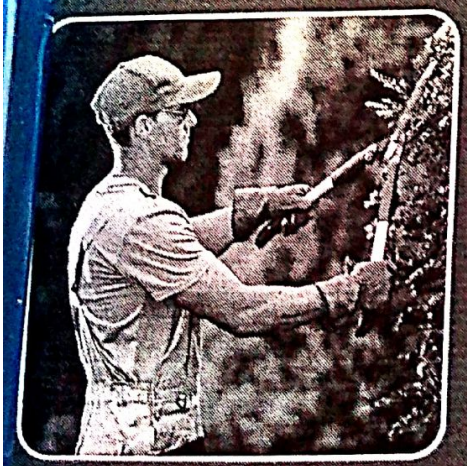
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Adirek VAJRAPATKUL

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FACTORS AFFECTING THE ADOPTION OF E-BANKING AMONG FARMERS IN KADUNA STATE

Jibrin, S.

Federal University of Technology Minna, Niger State, Nigeria Dept. of Agricultural Extension and Rural Development,

Onyeneke, J. C.

Federal University Ndufu-Alike Ebonyi State, Nigeria. Department of Agriculture

Umaru, A.

Ibrahim Badamasi Babangida university Niger State, Nigeria, Dept. of Agricultural Economics and Extension Services.

Isah M. O.

College of Education, Akwanga Nasarawa State, Dept. of Agricultural Education

Chigbo. N. P.

Federal University of Technology Minna, Niger State, Nigeria Dept. of Agricultural Extension and Rural Development,

ABSTRACT

The thesis titled Factors that Influence the Adoption of Electronic Banking Systems Among Small-scale Farmers in Kaduna State, Nigeria explores the role of socio-economic characteristics, benefits, challenges, and adoption of mobile payment systems among farmers. This research focuses on how mobile payment services like Point of Sale (POS), mobile banking, and ATMs contribute to improving financial inclusion and transaction efficiency in the agricultural sector.

Using a survey-based methodology, the study sampled farmers across Kaduna State to identify factors affecting the uptake of e-banking services, such as education, income, technology literacy, and awareness. The results reveal that age, transaction costs, and internet access significantly impact POS usage, while mobile banking adoption is influenced by education, e-banking knowledge, and access to bank accounts. The findings offer valuable insights for policymakers and stakeholders to enhance the accessibility and usage of e-banking services to improve the livelihood of smallholder farmers.

Keywords: E-banking, point of sale (POS), automated teller machine (ATM), mobile banking

INTRODUCTION

In many developing nations, agriculture continues to be the principal driver of economic growt h, contributing significantly to employment, revenue generation, and food security. (Diallo *et al.*, 2020). In Nigeria, smallholder farmers constitute the majority of the agricultural sector, contributing significantly to the country's food supply (Rapsomanikis, 2015). Despite their importance, these farmers face numerous challenges, including limited access to financial services, which hampers their ability to invest in modern farming technologies, improve productivity, and increase income. Addressing these challenges requires innovative solutions, particularly in financial services, where electronic banking systems, including mobile payment platforms, can play a pivotal role (Umar *et al.*, 2021).

Electronic banking systems, such as mobile banking, Automated Teller Machines (ATMs), and Point of Sale (POS) systems, have emerged as transformative tools in the financial sector, offering farmers easier access to banking services. These systems reduce the reliance on physical cash, provide convenience, and enhance transaction security (Agu *et al.*, 2016). In Nigeria, the adoption of e-banking services is crucial to advancing the Central Bank's cashless policy, which seeks to modernize the economy and reduce the dependency on cash transactions (Ezeanolue, 2022).

However, the adoption of electronic banking systems among smallholder farmers remains limited due to various socio-economic and infrastructural challenges. Factors such as low levels of financial literacy, poor internet connectivity, high transaction fees, and limited access to financial institutions contribute to the slow uptake of these services (Fadeyi *et al.*, 2022). Understanding these barriers is essential to developing strategies that can encourage the widespread adoption of e-banking systems in rural areas. This study seeks to investigate the factors influencing the adoption of electronic banking systems among smallholder farmers in Kaduna State, Nigeria. By examining the socio-economic characteristics of farmers, the benefits and constraints of e-banking, and the factors affecting its usage, this research aims to provide insights that can help policymakers and stakeholders promote financial inclusion and improve the livelihoods of smallholder farmers. The introduction of e-banking systems in the agricultural sector holds the potential to revolutionize how smallholder farmers manage their finances, conduct transactions, and access credit. As such, this study is timely in contributing to the body of knowledge on financial technology adoption in rural agriculture, with implications for broader economic development in Nigeria.

