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Strategies for Improving Female Farmers' Access to Selected Agricultural Input in Rural Areas of Ozubulu, Anambra State

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Abstract

The aim of the study was toevolve strategies for improving female farmers' access to selected agricultural input in rural areas of Ozubulu, Anambra State. Specifically, the study determined strategies for improving female farmers' access to: land, credit, extension services, training and appropriate agricultural technologies. Four research questions guided the study. The study adopted a survey research design. The study involved 291 participants: 282 registered female farmers, seven agricultural extension workers, and two bank executives from microfinance banks in Ozubulu. No sampling was needed due to the manageable population size. Data were collected using questionnaire.Data were analyzed using mean and standard deviation. The study identified nine strategies for improving female farmers' access to land, including the abolition of cultural barriersthat prevent women's access to land($\bar{X}$= 3.52); 11 strategies for improving rural female farmers' access to credit, such as access to loans at low interest rate($\bar{X}$= 3.38); eight strategies for improving access to extension services, like using mass media for information dissemination ($\bar{X}$= 3.26); and nine strategies for access to agricultural technologies, such as providing agricultural research findings ($\bar{X}$= 3.45). Recommendations includeamong others, enforcing policies to protect women's land rights for secure tenure and developing user-friendly manuals for agricultural technologies.

Keywords: Strategies, Rural, Female, Farmers, Access, Productivity, Agricultural, Input, Extension

Introduction

Agriculture encompasses the cultivation of crops and the husbandry of animals, fibers, biofuels, and other essential products. Anyanwu (2018) describes agriculture as a branch of science that sustains people by providing food and fundamental commodities while offering significant employment opportunities. It involves the science and art of soil cultivation, crop production, livestock farming, and the preparation and processing of their outputs (Nwachukwu & Ezeano, 2017). Nwakile, Ejiofor, and Ali (2017) assert that agriculture is vital for human life and the economy, serving as the backbone of a country's economic system. The Food and Agriculture Organization (FAO, 2020) emphasizes agriculture's critical role in food security, poverty reduction, and sustainable development. The World Bank highlights agriculture as key for poverty reduction and economic growth in developing countries, enhancing livelihoods and creating opportunities for small-scale farmers (World Bank, 2021). Agriculture fulfills dietary needs,

supplies raw materials, and serves as a major employment source (Urama & Onyekuru, 2017). It supports farmers' livelihoods, contributes to national income, provides sustenance and fodder, and fosters international trade, especially in developing countries like Nigeria (Uzochukwu & Chikezie, 2018).

In Nigeria, the agricultural sector contributes about 55% of gainful employment and nearly 40% of the GDP(Okeke & Chukwu, 2023). The authors further posited that before the discovery of oil, these figures were as high as 75–80% of the GDP. Currently, this GDP share is significantly higher compared to the average of 27% for low-income nations in Sub-Saharan Africa (Eze & Okeke, 2023). However, the sector still lags in development and industrial contribution, failing to produce a marketable surplus to feed the nation and provide industrial inputs (Onuoha & Okoye, 2019). The authors further posited that emphasizing agricultural development is crucial for Nigeria's overall development, as all other sectors depend on agriculture for sustenance and essential inputs.

Agricultural production measures the quantity of output produced for a given set of inputs (Ezeano & Nwachukwu, 2019). It involves cultivating crops, raising livestock, and harvesting natural resources, encompassing the production of food, fiber, biofuels, and other commodities for consumption or industrial use (Amalu & Anyaeche, 2016). The FAO (2018) defines agricultural production as the output generated from agricultural activities relative to the inputs used, focusing on efficiency and productivity. This relationship between the quantity of goods produced and the resources employed (land, labor, capital, and technology) is crucial. Igwebuike and Okoye (2018) describe agricultural production as output per unit of input, such as tons of wheat per acre. Amalu and Anyaeche (2016) state that if output grows at the same rate as inputs, production remains unchanged, but if output growth exceeds input growth, production is positive. Increasing production output impacts growth, market competitiveness, income distribution, savings, and labor migration (Chigbu & Okoye, 2017).

