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Geoinformatics for Rural Poverty Reduction, Improved Livelihoods and Incomes Among Vulnerable Women Farmers in Imo State, Nigeria

Chris-Ejiogu, U.G.[1], Ebinne, E.S.*[2], Njoku, R.E.[3], Ogbaa, S.I.[4], Ahuchaogu, U.E.[3], Awa, S.K.[1], Nwankwo, D.C.[1], Akujor, J.C.[1], Adejoh, S.O.[5], Obioha, Y.U.[6], Amaechi, L.C.[7], Omeire, E.U.[7] Mbakaogu, E.O.[8], Okeoma, I.O[4], Kalu, A.O.[4], Ekeledo, C.B.[9], Igwenagu, M.O.[10] and Chikaire, J.U.[11]

[1]*Department of Financial and Innovation Technology; Federal University of Technology, Owerri, Imo State, Nigeria*
[2]*Department of Geoinformatics and Surveying, University of Nigeria, Nsukka, Enugu State, Nigeria*
[3]*Department of Surveying and Geoinformatics, Federal University of Technology, Owerri, Imo State, Nigeria*
[4]*Department of Urban and Regional Planning, Federal University of Technology, Owerri, Imo State, Nigeria*
[5]*Department of Agricultural Economics and Extension, Federal University, Lafia, Nasarawa State, Nigeria*
[6]*Department of Geology, Federal University of Technology, Owerri, Imo State, Nigeria*
[7]*Directorate of General Studies Unit, Federal University of Technology, Owerri, Nigeria*
[8]*Department of Agribusiness, Federal University of Technology, Owerri, Imo State, Nigeria*
[9]*Department of Fisheries, Federal Polytechnic, Nekede, Owerri, Imo State, Nigeria*
[10]*Department of Computer Information Systems, Prairie Views A & M University, Texas, USA*
[11]*Department of Agricultural Extension, Federal University of Technology, Owerri, Nigeria*

ABSTRACT

This study examines the role of geoinformatics in enhancing rural livelihoods and increasing income levels among women farmers in Imo State. A total of 150 rural women farmers were chosen purposely for the study. A questionnaire and oral discussion were used for the study data gathering. The data obtained were analyzed using descriptive statistics. The results indicate that vulnerable women farmers have limited access to land (100%), low levels of formal education (100%), high exposure to risk (90.68%), and poor market access (94%), among characteristics. They are aware of and utilize geoinformatics tools such as mobile phones (100%), radio (100%), GIS(92%), and participatory mapping (92%).The factors affecting women farmers' use of geoinformatics include limited access to finance/credit (M = 2.51), high cost of geoinformatics tools (M = 2.74), cultural norms and gender issues (M = 2.75), and digital literacy level (M = 2.85). Geoinformatics influences farm productivity through soil fertility and crop planning (M = 2.75), pest/disease management (M=2.80), higher yield (M=2.64), monitoring environmental changes (M=2.80), better risk assessment (M=2.80), better crop selection (M=2.71), early detection of pest diseases (M=2.67), risk production (M=2.63), among others. Capacity building (M=2.53), provision of affordable geoinformatics tools (M=2.61), user-friendly geoinformatics platforms (M=2.81), gender inclusive agricultural programmes (M=2.68) and participatory mapping systems for women farmers (M=2.74) are all strategies for integrating geoinformatics tools in the agricultural system for vulnerable women farmers.

Keywords: *Geoinformatics, poverty, livelihoods, incomes, women farmers, rural.*

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Corresponding Author: *Ebinne, E.S*

E-mail Address: *elijah.ebinne@unn.edu.ng*

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Introduction

Poverty continues to be a deep-rooted and complex issue in numerous rural areas across sub-Saharan Africa, with women bearing a heavier burden due to entrenched inequalities, restricted access to essential resources, and minimal involvement in decision-making [1]. In Nigeria, rural poverty is particularly acute in the southeastern region, including Imo State, where agriculture serves as the main livelihood for most households (National Bureau of Statistics [2].

