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Original Article

Green Promotion Practices and Competitive Advantage of Milk Processing Firms in Central Region Economic Bloc, Kenya

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Green Promotion Practices, Competitive Advantage, Milk Processing Firms, Central Region Economic Bloc (CEREB), Kenya.

ABSTRACT

In today's dynamic business environment, competitive advantage is increasingly recognised as a multi-dimensional construct encompassing cost efficiency, differentiation, innovation and market responsiveness. The objective of this study was to establish the effect of green promotion practices on competitive advantage of milk processing firms in the Central Region Economic Bloc, Kenya. The study was anchored on the Resource-Based Theory. The study adopted a cross-sectional survey design. The study location was the 10 counties that form the Central Region Economic Bloc. The target population was the milk processing firms licensed by the Kenya Dairy Board and which have operations within the Central Region Economic Bloc. Data from the Kenya Dairy Board as at August 2025 indicated that there were 55 milk processing firms operating within the bloc. A census of the target population was conducted. Data collection was done using a structured questionnaire through drop and pick-up later method. The respondents were persons in charge or heading the marketing function within the milk processing firms due to their knowledge and expertise in the variables under study. Data analysis was done using linear regression analysis. The response rate of the study was 83.6%. Results indicated that green promotion practices had a positive and significant effect on competitive advantage of the milk processing firms ($B = 0.639$, $t = 6.793$, $p = 0.000$). This led to the rejection of the null hypotheses of the study, which stated that green promotion practices have no statistically significant effect on competitive advantage of milk processing firms in Central Region Economic Bloc of Kenya. The study concluded that green promotion practices have a positive and statistically significant effect on competitive advantage of milk processing firms in Central Region Economic Bloc. Based on these findings, the study recommends that milk processing firms should prioritise strategic investment in credible green promotion initiatives and integrate environmental communication into their overall marketing strategies. It further recommends that policymakers, including the Kenya Dairy Board, the National Environment Management Authority and the Kenya Bureau of Standards, should strengthen policy frameworks, eco-labelling standards and consumer awareness programmes to support effective green promotion, while industry associations should facilitate capacity building and the dissemination of best practices in sustainability communication. Future research should employ qualitative or mixed-methods approaches and replicate the study in different industries and geographical contexts.

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INTRODUCTION

Background of the Study

Competitive advantage has become an increasingly important determinant of organisational success, especially in highly competitive business environments. Business firms that are able to differentiate their products, build strong brand reputations, respond effectively to changing customer preferences and continuously innovate are highly likely to achieve and sustain long-term competitive advantage. However, globalisation, technological advancement, changing customer preferences and increased market competition have made it increasingly difficult for firms to achieve and sustain competitive advantage. As a consequence, business firms across the world are continuously looking for strategic approaches that can enhance their competitive advantage while creating superior value for customers (Ulrich & Barth, 2022).

Globally, sustaining competitive advantage has become increasingly challenging as firms operate in an environment characterised by intensified competition, rapid technological changes, evolving consumer preferences and growing sustainability concerns. According to Ahmadi-Gh and Bello-Pintado (2022), firms have traditionally relied on cost leadership, product diversification and market development to maintain their competitive positions. However, increasing pressure from governments, consumers and investors regarding environmental issues such as climate change, natural resource depletion and pollution has altered the basis of marketplace competition. The World Economic Forum (2024) noted that environmental risks continue to rank among the most severe global business threats to competitive advantage of business firms, which require integration of sustainability considerations into their strategic and operational activities. The global dairy industry has not been exempt from these global sustainability pressures. The International Dairy Federation (2024) stated that dairy processors are increasingly investing in sustainable production systems, eco-friendly product packaging, waste reduction initiatives and sustainability communication programmes in response to growing consumer and regulatory compliance expectations. These sustainability initiatives are increasingly viewed as sources of competitive advantage because they enhance product differentiation, strengthen brand reputation and stimulate the firms' market responsiveness and innovation capabilities within the dairy value chain.

In Africa, sustaining competitive advantage has become increasingly challenging as firms face intensified competition arising from globalisation, regional economic integration, technological advancements, and changing consumer

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preferences. According to the African Development Bank (2024), many firms across the continent continue to experience low productivity, limited innovation capability, weak technological adoption, and inadequate value addition, which undermine their ability to compete effectively in both domestic and international markets. These challenges have contributed to limited product differentiation, making it difficult for firms to create unique value propositions and sustain competitive advantage in increasingly competitive industries (United Nations Economic Commission for Africa, 2023). Brand reputation and market responsiveness have also emerged as significant competitive challenges for African firms. Ogbari et al. (2023) argued that African firms often face difficulties responding rapidly to evolving market trends, technological changes, and regulatory requirements because of resource constraints and weak organisational capabilities. Consequently, Chinomona and Bikissa-Macongue (2021) suggested that firms that fail to innovate, differentiate their products, strengthen their brands, and respond effectively to changing stakeholder expectations risk losing market share and weakening their competitive position, thereby increasing the importance of sustainability-oriented strategies as a source of competitive advantage in African markets.

In Kenya, sustaining competitive advantage has become increasingly difficult as firms operate in an environment characterised by intense market rivalry, changing consumer preferences, technological disruption, rising operating costs, and increasing sustainability requirements. According to the Competition Authority of Kenya (2024), one of the major competitive advantage challenges affecting business firms in Kenya is limited product differentiation. As markets become increasingly saturated, business firms are finding it difficult to create unique products and services that are differentiated from those of competitors. This challenge is particularly evident in the manufacturing and agribusiness sectors (Kenya Dairy Board, 2024), where many firms offer similar products, forcing them to compete largely on price rather than value-based competition. In the Agro-processing industries, the Ministry of Agriculture and Livestock Development (2024) and Kenya Industrial Research and Development Institute (2023) reported that innovation capability remains constrained by limited investment in research and development, low technological adoption and inadequate value addition. Brand reputation has also emerged as a critical determinant of competitiveness in Kenya, and as a result, firms are under increasing pressure to build strong reputational assets while simultaneously complying with evolving environmental regulations and sustainability expectations (Kenya Association of Manufacturers, 2024).

