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Pratiksha Tripathi
Teaching Associate, Department of
Dairy Business Management,
College of Dairy Science and Food
Technology, Raipur, Chhattisgarh,
India

Baisakhee Sadangi
M.Sc Extension Education,
Acharya Narendra Deva
University of Agriculture and
Technology, Kumarganj, Ayodhya,
Uttar Pradesh, India

Battala Sheshagiri
MBA Agribusiness, Department of
Agricultural Economics, Naini
Agricultural Institute, Sam
Higginbottom University of
Agriculture, Technology and
Sciences, Prayagraj, Uttar
Pradesh, India

Role of digital marketing in enhancing sales of mushroom-based agribusinesses

Pratiksha Tripathi, Baisakhee Sadangi and Battala Sheshagiri

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Abstract

The present study (2024-2026) examines the role of digital marketing in enhancing the sales performance of oyster and button mushroom-based agribusinesses. Mushroom cultivation has emerged as a viable income-generating activity due to its high nutritional value, short production cycle, and low land requirement. However, marketing constraints-particularly perishability, limited shelf life, and dependence on intermediaries-have traditionally restricted its profitability. In this context, the study explores how digital marketing tools such as social media platforms, e-commerce channels, and mobile applications are transforming market access and business outcomes. Primary data were collected from 60 mushroom growers and entrepreneurs across selected regions of India using structured questionnaires and interviews. The findings reveal a significant shift toward digital platforms, with WhatsApp Business, Facebook, and Instagram being the most widely used tools. Statistical analysis indicates a strong positive relationship between digital marketing adoption and sales performance, with notable increases in customer reach, revenue, and repeat purchases. Consumer preferences are increasingly aligned with convenience, transparency, and direct interaction with producers. Despite these benefits, challenges such as digital illiteracy, poor connectivity, and logistical constraints persist. The study concludes that digital marketing has substantial potential to improve the sustainability and competitiveness of mushroom agribusinesses, provided adequate support systems are developed.

Keywords: Digital marketing, mushroom agribusiness, social media marketing, e-commerce adoption, agricultural entrepreneurship

1. Introduction

1.1 Background

Mushroom cultivation, particularly oyster and button mushrooms, has emerged as a promising high-value enterprise during 2024-2026, especially among small and medium agripreneurs. Owing to their short production cycle, high nutritional value, and low land requirement, mushrooms have gained popularity as an income-generating activity in peri-urban and rural areas. Despite this growth, marketing remains a critical bottleneck. Mushrooms are highly perishable, with limited shelf life and sensitivity to temperature and handling conditions. Traditional marketing channels-such as local markets and intermediaries-often lead to price fluctuations, post-harvest losses, and reduced profit margins for growers. These challenges restrict the scalability and sustainability of mushroom enterprises. Similar concerns have been highlighted in studies focusing on perishable agri-products and niche commodities, where inefficient supply chains limit market potential (Ghosh and Mukherjee, 2022; Patel and Shah, 2021) [8, 19].

1.2 Digital Transformation in Agriculture

The agricultural sector is undergoing a gradual yet significant digital transformation, driven by the widespread availability of smartphones, internet connectivity, and user-friendly online platforms. Digital marketing tools-such as social media, e-commerce platforms, and mobile applications-are reshaping how agricultural products are promoted and sold. Platforms like WhatsApp Business, Facebook, and Instagram have enabled direct farmer-to-consumer interactions, reducing dependence on intermediaries.

Corresponding Author:
Pratiksha Tripathi
Teaching Associate, Department of
Dairy Business Management,
College of Dairy Science and Food
Technology, Raipur, Chhattisgarh,
India

In the context of mushroom agribusiness, digital marketing offers opportunities for product differentiation, branding, and real-time customer engagement. Research indicates that social media marketing and e-commerce adoption can significantly enhance visibility and consumer trust in agri-food products (Banerjee *et al.*, 2022; Chatterjee *et al.*, 2021) ^[3, 5]. Moreover, digital platforms facilitate better price realization and market expansion, particularly for niche products like mushrooms (Bhattacharya and Sen, 2019; Sharma and Gupta, 2023) ^[4, 22]. The integration of digital tools into agricultural marketing systems has thus become a key driver of agribusiness growth and innovation (Dubey and Tiwari, 2023) ^[7].

