

# Green Marketing Dynamics in the Food and Beverage Product Sector: A Bibliometric Analysis of the Influence on Consumer Loyalty

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## Article Info

### Article history:

Received Oct, 2024

Revised Oct, 2024

Accepted Oct, 2024

### Keywords:

Green Marketing

Customer Loyalty

Food and Beverage Industry

Bibliometric Analysis

VOSviewer

## ABSTRACT

This bibliometric study explores the evolution and dynamics of green marketing within the food and beverage industry, with a specific focus on its influence on customer loyalty. Utilizing VOSviewer for network visualizations, the research maps the interconnectedness of key themes and authors over a significant period, highlighting the transition from traditional sustainability practices to more sophisticated, consumer-focused strategies that integrate service quality, customer satisfaction, and relationship marketing. The study reveals an evolving landscape where foundational marketing principles merge with modern green marketing needs, emphasizing the importance of genuine, consumer-centric approaches in fostering customer loyalty. The findings advocate for an interdisciplinary approach in research and suggest directions for future studies to further examine the empirical impacts of green marketing strategies, the role of digital technologies, and the global scalability of these practices.

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## 1. INTRODUCTION

The concept of green marketing has gained substantial traction over the last few decades, reflecting the growing consumer awareness of environmental issues and sustainability. Green marketing refers to the strategies aimed at promoting products by emphasizing their environmental benefits. In the food and beverage sector, this trend has been particularly pronounced, as consumers increasingly factor in the ecological footprint

of their consumption choices. According to [1], green marketing involves developing and promoting products and services that satisfy customers' wants and needs for quality, performance, affordable pricing, and convenience without having a detrimental impact on the environment.

The relevance of green marketing in the food and beverage sector is underscored by a rising public concern over environmental sustainability and ethical business practices. This shift in consumer preferences has led

companies to adopt green marketing strategies not only to comply with regulatory standards but also to build a competitive edge in the marketplace. [2] suggest that businesses that effectively communicate their environmental commitments can enhance their brand image and increase customer loyalty. However, the effectiveness of these green marketing strategies in influencing consumer loyalty in the food and beverage sector is not yet fully understood.

Consumer loyalty, defined as a customer's repeated purchase of a brand or product, is crucial for the long-term success of any business. In the context of green marketing, loyalty not only reflects satisfaction with the product but also a deeper commitment to the environmental values promoted by the brand. Loyal customers can provide a stable revenue stream and can also act as advocates for the brand among potential consumers. Despite its importance, the specific drivers of consumer loyalty in the context of green marketing remain a complex area of study. As pointed out by [3], the relationship between green marketing practices and consumer loyalty involves numerous factors, including consumer awareness, perceived value, and the authenticity of the company's environmental claims.

A further layer of complexity is added by the rapid evolution of consumer attitudes towards green products. The market for eco-friendly products is not static; it has been continuously shaped by technological advancements, regulatory changes, and shifting societal values. Bibliometric analysis provides a systematic way to explore these dynamics, as it allows researchers to quantify the development of academic and industry focus areas over time. By mapping the existing literature, researchers can identify key trends, gaps, and the evolution of thought within the field of green marketing [4].

Despite the recognized importance of green marketing strategies in the food and beverage sector, there remains a significant gap in the comprehensive understanding of how these strategies influence consumer

loyalty. Most studies have concentrated on isolated aspects of green marketing, such as consumer perception or brand performance, without a holistic view of how these elements translate into consumer loyalty. Moreover, the fast-paced changes in consumer attitudes towards sustainability call for an updated analysis that captures recent trends and methodologies in the field. Therefore, there is a pressing need for a bibliometric analysis that consolidates existing research, highlights trends, and identifies gaps in the literature on green marketing and consumer loyalty in the food and beverage product sector.

The purpose of this research is to perform a bibliometric analysis of the literature concerning green marketing in the food and beverage sector, specifically examining the impact of these methods on consumer loyalty. This study seeks to delineate the current scholarly environment, identify main themes and trends, and elucidate the linkages among different aspects of green marketing and consumer loyalty. This research will yield significant insights to inform future studies and assist practitioners in the food and beverage industry in optimizing their marketing strategies to better line with consumer expectations and sustainability objectives.