Enhancing agricultural production requires the effective allocation of limited resources. Adopting innovative methods allows more efficient farmers to improve their well-being (Garcia & Martinez, 2017). Increased productivity means farmers can produce goods at a lower cost, gaining a competitive edge in the global market by offering more products at the same price (Nduka & Ejezie, 2017). This contributes to agricultural expansion and poverty reduction, as agriculture often employs the largest population segment in developing nations (Okoli & Okoye, 2018). Improved productivity raises agricultural workers' earnings, reduces food prices, and stabilizes food supply (Urama & Onyekuru, 2017). The benefits extend beyond the agricultural sector, as individuals in other industries also enjoy lower food costs and more reliable food provision (Liu & Wang, 2018). Enhancing agricultural production among rural farmers supports overall economic growth, necessitating access to resources that can boost their productivity (Urama & Anyanwu, 2017).

Rural farmers are essential to Nigeria's agricultural sector, supplying the majority of the nation's food. Over 63% of these farmers are women (Okoli & Okoye, 2018). They are crucial to the sector, needing support to increase food production, grow raw materials for the agro-industrial sector, and reduce a food supply deficit costing over $500 million annually in imports (Uzochukwu & Nwachukwu, 2022). However, many rural female farmers lack agricultural information, limiting their use of modern technologies (Onuoha & Okoye, 2019). This issue is exacerbated by a shortage of agricultural extension workers, who provide advisory and educational services to farmers (Li & Zhao, 2018). Extension workers facilitate the adoption of innovative technologies and sustainable practices (Onuoha& Okoye, 2019).Additionally, limited access to credit facilities significantly reduces the productivity of rural female farmers (Igwebuike & Anyanwu, 2017). Access to credit often depends on the willingness of microfinance bank executives to provide these services (Li & Zhao, 2018). These executives, including bank managers and chief financial officers, oversee operations and strategic direction, crucial for financial inclusion and poverty alleviation.Despite Nigeria's vast cultivable land, much of it is being repurposed away from agriculture (Eze & Okeke, 2023). A major barrier to productivity is the lack of farm inputs, which discourages production, contributing to low output in many rural areas, including Ozubulu, Anambra State.

Ozubulu, a town in Ekwusigo Local Government Area, Anambra State, is predominantly inhabited by Igbo rural farmers (Ezeano & Uzochukwu, 2018). The main crops grown include cassava, sweet potatoes, cocoyam, tomatoes, okra, pepper, garden egg, fluted pumpkin, ginger, breadfruit, maize, sorghum, groundnut, mango, citrus, pears, coconut, and oil palm. Women in Ozubulu face significant constraints, such as limited access to land, which they can only obtain through fathers, husbands, or community allocation, often resulting in small plots (Chigbu & Okoye, 2017). They also lack access to credit and farm inputs, hindering their production (Uzochukwu & Nwachukwu, 2022).Their access to extension officers is limited due to their multiple responsibilities, including household management and various agricultural activities. Gender inequality further restricts their access to agricultural information and technology, such as improved seeds, fertilizers, and pest management, reducing their productivity and contributing to poverty (Eze & Okeke, 2023). Efforts by national governments and the international community to achieve agricultural development, economic growth, and food security would benefit from addressing these constraints and building on women's contributions. Increasing rural female farmers' access to farm inputs and resources could enhance their production and lead to self-reliance. However, there is a lack of literature on this issue. Therefore, this study aims to evolve strategies towards improving female farmers' access to selected

agricultural input in rural areas of Ozubulu, Anambra State.

Purpose of the Study

The general purpose of the study was to evolve strategies for improving female farmers' access to selected agricultural input in rural areas of Ozubulu, Anambra State. Specifically, the study determined strategies towards improving female farmers' access to:

1. land
2. credit
3. extension services and training
4. appropriate agricultural technologies

Research Questions

The following research questions guided the study:

What are the strategies towards improving female farmers' access to selected agricultural input in rural areas of Ozubulu, Anambra State through improved access to:

1. land?
2. credit?
3. extension services and training?
4. appropriate agricultural technologies?

