



## **BENEFITS OF DIGITAL MARKETING TOOLS AMONG LIVESTOCK FARMERS IN TARABA STATE**

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### **ABSTRACT**

This study examined benefits of digital marketing tools among livestock farmers in Taraba State, Nigeria. It specifically determine the level of utilization of the digital marketing tools, the benefits of digital marketing tools among livestock farmers and the factors influencing the use of digital marketing tools. A multi-stage sampling procedure was employed to select 384 respondents for this study. Primary data were collected using questionnaire and frequency distribution, percentage, mean, standard deviation, Pearson Correlation Coefficient and logistic regression were used to analysed the data collected. The result shown that Facebook ( $\bar{x} = 3.6$ ), WhatsApp ( $\bar{x} = 3.1$ ), and SMS ( $\bar{x} = 3.0$ ) were the major digital marketing tools utilized. The major benefit of digital marketing tools are increased sales (91.1%), improved access to market information (88.0%), and enhanced communication with buyers (87.0%). Ease of use ( $P < 0.001$ ), age ( $P < 0.001$ ), extension contact ( $P < 0.000$ ), farm size ( $P < 0.023$ ), and sex ( $P < 0.000$ ) are the influencing factors the use of digital marketing tools. Pearson correlation coefficient analysis demonstrated a significant positive relationship ( $P < 0.000$ ) between benefits and farmers' utilization of digital marketing tools. The research concludes that digital marketing increases sales, access to market and enhanced communication with buyers among livestock farmers in the study area. The study concludes that digital marketing tool increases sales, access to market and enhanced communication with buyers. Extension Agents in Taraba State should develop and disseminate easy-to-use digital marketing applications tailored to farmers' needs.

**Keywords:** Benefit, Digital, Marketing, Tools, Livestock, Farmers

### **INTRODUCTION**

The use of animals in our daily lives has been really important for a long time, and it has changed many things about the way we live and work (Damania & Joshi, 2025). At first, animals were mainly used to help people get the food and other things they needed to survive. But over time, the livestock industry has become a big part of modern farming, with new technologies and changes in what people want to buy (Achmad *et al.*, 2022). In recent years, the livestock industry has grown a lot, mostly because more people are moving to cities, the population is getting bigger, and the world is becoming more connected. This has made the livestock industry really important for making sure people have enough food, for helping the economy grow, and for preserving cultural traditions all around the world (Sheng *et al.*, 2020; Sekaran *et al.*, 2021). In Nigeria, livestock farming plays a huge role in supporting millions of people and contributing significantly to the national economy. However, despite its importance, the sector is still not performing as well as it could be. One of the main reasons for this is that many farmers are still using traditional methods of marketing, which can be limiting due to the country's poor infrastructure and lack of access to modern technology, as noted by researchers like (Gavrilova, 2020; Daniel, 2023). But as the world becomes increasingly digital, there's a growing interest in how digital marketing tools can be used to improve livestock marketing practices, especially for smallholder farmers who make up the majority of the sector. By embracing digital solutions, these farmers may be able to reach more customers, get better prices for their products, and ultimately improve their livelihoods.

Taraba State, well known for its livestock resources and outstanding livestock trade, presents a unique context where digital marketing could transformed traditional practices. However, farmers in this area often face challenges such as low digital literacy, limited awareness of available digital tools, and infrastructural constraints that hinder their ability to leverage the benefits of digital platforms. This



study examine the benefits of digital marketing tools among livestock farmers in Taraba State, Nigeria. Specifically,

- i. examine the level of utilization of the digital marketing tools among livestock farmers;
- ii. examine the benefits of digital marketing tools among livestock farmers; and
- iii. determine the factors influencing the use of digital marketing tools among livestock farmers.

It also test the hypothesis there is no significant relationship between the benefits of digital marketing tools and Livestock farmers' utilization of these tools.