Women make up a large share of the agricultural workforce in these communities, yet they frequently face marginalization, with limited access to land, credit, farming inputs, and modern technologies that could boost their productivity [3]. The adoption of innovative tools like geoinformatics—encompassing geographic information systems (GIS), remote sensing (RS), and global positioning systems (GPS)—presents new opportunities to address rural poverty, support sustainable development, and improve agricultural outcomes for disadvantaged women farmers.

Geoinformatics has proven effective in gathering, storing, analyzing, and displaying spatial data, supporting better resource management, environmental planning, and informed decision-making in agriculture [4]. Over the past twenty years, research has shown that geospatial technologies can enhance crop monitoring, assess soil health, map climate risks, and improve the targeting of agricultural extension services [5,6]. However, the use of these technologies in rural Nigeria remains low, especially among small-scale women farmers who face social, economic, and institutional obstacles to adopting new tools [7]. This study aims to examine how geoinformatics can be effectively utilized to reduce poverty, strengthen livelihoods, and increase incomes for vulnerable women farmers in Imo State—a region where agriculture is vital but consistently hindered by structural constraints.

Imo State, situated in southeastern Nigeria, relies heavily on agriculture, with subsistence farming being widespread and rural families frequently experiencing food insecurity and unstable incomes [2]. With increasing global focus on sustainable development and gender equality [8], there is a pressing need to identify practical, scalable solutions that empower women farmers and drive rural economic change. By exploring how geoinformatics can improve agricultural planning, optimize resource use, expand market access, and reduce risks, this research helps connect technological advancement with real-world socioeconomic progress in underserved rural communities.

Despite progress in agricultural research and rural development initiatives, poverty persists in many rural areas of Nigeria, with women farmers remaining among the most marginalized [9]. In Imo State, vulnerable female farmers typically work within low-input, low-output agricultural systems marked by limited infrastructure, insufficient market information, climate unpredictability, and weak institutional backing [2]. These difficulties are intensified by gender-specific obstacles such as limited land rights, restricted mobility, and minimal engagement with agricultural extension services, all of which hinder women's access to improved farming methods and technologies [3,10].

A key challenge is the ongoing information gap in rural farming communities. Women often lack timely and reliable spatial data on soil conditions, weather trends, pest outbreaks, and ideal planting times [5]. Conventional extension services are frequently under-resourced or overstretched, and remote areas may receive little to no support, resulting in poor farming decisions and lower productivity [11]. In addition, increasing climate variability heightens risks and weakens the resilience of farming systems, negatively impacting crop yields and household earnings [12]. Together, these structural issues perpetuate low output, food insecurity, and enduring poverty among women-dependent farming households.

While geoinformatics tools have shown promise in improving agricultural planning and resource management worldwide, their adoption in rural Nigeria remains limited—particularly among women, who often lack the knowledge, awareness, or support needed to use such technologies effectively [13]. There is a significant disconnect between the availability of geospatial solutions and their practical application in reducing rural poverty and enhancing livelihoods. This study therefore, explores how targeted geoinformatics interventions could help overcome these barriers and support sustainable income opportunities for women farmers in Imo State.