Competitive Advantage

Competitive advantage is defined by Deszczynski (2021) as "a firm's ability to achieve superior performance by leveraging unique resources and capabilities that competitors cannot easily replicate". Mikalef et al. (2020) view competitive advantage as a dynamic construct which requires firms to continuously reconfigure resources and adapt to environmental changes in order to sustain superior performance. Therefore, competitive advantage is not only about outperforming competitors but also about sustaining superior value creation through firm-specific resources and capabilities. Competitive advantage is widely recognised in contemporary literature as a multi-dimensional construct and this implies it cannot be captured by a single dimension or indicator but rather by a combination of interrelated dimensions such as cost efficiency, product differentiation, innovation and market positioning (Severo et al. 2020; Njoroge & Kinyua, 2023).

This study focused on four indicators of competitive advantage that are particularly relevant to milk processing firms. The first one is product differentiation, which involves creating unique products through quality, packaging, certifications, or innovation. Product differentiation strategies have been shown to positively influence firm performance in Kenya's dairy sector, as they allow firms to stand out in crowded markets and justify premium pricing

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(Ochola & Wambua, 2024). The second one is brand reputation, which reflects the trust, credibility and positive perception a firm enjoys in the market. According to Juma et al. (2025), a strong reputation, especially for engaging in sustainable business practices, is an intangible resource that is valuable, rare, and difficult to imitate, thereby providing firms with a defensible market position. The third one is market responsiveness, which is defined by Han and Park (2021) as the ability of a firm to sense, interpret and rapidly adapt to changes in customer preferences, competitor strategies, and environmental conditions, thereby sustaining competitive advantage. Market responsiveness is increasingly recognised as a source of competitive advantage in dynamic environments because it enables firms to exploit opportunities and neutralise threats more effectively (Mbichi & Maina, 2024). The fourth one is innovation capability, which refers to the firm's ability to introduce new products and processes faster than competitors. Innovation is a critical driver of competitiveness in the dairy industry, as it allows firms to meet emerging consumer needs, improve efficiency, and sustain long-term advantage (Kenya Dairy Industry Transformation Strategy, 2022–2032). Recent studies have highlighted that competitive advantage must also be assessed through perceptual measures such as managerial and customer evaluations of relative efficiency, innovation, and brand reputation since these intangible factors strongly influence market positioning (Kimiti et al., 2020; Njoroge & Kinyua, 2023). This evaluative approach acknowledges that competitive advantage is not only about economic outcomes but also about how stakeholders perceive a firm's differentiation and market responsiveness.

Green Promotion Practices.

Green promotion practices refer to the organisational communications that are intended to inform all stakeholders, especially customers, about the organization's commitment, efforts and achievements towards environmental preservation (Belz & Pealtie, 2020). From a strategic perspective, a business firm may choose to communicate the environmental benefits of its products on the products' packages (Georgakoudis et al., 2024). This may include details of where the customer can take the used product package for recycling. From a tactical perspective, business firms can use activities intended to reduce the negative impact of their marketing communication efforts. For instance, the firms may choose to use recycled paper when making product catalogues and brochures. They may also opt for electronic marketing communications such as e-mails and text messages that do not need the use of paper. The company's product adverts on traditional media and social media should also emphasise the environmental benefits or attributes of the company's products to enhance the level of awareness among customers on the eco-benefits of the company's products (Hartmann et al., 2021).

Green promotion practices of a manufacturing firm can be measured in terms of eco-centric advertising, the use of eco-labels, corporate social responsibility (CSR) initiatives, and consumer education. Eco-centric advertising emphasises environmental values in marketing messages, and studies show that such advertising enhances consumer attitudes toward sustainable brands and increases purchase intentions (Rahman & Noor, 2022). The use of eco-labels provides credible information about a product's environmental attributes (Testa et al., 2021), with research confirming that eco-labels significantly influence consumer trust and willingness to pay for sustainable products. Similarly, Martinez and del Bosque (2020) suggested that CSR initiatives reflect a firm's broader commitment to sustainability beyond product features, and evidence suggests that CSR communication positively impacts brand reputation and consumer loyalty. Consumer education initiatives, such as awareness campaigns or sustainability workshops, empower customers to make informed choices, with recent work highlighting that education strengthens pro-environmental behaviors and supports long-term sustainable

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consumption (Nguyen et al, 2023). These indicators provide a comprehensive framework for assessing green promotion practices, capturing how firms communicate, certify and educate customers on sustainability issues while reinforcing their environmental commitments

Milk Processing Firms in Central Region Economic Bloc

The Dairy Industry in Kenya contributes approximately 14% of the agricultural gross domestic product, which makes it a significant national economic sector (Kenya Dairy Board, 2024). The Central Region Economic Bloc (CEREB) consists of 10 counties, which are Nyeri, Kiambu, Murang'a, Nyandarua, Tharaka Nithi, Embu, Meru, Kirinyaga, Laikipia and Nakuru. There are 55 milk processing firms in CEREB according to data from the Kenya Dairy Board (2024), which is the government body authorised to license milk processing firms in Kenya. These firms process raw milk into packed milk and other milk-related products such as butter, ghee, cheese and yoghurt. The global concern on greenhouse gas emissions has necessitated the national and county governments in Kenya to integrate aspects of sustainability into the Dairy Industry and this has led to the formulation of the Dairy Industry Sustainability Roadmap (2023-2033). One of the pillars of this roadmap is the focus on reducing the environmental footprint of the dairy industry through sustainable milk processing. According to the Kenya Dairy Board (2024), CEREB is Kenya's principal dairy producing region and it accounts for over 70% of the country's milk production.