METHODOLOGY

Table 1 shows the area of study which was conducted in some selected Local Government Areas of Kaduna State, located in the north-central region of Nigeria. Kaduna is the fourth largest state in Nigeria, covering 46,053 square kilometers, and is bordered by states such as Zamfara, Katsina, Kano, Bauchi, Plateau, Nasarawa, and Niger. Agriculture is the dominant occupation in Kaduna, with approximately 76% of the population engaged in farming activities, making it an ideal area to study the adoption of electronic banking systems among smallholder farmers. The state is divided into three zones: Kaduna North, Kaduna Central, and Kaduna South. The research focused on smallholder farmers in two local government areas (LGAs) selected from these zones. A 4-stage sampling technique was used to select the respondents for the study. In the first stage, one agricultural zone was randomly selected from the three zones in Kaduna State. In the second stage, two LGAs were randomly selected from the chosen agricultural zone. In the third stage, two communities from each LGA were randomly chosen, making a total of four communities for

the study. A list of farmers in each community was compiled with the help of local authorities and extension agents. From this frame, 119 smallholder farmers were randomly selected as respondents using Yamane's (1967) formular as used by Jibrin *et al* (2021).

$$n=\frac{N}{1+N(e)^2} \quad \ldots\ldots\ldots\

age of 35. This younger demographic is likely to be more digitally inclined, aligning with findings by Rizzo et al. (2023) that show younger farmers are more likely to adopt digital systems. Gender disparities are notable, with 68.1% of farmers being male, reflecting cultural norms that often grant men more financial control, as supported by Chamboko (2022). Marital status also plays a role: 49.1% of respondents are married, suggesting that married farmers, who may seek efficient financial solutions for family responsibilities, are more inclined to use electronic banking. This aligns with Aduba (2021), who found that marital status significantly affects e-banking adoption.

The average household size is three, with many respondents belonging to larger families, which is common in agrarian societies. Larger households may drive the need for efficient financial management, further supporting e-banking adoption, as noted by Tiwari (2023). Educationally, 77.3% of farmers have formal education, suggesting a high literacy level that can facilitate the understanding and use of new banking technologies. This is corroborated by Aduba J.J. (2021), who emphasizes that higher education increases the likelihood of adopting mobile banking. Additionally, with an average agricultural experience of 19 years, these experienced farmers can better evaluate and integrate banking techniques into their practices, again supported by Aduba (2021). Overall, these demographic factors illustrate a context conducive to the adoption of electronic banking among farmers.

Table 2: Socio-economic characteristics of respondents

Variable	Frequency	Percentage	Mean
Age			
28 years and below	45	37.8	34 years
29-38 years	36	30.3	
39-48 years	24	20.2	
49-58 years	10	8.4	
Above 59 years	4	3.4	
Gender			
Male	81	68.1	
Female	38	31.9	
Marital status			
Widow(er)	3	2.7	
Single	53	48.2	
Married	54	49.1	
Household size			
0-1 persons	4	2.1	
2-3	53	45.0	
4-6	55	46.2	4 members
Above 6	8	6.7	
Level of education			
Non-formal education	27	22.7	11 years
Primary education	27	22.7	
Secondary education	33	27.7	
Tertiary education	32	26.9	
Farming experience			
15 years and below	61	51.3	19 years
16-25 years	35	28.6	
26-35 years	19	16.3	
Above 36 years	5	4.2	

Source: Field survey, 2024

Types of E-banking/services available to the farmers

Table 3 result shows that the farmers had high level (100%) knowledge on the availability of POS compared to other e-banking options like mobile banking or ATM usage. POS are more accessible to farmers because they are available at the local shops, markets or cooperative societies where most farmer usually transact. Most farmers are more familiar or comfortable using POS because of its low technological barriers compared to mobile banking which require smart phone and knowledge of digital applications. Also, its transaction nature which is often face-to-face transactions, align better with the types of transaction farmers engaged in, such as buying supplier's input or selling farm produces. However, cash withdrawal, cash deposit, fund transfer, and purchase of farm input were the major level of utilization commonly known and used by respondents in the research area due to ease of practice and accessibility.