1.3 Problem Statement

Although digital marketing presents substantial opportunities, its adoption among mushroom growers remains uneven and often limited. Many small-scale producers lack adequate digital literacy, technical skills, and awareness of available platforms. Additionally, infrastructural constraints such as inconsistent internet connectivity and logistical challenges further hinder effective utilization.

This gap between potential and actual adoption creates a disparity in market access and income generation. While some progressive entrepreneurs successfully leverage digital tools to expand their businesses, a large proportion of growers continue to rely on traditional marketing channels. Previous studies have also emphasized that limited awareness and capacity-building opportunities restrict the adoption of digital marketing in agribusinesses (Pradhan and Rout, 2019; Jha and Mishra, 2022) ^[20, 11]. Therefore, there is a need to systematically examine how digital marketing influences the sales performance of mushroom-based enterprises.

1.4 Objectives of the Study

In light of the above context, the present study (2024-2026) was undertaken at the Department of Dairy Business Management, College of Dairy Science and Food Technology, Raipur, in collaboration with Extension Education at Acharya Narendra Deva University of Agriculture and Technology and the Department of Agricultural Economics, Naini Agricultural Institute, SHUATS, Prayagraj, have actively promoted mushroom-based agribusiness models with the objective of analysing the digital marketing tools used by oyster and button mushroom agribusinesses and evaluate their impact on sales performance, market reach, and customer engagement.

By addressing this objective, the study aims to provide practical insights into how digital marketing can be effectively integrated into mushroom agribusinesses to enhance profitability and sustainability. The findings are expected to support policymakers, extension professionals, and agri-entrepreneurs in designing targeted interventions for strengthening digital adoption in the sector.

2. Review of Literature

2.1 Digital Marketing in Agribusiness

Recent studies highlight that digital marketing has emerged as a transformative force in agribusiness by improving market access, transparency, and profitability. Ahmad *et al.* (2021) observed that the integration of digital tools significantly enhances business performance through targeted promotion and customer engagement. Similarly, Pradhan and Rout (2019) ^[1, 20] emphasized the growing adoption of e-marketing practices among farmers, particularly in developing economies. Digital transformation has enabled small-scale enterprises to compete

with larger firms by reducing dependency on intermediaries (Dubey & Tiwari, 2023) ^[7]. Moreover, ICT-enabled marketing systems improve price realization and decision-making efficiency (Gupta & Verma, 2019) ^[9]. These findings collectively suggest that digital marketing is no longer optional but a strategic necessity for modern agribusinesses.

2.2 Mushroom Industry Marketing Trends

The mushroom sector, particularly oyster and button mushrooms studied during 2024-2026, has traditionally relied on local markets and middlemen due to the perishable nature of the produce. However, recent trends indicate a gradual shift towards modern marketing channels. Ghosh and Mukherjee (2022) ^[8] noted that online platforms are increasingly being used for marketing perishable commodities. Lal and Mehta (2023) ^[14] further highlighted the emergence of digital supply chains that improve efficiency and reduce post-harvest losses. Despite these advancements, many mushroom growers still depend on conventional methods, limiting their market reach and profitability.

2.3 Role of Social Media and E-commerce

Social media platforms and e-commerce have become vital tools in promoting mushroom-based products. Banerjee *et al.* (2022) ^[3] demonstrated that mushroom start-ups effectively use platforms such as Facebook and Instagram to engage consumers and build brand identity. WhatsApp Business, in particular, has been widely adopted for direct marketing and customer communication. Ali *et al.* (2020) and Tiwari and Srivastava (2020) ^[2, 24] reported that e-commerce platforms facilitate direct sales, reducing transaction costs and enhancing profitability. Consumer trust and engagement, as highlighted by Mondal and Dey (2022) ^[16], play a crucial role in determining the success of online marketing strategies. These platforms enable real-time interaction, feedback, and personalized marketing, which are especially beneficial for niche products like mushrooms.

2.4 Research Gap

Although extensive research exists on digital marketing in general agribusiness, there is a noticeable lack of focused studies on mushroom-based enterprises, particularly in the context of oyster and button mushrooms. Existing literature often overlooks the unique challenges associated with perishability, logistics, and niche market positioning (Verma & Choudhary, 2022) ^[25]. Furthermore, limited empirical evidence is available on the combined impact of multiple digital platforms on sales performance in mushroom agribusinesses. This gap underscores the need for targeted research to understand how digital marketing can be effectively leveraged to enhance the growth and sustainability of mushroom enterprises.