Milk processing firms in Kenya's CEREB operate in a competitive environment shaped by shifting consumer preferences, regulatory demands, and sustainability pressures. Many firms offer similar products with limited value-added features, making it difficult to stand out in the marketplace (Mwabu & Munyoki, 2021). At the same time, efforts to build strong reputational capital are often undermined by weak communication of sustainability practices, leaving firms exposed in markets where transparency and accountability are increasingly demanded (Juma et al., 2025). The milk processing firms also face challenges in adapting quickly to changes in consumer needs and policy requirements, as resource constraints and organisational limitations restrict the ability of firms to respond effectively (Kimiti et al, 2020; Njoroge & Kinyua, 2023). In addition, technological and financial barriers hinder the adoption of new processes and product innovations, exposing local processors to competition from multinational firms that leverage advanced sustainability-driven practices (Muturi & Mbugua, 2022; Njoroge & Kinyua, 2023). These realities illustrate the competitive landscape in which milk processing firms in CEREB operate, highlighting the importance of examining how strategic approaches such as green marketing can help firms strengthen their market position and long-term competitive advantage

Statement of the Problem

Milk processing firms in the Central Region Economic Bloc (CEREB), Kenya, operate in an increasingly competitive environment. The dairy sector contributes approximately 4.5% of Kenya's Gross Domestic Product (GDP), about 14% of agricultural GDP, and supports more than 1.8 million smallholder dairy farmers (Kenya National Bureau of Statistics [KNBS], 2025). Despite this economic significance, milk processing firms continue to face increasing competitive pressures arising from market liberalisation and changing consumer preferences for environmentally responsible products and business practices (Kenya Dairy Processors Association, 2024). The Kenya National Dairy Master Plan (2023–2033) indicates that more than 70% of processed milk in Kenya is marketed as fresh liquid milk, resulting in limited differentiation among competing brands. In such a competitive market, firms increasingly need to distinguish themselves by effectively communicating their environmental initiatives, sustainability commitments, and responsible production practices. However, many milk processors continue to rely primarily on price-

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based competition rather than strategically promoting their environmental initiatives to create differentiation and strengthen their competitive position (Njogu & Murigi, 2023).

The Kenya Dairy Processors Association (2024) reports that many firms experience challenges in effectively communicating product quality, environmental responsibility, and sustainability initiatives despite growing consumer awareness of environmental sustainability. Consequently, consumers may fail to recognise the environmental value offered by these firms, thereby limiting brand reputation, customer preference, and product differentiation. As consumers increasingly consider environmental responsibility in their purchasing decisions, ineffective communication of green initiatives reduces firms' ability to position themselves competitively and respond effectively to changing market expectations. Increasing environmental regulations and stakeholder expectations regarding sustainability have intensified the need for firms to communicate their environmental commitments effectively. The National Environment Management Authority (2024) emphasises the growing importance of environmental compliance within Kenya's manufacturing sector. However, compliance alone may not generate competitive advantage unless firms actively communicate their environmental achievements through appropriate promotional strategies such as environmental advertising, eco-labelling, sustainability campaigns, digital green communication and corporate environmental reporting.

Failure to effectively promote environmental initiatives limits firms' ability to enhance brand reputation, strengthen product differentiation, improve market responsiveness and position themselves as environmentally responsible organisations in increasingly sustainability-conscious markets. Although green promotion practices are increasingly recognised as an important strategic marketing capability, limited empirical attention has been devoted to examining their effect on competitive advantage within Kenya's dairy processing industry (Kilima et al., 2024; Kariuki, 2023). Consequently, managers and policymakers have limited empirical evidence to guide the design and implementation of effective green promotional strategies capable of strengthening competitive advantage. This knowledge gap underscores the need to establish the effect of green promotion practices on the competitive advantage of milk processing firms in the Central Region Economic Bloc, Kenya.

Objective of the Study

The objective of this study was to establish the effect of green promotion practices on competitive advantage of milk processing firms in the Central Region Economic Bloc, Kenya.

Research Hypothesis

H_{01}: Green promotion practices have no statistically significant effect on competitive advantage of milk processing firms in Central Region Economic Bloc, Kenya.

LITERATURE REVIEW

Theoretical Framework

This study was anchored on the Resource-Based Theory (RBT), which explained the link between green promotion practices and competitive advantage. The RBT provides the basis for explaining how firms utilise valuable, rare, inimitable, and organizationally embedded (VRIO) resources and capabilities to achieve superior performance and sustain competitive advantage in dynamic markets.

The Resource-Based Theory

The Resource-Based Theory (RBT) was first proposed by Wernerfelt (1984) and provides a foundational lens for understanding how firms achieve and sustain competitive advantage through the strategic deployment of internal resources and capabilities. The theory was later advanced by Barney (1991), who formalised the conditions under which resources can generate sustained competitive advantage. RBT focuses on the internal heterogeneity of firms, arguing that

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differences in firm resources and capabilities explain why some organisations consistently outperform others, even within the same industry. The theory is anchored in two fundamental assumptions. The first assumption is resource heterogeneity, which posits that firms possess different bundles of resources and capabilities that create variations in performance. The second assumption is resource immobility, which suggests that valuable resources cannot be easily transferred, acquired, or imitated by competitors, enabling firms possessing such resources to sustain competitive advantage over time (Barney, 1991).

Based on these assumptions, RBT argues that competitive advantage arises when firms possess resources that are valuable, rare, inimitable, and non-substitutable. Barney (1997) operationalised these characteristics through the VRIO framework, which evaluates organisational resources based on four criteria: value, rarity, inimitability, and organisation. Valuable resources enable firms to exploit opportunities or neutralise threats; rare resources provide uniqueness in the marketplace; inimitable resources are difficult for competitors to replicate; and organisational alignment ensures that firms are structured to effectively exploit these resources. Resources that satisfy all four criteria become sources of sustained competitive advantage.

The relevance of RBT to this study lies in its ability to explain how green promotion practices can serve as strategic organisational resources capable of generating competitive advantage. When effectively implemented, green promotion practices become valuable resources because they enable firms to respond to increasing consumer demand for environmentally responsible products while strengthening stakeholder relationships. They may also become rare and difficult to imitate because they are embedded in a firm's reputation, environmental commitment, communication capabilities and organisational culture. Within milk processing firms operating in Kenya's Central Region Economic Bloc, green promotion practices can contribute to product differentiation by communicating unique environmental attributes such as recyclable packaging, sustainable sourcing practices, waste reduction initiatives, and environmentally friendly production processes. Through such communication, firms can distinguish their products from competing brands and create unique value propositions that are difficult for competitors to replicate (Masocha, 2021). Therefore, green promotion serves as a valuable and rare marketing capability that enhances product differentiation.