Table 3: Types of E-banking/services available

Variable	Frequency	Percentage
POS		
Yes	119	100
Mobile banking		
Yes	70	58.8
No	49	41.2
ATM		
Yes	52	43.7
No	67	56.3

Source: Field Survey, 2024

Perceived benefits of E-banking services among farmers

Perception, as defined in Table 4, refers to how individuals interpret their experiences based on personal knowledge, emotions, values, and beliefs, leading to variability among people. The findings indicate that farmers in the study area derive significant benefits from using e-banking services, particularly point-of-sale (POS) systems. Key advantages include time savings when compared to traditional banking methods, ease of use, and the flexibility to withdraw cash anytime. Time savings ranked highest with a mean score of 0.99, demonstrating that POS services enable farmers to meet their needs more swiftly, enhancing efficiency in transactions for supplies and sales. The second benefit, with a mean of 0.93, highlights the convenience and user-friendliness of POS systems, indicating farmers are satisfied and view these services as their primary option for fund transfers. Safety and accuracy in using ATMs ranked third (mean of 0.85), suggesting farmers feel secure with ATM transactions due to a lack of negative experiences. The ability to withdraw cash at any time was fourth (mean of 0.84), reflecting the importance of accessible funds for urgent needs and effective cash flow management. Finally, the desire to continue using POS due to positive past experiences ranked fifth (mean of 0.83), indicating that these favorable experiences have built trust in the system, making POS services a routine aspect of their financial management. Overall, the results underscore farmers benefit from e-banking, particularly through POS systems, with advantages like time savings, flexibility, and positive user experiences enhancing their trust and encouraging ongoing usage.

Table 4: Perceived benefits of E-banking

Variable	Frequency	Percentage	Mean	Rank
Using point of sale saves time for you rather going to the ATM or doing a mobile transaction				
Yes	118	99.2	0.99	1st
No	1	0.8		
POS services are flexible and easy to use and you have never changed your mind as a result of POS being the only means of fund transfer				
Yes	111	93.3	0.93	2nd
No	8	6.7		
Automated teller machine services are safe to use, secure, accurate and reliable				
Yes	101	84.9	0.85	3rd
No	18	15.1		
Cash withdrawer at any time				
Yes	101	84.9	0.84	4th
No	18	15.1		
Do you intend to keep on using the POS due to the positive experience you've had in the past				
Yes	103	86.6	0.83	5th
No	16	13.4		
Cash withdrawer at anywhere				
Yes	97	81.5	0.81	6th
No	22	18.5		

Source: Field Survey, 2024

Factors influencing the use of POS among farmers

Table 5 presents a multivariate regression analysis of factors influencing the use of point-of-sale (POS) systems among farmers, showing an R-squared value of 0.5203. Four of thirteen variables are statistically significant. Age (coefficient 0.0068, $p < 0.05$) indicates older farmers are more likely to adopt POS. Education (coefficient -0.0132, $p < 0.05$) suggests better-educated farmers are less inclined to use POS. Higher transaction costs (coefficient -0.0573, $p < 0.10$) and poor internet access (coefficient -0.0728, $p < 0.10$) also deter usage. These findings emphasize the roles of age, education, costs, and internet access in POS adoption. The transaction cost coefficient of -0.0573 (significant at the 10% level) indicates that higher fees discourage farmers from using POS systems. Similarly, the internet connection coefficient of -0.0728 (also significant at the 10% level) shows that poor internet access negatively impacts POS adoption. These findings support Khobragade et al. (2024), which noted that age influences mobile banking adoption, suggesting older individuals may be more inclined to use these technologies due to greater experience and trust. Overall, the analysis highlights the significance of age, education, transaction costs, and internet access in determining POS adoption among farmers.