## **METHODOLOGY**

### **The Study Area**

This study was conducted in Taraba State. The state is located between latitude 6°30'N and 9°36' N and longitude 9° 10'E and 11°50'E of the Greenwich meridian. It has a landmass area of 60,291.82km<sup>2</sup> with a population of 2,294,800 (NPC, 2006) and a projected 3,785,747 people as at 2025 based on 3.2% annual population growth of the State. Taraba State is bordered by Bauchi and Gombe State to the North-East, Adamawa State to the East and by Plateau State to the North- West. It is bordered to the West by Nasarawa and Benue States. It shares an international boundary with the republic of Cameroon in the South-Western part as shown in figure 2. The state has a mean annual rainfall of about 1000-1500mm with a temperature of 15°C to 38°C depending on the season and locality within the state. The dry and rainy seasons common to the tropical regions are also the dominant climatic features found in the State. The rainy season start by early April and last till October while the dry season start by November and ends in March. It has undulating topography with complex group of mountains and hills. The soil type ranges from sandy to sandy – loamy which makes it rural inhabitants mostly farmers (Emmanuel *et al.*, 2024). The state is endowed with many rivers and streams and large water bodies. This natural environment with its seasonal climate, varied topography, and abundant water resources creates favorable conditions for diverse livestock production systems (Oruonye *et al.*, 2024).

The state comprises three distinct vegetation zones: the Guinea Savannah in the southern parts such as Wukari, Takum, and Donga LGAs, characterized by forests and tall grasses; the Sudan Savannah in areas like Jalingo and Lau, marked by short grasses interspersed with short trees; and the semi-temperate zone on the Mambilla Plateau, featuring grasses with tall trees. Crops and livestock production are the major sources of employment for the inhabitants, with rice, maize, yam, and cassava being the predominant staples of most peasant families. The majorities of LGAs are connected to the national grid and have access to modern means of communication, which support the growth of digital marketing. Institutions such as banks and savings and learning centers provide essential financial and educational services, including mobile banking, digital literacy, and capacity building for local entrepreneurs and farmers. Educational institutions further facilitate digital skills development, enabling smallholder farmers and traders to leverage online platforms for marketing their products. Additionally, the presence of markets and trading centres, combined with telecommunications infrastructure, creates opportunities for digital marketing of agricultural produce, crafts, and other local products. The diverse ethnic composition, including groups like the Jukum, Hausa-Fulani, Mumuye, Yandang, Wurkum, Kuteb, Tiv, and Mambila also allows for culturally tailored digital marketing strategies, reaching various communities effectively.

### **Sampling Technique and Sample Size**

The study employed a multi-stage and snowball sampling procedure to select respondents. In the first stage, all the four agricultural zones in the state were used for the study. In the second stage, simple random sampling techniques were used to select two blocks from the six blocks in Zone I, three blocks from the four blocks in Zones II and III, and one block in Zone IV. The selected blocks included Ardo-Kola and Lau in Zone I, Bali, Gassol, and Wukari in Zone II, Donga, Takum, and Kurmi in Zone III, and Sardauna in Zone IV.

In the third stage, two cells were selected from each chosen block using simple random sampling. These included Jauro Yinu and Iware in Ardo-Kola, Jimlari and Mayo-Lope in Lau, Garba-



Chede and Daka in Bali, Nannai and Tella in Gassol, Rafinkada and Bantaje in Wukari, Mararraba and Tor-Damisa in Donga, Tampa and Rogo in Takum, and Abong and Kpwola in Kurmi, as well as Gembu I and Nguroji in Sardauna.

In the fourth stage, Stratified sampling was employed to ensure representative inclusion of farmers across different livestock categories. The population was first divided into strata based on the type of livestock i.e. cattle, goats, sheep, poultry, and pigs. Within each stratum, farmers were selected using snowball sampling techniques. Initial respondents were identified through local leaders and extension agents, and these farmers were asked to refer other farmers involved in livestock rearing who met the study criteria. This process continued until the desired number of respondents per cell was reached.

The total sample size for this study was determined using Cochran's formula for sample size calculation, considering an estimated proportion of livestock farmers engaged in digital marketing activities, a 95% confidence level, and a 5% margin of error. A total of 384 respondents were used for this study, rounded to the nearest whole number, based on the calculations.

### **Data Collection**

Data for this study were collected from primary sources through the administration of structured questionnaires.

