

Planting Profits: A Strategic Analysis Of Digital Eco-Advertising In Achieving Business Goals Among Agri-Foodpreneurs

¹Ms. LAKSHANAAKAMALI S P, ²Dr. M.ARUL

¹Ph.D Research Scholar, Department of Business Administration,
Annamalai University, Chidambaram, India.

²Professor and HOD, Department of Business Administration,
Annamalai University, Chidambaram, India.

¹Email: kamalithaman@gmail.com

Abstract

Agri-foodpreneurs in the plant-based food industry are vital promoter for sustainability and ethical practices, dedicated to providing high-quality plant-based food products. Utilizing digital eco-advertising as a potent channel, these agri-foodpreneurs effectively communicate their brand values and offerings to a global audience. The **purpose** of this research study is to explore the intricate dynamics of eco-advertising and its influence on agri-foodpreneurs within the plant-based food industry. The study **aims** to provide a comprehensive understanding of the implications that digital eco-advertising holds for both individual businesses and the broader industry. The **objective** of this study is to evaluate the usage frequency of digital advertising channels among agri-foodpreneurs, identify the most commonly utilized channels, examine the relationship between the frequency of usage and perceived effectiveness of digital eco-advertisement campaign, and whether the utilization and effectiveness of digital advertising channels impact the achievement of business goals within the plant-based food industry. The **questionnaire** employed in this research was designed by drawing upon insights and metrics derived from prior studies conducted in developing countries, ensuring its contextual relevance. The **assessment** utilized statistical methods such as descriptive analysis, the chi-square test, and the Multiple Regression test, providing a thorough and statistically robust analysis. The **result** identifies social media as the primary advertising channel for agri-foodpreneurs in the

plant-based food industry, followed by email marketing and mobile platforms. There is a significant correlation between the choice and frequency of digital advertising channels and perceived effectiveness. Emphasizing the need for optimization, the findings underscore the importance of aligning channel utilization and eco-ad effectiveness with business goals to enhance overall success. The study **conclude** that there is a need for a thoughtful and aligned approach to maximize the impact of digital eco-advertising, ultimately contributing to the success and sustainability of businesses in the plant-based food sector.

Keywords: Digital Eco-Marketing; Digital Advertising channels; Agri-foodpreneurs; Plant-based food; Sustainability; Green Marketing

1. Introduction - Plant-based food Sector

Agri-foodpreneurs engaged in the plant-based food industry represent a dynamic force within the agricultural sector, evolving sustainable practices and contributing significantly to the global shift towards a more environmentally conscious food landscape. As entrepreneurs at the intersection of agriculture, food and business, agri-foodpreneurs in the plant-based food sector play a pivotal role in cultivating and delivering high-quality plant-based products. Their endeavors align with the growing consumer demand for healthier and ethically sourced food options. Notably, their focus on sustainable practices and innovation not only addresses contemporary dietary preferences but also contributes to broader goals of reducing the ecological footprint associated with traditional agriculture.

1.1 Growth Perspective

The growth perspective of agri-foodpreneurs in the plant-based food industry is marked by a course of innovation and adaptability. With a keen understanding of market trends and consumer preferences, these agri-foodpreneurs are continually diversifying their product offerings and adopting cutting-edge technologies to enhance cultivation, processing, and distribution. The surge in consumer awareness regarding health, environmental sustainability, and ethical considerations has fueled the demand

for plant-based alternatives, providing agri-foodpreneurs with ample growth opportunities.

1.2 Contribution to Economy

The contribution of agri-foodpreneurs in the plant-based food industry to the national and global economies is becoming increasingly significant. In India, for example, where agriculture is a keystone of the economy, the plant-based food sector led by agri-foodpreneurs has the potential to contribute substantially to the Gross Domestic Product. The innovative practices and market-oriented approach of agri-foodpreneurs contribute to job creation, income generation, and the overall economic development of rural and agricultural communities. Moreover, on a global scale, the plant-based food industry, driven by innovative agri-foodpreneurs, is emerging as a substantial player in the global economy, aligning with the increasing demand for sustainable and ethical food choices.

1.3 Future Scope

The future scope for agri-foodpreneurs in the plant-based food sector is promising and multifaceted. As the global population continues to grow and environmental concerns intensify, the demand for plant-based alternatives is expected to surge further. agri-foodpreneurs will play a crucial role in meeting this demand by adopting technological advancements, diversifying product portfolios, and establishing sustainable agricultural practices. Moreover, the potential for international collaborations and market expansion offers the opportunity to contribute to global food security while enhancing their own economic credibility.

2. Digital eco-marketing

Digital eco-marketing, is a dynamic and multifaceted approach to promoting products, services, or brands using digital channels and platforms that uses natural materials, electronic methods, that avoid using a lot of resources that harm the environment. In today's interconnected world, digital marketing plays a significant role in reaching and engaging target audiences, driving traffic, generating leads, and ultimately, achieving business objectives. Leveraging a numerous strategies such as search engine optimization, social media marketing, content creation, email campaigns, and paid advertising, digital marketing offers

organizations unique opportunities to connect with consumers in real-time. By utilizing data-driven insights, analytics, and innovative techniques, businesses can optimize their digital presence, enhance brand visibility, and foster meaningful relationships with customers across various digital touch points. This digital approach offers unparalleled opportunities for growth, visibility, and brand awareness in today's competitive marketplace. For business owners, digital marketing serves as a powerful channel to expand their reach, increase customer acquisition, enhance brand loyalty, and ultimately, achieve sustainable business success.

2.1 Growth Perspective

The advent and rapid evolution of digital marketing have revolutionized the business landscape, driving remarkable growth both globally and in India. Globally, the digital transformation has propelled businesses to expand their reach exponentially, with e-commerce sales accounting for trillions of dollars annually. According to eMarketer, global e-commerce sales surpassed \$4.2 trillion in 2020, reflecting the significant impact of digital marketing strategies in capturing consumer attention and driving sales¹. Similarly, in India, the digital revolution has witnessed an unprecedented surge, with the number of internet users surpassing 700 million. As per a report by the Internet and Mobile Association of India (IAMAI), India's e-commerce market was valued at approximately \$64 billion in 2020, with projections indicating substantial growth in the coming years.² Moreover, a study by the Agricultural Marketing Service (AMS) highlights that agri-foodpreneurs utilizing digital marketing techniques, such as social media campaigns, e-commerce platforms, and digital advertising, have experienced an average growth rate of 20percent in revenue and a 15percent increase in customer engagement compared to traditional marketing methods (AMS, 2021). This growth perspective underscores the transformative impact of digital marketing on Agri-foodpreneurs 'hip, fostering innovation, competitiveness, and sustainability in the agricultural value chain.