Green promotion practices also contribute to brand reputation, which is a critical intangible resource under the RBT. By consistently communicating environmental responsibility and sustainability commitments, firms can strengthen customer trust, credibility, and corporate image. According to Sun et al. (2021), a strong reputation for environmental stewardship becomes an intangible asset that is valuable, difficult to imitate, and capable of generating long-term customer loyalty and competitive advantage. Additionally, green promotion enhances market responsiveness by enabling firms to identify and respond to emerging consumer preferences for sustainable and environmentally friendly products. Finally, green promotion practices support innovation capability by providing a platform through which firms communicate environmentally friendly product innovations, sustainable technologies and green process improvements. The ability to develop and effectively communicate green innovations enhances customer awareness and increases the perceived value of such innovations. Over time, this capability becomes embedded within organisational routines and marketing processes, making it difficult for competitors to imitate and thereby contributing to sustained competitive advantage (McGahan, 2021). Therefore, the RBT provides a suitable theoretical foundation for this study by explaining how green promotion practices can function as strategic resources and capabilities that enable milk processing firms to achieve competitive advantage through enhanced

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product differentiation, stronger brand reputation, improved market responsiveness, and greater innovation capability. The theory supports the proposition that firms possessing superior green promotion capabilities are more likely to achieve sustainable competitive advantage than firms that fail to effectively communicate their environmental initiatives.

Empirical Review

Green Promotion Practices and Competitive Advantage.

Green promotion activities are related to communicating the commitment of business firms towards achievement of sustainability objectives, green product attributes and the environmental initiatives undertaken by the firms. Studies have been done by researchers on the influence of green promotion practices on various dimensions of firm performance. Rajadurai et al. (2021) investigated the influence of green marketing orientation practices, including green promotion, on the performance of green small and medium enterprises in Malaysia. The study employed a cross-sectional survey design and Structural Equation Modelling to analyse the data. The findings revealed that green promotion positively and significantly influenced firm performance. However, the study focused on firm performance rather than competitive advantage. While firm performance reflects organisational outcomes such as profitability and customer satisfaction, competitive advantage emphasises a firm's ability to achieve superior market positioning through product differentiation, brand reputation, market responsiveness, and innovation capability. Furthermore, the study was conducted among SMEs in Malaysia, which differs significantly from milk processing firms operating in Kenya. Therefore, a conceptual and contextual gap existed which the current study sought to address. A study by Adela et al. (2022) examined the effect of green promotion on business performance of medium and large-scale manufacturing firms in Ethiopia. Data analysis was done using SEM, and findings indicated that green promotion practices had a positive and significant effect on business performance.

In the SME sector of South Africa, Maziriri (2020) analysed the influence of green advertising on competitive advantage and business performance of the SMEs. Data analysis was done using SEM, and the results of the study indicated that green advertising had a positive and significant effect on competitive advantage and business performance. Another study by Setyawati et al. (2020) was done to investigate green marketing strategy and firm performance of Indonesian small and medium enterprises. Data were analysed using PLS-SEM and results indicated that green promotion practices had a positive and significant effect on firm performance. Another study by Braik et al. (2024) examined the effect of green marketing practices on organisational sustainable performance of Palestinian food industries. Data analysis was conducted using PLS-SEM, and the results indicated that green promotion had a positive and significant effect on the firm's economic performance but had no influence on the environmental and social performance. The review of these studies revealed conceptual, contextual and geographical gaps since most of the studies focused on firm performance, which is conceptually different from competitive advantage. Some of the reviewed studies were done in countries such as Ethiopia (Adela et al., 2022), Malaysia (Rajaduraj et al, 2021) and South Africa (Maziriri, 2020). These countries have different economic structures to those of Kenya, and there was a need for a similar study to be done in Kenya. The milk processing industry has also been largely ignored by previous researchers, and this was a contextual gap that this study sought to address.

In Kenya, a study by Mahugu et al. (2026) examined green marketing practices and sustainable development of tourist lodges in Nakuru County. The study findings indicated that green marketing practices were significant predictors of sustainable development of tourist lodges. However, the study only examined green

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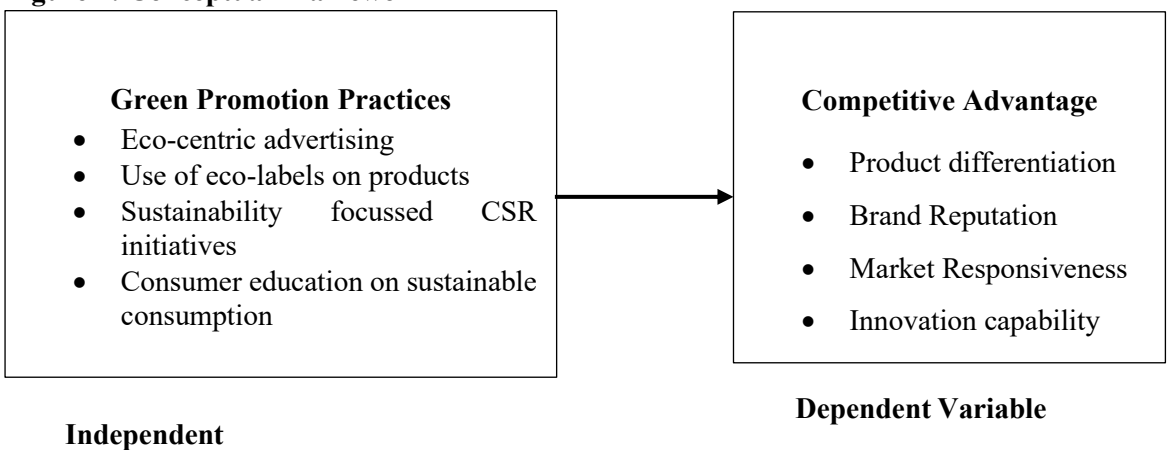
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product, green place and green pricing practices as the dimensions of green marketing, and the dependent variable was sustainable development. Hence, there was a need for the current study to examine the effect of green promotion practices on competitive advantage of milk processing firms in CEREB. Another study by Jeremiah and Bonke (2023) analysed the effect of green marketing practices on environmental performance using a case study of Kisumu Water and Sewerage Company in Kenya. Findings of their study indicated that green marketing practices had a positive and significant effect on environmental performance of the company. However, the study was based on a case study whose findings cannot be generalised to the larger population. Similarly, the study conceptualised green marketing practices based on green products, green pricing and green distribution practices. This shows that the effect of green promotion practices was not studied, including the fact that the study's dependent variable was environmental performance. This presented conceptual, contextual and geographical gaps that the current study sought to address by focusing on green promotion practices and competitive advantage in the milk processing industry.