### **Data Analysis**

Frequency, percentage, mean and standard deviation were used to analyse the level of utilization of the digital marketing tools and the benefits of digital marketing tools among livestock farmers, logistic regression was used to analyse the factors influencing the use of digital marketing tools. Pearson Correlation Coefficient was used to test the hypothesis.

## **RESULTS AND DISCUSSION**

### **Level of Utilization of Digital Marketing Tools by Livestock Farmers**

The result on the level of utilization of digital marketing tools amongst the livestock farmers is shown in Table 1. The result revealed that there were high levels of utilization of Facebook ( $\bar{x} = 3.6$ ), WhatsApp ( $\bar{x} = 3.1$ ) and SMS/Text messaging ( $\bar{x} = 3.0$ ). These findings imply that livestock farmers mainly use Facebook, WhatsApp, and messaging apps for digital marketing, while their use of other digital tools is less common. The variation in usage levels, indicated by the higher standard deviations, may be due to differences in digital skills, access to technology, or how useful farmers find these tools. Since these platforms are widely used, agricultural extension services, marketers, and policymakers can use Facebook, WhatsApp, and SMS to share information, promote products, and support farmers. This finding is similar to the study of Triatmojo *et al.* (2024) who highlight the importance of demographic targeting on mobile applications, indicating that smallholder farmers tend to favor specific digital platforms based on their demographic profiles, which aligns with the observed preference for Facebook and WhatsApp in this study. Mapiye *et al.* (2023) also emphasize the potential of ICTs to enhance the dissemination of agricultural information among smallholder farmers in sub-Saharan Africa, suggesting that leveraging widely used platforms like Facebook and WhatsApp can significantly improve communication and information flow. Additionally, Konoplyannikova *et al.* (2024) discuss the role of social media strategies in agricultural marketing, reinforcing the idea that these digital tools are vital for effective marketing and communication in the agricultural sector.

**Table 1:** Level of Utilization of Digital Marketing Tools by Livestock Farmers

| Digital Marketing Tools               | Mean | Std. Deviation |
|---------------------------------------|------|----------------|
| Facebook                              | 3.6  | 1.53           |
| WhatsApp                              | 3.1  | 1.57           |
| SMS/Text messaging                    | 3.0  | 1.44           |
| YouTube                               | 2.3  | 1.37           |
| Online marketplaces (e.g., Jiji, OLX) | 2.2  | 1.24           |
| Google My Business                    | 2.1  | 1.27           |
| Farm management apps                  | 2.1  | 1.21           |
| Instagram                             | 2.0  | 1.27           |

**Source:** Field Survey, 2025



### Benefits of Digital Marketing Tools among Livestock Farmers

The result in Table 2 shows the benefits of digital marketing tools among livestock farmers. The results indicated that majority (91.1%) of respondents reported that digital marketing tools contributed to increased sales. This high percentage implies that digital marketing platforms are effectively enabling farmers to reach wider markets and convert their online engagement into tangible sales outcomes. This finding underscores the importance of digital tools in enhancing the commercial viability of livestock farming, especially in places where traditional marketing channels may be limited or less efficient. This aligns with findings by Triatmojo *et al.* (2024) that targeted digital tools can significantly boost farmers' sales by connecting them directly with buyers and reducing intermediary costs.

The result also showed that improved access to market information was also highly valued, with 88.0% of farmers acknowledging this benefit. This show that access to accurate and timely market information enables farmers to make better-informed choices regarding pricing, supply, demand, and market trends, thereby reducing information asymmetry that typically disadvantages smallholder farmers. This high acknowledgment of improved market information aligns with previous studies (Qamara & Widiarta, 2026), which highlight that digital platforms serve as vital channels for disseminating market data, such as current prices, buyer preferences, and market opportunities. Such access empowers farmers to negotiate better deals, avoid market exploitation, and plan their production cycles more effectively, ultimately leading to increased profitability and reduced marketing risks.