¹ eMarketer, "Global Ecommerce Update 2020: Amid a Pandemic, an Unexpected Push for Retail Ecommerce," 2020

² Internet and Mobile Association of India (IAMAI), "E-Commerce Market in India: Trends, Growth, and Forecast 2020-2025," 2020.

2.2 Digital Advertisement Channels

a. Social Media

Social media platforms like Facebook, Instagram, Twitter, LinkedIn, and others have revolutionized digital marketing by offering businesses a direct channel to engage with their target audiences. These platforms enable brands to share content, promote products/services, interact with customers, and build brand loyalty. With billions of users worldwide, social media provides businesses with exceptional reach and the ability to target specific demographics based on interests, behaviors, and preferences. Additionally, social media marketing offers real-time engagement, analytics, and insights to optimize campaigns, enhance customer relationships, and drive sales.

b. Email

Email marketing remains a base of digital marketing strategies, enabling businesses to communicate directly with customers and prospects through personalized and targeted email campaigns. Unlike other channels, email marketing offers a more intimate and direct connection with the audience, allowing brands to deliver tailored content, promotions, and information based on user preferences and behaviors. With high conversion rates and ROI, email marketing facilitates customer acquisition, retention, and engagement. Moreover, email automation, segmentation, and analytics channels enable businesses to optimize campaigns, track performance, and nurture leads through the sales funnel effectively.

c. Mobile

The increase of smart phones and mobile devices has transformed the way consumers access information, shop, and interact digital. Mobile marketing comprises various strategies, including mobile-optimized websites, apps, SMS marketing, and mobile advertising, to engage users on their devices. With the majority of internet users accessing content via mobile devices, businesses must prioritize mobile marketing to enhance user experience, reach a broader audience, and drive conversions. Leveraging location-based targeting, mobile apps, and responsive design, businesses can deliver personalized content, promotions, and services to users on the go, promote engagement and loyalty.

d. Video Ads

Video advertising has emerged as a powerful digital marketing channel, allowing businesses to convey their message, showcase products/services, and engage audiences through compelling visual content. Platforms like YouTube, Facebook, Instagram, and TikTok offer brands opportunities to reach billions of users with targeted video ads, tutorials, testimonials, and branded content.

Video ads enable businesses to capture attention, evoke emotions, and drive action, resulting in higher engagement rates, brand awareness, and conversions. With advancements in video technology, storytelling, and production, businesses can create immersive, interactive, and shareable video content to connect with audiences and achieve marketing objectives effectively.

e. Targeted Display

Targeted display advertising involves placing visual ads on third-party websites, apps, or platforms to reach specific audiences based on demographics, interests, and digital behavior. Utilizing programmatic advertising, retargeting, and real-time bidding technologies, businesses can display relevant ads to users across the web, enhancing visibility, engagement, and conversions. Targeted display advertising offers precise targeting capabilities, allowing brands to reach potential customers with personalized content, offers, and promotions. By analyzing user data, optimizing ad placements, and monitoring performance metrics, businesses can maximize ROI, expand their reach, and drive results through targeted display advertising campaigns.

f. Pay-per-click Search

Pay-per-click (PPC) search advertising enables businesses to display ads on search engines like Google, Bing, and Yahoo, targeting users based on search queries, keywords, and intent. Unlike traditional advertising models, PPC allows advertisers to pay only when users click on their ads, making it a cost-effective and measurable digital marketing strategy. By conducting keyword research, optimizing ad copy, and leveraging bidding strategies, businesses can achieve higher search engine rankings, visibility, and click-through rates. PPC search advertising facilitates immediate results, precise targeting, and control over budget,

enabling businesses to drive targeted traffic, generate leads, and increase conversions effectively.

g. Other platforms

Other digital marketing platforms offer businesses alternative avenues to engage audiences beyond well-known platforms like Google Ads or Facebook Ads. Platforms like Reddit Ads provide niche targeting opportunities, reaching specialized communities based on interests or demographics. Quora Ads enable businesses to promote content and expertise within relevant question threads, driving organic engagement and thought leadership. Additionally, platforms such as Snapchat Ads target younger demographics through interactive content formats like augmented reality (AR) lenses and geofilters. Meanwhile, affiliate marketing platforms like CJ Affiliate or ShareASale facilitate partnerships with publishers to promote products/services, leveraging a performance-based model for cost-effective customer acquisition. Overall, exploring these lesser-known platforms allows businesses to diversify their digital marketing strategies, tap into distinctive audiences, and achieve specific marketing objectives.

3. Review of Literature

Lee and Cho (2020) examined the current landscape and future potential of digital advertising, shedding light on its evolving dynamics and emerging trends. Their comprehensive analysis elucidated the multifaceted aspects of digital advertising, emphasizing the need for continuous adaptation and innovation to harness its full effectiveness. However, while their study provides valuable insights into the overarching trends, there remains a research gap in understanding the nuanced challenges and opportunities specific to various sectors and contexts within the digital advertising realm. Further research is essential to tailor strategies and approaches according to the diverse industry landscapes and consumer behaviors, ensuring optimal outcomes for advertisers in the digital age.

Chinakidzwa and Phiri (2020) investigated the influence of digital marketing capabilities on the market performance of small to medium enterprise agro-processors in Harare, Zimbabwe. Their study provided valuable insights into the role of digital marketing in enhancing market performance within the specific context of

agro-processing businesses. By examining the impact of digital marketing capabilities, the research contributes to a deeper understanding of how small to medium enterprises in this sector can leverage digital tools to improve their competitiveness and market reach. However, further exploration may be needed to uncover additional factors that influence market performance and to validate the generalizability of the findings across different geographical regions or industries.

Lewandowska, Witczak, and Kurczewski (2017) studied the contemporary landscape of green marketing, highlighting the crucial interplay between trust, consumer participation, and life cycle thinking. Their study underscored the significance of these factors in shaping the effectiveness of green marketing strategies in modern business environments. By delving into the complexities of consumer behavior and the integration of sustainable practices throughout the product life cycle, the research contributes to a deeper understanding of how organizations can foster trust and engagement while promoting environmentally responsible products and services. However, further exploration may be warranted to elucidate the specific mechanisms through which trust and consumer participation impact the success of green marketing initiatives across diverse industries and contexts.