Table 5: Factors influencing the use of Point-of-sales (POS)

Variables	Coefficient	Standard error	t-value	p>|t|
Point-of sale (POS)				
Age	.0068	.0029	2.18**	0.026
Education	-.0132	.0054	-2.23**	0.021
Income	-1.5e-06	1.54e-06	-1.01	0.314
E-banking awareness	.0174	.0927	0.19	0.725
Bank account	.1985	.2124	0.93	0.347
Training on E-banking	-.1346	.1255	-1.07	0.281
Distance	-.0055	.0081	-0.68	0.487
Technology literacy	-.0844	.0459	-1.84	0.064
Financial literacy	.0444	.0381	1.17	0.238
Transaction fee	-.0573	.0319	-1.82*	0.062
Internet connection	-.0728	.0410	-1.76*	0.064
Security risk	-.1421	.0748	-1.35	0.059
Constant	1.3726	.0026	3.12***	0.000
R-Square	0.5203			
F-Statistic	0.5446*			
F-Distribution	0.0482			

Source: field survey, 2024

*** implies significant at 1% level of probability, ** implies Significant at 5% level of probability, * implies significant at 10% level of probability.

Factors influencing the use of mobile banking in the study area

Table 6 presents findings from a multivariate regression analysis investigating factors influencing mobile banking utilization among farmers. The model has an R-squared value of 0.5203, indicating a good fit, with an F-statistic of 7.0821 and significant likelihood ratio statistics at the 0.01 probability level, confirming effective variable relationships. Among thirteen variables, five are statistically significant. The age coefficient is -0.0079 (significant at the 10% level), suggesting that older farmers are less likely to use mobile banking. In contrast, the education coefficient is 0.0289 (significant at the 1% level), indicating that higher education correlates with increased mobile banking usage. Additionally, the e-banking knowledge coefficient is 0.4326 (significant at the 5% level), showing that farmers with more knowledge of e-banking are more inclined to use mobile services. The coefficient for having bank accounts is 0.6107 (significant at the 5% level), indicating a positive relationship with mobile banking engagement. Lastly, technology literacy has a coefficient of 0.0986 (significant at the 5% level), suggesting that higher literacy is associated with greater mobile banking usage. Overall, these results emphasize the importance of education and technological familiarity in enhancing mobile banking adoption among farmers.

Table 6: Factors influencing the use of mobile banking

Variables	Coefficient	Standard error	t-value	p>|t|
Mobile banking				
Age	-.0079	.0042	-1.81*	0.055
Education	.0289	.0081	4.75***	0.000
Income	-2.48e06	2.12e-06	-1.14	0.247
E-banking awareness	.4326	.1219	3.86**	0.000
Bank account	.6107	.2793	2.12**	0.028
Training on E-banking	-.1892	.1650	-1.02	0.254
Distance	.0054	.0106	0.37	0.613
Technology literacy	.0986	.0403	2.41**	0.013
Financial literacy	-.0152	.0500	-0.30	0.761
Transaction fee	.0030	.0419	.0.65	0.475
Internet connection	.0039	.0539	0.16	0.942
Security risk	.1412	.0983	1.48	0.154
Constant	-.6107	.4369	-1.92*	0.058
R-Square	0.5203			
F-Statistic	7.0821***			
F-Distribution	0.0000			

Source: field survey, 2024

*** implies significant at 1% level of probability, ** implies Significant at 5% level of probability, * implies significant at 10% level of probability

Factors influencing the use of Automated teller machine (ATM) among farmers

Table 7 presents a multivariate regression analysis identifying factors affecting ATM usage among farmers. The model shows an R-squared value of 0.5548, indicating a good fit, with an F-statistic of 4.5352, highlighting strong explanatory power at the 0.01 probability level. Out of thirteen variables, seven are statistically significant. The age coefficient is -0.0105 ($p < 0.05$), indicating that older farmers are less likely to use ATMs. In contrast, the income coefficient is 0.0952 ($p < 0.01$), suggesting higher income correlates with increased ATM usage. E-banking awareness has a coefficient of -0.2386 ($p < 0.10$), implying that greater awareness may lead to a preference for alternative services. Other significant factors include e-banking training (coefficient 0.3028, $p < 0.10$), technology literacy (-0.1532, $p < 0.05$), internet connectivity (-0.0812, $p < 0.10$), and security risks (-0.2509, $p < 0.05$). These findings align with Cui and Wang (2023), highlighting the importance of age, income, and awareness in ATM usage.