Conceptual Framework

A conceptual framework is a visual or written representation that specifies the key constructs of a study and the hypothesised relationships among them, thereby guiding the research process and hypothesis development (Saunders et al., 2023). It illustrates how the variables interact to influence the outcomes of interest. The conceptual framework for the study is illustrated by Figure 1.

Figure 1: Conceptual Framework



The conceptual framework depicts green promotion practices as the independent variable influencing the competitive advantage of milk processing firms in CEREB. The conceptual framework suggests that green promotion practices have a positive effect on the competitive advantage of milk processing firms. Grounded in the Resource-Based Theory, the conceptual framework assumes that green promotion capabilities constitute strategic organisational resources that can enhance firm competitiveness when effectively deployed. Green promotion practices enable firms to communicate their environmental commitment, sustainability initiatives and eco-friendly product attributes to consumers and other stakeholders, thereby creating value that competitors may find difficult to replicate. In this study, green promotion practices constituted the independent variable and were measured using four indicators: eco-centric advertising, use of eco-labels on milk products, sustainability-focused corporate social responsibility initiatives, and consumer education programmes aimed at promoting sustainable consumption behaviours. These practices were expected to enhance stakeholder awareness of firms' environmental initiatives and strengthen positive perceptions toward the firm and its

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products. Competitive advantage is the dependent variable and was measured using four dimensions: product differentiation, brand reputation, market responsiveness, and innovation capability. The study's conceptual framework posited that effective green promotion practices enhance product differentiation by communicating unique environmental attributes of products, strengthen brand reputation through improved stakeholder trust and corporate image, improve market responsiveness by facilitating engagement with environmentally conscious consumers, and support innovation capability by creating awareness and acceptance of environmentally friendly products and processes.

METHODOLOGY

This study adopted a cross-sectional survey design because it sought to determine the effect of green promotion practices on the competitive advantage of milk processing firms in the Central Region Economic Bloc (CEREB), Kenya. A cross-sectional survey design was considered appropriate because it enables researchers to collect data from a study population at a single point in time, making it suitable for examining hypothesised relationships among variables in a non-experimental setting. The design is also appropriate for quantitative studies that employ regression analysis to estimate the effect of an independent variable on a dependent variable using data collected from respondents simultaneously (Creswell & Creswell, 2023; Hunziker & Blankenagel, 2021). Accordingly, the design provided an appropriate basis for testing the study hypothesis using simple linear regression analysis. The target population consisted of all the milk processing firms licensed by the Kenya Dairy Board to operate in CEREB, and there were 55 firms in total as at August 2025. Since 55 firms is a relatively small number, a census study was conducted. Data collection was done using a structured questionnaire and a drop-and-pick-up-later method with the help of research assistants. The census approach enhances data completeness, reduces sampling error, and ensures that unique characteristics of each firm are captured, which is critical in strategic and performance-related studies (Muriithi & Kinyua, 2023).

The study targeted one key informant from each of the 55 milk processing firms, specifically the managers or officers responsible for or in charge of the marketing function within the firms. Such officers included Marketing Directors, Marketing Managers, Sales and Marketing Managers or equivalent positions responsible for the development and implementation of marketing strategies. Therefore, 55 persons in charge of marketing activities in the milk processing firms were the unit of observation of this study. They were targeted as the key informants because of their strategic oversight and operational involvement in marketing activities. They also had the relevant knowledge and experience of how green promotion practices are implemented, including knowledge of competitive advantage indicators such as product differentiation, brand reputation, market responsiveness and innovation capability. Therefore, the persons in charge of marketing activities of the milk processing firms were the study's unit of observation while the milk processing firms were the unit of analysis. Green promotion practices were measured using the scale items adopted from Leonidou et al. (2013) and Kwarto et al. (2022), while competitive advantage was measured using scale items adopted from Ofori (2025) and Nguyen and Nguyen (2025). All the items were measured using a 5-point Likert scale with 1 = Not at all, 2 = To a small extent, 3 = To a moderate extent, 4 = To a large extent and 5 = To a very large extent. Data analysis was done using simple linear regression analysis, and therefore the data collected was subjected to the tests of the assumptions of regression analysis. Linearity was checked using the values of significant deviation from linearity and normality was checked using Shapiro-Wilk and Kolmogorov-Smirnov tests. Reliability of the research instrument was established using the Cronbach's alpha reliability coefficient with a cut-off point of 0.7.

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FINDINGS AND DISCUSSION

Response Rate

The response rate for this study was 83.6% since 46 out of the targeted 55 firms participated in the study. This is an excellent response rate because Holtom et al. (2022) argued that the average survey response rates usually range between 44% and 68%. This implies that the response rate achieved in this study was adequate to support the reliability and representativeness of the findings. The high response rate of 83.6% can be attributed to the researcher's use of the drop-and-pick-up later method of questionnaire administration. This approach allowed the researcher to establish direct contact with the respondents during the distribution of questionnaires, and this enhanced trust and clarification of the purpose of the study as well as encouragement of respondents to participate.

Descriptive Statistics for Green Promotion Practices

Descriptive statistics of green promotion practices are indicators of the extent to which milk processing firms in CEREB have adopted green promotion practices. The analysis focuses on how firms communicate their sustainability initiatives to consumers, including the advertising of products' eco-friendly attributes. Table 1 presents a summary of the descriptive statistics.

Table 1: Descriptive statistics for Green Promotion Practices

Item	N	Mean	Std. Deviation
Uses marketing campaigns highlighting environmental benefits	46	4.22	0.70
Displays eco-labels/certifications	46	4.15	0.72
Implements CSR initiatives on environmental sustainability	46	4.28	0.67
Educates consumers on sustainable consumption	46	3.98	0.78
Grand Mean		**4.16**	**0.72**

Source: *Research data (2026)*

The descriptive statistics from Table 1 indicate that green promotion practices are utilised to a great extent, as indicated by a grand mean of 4.16. The highest-rated activity is the implementation of CSR initiatives (Mean = 4.28), suggesting that firms use corporate responsibility as a key tool for promoting sustainability. Marketing campaigns (Mean = 4.22) and eco-labelling (Mean = 4.15) also play significant roles in communicating environmental value to customers. However, educating consumers (Mean = 3.98) is comparatively less emphasised, indicating a gap in deeper engagement with customers on sustainability issues. The relatively low standard deviation reflects consistency across firms. These findings strongly align with regression results (R^2 = 0.512), confirming that green promotion is a significant predictor of competitive advantage, as it directly shapes consumer perception of the firms and their green initiatives, which in turn affects their purchasing behaviour.