Dangelico and Vocalelli (2017) conducted a systematic review of the literature to analyze the concept of "Green Marketing," encompassing definitions, strategy steps, and tools. Their study offers a comprehensive overview of the evolving landscape of green marketing, providing insights into the various approaches and frameworks employed by scholars and practitioners in this field. By synthesizing existing research, the paper sheds light on the key components and strategies inherent in green marketing initiatives, facilitating a deeper understanding of how organizations can effectively promote sustainability and environmental responsibility. However, further research may be needed to address emerging trends and challenges in green marketing practice, ensuring its continued relevance and effectiveness in promoting sustainable consumption and production patterns.

Elghannam, Mesias, and Escribano (2017) investigated the potential contribution of social networks to the development of short supply chains in the Spanish agri-food sector. Their study

explores the role of social networks in facilitating closer connections between producers and consumers, thereby promoting the establishment and growth of short supply chains. By examining the dynamics of social interactions within the agri-food sector, the research offers insights into how social networks can foster collaboration, trust, and efficiency in supply chain operations. However, further research may be necessary to explore the specific mechanisms through which social networks influence the development and sustainability of short supply chains, as well as the potential barriers and challenges that need to be addressed for their effective implementation.

Pilar, Kvasnickova Stanislavska, and Kvasnicka (2021) examined discussions about healthy food on the Twitter social network, with a focus on vegan, homemade, and organic food. Their study delves into the online discourse surrounding different categories of healthy food, analyzing trends, perceptions, and engagement levels within the Twitter community. By exploring the portrayal and reception of vegan, homemade, and organic food on social media, the research contributes to a better understanding of consumer preferences and behaviors related to healthy eating choices. However, further investigation may be warranted to assess the impact of social media discourse on actual dietary patterns and to identify strategies for promoting healthy food options effectively through digital platforms.

Vlachopoulou, Ziakis, Vergidis, and Madas (2021) conducted an analysis of agrifood-tech e-business models, focusing on the sustainability aspects. Their study delved into the various electronic business models employed within the agrifood technology sector, examining their sustainability implications and contributions to environmental and social well-being. By scrutinizing the intersection of technology, agriculture, and sustainable development, the research offers insights into how e-business models can promote efficiency, transparency, and resilience across the agrifood value chain. However, further research may be warranted to explore the scalability and replicability of sustainable e-business models in different geographical and market contexts, as well as their potential to drive transformative change towards more sustainable food systems.

Fernandez-Ucles, Bernal-Jurado, Mozas-Moral, and Medina-Viruel (2020) explored the significance of websites for organic agri-food producers. Their research investigates the role of websites in the marketing and promotion of organic products within the agri-food sector. By examining the importance of online presence and digital marketing strategies for organic producers, the study provides insights into how websites can enhance visibility, consumer engagement, and sales for businesses operating in this niche market.

4. Objectives

In today's digital era, agri-foodpreneurs are increasingly leveraging digital advertising channels to enhance their market presence and engage with their target audience effectively. Understanding the usage frequency and preference for various digital advertising channels among these agri-foodpreneurs becomes significant in strategizing their marketing endeavors. Moreover, correlating the usage frequency of these channels with the perceived effectiveness of digital advertisements offers insights into optimizing advertising strategies. Furthermore, delving into whether such digital advertising efforts translate into tangible business outcomes reflects the importance of aligning digital strategies with overarching business goals.

- i. To assess the usage frequency of various digital Ad channels and to identify the most commonly utilized digital channels among agri-foodpreneurs.
- ii. To examine the perceived effectiveness of online and traditional advertising channels among male and female agri-foodpreneurs, and identifying any gender-based disparities in these perceptions.
- iii. To assess the relationship between Agri-foodpreneurs digital Ad channels usage frequency and the perceived effectiveness of their digital eco-advertisement campaign.

Null Hypothesis (H_0): The frequency of digital Ad channels usage is independent of the effectiveness of digital eco-advertisement campaign.

Alternative Hypothesis (H_1): The frequency of digital Ad channels usage is dependent on the effectiveness of digital eco-advertisement campaign.

- iv. To determine whether the usage of digital Ad channels and the effectiveness of digital eco-ads have an impact on achieving Business Goals

Null Hypothesis (H_0): Digital Ad channels usage and effectiveness of digital eco-ads have no significant impact on Business Goals.

Alternative Hypothesis (H_1): Digital Ad channels usage and effectiveness of digital eco-ads have significant impact on Business Goals.

5. Research Methodology

This study investigate the usage of digital marketing channels by agri-foodpreneurs, evaluate the effectiveness of digital eco-advertisements, and ascertain their impact on achieving business goals within the agricultural sector. Firstly, a quantitative research method is employed through structured questionnaire. The questionnaire covers Likert-scale questions designed to capture data on the usage frequency, business goals and types of digital marketing channels utilized. Furthermore, secondary data sources such as industry reports, case studies, and academic literature were reviewed to contextualize findings and corroborate insights gleaned from primary data sources. Data analysis covers descriptive statistics, inferential tests to examine correlations between variables, and thematic analysis for qualitative data, thereby facilitating a holistic understanding of the intricate dynamics between digital marketing channels usage, eco-ad effectiveness, and business goal attainment among agri-foodpreneurs.

6. Sampling and Data Collection

To comprehensively investigate the usage of digital marketing channels by agri-foodpreneurs in Coimbatore district, a structured sampling methodology was employed. Given the geographical and demographic diversity within the district, a combination of convenience sampling and stratified random sampling techniques was utilized. Initially, convenience sampling was adopted to

facilitate ease of access and data collection from agri-foodpreneurs across various blocks. Subsequently, to ensure representation across the district's distinct regions, a stratified random sampling approach was implemented. This stratification involved dividing the Coimbatore district into its 12 constituent blocks, thereby ensuring proportional representation from each block. Ultimately, a sample size of 300 agri-foodpreneurs was targeted, ensuring a balanced representation across the diverse segments of the district. This meticulous sampling strategy aimed to capture nuanced insights into digital eco-ad effectiveness and its correlation with achieving business goals among agri-foodpreneurs in Coimbatore district.

7. Data Analytics

Initially, descriptive statistics were utilized to provide a foundational understanding of the central tendencies, variations, and patterns within the dataset. Subsequently, frequency distributions were examined to discern the prevalence and distribution of specific variables related to digital ad channels and their perceived effectiveness among agri-foodpreneurs. The Chi-square test was employed to ascertain the independence between categorical variables, offering insights into any potential associations or dependencies within the data. To delve deeper into understanding the relationship and predictive factors, multiple regression analyses were conducted, aiming to identify significant predictors that influence digital ad effectiveness and its impact on business outcomes. This visual approach enhanced the interpretability of complex patterns and trends within the dataset, facilitating a comprehensive comprehension of the nuanced interplay between various variables. Additionally, statistical significance was determined with a confidence interval, ensuring robustness in the findings. The integration of these diverse analytical methods not only fortified the depth of insights but also laid the groundwork for informed decision-making in optimizing digital advertising strategies for agri-foodpreneurs.