Methodology

***Design of the Study*:** The study adopted a survey research design.

Area of the Study: The study was conducted in Ozubulu, Anambra State, Nigeria, which comprises four major communities: Amakwa, Nza, Eziora, and Egbema (Planning Department, Ekwusigo LGA Headquarters, Ozubulu, 2023). Although a major town, Ozubulu has rural areas with a significant number of female farmers. Agriculture is the primary occupation for many women, who engage in cultivating crops such as cassava, sweet potatoes, cocoyam, tomatoes, okra, and maize. These women also manage livestock, process food, and contribute significantly to local food security. The area was chosen because there are many female farmers in the area and there is need to help them increase their production and overcome existing constraints.

Population for the Study: The population for the study was 291 consisting of 282 registered female farmers, of 7 agricultural extension workers and two bank executives from two microfinance banks in Ozubulu. Data on population of registered fenale farmers and number of extension workers was collected from Agricultural Extension Office, Ekwusigo LGA (2023) while the data on the number of bank executives was gotten through fiekd survey by going to the microfinance banks to mske enquiries. Due to the manageable size of the population, the entire population was studied. Hence, there was no sampling or sampling technique.

Instrument for Data Collection: Data for this study was collected using a structured questionnaire designed to answer the research questions. The questionnaire had two parts: Part 1 collected personal data on the respondents, while Part 2 gathered information specific to the study's purposes. Part 2 was divided into four sections (A, B, C, and D), each addressing one of the four research questions: improving female farmers' access to land, credit, extension services and training as well as agricultural technology. Each section used a 4-point scale: Very Important Way (VIW) – 4; Important Way (IW) – 3; Less Important

Way (LIW) – 2 and Not Important Way at all (NIWA) – 1. The instrument was validated by five experts and tested for reliability using Cronbach's Alpha, yielding a coefficient of 0.76.

Data Collection Technique: Data was collected by the researcher with the help of three research assistants. Out of a total of 291 copies of questionnaire disstributed to the entire sample, 240 copies were correctly filled and returned (232 from the female rural farmers, 6 from the extension workers and 2 from the banks executives in microfinance banks) yielding a return rate of 82.4%.

Data Analysis Technique: Mean and standard deviation was used to analyze data from Sections A - D. In interpreting data, mean cut-off point of 2.50 was used. Hence, items that had mean values of 2.50 or above were interpreted as an "Important Way" (IW) while items with mean values less than 2.50 were interpeted as "Not an Important Way" (NIW).

Results

Table 1: Mean Responses and Standard Deviation by Female Farmers, Agricultural Extension Workers and Bank Executives on the Strategies for Improving Rural Female Farmer's Access to Land.

S/N	Strategies towards Improving Access to Land	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_3$	SD_3	$\bar{X}_g$	R
1	Abolition of cultures that prevent women's access to land.	3.50	0.58	3.54	0.61	3.52	0.60	3.52	IW
2	Women empowerment for land ownership	3.30	0.56	3.26	0.62	3.28	0.59	3.28	IW
3	Government policy to address women's access and use of land.	3.42	0.59	3.46	0.60	3.44	0.59	3.44	IW
4	Purchasing land through female cooperative.	3.10	0.57	3.14	0.63	3.12	0.60	3.12	IW
5	Use of women groups to state advocate for their cases	3.08	0.55	3.12	0.64	3.10	0.60	3.10	IW
6	Implement policies and programs that aim to redistribute land to rural female farmers	3.12	0.58	3.16	0.65	3.14	0.61	3.14	IW
7	Ensure that rural female farmers have secure land tenure through land ownership or formal land titles.	3.62	0.57	3.66	0.64	3.64	0.60	3.64	IW
8	Establish and enforce laws that explicitly recognize and protect women's land rights.	3.82	0.55	3.86	0.63	3.84	0.59	3.84	IW
9	Provide rural female farmers with training on land management and agribusiness skills	3.73	0.54	3.77	0.62	3.75	0.58	3.75	IW