Furthermore, the results revealed that digital marketing tools also enhanced communication with buyers (87.0%). Improved communication is critical in agricultural marketing as it enables farmers to negotiate prices, clarify product specifications, and respond promptly to buyer inquiries, thereby reducing misunderstandings and building trust (Widiarta *et al.*, 2025). Enhanced communication with buyers can also lead to better market intelligence, allowing farmers to gather timely information on demand trends, quality requirements, and market expectations. This responsiveness can improve product quality and align production with market needs, ultimately increasing sales and profitability. Furthermore, improved communication fosters stronger relationships, which are essential for repeat business and customer loyalty (Ariffin *et al.*, 2021).

**Table 2:** Benefits of Digital Marketing Tools among Livestock Farmers

| Benefic                               | Frequency | Percentage |
|---------------------------------------|-----------|------------|
| Increased sales                       | 350       | 91.1       |
| Improved access to market information | 338       | 88.0       |
| Enhanced communication with buyers    | 334       | 87.0       |
| Expanded customer reach               | 323       | 84.1       |
| Improved brand awareness              | 295       | 76.8       |
| Reduced marketing costs               | 250       | 65.1       |
| No impact                             | 127       | 33.1       |
| Others                                | 42        | 10.9       |

**Source:** Field Survey, 2025

### Factors Influencing the Use of Digital Marketing Tools

The results from the logistic regression, shown in Table 3, highlight several important factors that influenced livestock farmers' use of digital marketing tools. The model fits the data well, with about 56% to 68% of the differences in tool use explained by the factors studied. It is also statistically significant ( $p$ -value  $< 0.001$ ), meaning the results are reliable. Plus, the model correctly predicts farmers' behaviour in 82% of cases, underscoring its predictive robustness.

The result shows that the coefficient of ease of use of digital tools was positive and significant at ( $P < 0.01$ ). This means that as the ease of use of digital tools increases, the likelihood that livestock farmers will use these tools also increases, and this effect is highly reliable given the significance level. Since the ease of use of digital marketing tools has a positive and highly significant effect on livestock farmers' usages, simplifying these tools and making them more user-friendly could lead to increased



usages among livestock farmers. Improving the user-friendliness of digital marketing tools can significantly boost their rates of use among livestock farmers, leading to more effective marketing activities and potentially better market access and income. This study aligns with the study of Patil *et al.* (2025) that user-friendly digital platforms facilitate greater engagement among farmers, leading to improved market access and income. Their studies suggest that reducing the complexity of digital tools is crucial, especially for farmers with limited technical skills, to encourage widespread use. Also, according to Triatmojo *et al.* (2024), perceived ease of use is a core component of the Technology Acceptance Model (TAM), which posits that users are more likely to adopt and use new technologies when they find them simple and user-friendly.

The coefficient for age is negative and statistically significant ( $\beta = -0.087$   $P < 0.001$ ). This implies that as age increases, the likelihood of using digital marketing tools decreases. Older livestock farmers are less likely to use digital marketing tools for their livestock marketing activities compared to younger farmers. The negative coefficient also implies that as the farmers advance in age, their usage of digital marketing tools reduces, this may be because old person tends to be preoccupied with their family responsibilities and their businesses, these responsibilities significantly reduce the level at which the farmers use the digital marketing tools. This finding aligns with Olaitan *et al.* (2025), who observed that younger farmers are generally more open to technological innovations due to their familiarity with digital tools and greater adaptability. Older farmers may face challenges such as lower digital literacy or resistance to adopting new practices, which can reduce their likelihood of using mobile applications. Similarly, Ahmad *et al.* (2025), in their study on factors influencing farmer's usage of social media platforms for livelihood activities in North West Nigeria, found that the coefficient of age was negative and significant at the 1% level of probability.