8. Analysis and Interpretation

8.1 Analysis of Usage frequency of various Digital Advertising channels

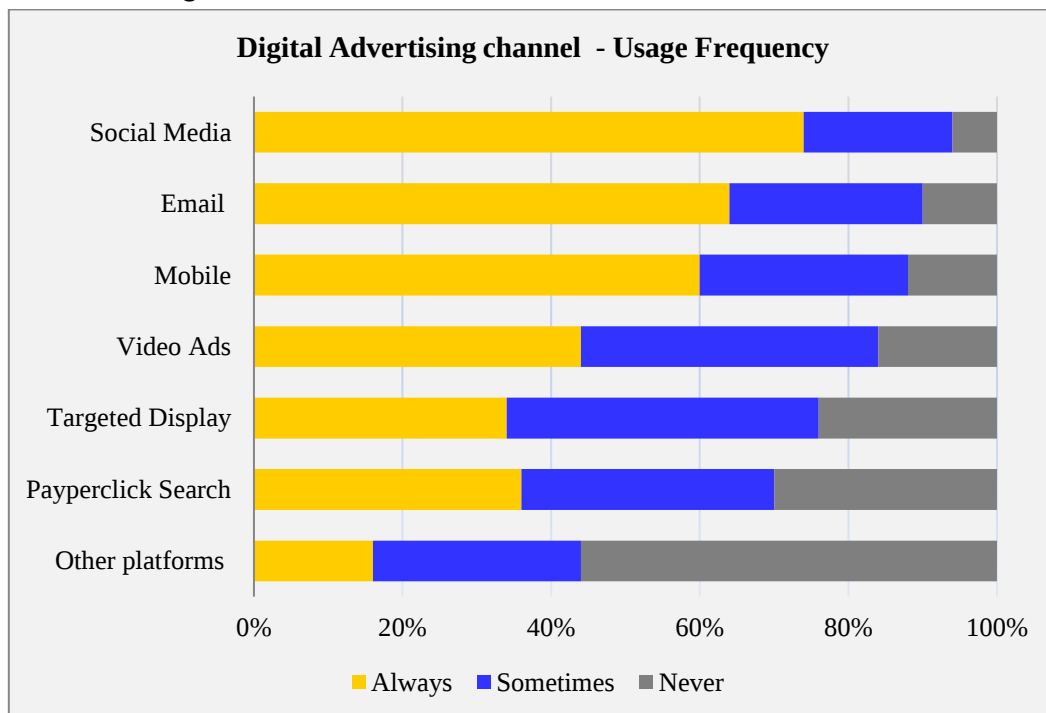
The analysis of usage frequency of various digital advertising channels offers insights into the prevailing digital strategies employed by agri-foodpreneurs. This part elucidates which platforms are predominantly leveraged and underscores emerging trends in digital marketing landscapes.

Table 1

Ad Channels	Usage Frequency (Percent)		
	Always	Sometimes	Never
Other platforms	16.00	28.00	56.00
Payperclick Search	36.00	34.00	30.00
Targeted Display	34.00	42.00	24.00
Video Ads	44.00	40.00	16.00
Mobile	60.00	28.00	12.00
Email	64.00	26.00	10.00
Social Media	74.00	20.00	6.00

Source : Primary Data

Fig. 1



Source : Primary Data

Interpretation

Social Media:

A striking 74 percent of agri-foodpreneurs always utilize social media platforms for their endeavors, showcasing its predominant role in agricultural marketing and communication. With only 6 percent never using social media, it underscores the near-universal adoption of these platforms for agribusiness purposes. Social media platforms offer agri-foodpreneurs an avenue to connect directly with consumers, share updates, showcase products, and gather feedback, making it indispensable in modern agricultural marketing.

Email:

Email emerges as another crucial channel, with 64 percent of agri-foodpreneurs consistently using it, emphasizing its effectiveness for communication and outreach. Only 10 percent never use email, indicating its widespread acceptance and utility in agribusiness communication strategies. Email remains a pivotal communication channel for agri-foodpreneurs to disseminate newsletters, promotional offers, product updates, and engage in personalized interactions with stakeholders.

Mobile:

The mobile platform is extensively embraced by 60 percent of agri-foodpreneurs, likely reflecting the convenience and accessibility it offers for managing agricultural operations on-the-go. A mere 12 percent never utilize mobile platforms, highlighting its integral role in facilitating real-time decision-making and operations in agribusiness. Mobile platforms empower agri-foodpreneurs with channels and applications that facilitate farm management, market research, weather tracking, and financial transactions, optimizing productivity and efficiency.

Video Ads:

Video advertising holds substantial appeal, with 44 percent of agri-foodpreneurs consistently leveraging it to promote products, educate consumers, and enhance brand visibility. While 16 percent never use video ads, its significant adoption underscores its

efficacy in conveying agricultural practices, product demonstrations, and storytelling. Video ads serve as a potent medium for agri-foodpreneurs to showcase farm operations, share success stories, demonstrate product benefits, and engage consumers through visual narratives, fostering brand loyalty and trust.

Targeted Display:

Targeted display advertising is utilized by 34 percent of agri-foodpreneurs regularly, emphasizing its role in reaching specific audiences with tailored messages. A notable 24 percent never employ targeted display ads, indicating potential areas for exploring its benefits in reaching niche markets or segments. Targeted display advertising enables agri-foodpreneurs to deliver personalized messages, promotions, and product offerings to specific audiences based on demographics, interests, and behavior, enhancing campaign effectiveness and ROI.

Pay-per-click Search:

Pay-per-click (PPC) search advertising garners consistent usage from 36 percent of agri-foodpreneurs, illustrating its importance in driving targeted traffic and leads. With 30 percent never utilizing PPC search, there may be opportunities to explore its potential in capturing relevant search queries and enhancing digital visibility. PPC search advertising allows agri-foodpreneurs to bid on relevant keywords, ensuring visibility on search engines, driving website traffic, and generating qualified leads interested in agricultural products, services, or information.