Descriptive Statistics for Competitive Advantage

Descriptive statistics for competitive advantage are based on 4 key indicators, which are product differentiation, brand reputation, market responsiveness and innovation capability. The descriptive statistics will highlight the overall patterns of strength of the firms across the four indicators. In so doing, they will provide insights into the areas where the firms perceive themselves to be most competitive. Table 2 presents a summary of the descriptive statistics.

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Table 2: Descriptive Statistics for Competitive Advantage

Item	N	Mean	Std. Deviation
Produces differentiated milk/dairy products	46	4.12	0.72
Enjoys strong reputation for high-quality products	46	4.25	0.68
Adjusts marketing strategies to market changes	46	4.05	0.74
Develops new/improved products for emerging needs	46	4.20	0.70
Grand Mean		**4.16**	**0.71**

Source: *Research data (2026)*

The descriptive statistics on competitive advantage from Table 2 indicate that firms in the study are strategically positioned to outperform rivals, with a grand mean of 4.16 reflecting strong overall agreement. The highest score of 4.25 (SD = 0.68) for reputation highlights that managers view consistent delivery of high-quality products as their most powerful source of advantage. Product innovation also scored highly (4.20, SD = 0.70), indicating that managers actively develop new or improved products to meet evolving consumer needs. Differentiation of products (4.12, SD = 0.72) suggests that firms are successfully distinguishing themselves in the market, though this is slightly less emphasised compared to quality and innovation. The lowest score (4.05, SD = 0.74) for adjusting marketing strategies shows that while firms are responsive to market changes, agility in marketing remains a relatively weaker dimension of competitive advantage. Overall, these findings imply that managers rely heavily on product quality and innovation to sustain competitiveness, while continuous improvement in marketing adaptability could further strengthen their market position.

Validity and Reliability of the Research Instrument

Cronbach's alpha was used to assess the reliability of the study's research instrument. It is a measure of the internal consistency of the research instrument. A Cronbach's alpha co-efficient of 0.7 and above is generally considered to be acceptable (Raykov et al., 2024). The results of the reliability test indicated that green promotion practices with 4 scale items had a Cronbach's alpha coefficient of 0.843, while that of competitive advantage, also with 4 scale items, was 0.821 and these were considered very reliable since they exceeded the 0.7 threshold. Table 3 presents a summary of the results of the Exploratory Factor Analysis (EFA) that was performed to assess construct validity of the scale items.

Table 3: Summary of Construct Validity Assessment Using Exploratory Factor Analysis

Construct	Number of Items	KMO test	Bartlett's Test (p-value)	Factor Loadings	Variance Explained	Decision
Green Promotion Practices	4	.651	.005	0.578 to 0.778	60.225%	Valid
Competitive Advantage	4	.625	.000	0.599 to 0.794	57.025%	Valid

Source: *Research Data (2026)*

Results from Table 3 indicate that KMO values for green promotion practices (KMO = 0.651) and competitive advantage (KMO = 0.625) exceeded the recommended threshold of 0.50 that was proposed by Kaiser (1974), indicating adequate sampling adequacy, while Bartlett's Test of Sphericity was statistically significant ($p < .05$), confirming that the correlation matrices were appropriate for factor analysis. All the scale items loaded above 0.50 on their respective factors, and this also exceeded the minimum threshold of 0.4 recommended by Hair et al. (2022). This implied

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that each scale item contributed meaningfully to the underlying construct. The extracted factors explained more than 50% of the total variance in both green promotion practices and competitive advantage. This indicates that the measurement items adequately captured the underlying construct of green promotion practices and competitive advantage, which was a demonstration of satisfactory construct validity. As a result, all items were retained for further analysis.

Diagnostic Test Results

Diagnostic tests were performed to determine whether the data satisfied the assumptions of linear regression. Normality of the data was assessed using the Kolmogorov–Smirnov and Shapiro–Wilk tests. The results showed P values greater than 0.05, which indicated that the data did not significantly deviate from a normal distribution. This satisfied the normality assumption. Linearity was examined using the Analysis of Variance (ANOVA) test for deviation from linearity. The test showed that the deviation from linearity was not statistically significant since the p-values were greater than 0.05, indicating that the relationship between green promotion practices and competitive advantage was adequately linear. Homoscedasticity was assessed using the Breusch–Pagan test and the results revealed no statistically significant evidence of heteroscedasticity ($p > 0.05$), confirming that the residuals exhibited constant variance. Collectively, these findings demonstrate that the assumptions of normality, linearity and homoscedasticity were satisfied, indicating that the data were suitable for regression analysis. Therefore, the estimated regression coefficients and statistical inferences were reliable.

Test of the Effect of Green Promotion Practices on Competitive Advantage of Milk Processing Firms in CEREB

The objective of this study was to assess the effect of green promotion practices on competitive advantage of milk processing firms in CEREB, Kenya. The hypothesis tested was H_{01}: Green promotion practices have no statistically significant effect on competitive advantage of milk processing firms in CEREB, Kenya. Simple linear regression analysis was done to test this hypothesis. Table 4 presents the results of the summarised regression model.

Table 4: Summarised Regression Model for Green Promotion Practices and Competitive Advantage.

Model Summary				
Model	**R**	**R Square**	**Adjusted R Square**	**Std. Error of the Estimate**
1	.715[a]	.512	.501	.55607
a. Predictors: (Constant), GREEN PROMOTION PRACTICES				

Source: *Research data (2026)*

The model summary results from Table 4 indicate that green promotion practices have a strong positive relationship with competitive advantage ($R = 0.715$). The coefficient of determination ($R^2 = 0.512$) indicates that 51.2% of the variation in competitive advantage is explained by green promotion practices. The remaining 48.8% is explained by other factors not included in the study, such as financial resources, operational efficiency, market competition and government regulations. Table 5 presents the results of the ANOVA.

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Table 5: ANOVA of Green Promotion Practices and Competitive Advantage.