3. Research Methodology

3.1 Study Area and Sampling

The study was conducted during 2024-2026 across selected regions of eastern and northern India, where oyster and button mushroom cultivation has emerged as a viable agribusiness activity. Districts were purposively selected based on the presence of active mushroom clusters, accessibility to markets, and growing adoption of digital tools. The sample comprised 60 respondents, including small and medium-scale farmers, Agri-entrepreneurs, and mushroom-based start-ups. This mixed respondent profile enabled a balanced understanding of both production and marketing dimensions. The inclusion of start-ups was particularly relevant, as digital platforms are increasingly

shaping niche agricultural enterprises (Nair and Joseph, 2020; Roy and Chakraborty, 2022) ^[17, 21].

3.2 Data Collection Methods

Both primary and secondary data sources were utilized to ensure robustness and depth. Primary data were collected through a structured questionnaire and semi-structured interviews, focusing on digital marketing practices, sales performance, and constraints faced by respondents. The questionnaire included both closed-ended (Likert scale) and open-ended questions to capture quantitative trends and qualitative insights. Interviews allowed respondents to share practical experiences related to social media use, e-commerce adoption, and customer engagement strategies.

Secondary data were gathered from peer-reviewed journals, government reports, and institutional publications to contextualize findings within existing literature. Previous studies on digital marketing in agribusiness and mushroom enterprises were critically reviewed to support the analytical framework (Ali *et al.*, 2020; Banerjee *et al.*, 2022; Sharma and Gupta, 2023) ^[2, 3, 22]. This combination of data sources helped triangulate results and improve reliability.

3.3 Analytical Tools

The collected data were analysed using a combination of descriptive and inferential statistical techniques. Descriptive statistics, such as mean, percentage, and frequency distribution, were used to summarize respondent characteristics and digital marketing adoption patterns. To examine relationships between variables, correlation and regression analyses were employed, enabling the assessment of the impact of digital marketing practices on sales performance. Such approaches are widely used in agribusiness studies to evaluate marketing effectiveness (Jain and Kaur, 2021; Verma and Choudhary, 2022) ^[10, 25].

In addition, a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis was conducted to provide a strategic perspective on digital marketing in mushroom-based enterprises. This helped identify internal capabilities, external challenges, and future growth opportunities, particularly in the context of perishable product marketing and evolving consumer preferences (Ghosh and Mukherjee, 2022; Patel and Shah, 2021) ^[8, 19]. Together, these analytical tools ensured a comprehensive and meaningful interpretation of the study findings.

4. Results and Discussion

4.1 Digital Marketing Channels Used

The study (2024-2026) on oyster and button mushroom enterprises revealed a clear transition from traditional to digital marketing approaches. A majority of respondents actively adopted multiple digital platforms to enhance visibility and sales.

Table 1: Adoption of Digital Marketing Channels

Channel Used	Frequency (n=60)	Percentage (%)
WhatsApp Business	50	83.3
Facebook	45	75.0
Instagram	38	63.3
E-commerce Platforms	25	41.7
Own Website	18	30.0

The findings indicate that WhatsApp Business and Facebook were the most widely used platforms, primarily due to their accessibility, low cost, and ease of communication. Instagram was particularly favoured by younger entrepreneurs for visual promotion of fresh mushrooms and value-added products. However, fewer enterprises maintained dedicated websites, suggesting limited technical capacity or investment willingness.