Persistent high rates of rural poverty among women farmers in Imo State highlight the need for focused and innovative strategies that address both technological disparities and gender-specific barriers. This research is grounded in several important factors. First, although smallholder women farmers are central to agricultural production, their integration into technological progress remains largely neglected in rural development planning. While geoinformatics has proven effective in agriculture in more advanced contexts, its potential and real-world impact in resource-limited regions like Imo State remain poorly understood [4]. Investigating how geospatial technologies can contribute to poverty alleviation offers practical knowledge to inform better-coordinated agricultural policies and digital advisory services. Second, despite women's substantial role in Nigerian agriculture, systemic inequalities still limit their economic growth [3]. This study focuses on the lived experiences of marginalized female farmers, promoting gender-responsive planning and showing how technology can foster equity and enhance resilience [12]. The study highlights how geoinformatics can enable climate-smart farming, strengthening women farmers' capacity to respond to environmental shifts—a key move toward long-term poverty reduction. Finally, the findings will offer concrete, evidence-based recommendations for government agencies, development partners, and local actors aiming to integrate geoinformatics into rural support initiatives. These insights can help shape agricultural extension programs, digital skills training, and community-led mapping projects designed to improve women's access to accurate and timely farming information. The general objective of this study is to evaluate the role of geoinformatics in reducing rural poverty and improving livelihoods and incomes among vulnerable women farmers in Imo State, Nigeria. The specific objectives are:a) to identify attributes of vulnerable women farmers in the study area; b) examine awareness and utilization of geoinformatics technologies (GIS, remote sensing, GPS) among women farmers in rural communities of Imo State; c) to identify the key socioeconomic and institutional barriers that constrain the adoption of geoinformatics tools by women farmers in the study area; d) to examine the perceived influence of geoinformatics-based information and improvements in farm productivity, climate risk management, and income levels of women farmers; e) to propose feasible strategies and policy recommendations for integrating geoinformatics into rural agricultural support programs targeting women farmers in Imo State.

Methodology

The research was conducted in Imo State, situated in the southeastern geopolitical region of Nigeria, within latitudes 4°45′N to 7°15′N and longitudes 6°50′E to 7°25′E. The state borders Abia State to the east, Rivers State to the south, Anambra State to the west, and Enugu State to the north. Agriculture forms the backbone of the local economy, with a significant portion of the population involved in farming. Key crops grown include cassava, yams, maize, and various vegetables. With an estimated population exceeding 5.6 million, the state experiences high population density, ranging from 230 to 1,400 people per square kilometer. Farming is a primary livelihood, especially for rural women who typically operate small-scale farms [2]. The region has a tropical climate marked by clear wet and dry seasons, which supports agricultural activities. However, it also faces environmental challenges such as flooding and soil erosion, which can hinder farming output.

Given the active participation of women in both subsistence and small commercial farming, the area provides a relevant context for the study.

A mixed-methods research design was employed, integrating both quantitative and qualitative approaches to gain a well-rounded understanding of how geoinformatics can enhance the livelihoods of women farmers. Quantitative data was gathered through a questionnaire administered to a representative sample of women farmers, while qualitative insights were collected via oral discussions and interviews with key informants. This combined approach enabled data triangulation, strengthening the reliability of the findings. Data collection drew on both primary and secondary sources. Primary information was obtained using structured questionnaires distributed to women farmers, while secondary data was compiled from academic journals, official reports, and other relevant publications to support contextual analysis.

The study focused on rural women farmers across Imo State who are engaged in crop production, livestock rearing, and agro-processing. Women play a central role in agricultural production in rural Nigeria, contributing significantly to food security and household income. A multi-stage sampling method was used: first, three agricultural zones—Orlu, Owerri, and Okigwe—were selected. In the second stage, two Local Government Areas (LGAs) were randomly chosen from each zone, resulting in six LGAs. Third, two rural farming communities were selected from each LGA, totaling 12 communities. Finally, 15 women farmers were randomly selected from each community, yielding a total sample of 180 respondents. However, only 150 completed questionnaires were returned. Quantitative data was analyzed using frequencies, percentages, means and standard deviation. Objectives 1 and 2 were achieved using percentages, while the mean was calculated on a 4-point Likert-type scale of Strongly agree, Agree, Strongly Disagree and Disagree. Qualitative data from focus group discussions and interviews were examined through thematic analysis, which involves identifying, organizing, and interpreting recurring patterns and themes within the responses.

Results and Discussion

Attributes of vulnerable Women farmers

Table 1 showed that vulnerability of women farmers are evident in the following ways : limited access to land (100%), low access to finance/credit (92%), low level of education (80%), restricted access to farm inputs(93.3%), heavy workload at farmers/home (89.3%),limited access to farm/modern technology (86%), poor market access (94%), and high exposure to risk (90.6%),Women are key contributors to agricultural production, especially in developing regions, but they continue to face significant vulnerabilities due to entrenched socio-economic, cultural, and environmental barriers. Research indicates that despite their substantial role in food cultivation, women often lack adequate access to critical resources like land, credit, farming inputs, and advisory services—factors that hinder both their productivity and ability to withstand shocks [13,14]. In numerous settings, gender-based norms and institutional limitations limit women's control over land and reduce their influence in decision-making, reinforcing their exclusion [15]. The impacts of climate change intensify these challenges, as women farmers tend to be more exposed to extreme weather events such as droughts, floods, and pest outbreaks, yet possess fewer financial and technical means to adapt [16,17].

