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Agricultural Innovation and Social Capital Networking for Community Resilience and Food Security in Urban Oyo State, Nigeria

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Abstract
This study examined agricultural innovation and social capital networking for community resilience and food security in urban Oyo State, Nigeria. The study was guided by 3 objectives and one hypothesis to assess the level of adoption of agricultural innovation, to examine the influence of social capital networking on community empowerment, to determine the effect of agricultural innovations on food security initiatives and to analyze the relationship between social capital networking and community resilience, A descriptive, cross-sectional survey design was adopted across four Local Government Areas of Oyo State (Afijio, Atiba, Oyo East and Oyo West). The study population comprised farming households in the selected communities, from which a sample size of 200 was determined. 180 validly completed questionnaires were retrieved through systematic random sampling. Data were analyzed using Means and standard deviation while regression analysis were applied to analysis the hypothesis. Findings showed a moderate-to-high level of adoption of agricultural innovation, with respondents rating access to improved farm inputs and modern farming techniques most favorably (grand mean = 3.68). Social capital networking showed a moderately positive influence on community empowerment ($r = 0.52$, $p < 0.01$) and on community resilience ($r = 0.47$, $p < 0.01$), while agricultural innovation was moderately associated with food security initiatives ($r = 0.48$, $p < 0.01$). Agricultural innovation and social capital networking jointly and significantly predicted food security initiatives, accounting for 48% of the variance ($R^2 = 0.48$, $p < 0.01$). The study concludes that strengthening social capital networks alongside the adoption of agricultural innovation is central to building resilient, food-secure urban communities in Oyo State. The study recommends that government agencies and community-based associations expand structured, community-driven support for agricultural innovation and social capital networking as a joint strategy for sustainable urban food security.

Keywords: Agricultural innovation, Community resilience, Food security, social capital networking.

Introduction
Social capital refers to the networks, relationships and cooperation existing and developing over time within and between individuals, communities, groups societies, and modern internet-based social media platforms which have increasingly reinforced these networks in ways that support agricultural innovation and food security. Food security situation in Nigeria has remained critical in recent years as an estimated 17 million people were acutely food insecure in 2022 (Akinfenwa, 2023). United Nations Economic Funds (UNICEF) reported that, an estimated 24.86 million Nigerians are at high risk of food insecurity between June and August 2023, which was more than

the estimated 19.45 million people (Madhock, 2023). Acute food insecurity is reportedly common in Nigeria basically due to conflicts, armed violence, climate shock and inflation and mostly to worsening insecurity with insurgency, kidnapping, banditry and farmer-herder clashes, which continue to displace rural farming populations across the country, causing disrupted agricultural activities and depriving farmers from physically accessing their rural farmlands. Nigeria has recorded an estimated 354,000 internal displacements in 2025 according to Internal Displacement Monitoring Centre (IDMC, 2026). Food insecurity in Nigeria presents a critical challenge that necessitates innovative strategies and targeted interventions, particularly within urban communities to achieve sustainable food security.

Nigeria classifies an urban settlement as one with a minimum population of 20,000 persons, a relatively low threshold compared with other countries. An estimated population of 242.4 million (Worldometer, 2026) and an annual growth rate of 2.59%, makes Nigeria the fastest-growing country of world (United Nations Habitat, 2023; Chukwunonso, 2024). Projections developed by United Nations Department of Economic and Social Affairs (UNDESA) suggested that Nigeria's urban population will likely reach 264 million by 2050 which is about two-third of the nation's total population (Olalude *et al.,* 2024). Its urban population, which was 53.52% of the national population in 2022, and 62.98% in 2024, is projected to reach about 70% by 2050 (O'Neill, 2024). By 2050, Nigeria projects additional 189 million urban dwellers, placing it among the three countries driving most of global urban population growth. This scale of urban expansion has direct implications for food systems, as it signals a shrinking rural farming workforce with rising urban demand for food.