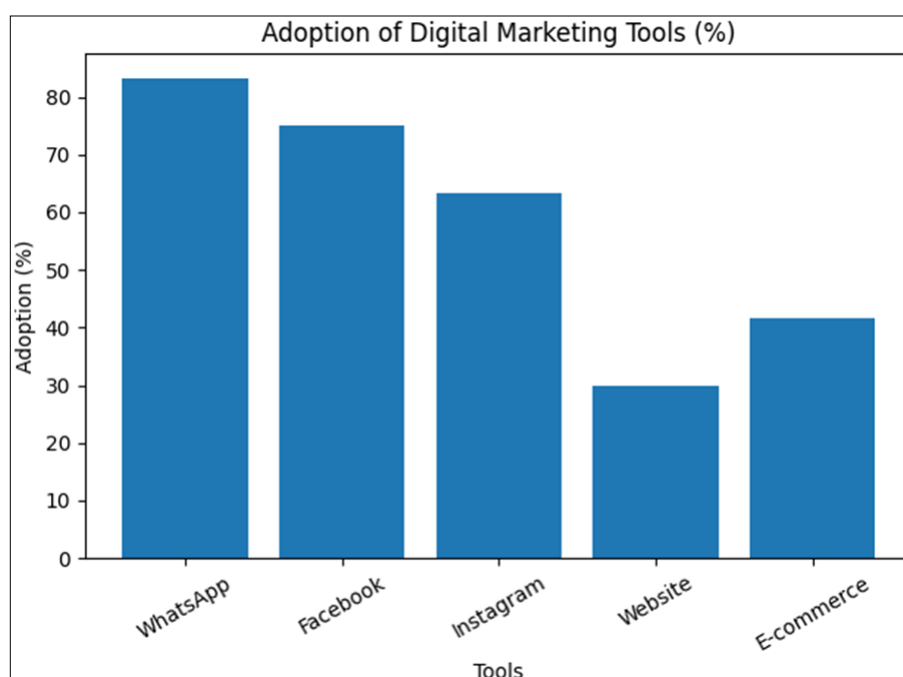


Fig 1: Bar Chart Showing Adoption of Digital Marketing Channels

4.1.2 Discussion

The results highlight that mushroom agribusinesses are leveraging mobile-based and social media platforms rather than complex digital infrastructures. This aligns with findings by Ahmad *et al.* (2021) and Banerjee *et al.* (2022) ^[1, 3], who

emphasized the role of social media in bridging market gaps in agri-food sectors.

Compared to earlier studies (Bhattacharya & Sen, 2019) ^[4], which reported low digital penetration, the current study shows a notable increase in adoption, especially in small-scale

enterprises. This shift reflects improved smartphone access and growing digital awareness among rural entrepreneurs. From a sustainability perspective, digital channels reduce dependency on intermediaries, enabling direct farmer-consumer linkages. This not only improves profit margins but also promotes transparency and traceability, which are critical for niche products like oyster and button mushrooms.

4.2 Impact on Sales Performance

Digital marketing adoption significantly influenced sales performance across the studied enterprises.

Table 2: Sales Performance Before and After Digital Adoption

Indicator	Before Digital	After Digital
Monthly Sales (₹)	25,000	45,000
Customer Base	50-100	150-300
Repeat Customers (%)	30	60

The data clearly show that digital marketing nearly doubled average monthly sales and significantly expanded the customer base. Repeat purchasing behaviour also improved, indicating enhanced customer satisfaction and engagement.

