marketing in agriculture can help raise awareness, drive demand, and encourage adoption of sustainable farming practices. The adoption of green technologies by leveraging Artificial Intelligence (AI) and the Internet of Things (IoT), rabbit farmers can benefit from enhanced monitoring, automation, and data-driven decision-making, hence, improving efficiency, increasing productivity, animal welfare, and ultimately increasing the supply of rabbit meat to meet market demands.

6.0 Conclusion and Recommendations

To conclude, Malaysia's cuniculture industry should flourish and become a significant food security contributor and the changing local foodscapes. Appropriate implementation of relevant regulations of broiler meat sales and marketing, continued research and development, and adequate support from the relevant government agencies are necessary to ensure the continuity of this industry. In addition, the Perak Rabbit Cooperative (Koperasi Arnab Pedaging Negeri Perak) must be more aggressive in ensuring that the rabbit meat produced is being marketed nationwide.

This study has several limitations; firstly, the project scope is only in one state, the state of Perak, Malaysia, and within one locality, Cenderong Balai, Hilir Perak, Malaysia, where there are fewer than 20 rabbit farmers; hence, there are few interviewees. The recommendation for further studies in extending the contributions to the literature on similar areas is suggested to expand the research scope to include the other 13 states in Malaysia. There is also a need to undertake a quantitative study for empirical evidence or a mixed-method approach.

Doubtlessly, food production through sustainable farming has to be encouraged for the cuniculture farmers in rural areas to counter the marketing matters and simultaneously realize the alternative food source. In doing so, the cuniculture farmers and breeders contribute to the country's economy by increasing the food supply while reducing meat imports, thus providing systematic and balanced approaches to ensure that the population's food needs are met. Moreover, by adopting green marketing practices, the broiler meat industry will significantly impact the environment by creating eco-friendly products and packaging. Political will is essential for rabbit farmers to compete with other mainstream meat products while advocating environmental democracy. Thus, it is proposed that policy options to increase the adoption of green marketing practices in agriculture be enforced.

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Paper Contribution to Related Field of Study

The paper contributes to the field of management and marketing strategies in agriculture.

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