## 2. LITERATURE REVIEW

### 2.1 *Theoretical Foundations of Green Marketing*

Green marketing, as a concept, has evolved significantly since it was first introduced in the late 20th century. Initially, it was a niche that few companies explored, but today, it is a crucial component of many corporate strategies, especially in consumer-centric sectors like food and beverages. According to [5], green marketing involves not only the ecological benefits of a product but also considers a broader spectrum of sustainable

business practices, including product modification, sustainable production processes, and greener packaging alternatives. This holistic approach is essential for understanding the multi-dimensional nature of consumer responses to green marketing initiatives.

The theoretical underpinning of green marketing is deeply rooted in the theory of planned behavior [6], which suggests that consumer purchasing decisions are influenced by attitudes towards the behavior, subjective norms, and perceived behavioral control. This theory can be extended to explain how consumers' environmental consciousness influences their purchasing decisions in the food and beverage sector. When companies adopt green marketing strategies, they not only communicate the environmental attributes of their products but also align with the ethical values and social norms that influence consumer behavior.

## 2.2 *Consumer Loyalty and Green Marketing*

Consumer loyalty in the context of green marketing is influenced by several factors, including perceived product quality, trust in the brand, and the alignment of the brand's values with those of the consumer. According to [7], consumers who identify strongly with green values are more likely to remain loyal to a brand that demonstrates genuine environmental concern. This relationship is mediated by the consumer's trust in the brand's commitment to sustainability,

which can significantly enhance customer satisfaction and loyalty.

Furthermore, the role of emotional attachment in fostering loyalty within green marketing contexts has been explored by researchers. [8] suggest that consumers develop emotional ties with brands that consistently uphold sustainability, influencing repeated purchase behaviors and promoting positive word-of-mouth. The emotional bond becomes even stronger when consumers perceive the brand's green initiatives as authentic and impactful.

## 2.3 *Impact of Green Claims and Eco- Labelling*

One prominent aspect of green marketing in the food and beverage sector is the use of green claims and eco-labels. These marketing tools communicate the environmental attributes of a product directly to consumers and can influence purchasing decisions and brand loyalty. Studies by [9] have shown that eco-labels serve as a heuristic that consumers use to assess the environmental impact of their purchases. The effectiveness of such labels, however, depends on their credibility and the consumer's level of environmental awareness. [10] found that misleading or vague green claims can lead to skepticism among consumers, ultimately affecting brand trust and loyalty negatively. This phenomenon, known as "greenwashing," demonstrates the need for stringent regulations and standards in green marketing to maintain consumer trust and

support sustainable purchasing practices.

#### 2.4 Bibliometric Insights into Green Marketing Research

A bibliometric analysis on green marketing, particularly in the food and beverage industry, reveals a growing body of literature focused on sustainable practices and consumer responses. The analysis typically employs data from various scholarly databases to map the trends, key themes, and research gaps in the literature. [4] methodological approach in bibliometrics helps in understanding the evolution of research themes over time and the impact of various studies in shaping the discourse around green marketing. Recent bibliometric studies indicate an increase in research exploring the nexus between green marketing and technology, such as the use of digital platforms for promoting sustainable consumption patterns. This shift highlights the dynamic nature of green marketing research and its

alignment with technological advancements and changing consumer preferences.

### 3. METHODS

This bibliometric analysis employs a systematic approach to examine the existing literature on green marketing in the food and beverage sector, focusing particularly on its impact on consumer loyalty. Initially, relevant articles are sourced using Google Scholar, employing keywords such as "green marketing," "sustainable marketing," "consumer loyalty," and "food and beverage industry." The search is refined to include studies published within the last two decades to ensure the relevance and timeliness of the data. Once collected, the data is analyzed using VOSviewer, a tool designed for constructing and visualizing bibliometric networks. These networks enable the identification of the most influential studies, predominant research themes, and the evolution of research trends over time. This method facilitates a thorough understanding of the academic landscape surrounding green marketing practices and their effectiveness in enhancing consumer loyalty, offering insights into both established concepts and emerging trends within the field.