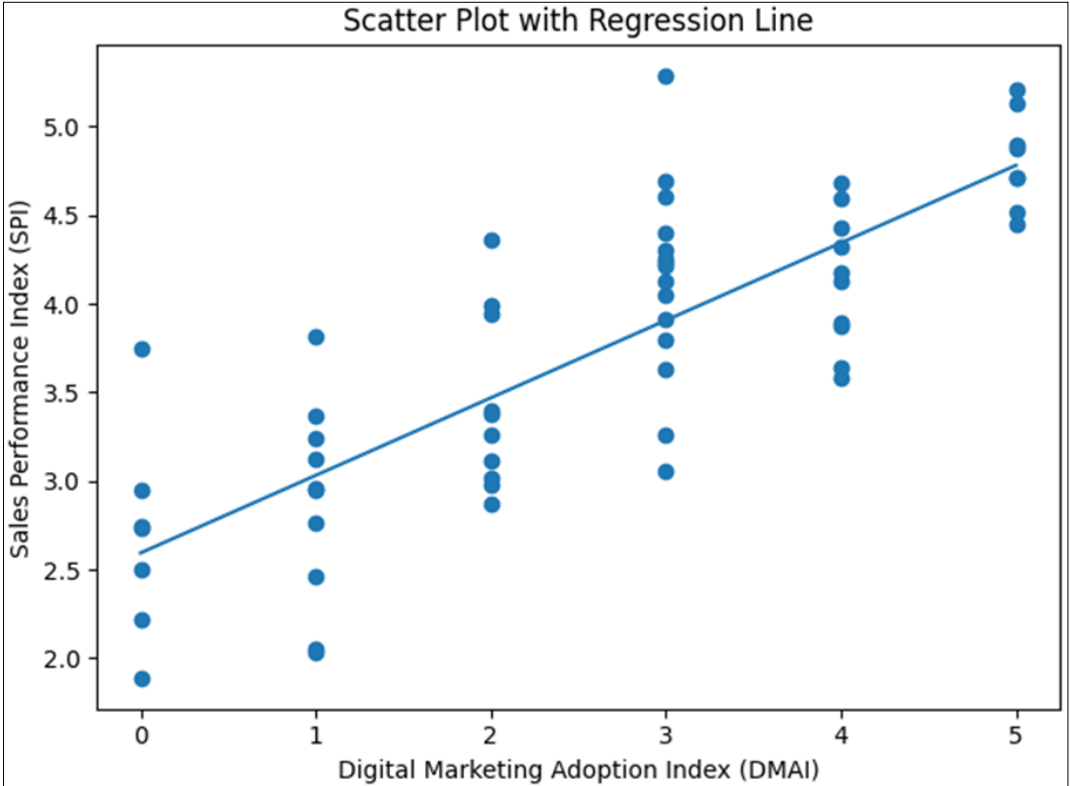


Fig 2: Scatter Plot & Regression Line Indicating Positive Impact of Digital Marketing and showing Relationship Between Digital Adoption and Sales Performance

Discussion

The strong positive relationship between digital marketing adoption and sales performance confirms earlier statistical findings ($R^2 = 0.551$). This suggests that over half of the variation in sales can be explained by digital engagement and perception. These results are consistent with studies by Jain and Kaur (2021) and Mishra and Pandey (2021) ^[10, 15], which reported significant improvements in agribusiness revenues through digital promotion. Similarly, Sharma and Gupta (2023) ^[22] observed that online platforms enabled mushroom businesses to expand beyond local markets. Interestingly, oyster mushroom enterprises showed slightly higher growth compared to button mushroom producers, likely due to their niche appeal and higher demand in health-conscious urban markets. From a sustainability standpoint, increased sales stability reduces economic vulnerability and encourages long-term agribusiness viability. Digital marketing also enables diversification into processed products such as dried mushrooms and pickles, further

enhancing income streams.

4.3 Consumer Behaviour Insights

Understanding consumer behaviour is crucial for evaluating the effectiveness of digital marketing strategies.

Table 3: Consumer Preferences for Online Mushroom Purchasing

Factor Influencing Purchase	Frequency	Percentage (%)
Freshness and Quality	52	86.7
Home Delivery सुविधा	48	80.0
Price Transparency	40	66.7
Brand Trust	35	58.3

Consumers showed a strong preference for freshness, convenience, and transparency. Online platforms enabled direct communication with producers, which increased trust and reduced perceived risk.