$\bar{X}_1$ = Mean score of female famers; SD_1 = Standard deviation of female farmers; $\bar{X}_2$ = mean of extension agent/worker; SD_2 = Standard deviation of extension agents/workers; $\bar{X}_3$ = mean

score of bank executives; SD_3 = standard deviation of bank executives; $\bar{X}_g$ = grand mean; R = Remark

Table 1 reveals that one items all nine items had grand mean values ranged of 3.10– 3.84. The values were all above 2.50 which indicates that all the items were theimportant ways of improving female farmers' access to access to land in Ozubulu, Anambra State.

Table 2: Mean Responses and Standard Deviation by Female Farmers, Agricultural Extension Workers and Bank Executives on the Strategies for Improving Rural Female Farmer's Access to Credit

S/N	Strategies towards Improving Access to Credit	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_3$	SD_3	$\bar{X}_g$	R
1	Access to loans at low interest rate	3.38	0.58	3.40	0.59	3.36	0.57	3.38	IW
2	Encouraging women to join cooperative societies for acquisition of loan	3.24	0.56	3.26	0.57	3.22	0.55	3.24	IW
3	Government policy to address women's access to credit	3.26	0.57	3.28	0.58	3.24	0.56	3.26	IW
4	Educating women on the source of credit	3.28	0.58	3.30	0.59	3.26	0.57	3.28	IW
5	Establishment of more banks in the rural area that considers female loan application	3.30	0.59	3.32	0.60	3.28	0.58	3.30	IW
6	Increment in loan size for female farmers applicants	3.10	0.55	3.12	0.56	3.08	0.54	3.10	IW
7	Support microfinance institutions that specifically cater to rural female farmers	3.24	0.56	3.26	0.57	3.22	0.55	3.24	IW
8	Strengthen women's cooperative groups, which can serve as platforms for collective borrowing and lending	3.12	0.54	3.14	0.55	3.10	0.53	3.12	IW
9	Provide financial literacy to rural female farmers to help them make informed decisions about borrowing and managing credit.	3.22	0.55	3.24	0.56	3.20	0.54	3.22	IW
10	Develop innovative collateral alternatives, such as group guarantees to reduce the traditional collateral requirements	3.04	0.52	3.06	0.53	3.02	0.51	3.04	IW
11	Offer flexible repayment schedules that align with the agricultural cycle	3.14	0.53	3.16	0.54	3.12	0.52	3.14	IW

$\bar{X}_1$ = Mean score of female famers; SD_1 = Standard deviation of female farmers; $\bar{X}_2$ = mean of extension agent/worker; SD_2 = Standard deviation of extension agents/workers; $\bar{X}_3$ = mean score of bank executives; SD_3 = standard deviation of bank executives; $\bar{X}_g$ = grand mean; R = Remark

Table 2 reveals that all the 11 items had grand meanvalues ranged from 3.04 to 3.38which were all above 2.59. This indicated that all the items important ways towards improving rural female farmer's access to credit in Ozubulu.

Table 3: Mean Responses and Standard Deviation by Female Farmers, Agricultural Extension Workers and Bank Executives on the Strategies for Improving Rural Female Farmer's Access to Extension Services and Training

S/N	Strategies towards Improving Access to Extension Services and Training	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_3$	SD_3	$\bar{X}_g$	R
1	Organization of workshops to educate female farmers on the use of agricultural technologies	3.20	0.48	3.30	0.50	3.24	0.47	3.25	IW
2	Female rural joining resources to invite extension agents to their farms to teach them	3.18	0.49	3.32	0.51	3.26	0.48	3.25	IW
3	Use of mass media for disseminating information to female farmers	3.00	0.48	3.28	0.49	3.24	0.47	3.17	IW
4	Availability of extension services during female farmers' meetings to teach them.	3.10	0.51	3.42	0.52	3.38	0.50	3.30	IW
5	Adequate welfare scheme to boost the morale of extension workers	3.15	0.53	3.48	0.54	3.42	0.52	3.35	IW
6	Government should employ more extension workers	3.22	0.52	3.46	0.53	3.42	0.51	3.37	IW
7	Develop extension programs specifically tailored to the needs of rural female farmers	3.60	0.55	3.50	0.56	3.14	0.54	3.41	IW
8	Ensure that extension services are gender-sensitive	3.64	0.47	3.28	0.49	3.22	0.46	3.38	IW