## 4. RESULTS AND DISCUSSION

### 4.1 Research Data Metrics

Table 1. Data Citation Metrics

Publication years	2000-2024
Citation years	24 (2000-2024)
Paper	980
Citations	624372
Cites/year	26015.50
Cites/paper	637.11
Cites/author	365686.47
Papers/author	466.65
Author/paper	2.68
h-index	297
g-index	782
hI,norm	200
hI,annual	8.33
hA-index	81

Papers with ACC	:	1,2,5,10,20:975,970,940,790,521
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Source: Publish or Perish Output, 2024

Table 1 provides a comprehensive overview of bibliometric data concerning publications on the specified research topic from the years 2000 to 2024. During this 24-year period, a total of 980 papers were published, accumulating an impressive 624,372 citations, which averages out to approximately 26,015.50 citations per year and 637.11 citations per paper. The data also shows an average of 2.68 authors per paper, with a total of 365,686.47 citations per author and 466.65 papers per author. The table highlights several key bibliometric indices: the h-index is notably high at 297, indicating

significant academic impact, while the g-index further underscores this impact with a value of 782. The normalized and annual h-indices are reported as 200 and 8.33, respectively, reflecting sustained relevance and influence over time. The hA-index stands at 81. Additionally, the distribution of papers with accumulated citation counts (ACC) across different thresholds (1, 2, 5, 10, 20) shows that nearly all papers have been cited at least once (975 out of 980), and a substantial fraction has received 20 or more citations (521 papers).

Table 2. Top Cited Research

Citations	Authors and year	Title
86496	[11]	Marketing management
54256	[12]	Principles of marketing
29257	[13]	Managing brand equity: Capitalizing on the value of a brand name
25762	[14]	Strategic brand management: Building, measuring, and managing brand equity
22688	[15]	Consumer behaviour
18303	[16]	Strategy & society
12888	[17]	Marketing
12475	[18]	The chain of effects from brand trust and brand affect to brand performance: the role of brand loyalty
10641	[19]	Electronic word-of-mouth via consumer-opinion platforms: what motivates consumers to articulate themselves on the internet?
10374	[20]	Consumer behaviour