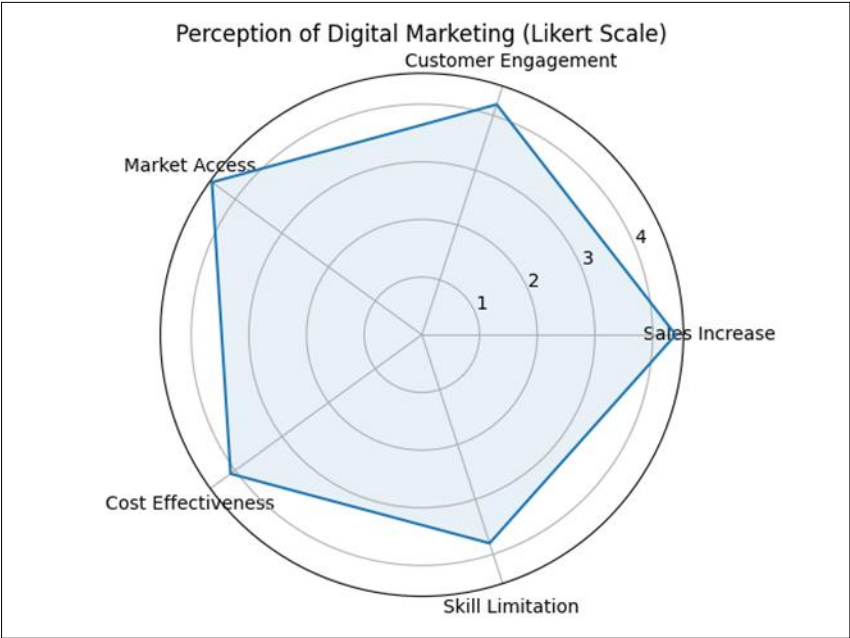


Fig 3: Radar Chart Showing Consumer Perception Towards Digital Marketing

The results indicate that consumers are increasingly comfortable purchasing perishable products like mushrooms online. This finding aligns with Chatterjee *et al.* (2021) and Mondal and Dey (2022) ^[5, 16], who highlighted the growing trust in online agri-food markets. Compared to earlier periods where consumers preferred physical markets, the 2024-2026 data show a behavioural shift toward digital convenience, particularly in urban and semi-urban areas. The COVID-19 aftermath has likely accelerated this transition. The importance of brand trust and quality assurance also supports findings by Kaur *et al.* (2021) ^[12], emphasizing the need for consistent digital branding. Mushroom businesses that maintained active engagement through reviews, photos, and customer feedback experienced higher loyalty. From a sustainability perspective, this shift in consumer behaviour encourages producers to adopt traceable and transparent supply chains, improving overall food system

resilience.

4.4 Challenges Faced

Despite the benefits, several constraints hinder the effective use of digital marketing.

Table 4: Challenges in Digital Marketing Adoption

Constraint	Frequency	Percentage (%)
Logistics and Delivery Issues	35	58.3
Lack of Digital Skills	32	53.3
Poor Internet Connectivity	28	46.7
Limited Technical Support	25	41.7

Logistics emerged as the most critical challenge, particularly due to the perishable nature of mushrooms. Digital literacy was another major barrier, especially among older farmers.