Other Platforms:

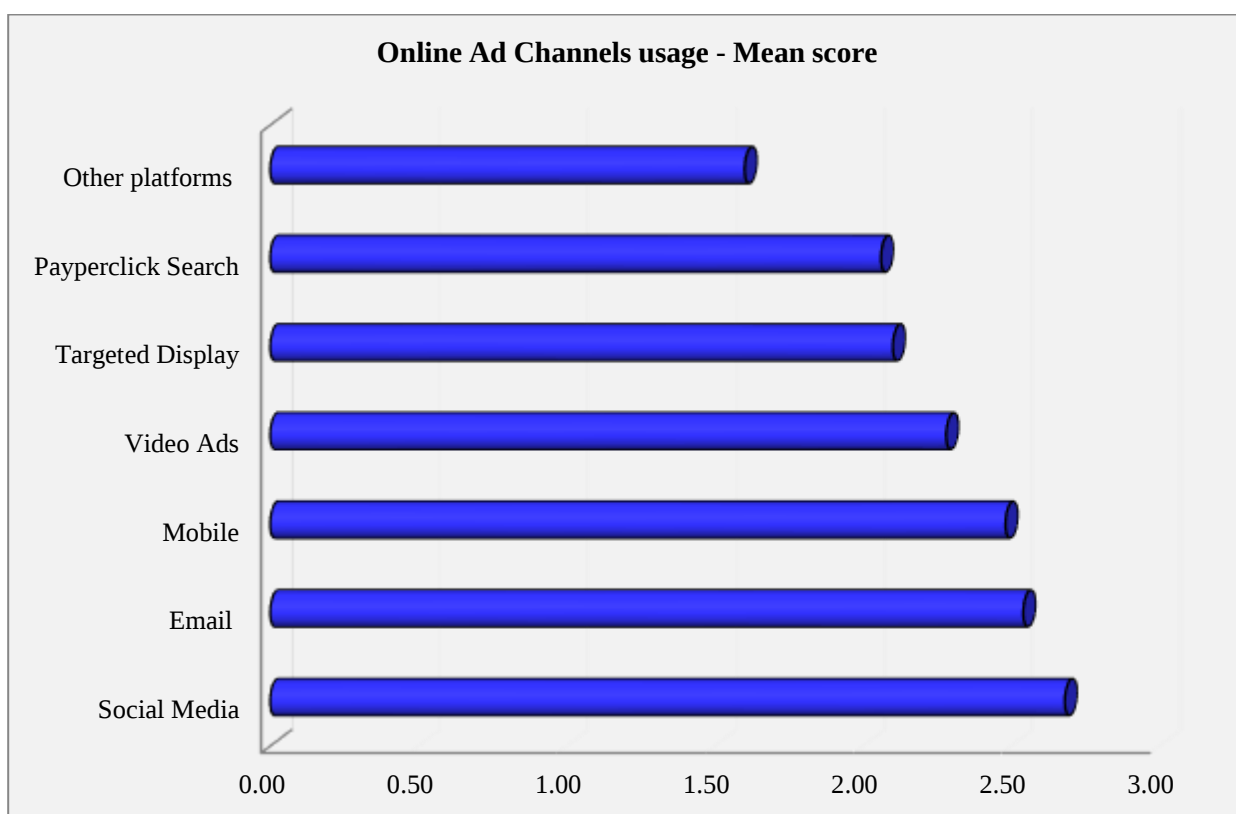
Other digital platforms are utilized consistently by 16 percent of agri-foodpreneurs, suggesting a diverse digital marketing mix beyond mainstream channels. A predominant 56 percent never use other platforms, indicating a focus on established channels or potential opportunities to explore emerging platforms tailored to agribusiness needs. Exploring other digital platforms can offer agri-foodpreneurs innovative avenues to connect with audiences, experiment with new marketing strategies, gaining valuable insights into consumer preferences and market trends leverage emerging technologies, and differentiate their offerings in the competitive agricultural marketplace.

Table 2

Digital Ads Channels usage – Most Preferable							
Ad Channels	Social Media	Email	Mobile	Video Ads	Targeted Display	Payperclick Search	Other platforms
Mean	2.68	2.54	2.48	2.28	2.1	2.06	1.6

Source : Primary Data

Fig. 2 Most Preferred Digital Advertising Channel



Source : Primary Data

Based on the mean values, social media emerges as the most frequently used advertisement channel among Agri-foodpreneurs,

underscoring its pivotal role in modern agricultural marketing strategies. The high mean score for social media reflects its effectiveness in facilitating direct engagement with consumers, promoting products, sharing updates, and gathering valuable feedback. Following closely, email marketing and mobile platforms occupy significant roles, emphasizing the importance of personalized communication, accessibility, and convenience in agribusiness operations and customer interactions. While video ads, targeted display, and PPC search advertising maintain substantial utilization, Agri-foodpreneurs may benefit from continuously evaluating and optimizing their advertising mix to harness the strengths of each channel effectively. agri-foodpreneurs prioritize digital channels that offer direct engagement, personalized communication, and broad reach, with social media leading the pack. As the agricultural landscape evolves, leveraging a diversified yet focused digital advertising strategy will enable agri-foodpreneurs to navigate challenges, seize opportunities, and foster growth in the competitive marketplace.

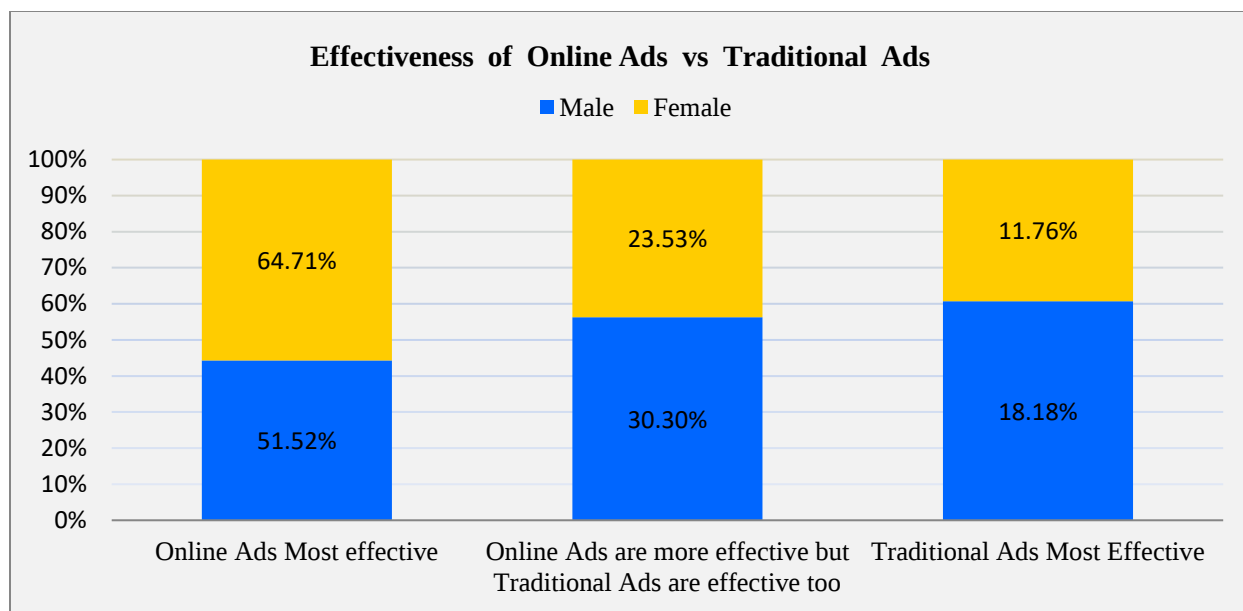
8.2 Analyzing the Trend in the effectiveness of Online Advertising channels within the demographic of Male and Female Agri-foodpreneurs