$\bar{X}_1$ = Mean score of female famers; SD_1 = Standard deviation of female farmers; $\bar{X}_2$ = mean of extension agent/worker; SD_2 = Standard deviation of extension agents/workers; $\bar{X}_3$ = mean score of bank executives; SD_3 = standard deviation of bank executives; $\bar{X}_g$ = grand mean; R = Remark

Table 3 reveals that all 8 items had grand meanvalues ranged between 3.17-3.41 which were all above 2.50. This indicated that all the items important ways towards improving rural female farmer's access to extension services and training in Ozubulu, Anambra State.

Table 4: Mean Responses and Standard Deviation by Female Farmers, Agricultural Extension Workers and Bank Executives on the Strategies for Improving Rural Female Farmer's Access to Appropriate Technologies

S/N	Strategies towards Improving Access to Appropriate Technologies	$\bar{X}_1$	SD_1	$\bar{X}_2$	SD_2	$\bar{X}_3$	SD_3	$\bar{X}_g$	R
1	Joining cooperatives to get information on the use of agricultural technologies	3.42	0.50	3.42	0.52	3.38	0.51	3.40	IW
2	Competent extension services to teach female farmers how to use machines	3.20	0.48	3.12	0.50	3.08	0.47	3.05	IW
3	Government policies to regulate standards	3.40	0.49	3.22	0.51	3.18	0.48	3.30	IW
4	Enlightenment campaigns by extension officers	2.76	0.52	2.78	0.54	2.74	0.51	2.76	IW
5	Well-detailed user's manual of agricultural technologies	3.42	0.50	3.24	0.52	3.20	0.49	3.32	IW
6	Availability of agricultural technologies	3.24	0.51	3.26	0.53	3.22	0.50	3.24	IW
7	Provision of competent extension agents to explain user's manual of technologies to farmers	3.36	0.52	3.38	0.54	3.34	0.51	3.36	IW
8	Sending innovative agricultural practices to rural women through extension services	3.44	0.53	3.46	0.55	3.42	0.52	3.44	IW
9	Making available agricultural research findings to rural women	3.45	0.54	3.48	0.56	3.42	0.53	3.45	IW

$\bar{X}_1$ = Mean score of female famers; SD_1 = Standard deviation of female farmers; $\bar{X}_2$ = mean of extension agent/worker; SD_2 = Standard deviation of extension agents/workers; $\bar{X}_3$ = mean score of bank executives; SD_3 = standard deviation of bank executives; $\bar{X}_g$ = grand mean; R = Remark

Table 4 reveals that all the items had their grand mean values ranging from 2.76 to 3.45 which were allabove 2.50. This indicated that all the items were important ways towards improving female farmers' access to to appropriate agricultural technologies in rural areas of Ozubulu, Anambra State in Ozubulu, Anambra State.

Discussion

The study on strategies to improve female farmers' access to land in Ozubulu, Anambra State found that effective methods include abolishing cultural practices that prevent women from accessing land, empowering women for land ownership, implementing government policies to address women's land access, purchasing land through female cooperatives, using women's groups to advocate for their rights, protecting women's land rights, and providing training on land management and agribusiness skills. These findings align with Amalu and Anyaeche (2016), who emphasized abolishing cultures that hinder women's access to land and

using women's groups for advocacy. The study underscores the importance of addressing cultural norms that discriminate against women's land rights, consistent with Anyanwu (2018) and Chigbu and Okoye (2017), who highlighted the significance of women's empowerment and decision-making power over land resources. Empowering women to own and manage land can lead to increased investment in its productivity.