Urban agriculture involves production, processing and distribution of food and non-food agricultural product with practical response within or around cities (Idamokoro *et al*., 2025; Little, 2021). It also delivers social, economic, and environmental and health benefits in addition to food output to strengthen neighborhood ties and civic participation (Orsini & D'Ostuni, 2022). All these aims to stimulate local economic activity through farmers' markets and value-added enterprises while improving dietary diversity and food access for households. In Zambia's Copperbelt Province, for instance, urban agriculture served as the primary livelihood strategy for 90% of practicing households, with the majority reporting improved food security, reduced vulnerability to job loss and underscoring its relevance as a food security strategy applicable to Nigeria's urban context.

Social capital is built through networks and connections, trust and reciprocity, shared values and norms, and collective action which is reflected in civic participation, volunteerism, social cohesion and economic cooperation (Khan *et al*., 2018). It is expected to improve wellbeing, drive economic growth, reduce conflict, and strengthen community resilience. Urban agriculture and social capital mutually reinforce residents, as they engage in gardening their sense of belonging and social interaction with neighbors increases (Orsini & D'Ostuni, 2022), while existing community networks provide trust and cooperation that make collective activity possible. In Oyo State, community-based urban farming is already organized around smallholder farmer associations, government initiatives, and support from organizations such as the International Institute for Tropical Agriculture (IITA), reinforced by informal networks such as farmer WhatsApp and Telegram groups, seedling exchanges and community farming trainings. These existing structures represent a valuable, underexplored foundation for scaling agricultural innovation and strengthening food security through social capital networking, particularly as Nigeria's urban population continues to expand faster than its rural food-producing workforce.

Urban Agriculture is simply all forms of agricultural production involving food and non-food products, which are taking place within or around urban settlements or cities (Idamokoro *et al*., 2025). This explanation of urban agriculture has been adopted by government and the academic community with further modification including production of plants or animals (fruits, vegetables, livestock and the likes) in or near residential environments whether for personal use or for sale, whether soil based or hydroponic (Little, 2021). Urban agriculture contributes significant aspect of a city's food system.

Social capital emerges from an intangible but real network of human relationships, and is not contained within, or fully expressed, at an individual level. The emergence of the internet and social media, has made almost all business leaders and managers rely on the power of networks to create value and add competitive advantages to their businesses. Meanwhile, social relations, intra- and inter-organizational relationships are a valuable resource. In the global hunger index (GHI, 2025), Nigeria ranked 115th in 2025 out of 123 countries with sufficient data to calculate the GHI score. The rural dwellers are mostly the producers of needed agricultural products, and whatever shortfall in supplies from rural areas is imported from foreign climes.

Food insecurity is certain if innovative policies and initiatives are not introduced to guarantee Nigeria's food security mostly for urban residents. Urban agriculture could be amplified through the existing social networks such as labor unions, professional bodies, and student unions, among others. The health of urban residents involved in urban gardening often improves; have more diversified diets with more fruits and vegetables, rich in vitamins and minerals. As urban residents engage in gardening, the sense of belonging to the local community increases. Urban agriculture also contributes greatly to food security at a national level in the food system (Orsini & D'Ostuni, 2022).

Statement of the Problem

Rising insecurity, kidnapping and insurgency continue to drive rural-to-urban migration, thus depleting the very rural farming workforce that supplies food to urban centers, while the urban populations that must be fed keep growing. At the same time, the social networks, associations and unions within Nigerian urban communities remain largely untapped as a deliberate food security strategy. While the contribution of urban agriculture to livelihoods and food security has been demonstrated elsewhere in sub-Saharan Africa, there is limited empirical evidence on how social capital networking and agricultural innovation jointly shape community empowerment, resilience and food security. This study addresses this gap by empirically examining the nexus between agricultural innovation, social capital networking, community resilience and food security in urban Oyo State.

Research Objectives

This study is guided by the following research objectives.