Extension contact significantly increased the likelihood of digital tool usage ( $\beta = 1.210$   $P < 0.000$ ), indicating that farmers who maintain regular interactions with extension agents are substantially more likely to adopt digital marketing tools. This strong association underscores the critical role that extension services play in bridging information gaps and enhancing farmers' technological capabilities. Farmers with more frequent contact with extension officers are likely to receive targeted training, demonstrations, and updates on new digital platforms, which can explain the use of such tools and build their confidence in integrating technology into their farming practices. Moreover, extension agents often serve as trusted sources of information and guidance, helping farmers understand the benefits and practical applications of digital marketing, thereby reducing perceived risks and uncertainties associated with usages. *et al.* (2024) highlight that extension services are instrumental in bridging information gaps and building farmers' confidence in adopting digital platforms, which resonates with the finding that frequent extension contact increases digital tool usage. Ogunsola *et al.* (2022) emphasize the use of new media in extension communication, underscoring that consistent interaction with extension agents and digital communication channels can improve farmers' familiarity and comfort with digital tools.

Access to wider markets was also a significant factor influencing the use of digital marketing tools ( $\beta = 1.149$   $P < 0.011$ ). This positive and statistically significant coefficient implies that farmers who recognize digital marketing tools as effective channels for reaching broader markets are substantially more inclined to use these platforms for their livestock marketing activities. Specifically, farmers who perceive the potential for increased market access through digital means are more likely to utilize these tools compared to those who do not see such benefits. This underscores the importance of market connectivity in driving digital adoption; livestock farmers are motivated to engage with digital marketing platforms primarily when they believe these tools can help them expand their customer base, access new buyers, and ultimately increase their sales and income. Therefore, enhancing farmers' awareness of how digital marketing can provide tangible market advantages may further promote usage, leading to more efficient and profitable livestock marketing practices. This finding corroborates with the study of Oseni (2025) that digital trading platforms can address international market access challenges faced by Nigerian farmers, opening new opportunities for export and broader market reach. Similarly, Awotunde *et al.* (2025) demonstrate how leveraging mobile technology can optimize market information dissemination, thereby improving productivity among poultry farmers by expanding their market access and facilitating better decision-making.



Farm size was a significant factor influencing the use of digital marketing tools ( $\beta = 0.623$   $P < 0.023$ ). This shows that livestock farmers managing larger farms are likely to use digital marketing tools more than those with smaller farms. Larger livestock farm operators may have greater resources and access, making them more capable and motivated to leverage digital marketing tools for market information, networking, and other livelihood benefits. This finding is consistent with the work of Ekokogbe *et al.* (2025), who identified socioeconomic factors including farm size as key determinants influencing social media usage among poultry farmers in Nigeria. Similarly, Abioye *et al.* (2024) observed that farmers' willingness to adopt digital application tools is partly driven by farm characteristics, including size, which impacts resource availability and technological engagement. Furthermore, Olanrewaju *et al.* (2025) highlighted the potential for digital optimization of poultry enterprises, noting that larger farm operations are more likely to leverage digital tools for enhanced productivity and market access.

Sex was significantly negatively associated with digital tool usage among farmers ( $\beta = -1.588$   $P < 0.000$ ), indicating that male farmers are more likely to adopt and utilize digital marketing tools compared to their female counterparts. This gender disparity shows underlying inequalities that may influence technology adoption, such as differences in access to resources like smartphones, internet connectivity, or financial capital. Additionally, variations in digital literacy levels between males and females could play a role, with males potentially having more exposure to or training in digital technologies. Socio-cultural factors and traditional gender roles may also contribute to this gap, with women possibly facing societal restrictions or less encouragement to engage with new technologies. This finding is similar to the finding of Olutumise (2026) who highlights the significant role of gender in determining the extent to which online marketing influences the performance of fish marketers in Southwest Nigeria, suggesting that gender disparities can impact digital engagement and marketing outcomes. Similarly, Ekeke *et al.* (2021) examine socioeconomic determinants affecting social media usage among poultry farmers in Anambra State, Nigeria, noting that gender, along with access to resources and digital literacy plays a crucial role in technology adoption.