ANOVA[a]						
Model		**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
1	Regression	14.269	1	14.269	46.146	.000[b]
	Residual	13.605	44	.309		
	Total	27.875	45			

a. Dependent Variable: Competitive Advantage

b. Predictors: (Constant), GREEN PROMOTION PRACTICES

Source: *Research data (2026)*

The ANOVA results from Table 5 indicate that the regression model examining the regression model examining the effect of green promotion practices on competitive advantage is statistically significant (F = 46.146, p = 0.000). This implies that green promotion practices have a strong and meaningful effect on competitive advantage. The regression model provides a significantly better fit than a model without predictors. Table 6 presents the results of the regression coefficients.

Table 6: Regression Coefficients for Green Promotion Practices and Competitive Advantage.

Coefficients[a]						
Model		**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
		B	Std. Error	Beta		
1	(Constant)	1.265	.341		3.711	.001
	GREEN PROMOTION PRACTICES	.639	.094	.715	6.793	.000

a. Dependent Variable: Competitive Advantage

Source: *Research data (2026)*

The regression coefficients from Table 6 indicate that green promotion practices have a positive and statistically significant effect on competitive advantage of milk processing firms in CEREB (B = 0.639, t = 6.793, p = 0.000). This finding led to the rejection of the null hypothesis $H_{01,}$ which stated that green promotion practices have no statistically significant effect on competitive advantage of milk processing firms in CEREB. The unstandardized coefficient (B = 0.639) indicates that a one-unit increase in green promotion practices leads to a 0.639 increase in competitive advantage, holding other factors constant. Therefore, the regression equation is given as; Competitive Advantage = 1.265 + 0.639(Green Promotion practices)

DISCUSSION OF STUDY FINDINGS

The objective of this study was to establish the effect of green promotion practices on competitive advantage of milk processing firms in CEREB. The results of the simple regression analysis indicate that green promotion practices have a positive and statistically significant effect on competitive advantage. This finding suggests that firms that effectively communicate their environmental initiatives through advertising, eco-labelling and sustainability-linked CSR initiatives are more likely to achieve competitive advantage. This may be attributed to the high visibility and persuasive power of promotional activities in influencing consumer perceptions. Another possible reason is that green promotion practices help to increase the level of consumer awareness and understanding of a firm's environmental initiatives. This builds trust, credibility and emotional attachment to the brand. Green promotion practices can enhance product differentiation by communicating distinctive environmental attributes of a firm's products and services. Eco-centric advertising highlights environmental benefits, while eco-labels provide visible and credible signals of sustainability, helping customers distinguish the firm's offerings from competitors. Sustainability-focused CSR

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initiatives can further differentiate the firm by demonstrating commitment to environmental and social responsibility, while consumer education on sustainable consumption helps customers recognise and appreciate the environmental value embedded in the firm's offerings. Collectively, these practices can also strengthen brand reputation by creating perceptions of environmental responsibility, credibility and commitment among customers and other stakeholders. Green promotion practices can additionally strengthen market responsiveness by enabling firms to communicate with customers, understand changing environmental expectations and respond to growing demand for sustainable products. Eco-centric advertising and consumer education provide opportunities to engage consumers, while CSR activities and eco-labelling demonstrate responsiveness to wider stakeholder and environmental concerns. These practices may also enhance innovation capability by encouraging firms to improve their products, processes and sustainability solutions in response to emerging environmental expectations. Thus, eco-centric advertising, eco-labelling, sustainability-focused CSR and consumer education can collectively contribute to competitive advantage through product differentiation, stronger brand reputation, greater market responsiveness and enhanced innovation capability.

This finding by this study is consistent with the finding of a study by Anderson et al. (2022), who did a study on green economic change in Africa and focused on green and circular innovation trends, conditions and dynamics in Kenyan companies. The study found that green communication practices enhanced organisational competitiveness. Similarly, Maziriri (2020) did a study on green packaging and green advertising as precursors of competitive advantage and business performance among manufacturing SMES in South Africa. The findings showed that green advertising positively and significantly improved competitive advantage through improved brand image and customer perceptions. Similar study findings have also been reported by Rahman et al (2021), who did a study on the consequences of green practices on consumer willingness to pay in Asia's hospitality industry. The study found that communication of green initiatives positively influenced consumer willingness to pay and enhances firm competitiveness. In general, green promotion practices were found to be the most influential driver of competitive advantage due to their visibility and direct influence on consumer perception and brand position. The study findings are supported by prior studies in Kenya, South Africa and Asia. From a theoretical perspective, the findings indicate that competitive advantage is achieved not simply by implementing environmentally sustainable practices but by effectively communicating these practices to stakeholders of the business firms. This reinforces the Resource-Based Theory's emphasis on strategic capabilities by highlighting the importance of sustainability communication as a source of competitive advantage for firms.

CONCLUSION AND RECOMMENDATIONS

Conclusion

Based on the findings, the study concludes that green promotion practices have a positive and statistically significant influence on the competitive advantage of milk processing firms operating within the Central Region Economic Bloc (CEREB) in Kenya. The findings imply that milk processing firms that effectively communicate their environmental commitment through eco-centric advertising, credible eco-labels, sustainability-oriented CSR programmes and consumer education initiatives aimed at sustainable consumption behaviour by consumers are better positioned to distinguish their products from competitors, build stronger brand reputations, respond more effectively to changing consumer preferences and enhance innovation capability. These outcomes collectively improve the firm's overall competitive advantage. The results therefore support the argument of the RBT, which posits that unique organisational capabilities can serve as valuable, rare, inimitable and well-organised resources that generate

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sustained competitive advantage. Green promotion practices represent such a strategic marketing capability because they enable firms to create intangible assets such as customer trust, corporate legitimacy and environmental reputation that competitors cannot easily replicate.

Contributions of the Study

Contribution to Literature

The study contributes to the existing body of literature on green marketing and competitive advantage by providing empirical evidence on the influence of green promotion practices within the Kenyan dairy processing industry, a context that has received limited scholarly attention. By focusing exclusively on green promotion practices, this study provides an in-depth understanding of how eco-centric advertising, eco-labelling, sustainability-oriented corporate social responsibility initiatives and consumer environmental education contribute to competitive advantage. The findings therefore enrich the empirical literature by providing context-specific evidence from an emerging economy and demonstrate that green promotion practices constitute an important strategic capability for enhancing firm competitiveness in environmentally conscious markets.