Table 7: Factors influencing the use of Automated teller machine (ATM)

Variables	Coefficient	Standard error	t-value	p>|t|
Automated teller machine (ATM)				
Age	-.0105	.0037	-2.10**	0.037
Education	-.0028	.0084	-0.03	0.768
Income	9.52e-02	2.55e-06	3.68***	0.000
E-banking awareness	-.2386	.1398	-1.70*	0.089
Bank account	.1549	.3204	0.48	0.630
Training on E-banking	.3028	.1894	1.57*	0.111
Distance	.0009	.0122	0.07	0.945
Technology literacy	-.1532	.0692	-2.23**	0.029
Financial literacy	-.0489	.0574	-0.85	0.396
Transaction fee	-.0148	.0481	-0.31	0.759
Internet connection	-.0812	.0419	-1.89*	0.057
Security risk	-.2509	.1128	-2.22**	0.028
Constant	1.7033	.5013	3.38***	0.001
R-Square	0.5548			
F-Statistic	4.5352***			
F-Distribution	0.0000			

Source: field survey, 2024

*** implies significant at 1% level of probability, ** implies Significant at 5% level of probability, * implies significant at 10% level of probability

Constraints associated with the use of E-banking among the farmers

Table 8 highlights the main challenges farmers face when using e-banking. The most significant issues include perceived security risks (mean = 2.88), limited access to reliable internet (mean = 2.52), slow transaction speeds (mean = 2.23), delays in transaction processing (mean = 2.18), and low financial literacy (mean = 1.96). Conversely, the least significant barriers are insufficient regulatory oversight of POS agents (mean = 1.40), restrictions on transaction limits (mean = 1.35), and difficulties in finding POS locations (mean = 1.11). These findings suggest that concerns about security significantly impact farmers' willingness to adopt e-banking, as fears of fraud and trust issues are prevalent. Limited internet connectivity and slow transaction speeds further hinder usage, supporting the idea that improving security measures could enhance e-banking adoption among farmers, as noted by Zhao *et al.*, (2022).

Table 8: Constraints associated with the use of E-banking among farmers

Variables	NSC (%)	SC (%)	VSC (%)	WM	Rank
Perceived security risk	4(3.4)	6(5.1)	108(91.5)	2.88	1th
Limited access to reliable internet connectivity	21(17.6)	17(14.3)	81(68.1)	2.50	2nd
Low speed of transaction	46(38.7)	3(2.5)	70(58.8)	2.20	3rd
Delay in transaction processes	47(39.5)	6(5.0)	66(55.5)	2.16	4th
Low level of financial literacy	49(41.2)	21(17.6)	49(41.2)	2.00	5th
High transaction fees	59(41.6)	18(15.1)	41(34.5)	1.83	6th
Inadequate technology literacy	57(47.9)	32(26.9)	30(25.5)	1.77	7th
Limited privacy during transaction	87(73.1)	4(3.4)	28(23.5)	1.50	8th
Insufficient regulatory agencies to oversee the affairs of POS agents	91(76.2)	6(5.0)	22(18.5)	1.42	9th
Inability to perform transaction beyond daily or monthly limit	93(78.2)	5(4.2)	21(17.6)	1.39	10th
Difficulty in location POS stand	10(8.4)	1(0.8)	108(90.8)	1.37	11th

Source: Field survey, 2024. Note; VSC=very severe constraint, SC=severe constraint and NSC=not severe constraint.

Recommendation

1. Increase Technological Literacy: Organize training programs to improve farmers' understanding and skills in using electronic banking platforms, especially for older farmers with limited exposure to technology.

2. Banks Collaborate with Network Providers: Encourage banks to collaborate with telecommunication companies to ensure the provision of high-quality and reliable networks in rural areas. This will improve the accessibility and efficiency of e-banking services for farmers.

3. Offer Incentives for E-Banking Adoption: Introduce incentives such as reduced transaction fees, cashback, or discounts for farmers who frequently use e-banking services to motivate adoption and long-term usage.