Data also shows that during climate-related crises, women typically experience greater income losses and increased labor demands than men. At the same time, they frequently balance farm work with unpaid household duties, leaving little time for skill development or adopting new technologies [18]. Furthermore, restricted access to markets, education, and agricultural knowledge limits their participation in value chains and reduces potential gains from market opportunities. These overlapping disadvantages underscore that women's vulnerability stems not just from gender roles, but from deeper structural inequities within rural economic systems. Tackling these issues calls for gender-responsive policies that expand women's access to resources, secure their land rights, and build their resilience to climate change [19]. When women involved in farming share their experiences during oral interview, they often describe their struggles in personal terms. Their accounts reveal everyday challenges that go beyond what numbers can capture. “We work the land, but it doesn't belong to us,” many say, pointing out that without ownership, they lack decision-making power and cannot use land as collateral. “Banks don't see us as reliable because we have no assets to secure loans,” they note, which makes it difficult to afford essentials like seeds, fertilizer, or modern equipment. While agricultural advisors do visit, “they mostly speak with men,” indicating that women are frequently left out of vital training and new farming techniques. “We farm, care for children, cook, and run the household,” they emphasize, carrying a dual workload that stretches their time and energy. “When there's no rain, our crops fail—and we're the first to feel the impact,” highlighting how climate vulnerability hits them harder due to their reliance on rain-fed agriculture. “Our voices aren't heard in community matters,” they observe, as social norms often restrict their participation in local decision-making. Additionally, “we find it hard to get fair prices for what we grow,” reflecting how limited market access undermines their earnings and economic independence.

Table 1: Attributes of Vulnerable Women Farmers

Attributes	*Frequency	Percentage
Limited access to land	150	100
Low access to finance/credit	138	92.0
Low level of education	150	180.0
Restricted access to farm inputs	145	93.3
Heavy workload at farmers/home	137	89.3
Limited access to farm/modern technology	129	86.0
Poor market access	141	94.0
High exposure to risk	130	90.6

*Multiple Responses **

Awareness and Utilization of Geoinformatics Tools

Table 2 showsthe various geoinformatics tools available to respondents. They are aware and use the following tools; mobile phones (100%), radios (100%), GIS (98.6%), remote sensing (64%), GPS (31.3%), participatory mapping (42%), and GIS-driven land and farm planning (65.3%). They utilize the following tools: radios (100%), mobile phones (100%), GIS (92.0%), community-level mapping (58.0%), and satellite imagery (96.0%), among others.The role of geoinformatics tools in agriculture—such as Geographic Information Systems (GIS), remote sensing, GPS, and digital farming platforms—is gaining importance for boosting productivity, supporting informed decisions, and advancing sustainable farming practices. These technologies are central to precision agriculture, offering real-time data on weather, soil quality, crop conditions, and market trends [20]. While awareness of such tools among women farmers is growing, it remains inconsistent, especially in developing regions.

Research shows that although many women farmers have some familiarity with digital and geospatial technologies, deeper knowledge and practical use are often constrained by low education levels, insufficient agricultural extension support, and gender-specific barriers to information [21]. For example, a study in Nigeria found that more than half of women farmers had heard of ICT-based agricultural tools, reflecting increased exposure, but understanding and technical skills still lag.