1. assess the level of adoption of agricultural innovation among respondents in the selected local government areas
2. examine the influence of social capital network on community empowerment
3. determine the effect of agricultural innovations on food security initiatives

Hypothesis

The study was guided by one null hypotheses

$H_{O:}$ There is no relationship between social network capital and community resilience

Methodology

Research Design

The study utilized descriptive cross-sectional survey design to enable data collection and analysis while examining the relationship between agricultural innovation, social capital networking and food security initiative across the four selected local government areas: Afijio, Atiba, Oyo East, and Oyo West in Oyo state, Nigeria. These areas and the people were considered due to their active agricultural practices which enables community-based promotion of food security initiatives and social networking.

Sampling size and Technique

The local government farming household and group register served as sampling frame, a sample size of 200 respondents was determined using the Taro Yamane formula. 180 were correctly completed and used for analysis, representing a 90% response rate. Respondents were selected using random sampling across communities within each Local Government Area, while systematic random sampling was used to select households engaged in agricultural and food security-related activities. Random sampling technique was used to select respondents in the communities in each

of the local government areas. Systematic random sampling was also used in selecting households practicing agriculture and food security.

Instrument of Data Collection

Data were collected using a structured, self-designed questionnaire. Items were measured on a five-point Likert scale ranging from Strongly Disagree (1) to Strongly Agree (5). The instrument was reviewed by two agricultural extension experts and one sociology professional, whose suggestions were incorporated for content relevance, clarity and coverage. A pilot test involving 25 respondents from Oyo West Local Government Area produced an overall Cronbach's alpha coefficient of 0.77, indicating acceptable internal consistency for the survey instrument.

Data Analysis Techniques

The datasets were analyzed using descriptive statistics which covered frequency counts, mean, standard deviation and percentage for Likert scale responses. Inferential statistics like Pearson Product Moment Correlation, Regression analysis and Chi-square were then used to analyse the hypothesis.

Results and Discussions

Table 1 presents respondents' level of adoption of agricultural innovation. Results show that respondents generally agreed that agricultural innovation was being adopted across the four Local Government Areas, with a grand mean of 3.68 (SD = 0.79) indicating overall agreement. Innovation-driven farming for sustainable agriculture recorded the highest mean (3.73), followed by improved farm inputs (3.71), suggesting that respondents perceived tangible productivity gains from modern inputs and techniques, while access to agricultural innovation practices recorded the comparatively lowest mean (3.63), pointing to access as a relative constraint even where awareness and adoption exist.

Table 1. Level of Adoption of Agricultural Innovations among Respondents

Item	SD	D	N	A	SA	$\bar{x}$ (SD)
Improved farm inputs (improved seeds, fertilizer) are used in my community	11	17	26	70	56	3.71 (0.81)
Modern farming techniques improved my productivity	13	18	25	68	56	3.65 (0.78)
Agricultural innovations enhanced food production in my household	12	16	27	69	56	3.68 (0.79)
There is access to agricultural innovation practices in my community	15	20	26	66	53	3.63 (0.82)
Innovation-driven farming supports sustainable agriculture	10	15	23	72	60	3.73 (0.76)
Grand Mean						3.68 (0.79)

Table 2 presents the responses which expressed a generally high level of social capital networking (grand mean = 3.74), driven mainly by strong community membership (3.78) and information-sharing (3.76). Trust among group members recorded the lowest, though still favorable, mean (3.70), suggesting that while cooperative structures are well established, deepening interpersonal trust could further strengthen these networks. Social capital networking was assessed along five dimensions, community membership, cooperative problem-solving, information sharing, trust, and network-

facilitated access to agricultural resources and funding, recognizing that access to funding through community networks is itself an expression of social capital.

Table 2. Influence of Social Capital Networking for Community Empowerment among Respondents

No.	Item	SD	D	N	A	SA	x̄ (SD)
1	There is community membership among farmers in my area	10	16	24	71	59	3.78 (0.83)
2	Agricultural problems are cooperatively solved by community members	12	17	26	68	57	3.72 (0.80)
3	Information about farming is frequently shared in social networks	11	16	25	70	58	3.76 (0.80)
4	There is trust among agricultural community group members	13	18	26	67	56	3.70 (0.84)
5	Social networks support access to agricultural resources and funding	12	17	25	69	57	3.74 (0.81)
	Grand Mean						3.74 (0.82)

Table 3 shows a moderately positive and significant relationship between agricultural innovations and food security initiatives at $r = 0.48$, and $p < 0.01$, indicating that greater adoption of agricultural innovation is associated with improved household food security outcomes such as food availability and accessibility. This aligns with findings from Zambia's Copperbelt Province, where majority of urban agriculture practitioners reported becoming food secure and better able to meet their basic needs as a direct result of adopting improved agricultural practices.