Source: Publish or Perish Output, 202

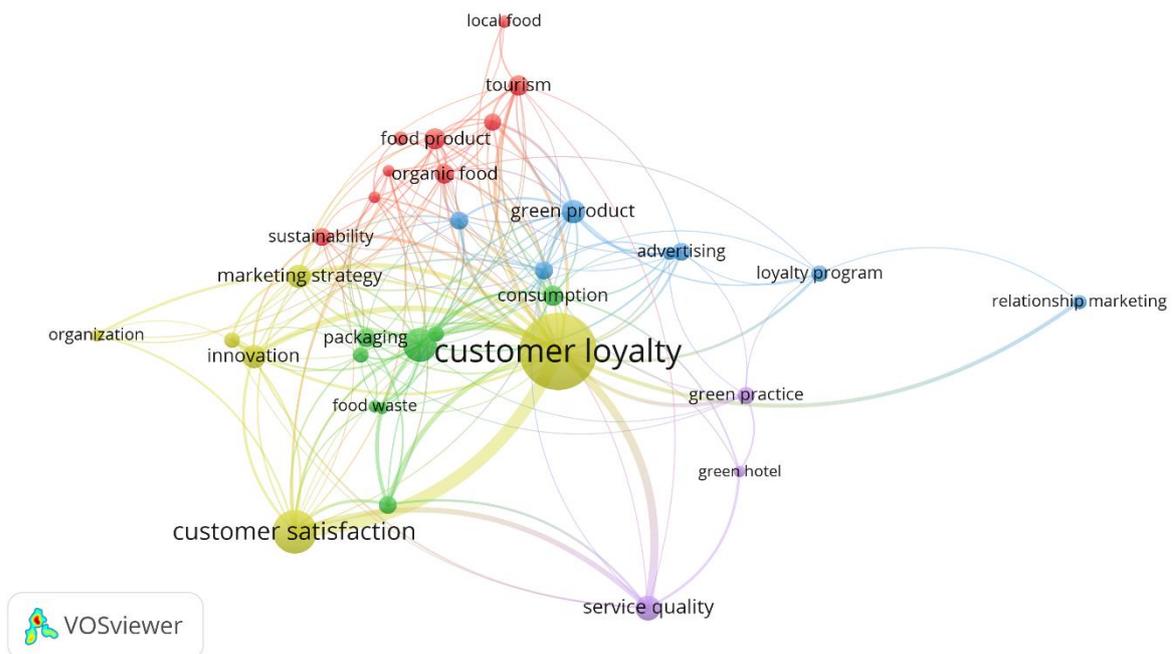


Figure 1. Network Visualization

Source: Data Analysis Result, 2024

This visualization, which shows the relationships between several ideas related to consumer loyalty in the food and beverage industry, is an example of a bibliometric network analysis from VOSviewer. The main node, "customer loyalty," is prominent in the research landscape since it is positioned in the center and is substantially larger than other nodes. As a hub, it connects several related terms including "loyalty program," "green product," "consumption," and "service quality." These linkages imply that these theme areas have a significant influence on consumer loyalty study. There are various clusters visible around the core node, each indicated by a distinct hue that corresponds to a particular thematic focus within the larger theme. Examples of terms found in the red cluster are "local food," "organic food," and "tourism," which suggests the existence of a sub-theme that links consumer preferences within the tourist industry to local and organic food goods and customer loyalty. This cluster may represent a component of the literature that looks at how gastronomy tourism and sustainable consumption habits

interact. The green cluster draws attention to an additional dimension that centers on "customer loyalty" and "service quality," both of which are strongly correlated with "customer satisfaction." The close proximity of these nodes and the lines connecting them point to a heavy emphasis on the relationship between customer happiness and service quality and loyalty in the food and beverage industry. The consumer experience could be examined from the first point of contact with the company to post-purchase satisfaction and how it affects customer loyalty. The last words in the blue cluster are "innovation," "marketing strategy," and "sustainability," all of which relate to the larger picture of how marketing strategies include sustainable practices to increase client loyalty. The cluster containing "food waste" and "packaging" suggests a particular emphasis on the environmental facets of marketing, particularly the ways in which creative approaches to waste reduction and package enhancement enhance a brand's environmentally conscious reputation, which in turn affects consumer loyalty.