The actual use of these tools by women is shaped by various social, economic, and institutional factors. Ownership of mobile devices, internet access, training opportunities, and involvement in community or farmer groups all play a significant role in encouraging adoption [21]. When used effectively, geoinformatics can improve access to vital information on fertilizer use, pest control, credit options, and market prices, leading to higher yields and income. These tools also aid in efficient resource use, climate resilience, and timely decision-making—key elements in addressing climate change and food insecurity [22]. However, multiple challenges limit widespread use. High costs of equipment and software, weak infrastructure including unstable power and internet, low digital literacy, and time demands from household responsibilities all act as barriers [21]. Moreover, systemic gender disparities—such as limited access to land, financial services, and training—further exclude women from benefiting from advanced agricultural technologies [22]. This reflects an ongoing digital divide along gender lines in agriculture.

Table 2: Awareness and Utilization of Geoinformatics Tools

Geoinformatics Tool	Awareness (%)	Utilization (%)
Mobile phones	150 (100%)	150 (100%)
Radios	150 (100%)	150 (100%)
Geographic Information System (GIS)	148 (98.6%)	138 (92.0%)
Remote Sensing	124 (84.6%)	114 (76.0%)
Global Positioning System (GPS)	137 (91.3%)	101 (67.3%)
Mobile-based Spatial Tools	89 (59.3%)	141 (94.0%)
GIS-Driven Farming and Land Planning	58 (65.2%)	138 (92.0%)
Satellite Imagery	74 (49.3%)	144 (96.0%)
Community-level Mapping and Surveying	84 (56.0%)	147 (98.0%)
Participatory Mapping	66 (44.4%)	138 (92.0%)

Factors Constraining the Adoption of Geoinformatics by Women Farmers

Table 3 showed several factors preventing women farmers' adoption of geoinformatics tools. Using a discriminating mean(M) index of 2.50, the following socio-cultural and institutional factors were observed: limited access to finance and credit (M = 2.51), low educational and social literacy levels (M = 2.85), high cost of geoinformatics tools (M = 2.74), time constraints (M = 2.46), lack of institutional training (M = 2.60), limited knowledge and awareness of geoinformatics tools (M = 2.73), inadequate extension services (M = 2.65), lack of institutional training programs (M = 2.80), policy gaps and weak support systems (M = 2.58), and cultural and gender norms (M = 2.75).The use of geoinformatics technologies—such as GIS, remote sensing, and mobile spatial tools—among women farmers is influenced by a mix of socio-economic, institutional, cultural, and technological factors. While these tools have the potential to enhance agricultural decision-making and boost productivity, women frequently encounter systemic barriers that hinder their access and long-term use. A primary challenge is the digital divide, marked by lower levels of digital literacy and limited experience with geospatial systems. Research indicates that women in rural farming areas typically have less exposure to information and communication technologies (ICTs) and fewer opportunities for training than men, which makes it harder for them to effectively engage with geoinformatics applications [23,24]. This is compounded by insufficient access to essential digital infrastructure, including smartphones, reliable internet, electricity, and geospatial data platforms [23]. Cultural norms and gendered roles also play a critical role. In many rural contexts, women face mobility restrictions, have less influence over household and farm decisions, and encounter greater difficulty accessing extension services and training programs. These disadvantages reduce their involvement in networks where knowledge about new technologies is exchanged [25,26]. Within households, power imbalances often mean that men control technology adoption decisions, limiting women's autonomy in using such tools. Financial limitations are another significant obstacle, as utilizing geoinformatics requires spending on devices, internet plans, and training. Women farmers, who generally earn less and have less access to credit, are especially disadvantaged in this regard. Institutional shortcomings—such as a lack of gender-responsive extension services and weak policy support for digital inclusion—further limit uptake. Moreover, many women farmers are unaware of these technologies or view them as overly complex and not suited to their specific farming practices, which reduces their motivation to adopt them.