The findings of the study on strategies towards improving rural female farmers' agricultural production in Ozubulu through imrpved access to credit in Ozubulu, Anambra State, found effective strategies such as offering low-interest loans, encouraging women to join cooperative societies, implementing supportive government policies, educating women about credit sources, establishing more rural banks that consider female loan applications, increasing loan sizes for female applicants, and supporting microfinance institutions catering to female farmers. Additional strategies include strengthening women's cooperatives for collective borrowing, providing financial literacy training, developing innovative collateral alternatives like group guarantees, and offering flexible repayment schedules aligned with agricultural cycles. These findings align with Eze and Okeke (2023) on the benefits of cooperative societies and reducing interest rates. They also echo Ezeano and Nwachukwu (2019) on the need for affordable credit options, as high-interest rates are a significant barrier for female farmers with limited resources. Ezeano and Uzochukwu (2018) also support the idea that cooperative groups can enhance credit access by reducing individual risk and increasing loan eligibility.

The findings of the study on improving rural female farmers' production through access to extension services in Ozubulu, Anambra State, identified several strategies: organizing workshops on agricultural technologies, pooling resources to invite extension agents, using mass media for information dissemination, providing extension services during female meetings, implementing welfare schemes for extension workers, securing government funding for more extension workers, developing gender-sensitive extension programs tailored to rural female farmers, establishing demonstration farms, and forming peer learning groups. These findings align with Igwebuike and Anyanwu (2017), who emphasized government intervention in funding more extension agents. The study's emphasis on accurate information dissemination mirrors Ogueri and Chigbu (2019), highlighting the role of extension agents in spreading scientific knowledge. The use of mass media for reaching rural women with agricultural updates is supported by Okeke and Chukwu (2018), who advocate for radio, television, and mobile phone apps as effective tools for modern agricultural extension.

The findings of the study on improving rural female agricultural production in Ozubulu through access to appropriate agricultural technologies identified several strategies. These include joining cooperatives for information on agricultural

technologies, utilizing competent extension services, implementing government policies to regulate standards, conducting enlightenment campaigns, providing detailed user manuals, ensuring the availability of technologies, and sending innovative practices and research findings through extension services. These findings align with Nduka and Ejezie (2017), who emphasized the role of extension services in educating farmers on necessary skills, and with Ogbuabor and Okoye (2018), who advocated for campaigns to encourage the adoption of appropriate technologies. The study's emphasis on cooperatives for technology information is consistent with Okeke and Chukwu (2023), highlighting the importance of collective action and knowledge sharing in technology adoption.

Conclusion

The findings underscore the need for holistic, gender-responsive approaches to address the various barriers faced by these farmers.Abolishing cultural practices that restrict women's land rights and empowering women to own land can significantly enhance their agricultural productivity. Providing rural female farmers with affordable credit options, encouraging their participation in cooperative societies, and implementing gender-sensitive financial policies are essential for their economic empowerment.Extension officers must deliver accurate information, organize educational workshops, and ensure that their services are gender-sensitive. This will help female farmers adopt best practices and improve their productivity. Membership in cooperatives, competent extension services, user-friendly manuals, and access to innovative practices are all necessary to equip female farmers with the tools they need to succeed.

Recommendations

Based on the findings of the study, the following are recommended;

1. Government authorities should enforce policies that protect women's land rights, ensuring secure land tenure for rural female farmers to provide long-term farming stability.
2. Government authorities should implement land redistribution programs targeting rural female farmers to promote equitable access and reduce land inequality, enhancing agricultural productivity and livelihoods.
3. Agricultural extension services should be improved by employing more agents and providing resources to ensure rural female farmers receive accurate information and training.
4. Agricultural technology developers should create user-friendly, detailed manuals to facilitate the adoption and effective use of technologies by rural female farmers.
5. Encourage female rural farmers to join cooperatives and women's groups to enhance collective bargaining, access to credit, resources, and information.

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