Table 3

Gender	Online Ads Most effective (percent)	Online Ads are more effective but Traditional Ads are effective too	Traditional Ads Most Effective
Male	51.52	30.30	18.18
Female	64.71	23.53	11.76

Source : Primary Data

Fig. 3



Source : Primary Data

Interpretation

The data reveals distinct preferences in the perceived effectiveness of online and traditional advertising channels among male and female Agri-foodpreneurs. Among males, (51.52 percent) find digital ads most effective, while (30.30 percent) believe online ads are more effective, but traditional ads are effective too. For females, a higher percent (64.71 percent) considers online ads most effective, indicating a stronger inclination towards digital platforms. The trend suggests that while online advertising is dominant for both genders, females exhibit a more pronounced preference for digital/online ads compared to their male counterparts. The minority percents favoring traditional ads underscore the continued relevance of traditional advertising methods, but the overall pattern emphasizes the growing significance of digital advertising, especially among female agri-foodpreneurs.

8.3 Analysis based on Frequency of digital Ads Channel Usage and Eco-Ads Effectiveness

The Chi-Square test serves as a robust statistical method employed to evaluate the relationship between categorical variables, specifically tailored for our objective of assessing agri-foodpreneurs digital Ad channels usage frequency and the perceived effectiveness of their digital eco-ads campaign, By

formulating the null hypothesis (H_0) asserting independence between digital Ad channels usage frequency and eco-ad effectiveness against the alternative hypothesis (H_a) suggesting an association, this test allows us to scrutinize whether varying levels of Ad channels usage frequency significantly correlate with distinct perceptions of eco-ad effectiveness. Conducting this Chi-Square analysis is pivotal, as it provides empirical insights to discern patterns, optimize advertising strategies, and foster informed decision-making tailored to agri-foodpreneurs digital marketing endeavors

Table 4

Usage*Effectiveness						
	Valid		Missing		Total	
	N	Perce nt	N	Perce nt	N	Perc ent
Digital Ads channel Usage * Digital eco-Ads Effectiven ess	300	100.0	0	0.0	300	100. 0

Source: Primary Data

Table 5

Chi-Square			
Channel Usage and Eco-Ad Effectiveness	Value	d f	Asymp . Sig. (2- sided)
Pearson Chi-Square	900.000 _a	9	.000
Likelihood Ratio	768.035	9	.000
Linear-by-Linear Association	271.498	1	.000
N of Valid Cases	300		

Source: Primary Data

Table 6

Result

Pearson Chi-Square value	900
d.f.	9
P value	<0.000
Hypothesis	Rejected
Contingency Coefficient	0.866
Level of Relationship between variable	Strong

Source: Primary Data

Interpretation

In Table 4, Out of 300 cases, there are no missing values, indicating complete data for both "Digital Ads Usage" and "Digital Eco-Ads Effectiveness." The dataset is fully represented, accounting for 100.0 percent of the total. Pearson Chi- Square value found in (Table 5) is 900.00 at 1 percent level of significance. P value is <0.000, hence Null Hypothesis is rejected. It conclude that Effectiveness of Digital Eco-Advertisement is dependent on the Usage of Digital channels.

The Chi-Square test results unequivocally indicate a **strong relationship** between Agri-foodpreneurs digital Ad channels usage frequency and the perceived effectiveness of their digital eco-ads campaign. The statistically significant Pearson Chi-Square value, combined with a contingency coefficient of 0.866, underscores the robustness and strength of this association.

In essence, Agri-foodpreneurs choices and frequency of using specific digital Ad channels significantly influence the perceived effectiveness of their eco-advertising efforts. This insight underscores the importance of strategic ad channel selection, optimization, and alignment with target audiences and objectives to maximize impact, engagement, and return on investment in the competitive agribusiness landscape.

As Agri-foodpreneurs navigate the digital marketing realm, leveraging data-driven insights from such analyses can inform informed decisions, refine advertising strategies, allocate resources effectively, and cultivate meaningful relationships with stakeholders, driving growth, sustainability, and success in the evolving agricultural marketplace.

8.4 Analysis for Influence of digital Ad channels usage and effectiveness of digital eco-ads on Business Goals

Multiple regression analysis serves as a powerful statistical technique employed to examine the relationship between multiple independent variables and a single dependent variable. In the context of this study, the objective revolves around elucidating whether the usage of digital Ad channels and the perceived effectiveness of digital eco-ads collectively exert a significant impact on achieving Business Goals.

By formulating the Null Hypothesis (H_0) and Alternative Hypothesis (H_1), we embark on a rigorous analytical journey to discern the intricate interplay between these pivotal variables. This analytical approach enables us to quantify the extent to which digital Ad channels utilization and eco-ads campaign effectiveness synergistically contribute to the realization of overarching Business Goals, thereby informing strategic decisions, optimizing resource allocation, and fostering sustainable growth in a competitive digital landscape.