4. Provide Mobile Banking Applications in Local Languages: Banks should develop mobile banking applications in local languages and with user-friendly interfaces to accommodate farmers with varying literacy levels.

References

[1]. Aduba, J. J. (2021). On the determinants, gains and challenges of electronic banking adoption in Nigeria. *International Journal of Social Economics*, *48*(7), 1021–1043. https://doi.org/10.1108/ijse-07-2020-0452

[2]. Agu, C. C., Okoye, L. U., & Eze, S. C. (2016). The role of connectivity and interbank transfer systems in Nigeria's financial ecosystem. *Journal of Financial Technology,* 10(4), 45-58.

[3]. Chamboko, R. (2022). On the Role of Gender and Age in the Use of Digital Financial Services in Zimbabwe. *International Journal of Financial Studies, 10(3), 82.* https://doi.org/10.3390/ijfs10030082

[4]. Cui, L., & Wang, W. (2023). Factors Affecting the Adoption of Digital Technology by Farmers in China: A Systematic Literature Review. *Sustainability, 15*(20), 14824. https://doi.org/10.3390/su152014824

[5]. De Oca Munguia, O. M., Pannell, D. J., & Llewellyn, R. (2021). Understanding the Adoption of Innovations in Agriculture: A Review of Selected Conceptual Models. *Agronomy, 11*(1), 139. https://doi.org/10.3390/agronomy11010139

[6]. Diallo, M., Zhou, J., Elham, H., & Zhou, D. (2020). Effect of Agricultural Credit Access on Rice Productivity: Evidence from the Irrigated Area of Anambe Basin, Senegal. *Journal of agricultural science*, 12, 78. https://doi.org/10.5539/jas.v12n3p78.

[7]. Ezeanolue E. T. (2022). The Effect of Cashless Economy on the Performance of Small-scale Enterprises in Anambra State.

[8]. Khobragade, A., Balachandran, R., Gupta, B., Saroy, R., Awasthy, S., Singh, G., Misra, R., & Dhal, S. (2024). Mobile banking adoption for financial inclusion: insights from rural West Bengal. *Journal of Social and Economic Development*. https://doi.org/10.1007/s40847-024-00376-y

[9]. Matata, J.B., Ajay, O.C., Oduol, P.A., & Agumya, A. (2010). *Socio-economic factors influencing adoption of improved fallow practices among smallholder farmers in Western Tanzania.*

[10]. Mwangi, M., & Kariuki, S. (2015). Factors Determining the Adoption of New Agricultural Technology by Smallholder Farmers in Developing Countries. *Journal of Economics and Sustainable Development*, 6(5), 208-216.

[11]. Nweke, C. C. (2012). The Transition to a Cashless Economy in Developing Nations: A Case Study of Nigeria. Journal of Economics and Sustainable Development, 3(14), 1-10.

[12]. Okoye, A., Eze, S. C., & Chinedu-Eze, V. C. (2022). The Technology Acceptance Model (TAM) and its application to innovative information systems. *Journal of Information Systems*, 36(2), 123-145.

[13]. Omotayo, F., & Dahunsi, O. (2015). *Factors Affecting Adoption of Point of Sale Terminals by Business Organisations in Nigeria.* International Journal of Academic Research in Business and Social Sciences, 5(10), 115-137.

[14]. Onu, F. U., & Ezea, I. J. (2022). Critical Analysis of the Vulnerabilities Surrounding the Use of POS Services in Rural Communities in Nigeria. International Journal of Management and Humanities, 8(10), 45-58.

[15]. Rapsomanikis, G. (2015). *The economic lives of smallholder farmers*: An analysis based on household data from nine countries. Food and Agriculture Organization of the United Nations, Rome.