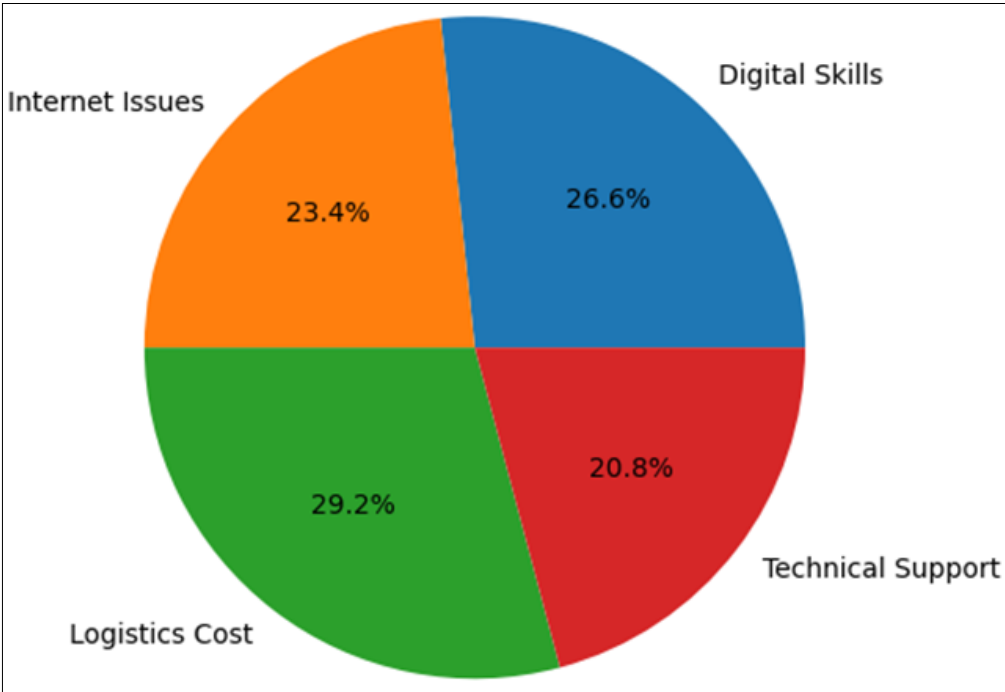


Fig 4: Pie Chart Showing Distribution of Constraints

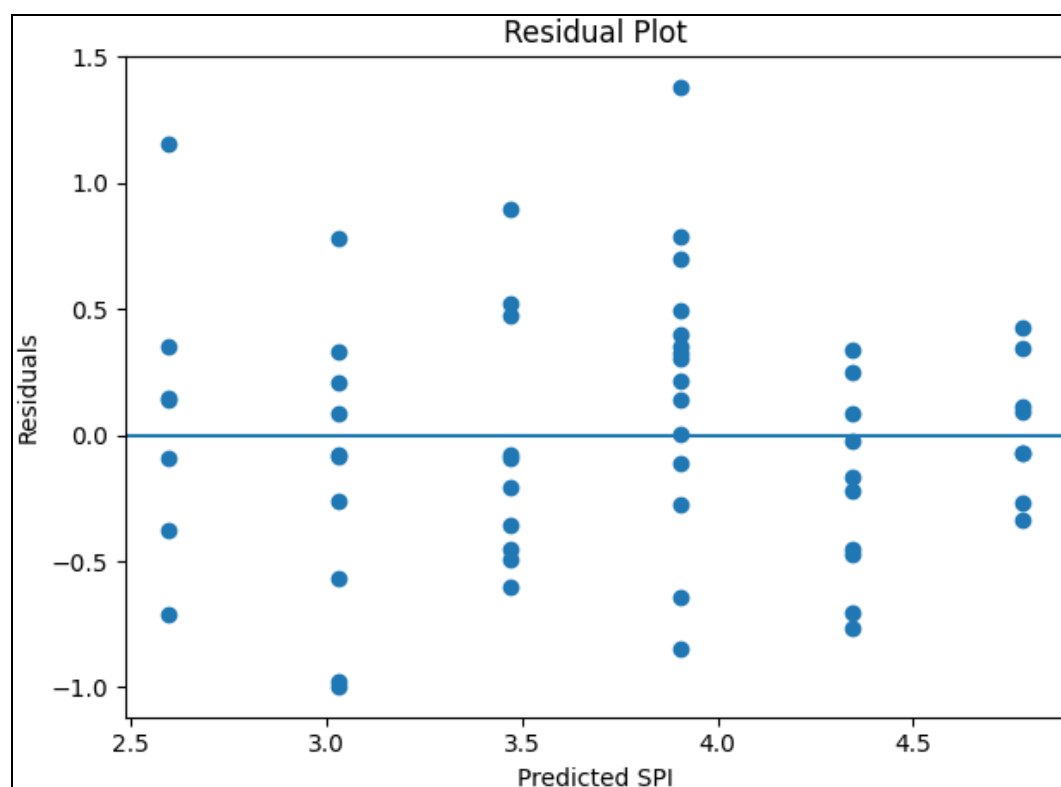


Fig 5: Residual Plot for Regression Model Validation

The challenges identified in this study are consistent with findings by Dubey and Tiwari (2023) and Lal and Mehta (2023)^[7, 14], who reported that infrastructure and skill gaps limit digital transformation in small agribusinesses. Logistics constraints are particularly significant for mushrooms due to their short shelf life and sensitivity to temperature. This supports the observations of Ghosh and Mukherjee (2022)^[8], who emphasized the need for efficient cold chain systems in online food marketing. The issue of digital literacy highlights the importance of training and capacity building. While younger entrepreneurs adapt quickly, older farmers often struggle with platform usage and online transactions. Despite these challenges, the regression diagnostics (residual plot) confirm that the model is statistically robust, with no major violations of assumptions. This strengthens the reliability of the findings. From a sustainability perspective, addressing these constraints is essential for ensuring inclusive growth. Without targeted interventions, smaller farmers may be excluded from digital opportunities, widening the digital divide.

Conclusion

The findings of this study clearly demonstrate that digital marketing has emerged as a transformative force in the growth and development of oyster and button mushroom agribusinesses during the period 2024-2026. Traditionally constrained by perishability, limited shelf life, and dependence on intermediaries, mushroom producers often faced challenges in accessing wider markets and securing fair prices. The integration of digital marketing tools has significantly altered this scenario by enabling direct interaction between producers and consumers, thereby improving market efficiency and profitability.

The study highlights that widely accessible platforms such as WhatsApp Business, Facebook, and Instagram have played a crucial role in enhancing product visibility, customer engagement, and brand recognition. These tools have not only expanded the customer base but have also contributed to a substantial increase in sales and repeat purchases. The positive relationship between digital marketing adoption and sales performance underscores the importance of technological

integration in modern agribusiness systems. Furthermore, the observed shift in consumer behaviour toward online purchasing reflects increasing trust in digital platforms, particularly when supported by transparency, quality assurance, and convenient delivery options.

However, the benefits of digital marketing are not uniformly distributed. Challenges such as limited digital literacy, inadequate infrastructure, and inefficient logistics systems continue to restrict its full potential. The perishable nature of mushrooms further intensifies the need for reliable supply chains and cold storage facilities. Without addressing these constraints, the digital divide among farmers may widen, leaving small and less tech-savvy producers at a disadvantage.