Table 3: Factors Constraining the Adoption of Geoinformatics by Women Farmers

Constraining Factor	Mean	SD
Limited access to finance or credit	2.51	0.81
Lower educational and social literacy levels	2.85	0.59
High cost of geoinformatics tools	2.74	0.48
Time constraints in accessing information	2.46	0.81
Limited knowledge and awareness of geoinformatics tools	2.73	0.57
Inadequate extension services	2.65	0.71
Poor ICT infrastructure support	2.69	0.64
Lack of institutional training in programs	2.60	0.84
Policy gaps and weak support systems	2.58	0.59
Cultural and gender norms	2.75	0.61

Acceptance Mean = 2.50

Influence of the Use of Geoinformatics on Farm Productivity, Climate Risk Management Income levels of Women

Table 4 showed that the use of geoinformatics tools bear heavily on women farmers' livelihoods, farm productivity, climate risk management and income of women farmers in the study area. With an acceptable mean index of 2.50, the following impacts were felt;soil fertility and crop planning (M=2.75), precision agriculture (M = 2.93), pest and disorder management (M = 2.80), higher yields (M = 2.64), proper land use planning (M = 2.54), weather and climate forecasting(M=2.71), and efficient water and irrigation management (M = 2.58).Regarding climate risk management, geoinformatics facilitates the monitoring of environmental changes (M = 2.86), community assurance and communication (M = 2.74), farm decision support (M = 2.69), hazard mapping (M = 2.58), early warning systems (M = 2.60), better risk management (M = 2.80), and the reduction of agricultural preventive measures (M = 2.69). In terms of income levels, geoinformatic technology supports increased crop yields (M = 2.65), reduced input costs (M = 2.59), better crop selection (M = 2.77), early detection of crop pests and diseases (M = 2.66), improved market access (M = 2.54), risk reduction systems (M = 2.62), and financial planning (M = 2.58).Geoinformation systems (GIS), remote sensing, and related geospatial technologies are playing a growing role in modern agriculture, particularly in boosting farm productivity, managing climate-related risks, and improving income outcomes for women farmers.

These tools provide spatially precise data on soil quality, rainfall trends, crop suitability, and environmental threats, enabling more informed decision-making and the adoption of precision farming practices [27,28]. By revealing variations within fields, geoinformation helps farmers use inputs like fertilizer, water, and high-yield seeds more efficiently. Research indicates that such technologies improve crop yield predictions, identify suitable land for specific crops, and support better allocation of resources—all contributing to higher agricultural output [28,29]. For women farmers, who frequently face barriers in accessing extension services and key production assets, GIS-powered advisory platforms and mobile-based geospatial tools help close information gaps and support improved farm management. In climate risk management, geoinformation aids in detecting hazards like droughts, floods, and shifting temperatures that impact farming systems. Tools that map climate-agriculture interactions enable early warnings and targeted adaptation measures, allowing farmers to prepare and minimize losses. Studies emphasize that women in agriculture are often more vulnerable to climate change due to restricted access to resources and adaptive tools, making geospatial information especially important for building their resilience [30]. GIS-based climate information systems also assist in risk mapping and disaster planning, strengthening preparedness in at-risk rural areas. Additionally, geoinformation can raise women's incomes by increasing productivity, reducing crop failure, and improving market access through more effective planning. With better spatial data, women can make strategic decisions about what to grow, when to plant, and when to sell, leading to higher returns. Evidence suggests that when women gain access to climate-smart and geospatial tools, their yields and earnings improve, helping narrow gender disparities in rural economies [30,31]. Nonetheless, challenges such as low digital literacy, limited technology access, and sociocultural barriers continue to restrict the widespread benefits of geoinformation among women farmers.

Table 4: Perceived Influence of Geoinformatics on Farm Productivity

Perceived Influence of Geoinformatics on Farm Productivity	Mean	SD
Soil Fertility and Crop Planning	2.75	0.50
Precision agricultural practices	2.93	0.71
Pest and disease management	2.80	0.8
Higher Yield	2.64	0.54
Proper land use planning	2.54	0.61
Weather and climate forecasts	2.71	0.57
Efficient water and irrigation management	2.58	0.74

Influence on Climate Risk Management

Perceived Influence of Geoinformatics on Farm Productivity	Mean	SD
Monitoring environmental changes	2.80	0.57
Community awareness and communication	2.74	0.54
Support for decision-making in Farm	2.69	0.48
Hazard mapping	2.58	0.63
Early warning systems	2.61	0.61
Better risk assessment	2.80	0.72
Weather forecasting and preparedness	2.69	0.81