[16]. Rizzo, G., Migliore, G., Schifani, G., & Vecchio, R. (2023). Key factors influencing farmers' adoption of sustainable innovations: a systematic literature review and research agenda. *Organic Agriculture, 14*(1), 57–84. https://doi.org/10.1007/s13165-023-00440-7

[17]. Tiwari, P. (2021). Electronic banking adoption in Ethiopia: an empirical investigation. *SN Business & Economics, 1*(9). https://doi.org/10.1007/s43546-021-00114-0

[18]. Umar H. S., Zwal U. I., Hussaini M. U. and Oluyemisi O. O., (2021). Effect of Point Of Sale (Mobile Payment System) On the Growth of Business in Nigeria. *International Journal of Advances in Engineering and Management (IJAEM)* Volume 3, 1856-1863 ISSN 2395-5252.

[19]. United Nations. (2015). We Can End Poverty – Millenium Development Goals and Beyond 2015. http://www.un.org/millenniumgoals/.

[20]. Wambugu, S. K., Karugia, J. T., & Oluoch-Kosura, W., (2018). *Technology Use, Gender, and Impact of Non-Farm Income on Agricultural Investment*: An Empirical Analysis of Maize Production in Two Regions of Kenya.

[21]. Yates, S. R. (2020). Factors associated with electronic banking adoption. *Journal of Financial Counseling and Planning*, *31*(1), 101–114. https://doi.org/10.1891/jfcp-18-00079

[22]. Yigezu, Y.A., Mugera, A., El-Shater, T., Aw-Hassan, A., Piggin, C., Haddad, A., Khalil, Y., & Loss, S. (2018). *Enhancing adoption of agricultural technologies requiring high initial investment among smallholders*. Technological Forecasting and Social Change, 134, 199-206.

[23]. Zeng, D., Alwang, J., Norton, G., Jaleta, M., Shiferaw, B., & Yirga, C. (2018). Land ownership and technology adoption revisited: Improved maize varieties in Ethiopia. Land Use Policy, 72, 270–279. https://doi.org/10.1016/j.landusepol.2017.12.047

[24]. Zhao, P., Zhang, W., Cai, W., & Liu, T. (2022). The impact of digital finance use on sustainable agricultural practices adoption among smallholder farmers: an evidence from rural China. *Environmental Science and Pollution Research*, *29*(26), 39281–39294. https://doi.org/10.1007/s11356-022-18939-z

ONLINE PRESENTATIONS

07.01.2025 / HALL-3

ANKARA LOCAL TIME: 10 00 - 12 00

HEAD OF SESSION: Prof. Snježana Đokić & Dr. Iris Broman

AUTHORS	AFFILIATION	TOPIC TITLE
Jibrin, S. Onyeneke, J. C. Umaru, A. Isah M. O. Chigbo.N. P.	*Federal University of Technology NIGERIA* *Federal University Ndufu-Alike Ebonyi State NIGERIA* *Ibrahim Badamasi Babangida University NIGERIA* *College of Education NIGERIA* *Federal University of Technology NIGERIA*	FACTORS AFFECTING THE ADOPTION OF E-BANKING AMONG FARMERS IN KADUNA STATE
Dalila Mecellem	*Bouira University ALGERIA*	QUERCUS ILEX ACORNS: BIOCHEMICAL CHARACTERIZATION AND ASSOCIATED FAUNA
Abba GAMBO Usman ABDULLAHI Jamaji Dogo SAMUEL	*Lake Chad Research Institute NIGERIA* *Lake Chad Research Institute NIGERIA* *Federal College of Horticulture Dadin Kowa NIGERIA*	TRANING NEEDS FOR YOUTH IN AGRICULTRAL EDUCATION EXTENSION WORKERS WITH AGRICULTURAL DEVELOPMENT PROJECT LAKE CHAD RESEARCH INSTITUTE MAIDUGURI BORNO STATE NIGERIA
Mythili V Vardhana Janakiraman	*Vels Institute of Science INDIA*	PHYTOCHEMICAL ANALYSIS OF BOERHAVIA DIFFUSA AND CLITORIA TERNATEA FOR ITS POTENTIAL USE IN URINARY TRACT INFECTIONS
Michael FAMAKINWA Ebunoluwa. Oyindamola FANIYI	*Obafemi Awolowo University NIGERIA* *Department of Agricultural Extension and Management, Rufus Giwa Polytechnic NIGERIA*	ASSESSING THE UTILISATION OF CLIMATE SMART AGRICULTURAL PRACTICES AMONG POULTRY FARMERS: EVIDENCE IN NIGERIA
Dr. Iris Broman Prof. Snježana Đokić	*Josip Juraj Strossmayer University CROATIA* *ITS College SERBIA*	MARKETING APPROACH OF VETERINARY SERVICES INTENDED FOR SMALL HOLDING BUSINESSES IN TRANSITION AND SMALL ECONOMIES
Prof. Snježana Đokić Dr. Iris Broman	*ITS College SERBIA* *Josip Juraj Strossmayer University CROATIA*	VETERINARY TASKS IN THE FUNCTIONING OF MEDIUM FARMS THAT APPLY MARKETING PROMOTION OF PRODUCTION AND MANAGEMENT BASED ON RAISING BUSINESS EFFICIENCY
Yogesh Sinhmar Narender Singh	*Kurukshetra University INDIA*	ARTIFICIAL SEEDS: A NOVEL METHOD FOR CONSERVING THE GERMPLASM OF A ORNAMENTAL AND MEDICINAL PLANT SPECIES: PETREA VOLUBILIS