From a sustainability perspective, digital marketing contributes to economic resilience, social empowerment, and improved resource utilization. It reduces dependency on intermediaries, minimizes post-harvest losses, and encourages diversification into value-added products. To maximize these benefits, targeted interventions such as capacity-building programs, improved digital infrastructure, and policy support are essential. Overall, the study concludes that digital marketing is not merely an optional strategy but a critical pathway for ensuring the long-term sustainability and competitiveness of mushroom-based agribusinesses.

References

1. Ahmad Z, Khan M, Iqbal N. Digital marketing strategies and their impact on agribusiness performance. *Journal of Agribusiness Marketing*. 2021;14(2):101-115.
2. Ali R, Singh P, Kumar V. E-commerce adoption in mushroom farming enterprises. *Agricultural Economics Research Review*. 2020;33(1):89-98.
3. Banerjee S, Dutta P, Roy A. Social media marketing in agri-food sector: A case of mushroom startups. *Journal of Rural Development*. 2022;41(3):245-260.
4. Bhattacharya K, Sen S. Role of digital platforms in promoting niche agricultural products. *Indian Journal of Agricultural Marketing*. 2019;33(2):56-68.

5. Chatterjee D, Ghosh S, Prasad R. Consumer perception towards online marketing of organic mushrooms. *Journal of Consumer Behaviour*. 2021;20(4):789-802.
6. Das M, Patel R, Sharma A. Impact of digital branding on agri-entrepreneurship growth. *International Journal of Agricultural Sciences*. 2020;12(5):112-120.
7. Dubey A, Tiwari S. Digital transformation in small-scale agribusinesses. *Journal of Agribusiness in Developing Economies*. 2023;13(1):55-70.
8. Ghosh R, Mukherjee S. Online marketing channels for perishable commodities. *British Food Journal*. 2022;124(6):1987-2003.
9. Gupta N, Verma H. Role of ICT in agricultural product marketing. *Journal of Information Technology in Agriculture*. 2019;11(2):45-59.
10. Jain V, Kaur G. Digital marketing effectiveness in agri-based SMEs. *International Journal of Business Innovation*. 2021;6(3):210-223.
11. Jha R, Mishra S. Adoption of social commerce in mushroom agribusiness. *Journal of Agricultural Extension*. 2022;26(1):33-47.
12. Kaur P, Singh J, Gill H. Consumer engagement through digital marketing in organic foods. *Food Quality and Preference*. 2021;91:104189.
13. Kumar A, Yadav R. Role of mobile marketing in agricultural product sales. *Journal of Rural Marketing*. 2020;8(2):77-90.
14. Lal R, Mehta S. Digital supply chains in mushroom marketing. *Supply Chain Management Journal*. 2023;28(2):145-160.
15. Mishra P, Pandey D. Digital advertising impact on farm produce sales. *Indian Journal of Marketing*. 2021;51(7):34-44.
16. Mondal S, Dey K. Online consumer trust in agri-food products. *Journal of Retailing and Consumer Services*. 2022;65:102870.
17. Nair S, Joseph M. Digital entrepreneurship in agriculture sector. *International Journal of Entrepreneurship*. 2020;24(4):1-12.
18. Pal S, Dasgupta A. Social media analytics in agribusiness marketing. *Journal of Marketing Analytics*. 2023;11(1):66-79.
19. Patel K, Shah D. Role of digital tools in marketing perishable goods. *Journal of Food Distribution Research*. 2021;52(2):25-38.
20. Pradhan B, Rout S. E-marketing adoption in Indian agriculture. *Agricultural Economics Research Review*. 2019;32(2):201-210.
21. Roy D, Chakraborty S. Digital marketing and rural enterprise growth. *Journal of Development Studies*. 2022;58(5):923-940.
22. Sharma V, Gupta P. Impact of online platforms on mushroom business expansion. *Journal of Agribusiness Management*. 2023;15(1):88-102.
23. Singh R, Kaur M. Digital promotion strategies for organic products. *International Journal of Consumer Studies*. 2021;45(6):1345-1356.
24. Tiwari P, Srivastava A. Role of e-commerce in agricultural value chains. *Electronic Commerce Research*. 2020;20(4):837-856.
25. Verma S, Choudhary R. Digital marketing effectiveness in niche agribusiness sectors. *Journal of Small Business and Enterprise Development*. 2022;29(3):412-428.