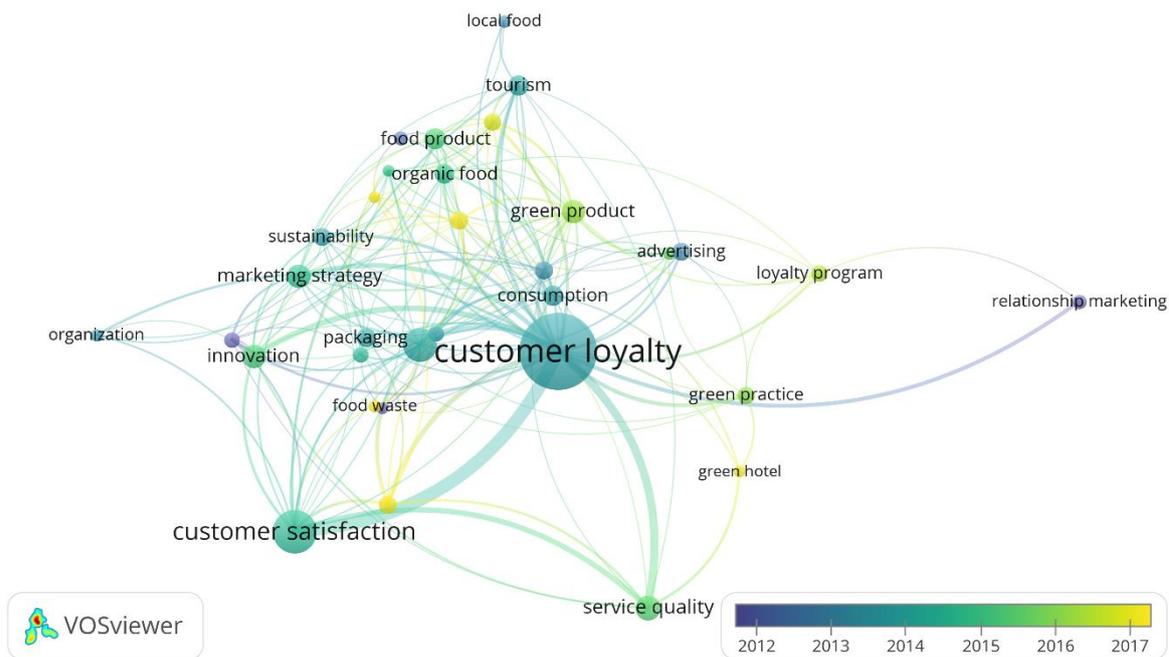


Figure 2. Overlay Visualization  
 Source: Data Analysis Result, 2024

This VOSviewer visualization presents a bibliometric analysis focusing on the interconnections between various concepts related to customer loyalty within the food and beverage industry, with a special emphasis on green marketing dynamics. The visualization utilizes a color gradient to denote the progression of research focus over time, ranging from purple (indicating studies from around 2012) to yellow (indicating more recent studies around 2017). This color-coded scheme helps in tracking the evolution of research interests and the shifting focus within the field over the years.

In the earlier phase of the timeline (represented by purple), foundational topics such as "sustainability," "marketing strategy," and "innovation" are predominant. These concepts are closely linked to the development of green marketing practices and reflect an initial emphasis on integrating sustainability into marketing frameworks and innovative practices in the industry. The connection of these concepts to "customer

loyalty" suggests an early research interest in how foundational sustainable practices influence consumer behavior and loyalty, indicating a strategic focus on building a sustainable brand image.

As the timeline progresses towards 2017 (indicated by yellow), there is a noticeable shift towards more specific aspects such as "service quality," "loyalty program," and "relationship marketing." This transition suggests that the research community has begun to focus more on the operationalization of green marketing practices and their direct impact on customer experience and loyalty. The presence of "service quality" and "loyalty program" in the later years highlights a nuanced exploration of how these elements contribute to sustaining customer loyalty in a competitive market. The shift towards these themes indicates a maturing of the field, with a deeper investigation into how green practices are implemented at the customer interaction level and their effectiveness in enhancing customer loyalty over time.



Figure 3. Density Visualization

Source: Data Analysis, 2024

This VOSviewer visualization shows a bibliometric analysis of important terms related to green marketing and how they relate to one another in the context of consumer loyalty in the food and beverage industry. The primary node, "customer loyalty," is clearly underlined in yellow to indicate its essential thematic connection to other related phrases like "relationship marketing," "service quality," and "loyalty program." These phrases, which shine brightly around the main idea, imply a substantial amount of study and conversation centered on the ways in which these elements interact to drive customer loyalty. The hues shift from yellow in the middle to chilly blues and greens on the periphery, possibly suggesting a lessening degree of direct correlation or emphasis from the main idea.

The nodes around the periphery stand for various but connected subjects like "local food," "tourism," "sustainability," and "green practices," each of which adds to the industry's larger conversation on green marketing. The way these themes are arranged spatially and colored may indicate how these themes have evolved or how much they have been included into the main conversation about customer loyalty. The tight relationship and similar hue of nodes such as "sustainability" and "green product" suggest a strong thematic linkage in the literature discussing the impact of sustainable and green product activities on consumer perceptions and loyalty. This arrangement makes it possible to visualize the conceptual connections between different research disciplines, offering insights on understudied or possible research areas.



Figure 4. Author Collaboration Visualization

Source: Data Analysis, 2024

Given the existence of well-known writers like Kotler, P., and Armstrong, G., it is likely that the academic topic in question is marketing or a closely connected one, as this VOSviewer graphic illustrates the collaboration and citation relationships among different researchers within that discipline. The graphic represents several clusters or networks of collaboration using different colors; each node represents an author, and the lines show the links between them based on citation or co-authorship. The red color of the core node, "han\_h," draws attention to its importance as a major player in this network and may be a sign of a high number of citations or a central role in important research collaborations. The lines that are colored green and orange indicate different levels of thematic or collaborative relationship between these researchers. Authors like "kotler\_p" and "armstrong\_g" stand out for being on the outskirts and in a different color, indicating that they might represent a different cluster of impact. This could be because they have made foundational contributions to the subject or have a different focal area than the central

cluster. Identification of key researchers and comprehension of the organization of scholarly cooperation and information flow within the field are made easier with the help of this type of visualization.