Table 7

Multiple regression					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin - Watson
1	.997 ^a	.994	.994	.04671	2.124
a. Predictors: (Constant), Digital Eco-Ads Effectiveness, Digital Ads channels Usage					
b. Dependent Variable: Business Goals					

Source: Primary Data

Table 8

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	105.067	2	52.534	24077.212	.000**
	Residual	.648	297	.002		
	Total	105.715	299			

a. Dependent Variable: Business Goals

b. Predictors: (Constant), Digital Eco-Ads Effectiveness, Digital Ads channels Usage

Source: Primary Data

Table 9

Relationship between Linear combination of variables and Dependent variable						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.126	.012		10.630	.000**
	X ₁	1.626	.015	1.652	110.315	.000**
	X ₂	-.730	.015	-.713	-47.587	.000**
a. Dependent Variable: Business Goals						
b. Predictors: (Constant), X ₁ = Digital Ads channels Usage, X ₂ = Digital Eco-Ads Effectiveness						

Source: Primary Data

Table 10

Result	
R-Square value	0.994
Durbin Watson	2.124
P value	0.000**
Hypothesis	Rejected
B Coefficient – X ₁ - Digital Ad channel usage	Positive Variation
Level of Relationship between variable	Strong

Source: Primary Data

Interpretation

Table 7, Model reveals that R (multiple correlation coefficient) value is 0.997, It measures the degree of relationship between the Business Goal and predicted value (Digital Ad channel usage, Digital Eco-Ad effectiveness). R square (Coefficient determination) value is 0.994, it means that 99 percent of variation in the Business goal is explained by the variation in the dependent variables (Digital Ad channel usage, Digital Eco-Ad effectiveness) Adjusted R – Squared value is 0.994. It adjust the statistic based on the number of independent variables in model. This is the desired

property of a goodness-of-fit statistics. Durbin Watson statistics shows 2.124, indicates no auto correction.

Table 8 shows that F value is 24077.212 and P value (0.00) significant at 1 percent level, The robustness of the model, as evidenced by the high R-squared value and significant F-value, further validates the utility and relevance of these variables in driving business success in today's competitive digital landscape.

The coefficient of X_1 in Table 9 shows that 1 unit increase in the value of Digital Ads channels Usage would result in 1.626 (162 percent) of Increase in Business Goal, other variables being held constant. The coefficient value is significant at 1 percent level and t-statistic value of Digital Ads channels Usage also accounted for significant positive variations in Business Goal. The coefficient of X_2 in Table 9 shows that 1 unit increase in the value of Digital Eco-Ads Effectiveness would result in -.730 (73 percent) of decrease in Business Goal, other variables being held constant. The coefficient value is significant at 1 percent level and t-statistic value of Digital Eco-Ads Effectiveness also accounted for significant negative variations in Business Goal

The multiple regression analysis provides compelling evidence to **reject the null hypothesis (H_0)**, affirming that both digital Ad channels usage and the effectiveness of digital eco-ads exert a **significant impact on achieving Business Goals**. Specifically, a higher frequency of digital Ad channels usage positively influences Business Goals, while the effectiveness of digital eco-ads, although crucial, exhibits a slightly negative relationship. For Agri-foodpreneurs this insight underscores the importance of optimizing both digital Ad channels usage and eco-ad effectiveness strategically align with Business Goals. By leveraging data-driven strategies, refining advertising approaches, and fostering mutual interactions between digital channels and eco-ad effectiveness, Agri-foodpreneurs can navigate challenges, capitalize on opportunities, and cultivate a resilient, growth-oriented business ecosystem in the dynamic plant food industry landscape.

These result reflects the nuanced dynamics of digital marketing strategies in the context of agribusiness. While a higher frequency of utilizing digital Ad channels positively contributes to achieving business objectives, the slightly negative relationship

with the effectiveness of digital eco-ads implies a need for careful optimization. In a real-time scenario, Agri-foodpreneurs should not only focus on the quantity of digital Ad channels usage but also strive to enhance the quality and impact of their eco-advertising content. Balancing frequency and effectiveness becomes essential for maximizing the alignment of digital marketing efforts with generic business goals, ensuring a strategic and impactful presence in the competitive and dynamic agribusiness environment.

9. Findings

In this complete exploration of digital marketing practices among agri-foodpreneurs the findings illuminate the prevalent use and strategic preferences within the plant-based food industry. From the dominance of social media to the nuanced adoption of emerging platforms, these insights provide a nuanced understanding of the dynamic landscape where agribusiness and digital marketing converge. **Social Media:** High adoption rate (74 percent) indicates the integral role of social media in agribusiness marketing. Near-universal adoption (only 6 percent never use) underscores the widespread acceptance of social media for agri-foodpreneurs. **Email:** Substantial usage (64 percent) emphasizes the effectiveness of email in agribusiness communication. Low percent of non-users (only 10 percent) reflects the widespread acceptance and utility of email among agri-foodpreneurs. **Mobile:** Extensive adoption (60 percent) highlights the convenience and accessibility of mobile platforms for agribusiness operations. Low percent of non-users (12 percent) suggests the integral role of mobile platforms in real-time decision-making. **Video Ads:** Considerable adoption (44 percent) showcases the appeal and efficacy of video advertising for agri-foodpreneurs. Moderate non-usage (16 percent) suggests room for further exploration of video ads in conveying agricultural practices and storytelling. **Targeted Display:** Regular usage (34 percent) indicates the importance of targeted display advertising in reaching specific agribusiness audiences. Opportunities for growth (24 percent non-users) suggest potential areas to explore the benefits of targeted display ads for niche markets. **Pay-per-click Search:** Consistent usage (36 percent) underscores the importance of PPC search advertising in driving targeted traffic for agri-foodpreneurs. Opportunities for expansion (30 percent non-users) suggest untapped potential in capturing relevant search queries and enhancing digital visibility.

Other Platforms: Moderate adoption (16 percent) indicates a diverse digital marketing mix beyond mainstream channels. Majority non-usage (56 percent) suggests a focus on established channels but also potential opportunities to explore emerging platforms tailored to agribusiness needs.

In scrutinizing the interplay between the frequency of digital advertising channel usage and the perceived effectiveness among agri-foodpreneurs, this analysis aims to unveil the intricate dynamics shaping digital marketing strategies within the plant-based food sector. The robust relationship between agri-foodpreneurs digital Ad channels usage frequency and the perceived effectiveness of their digital ads, as indicated by the significant Pearson Chi-Square value (900.00) and a contingency coefficient of (0.866) indicates a conclusive dependence of the effectiveness of digital eco-advertisement on the usage of digital channels among agri-foodpreneurs, underscores the practical implications for strategic decision-making. In the competitive agribusiness landscape, where digital marketing plays a pivotal role, the findings stress the critical importance of carefully selecting, optimizing, and aligning digital advertising channels with target audiences and objectives. This strategic approach is essential to maximize impact, engagement, and return on investment, reflecting the dynamic nature of the plant-based food industry and its reliance on effective digital marketing practices. The intricate relationship between digital Ad channels usage, the effectiveness of digital eco-ads, and their combined impact on achieving Business Goals among agri-foodpreneurs, The positive correlation between the frequency of digital Ad channels usage and Business Goals underscores the importance of consistent and strategic utilization of digital advertising channels. However, the nuanced negative relationship with the effectiveness of digital eco-ads suggests that while crucial, mere effectiveness might not be the sole determinant of achieving business objectives. agri-foodpreneurs need to strike a balance, focusing not only on the effectiveness of their eco-ads but also on the strategic frequency of their usage. This balanced approach ensures a more comprehensive and impactful digital marketing strategy in the competitive and dynamic agribusiness environment.