Table 3. Effect of Agricultural Innovations and Food Security Initiatives

Variables	x̄	Sd	r	p-value
Agricultural innovations	3.68	0.79	0.48	0.00
Food Security Initiatives	3.69	0.75		

Two tail PPMC

Table 4 describes the relationship between the social capital networking and Community resilience. Findings show a moderately positive relationship between the variables at $r = 0.47$ in compliance

Table 4. Relationship between Social Capital Networking and Community Resilience

Variables	x̄	Sd	r	p-value
Social Capital Networking	3.74	0.82	0.47	0.00
Community Resilience	3.57	0.81		

Two tail PPMC

Table 5, illustrates the contribution of agricultural innovations and social capital networking to achieving sustainable food security initiatives in the selected local government areas. The results

shows that agricultural innovations and social capital networking significantly predict food security initiative at r^2=0.48.

Discussions

Social networks emerge to improve urban food access through joint product sharing as actualized in the Oyo communities and household with benefits and community empowerment being attributed to social capital supports. It was noted that the respondents recorded a moderate-to-high level of agricultural innovation adoption (grand mean = 3.68), resulting from improved farm inputs and innovation-driven farming practices, in consistency with the pattern documented in most urban agriculture. Idamokoro, Niba and Akuru (2025) posited a marked rise in research attention to urban agriculture as cities increasingly rely on improved inputs, mechanized techniques and advisory services to raise productivity within constrained urban locality. The comparatively lower mean recorded for access to innovation practices (3.63) agreed with Little (2021) that awareness of improved agricultural methods in cities frequently outpaces households' practical access, either because of cost, extension coverage or input availability. This access gap is quite important for policy but adoption is not merely to persuade farmers of the benefits, since respondents already accept the value, but it is necessary to remove structural barriers to obtaining inputs and services once accepted.

There is moderately positive relationship between social capital networking and community empowerment ($r = 0.52$, $p < 0.01$) which gives empirical support to the expectation that networks of trust, reciprocity and collective action translate into greater household and community agency (Nosratabadi et al., 2020). This is corroborated by Orsini and D'Ostuni (2022), who report that as urban residents participate in shared agricultural activity, their sense of belonging and capacity to act collectively on local problems increases correspondingly. In the Oyo State context, where farming households are already organized through associations, WhatsApp and Telegram groups in all the local government surveyed and seedling exchanges, this finding suggests that empowerment is not an automatic the product of group membership alone but strengthens by conceited activities and participation of those networks for cooperative problem-solving and information exchange, as rated by respondents in Table 2.

The convergence of these findings, from Zambia and from urban Oyo State, strengthens the opinion that productivity benefits associated with agricultural innovation translate consistently to household food security advantages across different national contexts, even where the specific innovations adopted differ.

Social capital networking showed a moderately positive relationship with community resilience ($r = 0.47$, $p < 0.01$), reinforcing Nosratabadi *et al*. (2020) which identifies social capital, trust, reciprocity and network density, as a recurring and significant contributor to food security and resilience outcomes. Trust among group members was least-rated dimension of social capital networking in this study (mean = 3.70), which is notable given that trust is frequently identified as the component of social capital most closely tied to a community's capacity to withstand and recover from shocks such as price volatility, climate stress or displacement. This suggests that resilience gains in the study area may still be constrained below their potentials by incomplete interpersonal trust, even where structural networks such as associations and cooperative groups are already well established.

Food security interventions targeting rapidly urbanizing Nigerian communities like Oyo State would be most effective when the introduction of improved agricultural technologies and practices is deliberately paired with investment in the community networks that build and sustain them.