### Discussion

The bibliometric analyses presented through VOSviewer visualizations offer profound insights into the evolution of green marketing research, particularly in relation to customer loyalty within the food and beverage sector. Initially, the focus was heavily tilted towards foundational elements such as sustainability practices and innovation in marketing strategies. This indicates an early acknowledgment in the literature of the necessity to integrate environmental considerations into business operations, a response perhaps to the increasing consumer awareness and regulatory pressures regarding environmental impacts.

As we move through the timeline from 2012 to 2017, a noticeable shift towards more consumer-centric themes such as service quality and relationship marketing is evident.

This transition reflects a deeper understanding of the mechanisms through which green marketing practices influence consumer perceptions and behaviors. It also highlights a growing recognition of the importance of customer experience and engagement in fostering loyalty, which are crucial for the long-term success of sustainability initiatives within businesses. This shift is mirrored in the evolving research outputs that increasingly focus on operationalizing green marketing practices to enhance customer satisfaction and loyalty.

The analysis of key research clusters and authors reveals a rich tapestry of interconnected themes and collaborations. Central to this network is the exploration of how green marketing and traditional marketing strategies converge to influence consumer behavior. The presence of prominent researchers such as Philip Kotler and Gary Armstrong in the periphery of the network analysis suggests that foundational marketing theories continue to be pivotal, even as the field evolves to incorporate more nuanced and contemporary issues such as sustainability and ethical business practices. The network visualizations underscore the importance of interdisciplinary research and collaboration in advancing our understanding of green marketing. The various nodes and links illustrate not only the collaborative efforts among scholars but also hint at the potential gaps in the literature. For instance, while considerable attention has been given to the consumer aspects of green marketing, there may be less focus on the supply chain and operational adjustments required to support these marketing claims, indicating a potential area for further research.

#### **Implications for Marketing Strategy and Practice**

The insights garnered from these analyses have significant implications for marketing strategy and practice, particularly in the food and beverage industry. Businesses are encouraged to transition from a product-centric approach to a more holistic strategy that includes all aspects of consumer

interaction. The increasing importance of service quality and customer satisfaction in driving loyalty in green marketing contexts suggests that businesses need to ensure that their sustainability claims are matched by an equally robust customer service experience. Furthermore, the evolution towards integrating relationship marketing into green marketing strategies highlights the need for businesses to build meaningful and authentic connections with their consumers. This could involve transparent communication about sustainability efforts, active engagement with consumer feedback, and the consistent delivery of quality products and services that meet or exceed environmental standards.

#### **Future Directions in Green Marketing Research**

The bibliometric analyses point towards several future directions for research in green marketing. First, there is a need for more empirical studies that quantify the impact of green marketing strategies on business performance and consumer loyalty. Such studies could help substantiate the theoretical models suggested by the literature and provide concrete evidence to support business investment in sustainable practices. Second, the role of digital technologies in enhancing the effectiveness of green marketing strategies is another area ripe for exploration. As consumers increasingly turn to digital platforms for purchasing decisions, understanding how digital marketing tools can be leveraged to promote green products effectively becomes crucial. Lastly, the global challenges of climate change and sustainability suggest an urgent need to explore how green marketing can be scaled and adapted across different cultural and regulatory contexts. Comparative studies that examine the effectiveness of green marketing strategies in diverse markets could provide valuable insights that help refine these strategies to be more globally applicable.

## **5. CONCLUSION**

This study offers a bibliometric analysis that sheds light on how green

marketing research is changing in the food and beverage sector, with a special emphasis on how it affects consumer loyalty. The findings point to a dramatic move away from basic sustainability measures and toward a more comprehensive strategy that includes relationship marketing, customer satisfaction, and service quality. The study emphasizes the value of interdisciplinary approaches and the persistent influence of fundamental marketing concepts in addressing modern difficulties in green marketing through the depiction of major author networks and subject clusters. The results highlight the need

for companies to implement comprehensive, customer-focused green marketing strategies that foster environmental sustainability and increase brand loyalty. To ensure global applicability and efficacy, future research should integrate digital marketing technologies, adapt green marketing strategies across varied cultural contexts, and broaden empirical investigations. In the end, this study advances our knowledge of the dynamics of green marketing and provides useful guidance for future research and real-world applications in the dynamic marketplace.

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