**Table 3: Factors Influencing the Use of Digital Marketing Tools**

| Variable                            | B           | Std. Error | Wald   | Df | p-value  | Odds Ratio (Exp(B)) |
|-------------------------------------|-------------|------------|--------|----|----------|---------------------|
| Educational Level                   | 0.251       | 0.218      | 1.324  | 1  | 0.250    | 1.285               |
| Ease of use                         | 1.911       | 0.573      | 11.103 | 1  | 0.001*** | 6.757               |
| Age                                 | -0.087      | 0.025      | 11.853 | 1  | 0.001*** | 0.917               |
| Extension Contact                   | 1.210       | 0.312      | 15.089 | 1  | 0.000*** | 3.355               |
| Cost-effectiveness                  | -0.181      | 0.415      | 0.191  | 1  | 0.662    | 0.834               |
| Access to wider markets             | 1.149       | 0.453      | 6.430  | 1  | 0.011**  | 3.155               |
| Farm Size                           | 0.623       | 0.274      | 5.194  | 1  | 0.023**  | 1.865               |
| Farming Experience                  | 0.074       | 0.030      | 6.148  | 1  | 0.013**  | 1.076               |
| Sex                                 | -1.588      | 0.348      | 20.835 | 1  | 0.000*** | 0.204               |
| Constant                            | 0.976       | 1.325      | 0.542  | 1  | 0.461    | 2.654               |
| -2 Log Likelihood                   | 314.079     |            |        |    |          |                     |
| Cox & Snell R Square                | 0.556       |            |        |    |          |                     |
| Nagelkerke R Square                 | 0.681       |            |        |    |          |                     |
| Model Chi-square (Likelihood Ratio) | (p < 0.001) |            |        |    |          |                     |
| Overall Classification Accuracy     | 82.0%       |            |        |    |          |                     |

**Source:** Field Survey, 2025

**Significance levels:** \*\*\* $P \leq 0.01$ , \*\*  $P \leq 0.05$

### **Relationship between Benefits of Digital Marketing Tools and Utilization of Digital Marketing Tools among Livestock Farmers**

The Pearson correlation analysis in Table 3 reveals a statistically significant positive relationship ( $r = 0.335$ ,  $p < 0.01$ ) between the benefits of digital marketing tools and their utilization



among livestock farmers. This implies that as farmers recognize more benefits such as increased sales, access to market information, and improved communication they are more likely to utilize digital platforms for marketing their livestock products. The findings align with studies by Schwering *et al.* (2022), who found that farmers are motivated to adopt digital solutions primarily when they see potential for profit enhancement. Similarly, Iyawa (2025), emphasized that effective digital communication channels facilitate stronger buyer-seller relationships, reduce transaction costs, and improve trust.

The initial hypothesis posited that there is no significant relationship between the benefits of digital marketing tools and farmers' level of utilization. Given the significant correlation ( $p < 0.01$ ), the evidence leads to the rejection of this null hypothesis. The correlation results support the hypothesis that benefits of digital marketing tools are significantly associated with their utilization among farmers.

**Table 4:** Relationship between Benefits of Digital Marketing Tools and its Utilization among Livestock Farmers

| Variables                           | Pearson Correlation Coefficient (r) | Sig. (2-tailed) |
|-------------------------------------|-------------------------------------|-----------------|
| Benefit Score vs. Utilization Score | 0.335**                             | 0.000           |

**Source:** Field Survey, 2025

**Significance levels: \*\*\* $P \leq 0.01$**

## CONCLUSION AND RECOMMENDATION

This study concludes that digital marketing tool increases sales, access to market and enhanced communication with buyers among livestock farmers in the study area. Livestock farmers predominantly utilize popular digital platforms like Facebook, WhatsApp, and SMS and the factors influencing their usage are ease of use, extension contact, farm size, and benefits strongly influence their utilization of digital marketing tools.

Base on the conclusion of the study, the following recommendations are made;

- Extension Agents in Taraba State should develop and disseminate easy-to-use digital marketing applications tailored to farmers' needs. They should also collaborate with technology developers to design intuitive interfaces that cater to farmers of varying ages and educational backgrounds.
- Taraba State ministry of Agriculture should conduct awareness campaigns highlighting how digital marketing can expand market access and increase sales. Demonstrating tangible benefits can motivate more farmers to adopt these tools for their livestock marketing activities.
- Federal Ministry of Agriculture should design gender-inclusive programs that focus on improving women farmers' access to smartphones, internet connectivity, and digital literacy training. Ensuring equitable access can maximize the sector's overall productivity and inclusiveness.

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