10. Conclusion

The exploration of digital advertising channels within the plant-based food sector reveals their foremost significance in shaping the course of agripreneurial success. The dominance of social media, coupled with the strategic utilization of email, mobile platforms, video ads, targeted display, and pay-per-click search, underscores the diverse and dynamic nature of digital marketing strategies employed by agri-foodpreneurs. The findings affirm a robust relationship between the frequency of digital Ad. channels usage and the perceived effectiveness of eco-advertising efforts, highlighting the strategic adoption required for optimal impact. Moreover, the multiple regression analysis unveils a nuanced dynamic, where both the frequency of usage and the effectiveness of digital ads play pivotal roles in achieving business goals. Looking ahead, the future scope for digital advertising channels in the plant-based food sector appears promising, but with strategic considerations. agri-foodpreneurs must continue to adapt to evolving digital landscapes, leveraging emerging platforms and technologies to enhance their outreach. The emphasis should be on not just the effectiveness of ads but also on their strategic frequency, ensuring a balanced and comprehensive approach to digital marketing. As consumer preferences evolve and environmental consciousness continues to drive the demand for plant-based products, agri-foodpreneurs navigating this landscape with well-crafted digital advertising strategies are assured for sustained success and potency in the competitive agribusiness ecosystem.

11. Practical Implications

The conclusions drawn from the exploration of digital advertising channels in the plant-based food sector yield practical insights for agri-foodpreneurs. Strategically selecting and consistently utilizing a diverse range of channels, including social media, email, and video ads, emerges as a key imperative. The nuanced relationship between the frequency of digital Ad channels usage and the effectiveness of eco-ads underscores the need for a balanced approach. Agri-foodpreneurs should not only create effective eco-ads but also strategically deploy them. Looking ahead, the promising future scope in emerging platforms necessitates adaptability, encouraging agri-foodpreneurs to stay abreast of evolving digital landscapes. Aligning advertising strategies with consumer preferences, especially those inclined towards

sustainability, is crucial for resonance. Regular data-driven analysis, integration of environmental messaging, and investment in training and technology constitute essential components for navigating the competitive plant-based food sector successfully.

12. Limitations

Future research initiatives may enhance the robustness of this study by expanding the sample size beyond the current 300 respondents or exploring alternative sampling methodologies. Additionally, there is potential for targeted studies focusing on specific segments who might encounter barriers in adopting or benefiting from digital eco-marketing technologies. Future research can provide a more comprehensive portrayal of agri-foodpreneurs in the plant-based food sector, delving deeper into the impact and challenges associated with digital marketing channels within different demographic contexts. This expanded scope would contribute valuable insights to the evolving landscape of digital marketing strategies and their implications for diverse stakeholders in the agribusiness domain.

References

- Lee, H., & Cho, C. H. (2020). Digital advertising: present and future prospects. *International Journal of Advertising*, 39(3), 332-341.
- Deshmukh, S., & Patil, S. (2021). Transformation of Indian agriculture with digital marketing. *International Journal of Agriculture Sciences*, ISSN, 0975-3710.
- Chinakidzwa, M., & Phiri, M. (2020). Impact of digital marketing capabilities on market performance of small to medium enterprise agro-processors in Harare, Zimbabwe. *Business: Theory and Practice*, 21(2), 746-757.
- Nezamova, O., & Olentsova, J. (2021). The role of digital marketing in improving the efficiency of the product distribution system of agricultural enterprises in the Krasnoyarsk Region. In *E3S Web of Conferences* (Vol. 247, p. 01027). EDP Sciences.
- Bose, S. C., & Kiran, R. (2021). Digital marketing: a sustainable way to thrive in competition of agriculture marketing. *Bioinformatics for agriculture: High-throughput approaches*, 135-144.
- Lewandowska, A., Witczak, J., & Kurczewski, P. (2017). Green marketing today—a mix of trust, consumer participation and life cycle thinking. *Management*, 21(2), 28-48.
- Milanović, T., Popović, V., Vučković, S., Rakašćan, N., Popović, S., & Petković, Z. (2020). Analysis of soybean production and biogas

- yield to improve eco-marketing and circular economy. *Економика пољопривреде*, 67(1), 141-156.
- Dangelico, R. M., & Vocalelli, D. (2017). "Green Marketing": An analysis of definitions, strategy steps, and tools through a systematic review of the literature. *Journal of Cleaner production*, 165, 1263-1279.
 - Caiazza, R., & Bigliardi, B. (2020). Web marketing in agri-food industry: Challenges and opportunities. *Trends in Food Science & Technology*, 103, 12-19.
 - Elghannam, A., MESIAS, F., & ESCRIBANO, M. (2017). Can social networks contribute to the development of short supply chains in the Spanish agri-food sector?. *New Medit: Mediterranean Journal of Economics, Agriculture and Environment, Revue Méditerranéenne d'Economie Agriculture et Environment*, 16(1), 36.
 - Vlachopoulou, M., Ziakis, C., Vergidis, K., & Madas, M. (2021). Analyzing agrifood-tech e-business models. *Sustainability*, 13(10), 5516.
 - Fernández-Uclés, D., Bernal-Jurado, E., Mozas-Moral, A., & Medina-Viruel, M. J. (2020). The importance of websites for organic agri-food producers. *Economic research-Ekonomska istraživanja*, 33(1), 2867-2880.
 - Cui, L., Guo, S., & Zhang, H. (2020). Coordinating a green agri-food supply chain with revenue-sharing contracts considering retailers' green marketing efforts. *Sustainability*, 12(4), 1289.
 - Pilař, L., Kvasničková Stanislavská, L., & Kvasnička, R. (2021). Healthy food on the twitter social network: Vegan, homemade, and organic food. *International journal of environmental research and public health*, 18(7), 3815.
 - Ares, G., Antúnez, L., de León, C., Alcaire, F., Vidal, L., Natero, V., & Otterbring, T. (2022). 'Even if you don't pay attention to it, you know it's there': A qualitative exploration of adolescents' experiences with digital food marketing. *Appetite*, 176, 106128.