Contribution to Theory

The study contributes to the Resource-Based Theory by providing empirical evidence that green promotion practices constitute a valuable strategic marketing capability capable of enhancing firms' competitive advantage. While the Resource-Based Theory posits that organisations achieve sustained competitive advantage through resources and capabilities that are valuable, rare, inimitable and well-organised, the findings demonstrate that green promotion practices satisfy these characteristics by enabling firms to build intangible assets such as customer trust, environmental reputation, corporate legitimacy and stronger brand image. These intangible resources are difficult for competitors to imitate and therefore strengthen a firm's competitive position. The study further extends the application of RBT by demonstrating that environmental communication can serve as strategic organisational resources that generate competitive advantage within the dairy processing industry in an emerging economy. In doing so, the study broadens the empirical application of the theory beyond its traditional emphasis on tangible and operational resources.

Contribution to Policy

The study contributes to policy by providing empirical evidence that can inform the formulation, implementation and evaluation of policies aimed at promoting environmental sustainability and enhancing the competitiveness of Kenya's dairy processing industry. The study findings provide a basis upon which government agencies, regulatory authorities and industry associations can develop policy frameworks that encourage responsible environmental communication, promote the adoption of credible green marketing practices and strengthen consumer confidence in environmental claims. In addition, the findings contribute to the growing body of evidence supporting the integration of sustainability communication into industrial development and competitiveness policies. Therefore, the study offers useful empirical insights for institutions such as the Ministry of Agriculture and Livestock Development, the Kenya Dairy Board, the National Environment Management Authority (NEMA), the Kenya Bureau of Standards (KEBS) and other stakeholders involved in developing policies that foster green communication initiatives, responsible marketing and long-term competitiveness within Kenya's dairy sector.

Contribution to Management Practice

The study contributes to management practice by providing empirical evidence that enhances managers' understanding of green promotion practices as strategic marketing capabilities that contribute to organisational competitiveness. The findings demonstrate that green promotion practices extend beyond their traditional

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promotional role by creating strategic value through improved customer trust, enhanced corporate reputation, stronger brand differentiation and increased innovation capability. Therefore, the study provides managers with evidence that investments in environmentally responsible marketing communication can generate competitive benefits while simultaneously supporting sustainability objectives. The study further contributes to managerial knowledge by highlighting the importance of integrating green promotion practices into the firm's broader strategic and marketing decisions rather than treating them as isolated corporate social responsibility initiatives.

Recommendations for Policy Makers

Kenya Dairy Board (KDB)

The Kenya Dairy Board should develop and implement industry-specific guidelines on green marketing and sustainability communication to encourage milk processing firms to adopt credible green promotion practices. The Board should establish standardised frameworks for communicating environmental initiatives, including guidelines on eco-labelling, sustainability claims, and environmental advertising, to ensure consistency and prevent misleading environmental claims. In addition, KDB should incorporate green promotion indicators into its quality assurance and dairy industry sustainability programmes and organise regular awareness campaigns and capacity-building initiatives to encourage processors to effectively communicate their environmental initiatives to consumers.

National Environment Management Authority (NEMA)

The National Environment Management Authority should strengthen regulatory frameworks governing environmental claims made by firms and establish clear standards for environmental labelling and sustainability communication. NEMA should also collaborate with dairy processors to develop certification programmes that recognise firms implementing credible environmental promotion initiatives. Furthermore, NEMA should expand public environmental awareness campaigns to educate consumers on the significance of eco-labels and environmentally responsible products, thereby increasing consumer confidence in green marketing claims and encouraging firms to invest in authentic green promotion practices.

Kenya Bureau of Standards (KEBS)

The Kenya Bureau of Standards should develop and enforce standardised national standards for environmental labels, sustainable packaging claims, and other green product certifications within the dairy industry. Clear certification criteria would improve the credibility of green promotional messages, reduce consumer confusion and protect consumers from false or misleading environmental claims. KEBS should also work closely with industry stakeholders to promote wider adoption of recognised environmental certification marks that can enhance the competitiveness of Kenyan dairy products in both domestic and export markets.

Competition Authority of Kenya (CAK)

The Competition Authority of Kenya should develop regulatory guidelines governing environmental marketing claims to promote fair competition and prevent deceptive green advertising practices. Firms making environmental claims should be required to substantiate such claims using verifiable evidence and recognised certification standards. This would protect consumers, discourage greenwashing and create a level competitive environment where firms that genuinely invest in sustainability communication are appropriately recognised and rewarded by the market.

Recommendation for Marketing Managers

Marketing managers of milk processing firms should strategically integrate green promotion into their overall marketing and branding strategies rather than treating it solely as a corporate social responsibility activity. Firms should invest in credible eco-centric advertising

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that clearly communicates the environmental benefits of their products and production processes, while ensuring that such claims are evidence-based and transparent. Marketing managers should expand the use of recognised eco-labels and environmental certifications on dairy products to enhance consumer trust and facilitate product differentiation. They should also actively communicate their environmental achievements through digital marketing platforms, traditional media and stakeholder engagement initiatives. Furthermore, firms should invest in consumer education programmes that promote sustainable consumption behaviours and increase awareness of environmentally friendly dairy products. These initiatives are likely to strengthen brand reputation, improve responsiveness to evolving consumer preferences, support innovation acceptance and ultimately enhance competitive advantage of the business firms.

Suggestions for Further Research

The current study examined the effect of green promotion practices on the competitive advantage of milk processing firms operating within the Central Region Economic Bloc (CEREB), Kenya using a cross-sectional survey design. Future studies should consider adopting qualitative approaches such as in-depth interviews or focus group discussions to generate richer insights into how managers formulate, implement and evaluate green promotion strategies and the organisational factors that facilitate or hinder their effectiveness. A mixed-methods approach could also provide a more comprehensive understanding by complementing quantitative findings with contextual and experiential evidence. Similar studies could be undertaken in industries such as horticulture, tea, coffee, floriculture, meat processing, pharmaceuticals, manufacturing, hospitality and retail, where environmental sustainability has become increasingly important for organisational competitiveness. Comparative studies across industries would provide valuable evidence on whether the influence of green promotion practices on competitive advantage varies depending on industry characteristics and competitive dynamics.

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