All participants must join the conference 10 minutes before the session time.
Every presentation should last not longer than 10-12 minutes.
Kindly keep your cameras on till the end of the session.

Jibrin, S. Onyeneke, J. C. Umaru, A. Isah M. O. Chigbo. N. P.	FACTORS AFFECTING THE ADOPTION OF E-BANKING AMONG FARMERS IN	101
Favour C. Uroko	THE DYING FACE OF AGRICULTURE IN RURAL NIGERIA AND MIGRATION OF YOUTHS TO URBAN AREAS: A NARRATIVE ANALYSIS	113
Mythili V. Vardhana Janakiraman	PHYTOCHEMICAL ANALYSIS OF *BOERHAVIA DIFFUSA* AND *CLITORIA TERNATEA* FOR ITS POTENTIAL USE IN URINARY TRACT INFECTIONS	114
Yazgan TUNÇ Canan AYDINLIOĞLU	EXPLORING THE DYNAMICS OF OLIVE (*OLEA EUROPAEA*) CULTIVATION	122
Funda Aksunger Karaavci	MORPHOMETRY OF FURCULA IN DIFFERENT BIRD SPECIES	128
Yavuzkan PAKSOY Muhammet Hanifi SELVİ	OVERVIEW OF ANIMAL BREEDING	129
J.M.A.S. Jayasooriya P.K.S.C.Jayasinghe	SEED PADDY QUALITY EVALUATION USING IMAGE PROCESSING AND DEEP LEARNING	133
Yılmaz BERTAN Hasret ÖZTÜRK Emrah KAYA	*DGAT1* POLYMORPHISM AND ITS EFFECT ON BIRTH WEIGHT IN MORKARAMAN BREED	134
Duygu ARSLAN Yavuzkan PAKSOY Nazan KOLUMAN	BEHAVIORAL DISORDERS IN MONKEYS	147
Muhammed İkbal ÇATAL Adil BAKOĞLU	DETERMINATION OF THE NUTRITIONAL VALUE OF HANDUZU PLATEAU PASTURE (RİZE)	152
Numan BİLDİRİCİ	AQUAPONIC SYSTEM DESIGN AS AN INNOVATIVE AGRICULTURAL PRODUCTION STRATEGY	161
Numan BİLDİRİCİ	CURRENT AGRICULTURAL SITUATION ANALYSIS OF BİTLİS, HAKKARİ, MUŞ AND VAN PROVINCES	175
S. Kalaiselvan S.V Nikilash M. Parveen Banu	EXPLOITING DATA MINING, INTERNET OF THINGS, AND SMART TECHNIQUES TO PRODUCE SUSTAINABLE AND RESOURCE-EFFICIENT CROPS	184
Bahadır ATMACA	VEGETATION ANALYSIS OF GİRESUN PROVINCE ÇAMOLUK DISTRICT WITH REMOTE SENSING AND GIS	186
Yogesh Sinhmar Narender Singh	ARTIFICIAL SEEDS: A NOVEL METHOD FOR CONSERVING THE GERMPLASM OF A ORNAMENTAL AND MEDICINAL PLANT SPECIES: PETREA VOLUBILIS	195