Conclusion and Recommendations

This study examined how agricultural innovation and social capital networking shape community empowerment, resilience and food security in urban Oyo State, Nigeria. Food security interventions in rapidly urbanizing Nigerian communities are likely to be most effective when combined the introduction of improved agricultural technologies and practices with deliberate investment in the community networks, building trust and sharing vital information. In cooperative structures,

innovations are easily adopted and sustained as members of groups, where collective problem-solving could increase farmers' access to knowledge and resources. Therefore, strengthening farmers associations, information-sharing networks and community-based cooperation should be a core food security strategy, and not merely a supporting condition for agricultural innovation.
Building on this the following were recommended

1. Government agencies, non-governmental organizations and community-based associations are recommended to expand the structured support including training, and farm inputs, through existing community networks for agricultural innovation and social capital networking.
2. Interventions aimed at building trust among group members should be prioritized alongside network expansion, since trust was the weakest-rated dimension of social capital networking and is central to community resilience.
3. Agricultural extension workers and Home Scientists should take cognizance of the mediating role of digital platforms in translating social capital to measurable food security outcomes.

References

Akinfenwa, G. (2023). *State of Emergency Declaration on Food Security: A Policy Brief.* Abuja: *Care International* Nigeria. Canada Annual Report 2023.

Avis, W. R. (2019). *Urban expansion in Nigeria.* Knowledge, Evidence and Learning for Development (K4D) Helpdesk Report, University of Birmingham.

Chukwunonso, I. A. (2024). Population Growth, Climate Change and Economic Growth in Nigeria. *International Journal of Advanced Multidisciplinary Research and Studies, 4*(5):390-399. archive-1727253141.pdf.

Global Hunger Index (2025). *Nigeria.* https://www.globalhungerindex.org/nigeria.html

Idamokoro, E. M., Niba, A. S., & Akuru, E. A. (2025). A bibliometric assessment of urban agriculture indexed in Scopus and Wos from 1978-2023. *Online Journal of Biological Sciences, 25* (3), 659-673. https://doi.org/10.3844/ojbsci.2025.659.673

Ikonne, O. (2025). Internal Migration and Urbanization in Nigeria: Implications for Socio-Economic Development. *International Social Sciences and Education Journal*. *3*(1). DOI: 10.61424/issej . https://bluemarkpublishers.com/index.php/ISSEJ

Internal Displacement Monitoring Centre (IDMC, 2026). *Nigeria: Internal displacement data 2025.* info@idmc.ch

Little, N. (2021). *What is Urban Agriculture?* Maryland: University of Maryland Extension. https://extension. umd.edu/learn/what-urban-agriculture

Madhock, R. (2023). United Nations Children's Fund (UNICEF) *Annual Report* 2023 https://www.unicef.org/foodinsecurityinnigeria

Nosratabadi, S., Khazami, N., Abdallah, M. B., Lackner, Z., Band, S. S., Mosayi, A. and Mako, C. (2020). Social capital contributions to food security: A comprehensive literature review. *Foods. 9*(11): 1650. Doi; 10.3390/foods9111650.

Olalude, G. A., Esiegbe, E. O., Alabi, P. A. (2024). Modelling and Forecasting Urban Population Growth in Nigeria Using Autoregressive Integrated Moving Average (ARIMA) Models. *European Journal of Science, Innovation and Technology, 4*(4), 311-327. www.ejsit-journal.com ISSN: 2786-4936 EJSIT

O'Neill, A. (2024, April 8). *Nigeria-urbanization 2012-2022*. Retrieved May 14, 2024, from Statista: https://www.statista.com.

Orsini, F., and D'Ostuni, M. (2022). The Important Roles of Urban Agriculture. *Earth and its Resources,* 1-7. *Frontiers for Young Minds, 10*, 701688. https://doi.org/10.3389/frym.2022.701688.

United Nations Habitat. (2023). *Nigeria: Achieving sustainable Urbanization.* Nairobi, Kenya: United Nations Settlements Programme.

Worldometer (2026). Countries in the world by population in 2026. *World Population.* www.worldometers.info/world-population/