Influence on Income Levels

Increased crop yields	2.65	0.47
Reduced input costs	2.59	0.51
Better crop selection	2.71	0.64
Early detection of pests and Diseases	2.67	0.52
Improved market access	2.54	0.61
Risk reduction	2.63	0.58
Financial planning.	2.58	0.49

Acceptance Mean = 2.50

Integrating Geoinformatics in Agricultural Systems for Women Farmers

Table 5 showed the strategies for integrating geoinformatics tools in agriculture for improvement of women's livelihoods. Using a discriminating mean index of 2.50, the following strategies were identified: Capacity building and training programs (M = 2.53), provision of affordable geoinformatics tools (M = 2.68), development of user-friendly platforms (M = 2.81),Community-based data collection (M = 2.68), participatory mapping (M = 2.74), embed geoinformatics in Extension delivery system(M = 2.64), enhancing awareness and information dissemination(M = 2.75), improve internet connectivity(M = 2.69), provide gender inclusive agricultural programs(M = 2.68), provision of grants, low interest loans to women(M = 2.57), monitoring and evaluation(M = 2.54).The incorporation of geoinformatics—encompassing tools like Geographic Information Systems (GIS), remote sensing, GPS, and spatial data analysis—into agriculture has emerged as a powerful approach to enhancing farming productivity, sustainability, and resilience. These technologies allow farmers to gather and interpret spatial and time-based data, supporting more informed decisions, especially in precision and climate-smart agriculture [31]. For women farmers, this integration holds particular value, as it helps overcome persistent challenges such as restricted access to extension services, land records, and climate-related information. GIS-driven tools facilitate targeted farm management by delivering insights on soil health, suitable crops, rainfall patterns, and areas prone to pests, enabling women to make the most of limited inputs and boost yields. Research indicates that geospatially supported precision farming leads to more efficient land use and stronger environmental sustainability [32]. Moreover, geoinformatics is vital for adapting to climate change and managing risks. Women, who often face greater impacts from climate fluctuations due to social and economic disparities and weaker adaptive capacity, benefit significantly from GIS-based early warning systems, weather predictions, and drought monitoring. These tools support timely actions during extreme events like floods or prolonged dry periods, reducing losses and strengthening resilience through better planning [33,29]. Additionally, the use of geoinformatics contributes to higher incomes for women in agriculture. Access to location-specific agricultural data improves choices around crop selection, planting schedules, and market timing, increasing both output and profitability. Studies show that when women gain access to digital and geospatial tools, they achieve higher yields and improved market engagement, helping to close the gender gap in farm income [30,31]. Despite these benefits, barriers including low digital skills, inadequate ICT infrastructure, and sociocultural norms still limit widespread adoption among rural women.

Table 5: Strategies for Agricultural integration of Geoinformatics

Strategy	Mean	SD
Capacity building and training programs	2.53	0.69
Provision of affordable geoinformatics tools	2.61	0.58
Development of user-friendly platforms	2.81	0.61
Community-based data collection	2.68	0.48
Participatory mapping	2.74	0.51
Embed geoinformatics in Extension delivery system	2.64	0.63
Enhancing awareness and information dissemination	2.75	0.94
Improve internet connectivity	2.69	0.76
Provide gender inclusive agricultural programed	2.68	0.64
Provision of grants, low interest loans to women	2.57	0.68
Monitoring and evaluation	2.54	0.55

Accepted Mean = 2.50

Conclusion

Geoinformatics offers significant potential for alleviating rural poverty and enhancing the livelihoods of vulnerable women farmers in Imo State. By delivering timely agricultural information and supporting more informed decisions, these technologies can boost productivity, raise incomes, and strengthen resilience to climate-related challenges. Yet, realizing these benefits requires overcoming key obstacles such as low awareness, insufficient technical knowledge, and weak infrastructure. Targeted measures—including training initiatives, expanded access to digital resources, and enabling policies—can unlock the transformative impact of geoinformatics, empowering women farmers and advancing sustainable rural development.

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