

Empowerment needs of women farmers for enhanced food production capability in Kogi State, Nigeria

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Abstract

This study examined the empowerment needs of women farmers to enhance their food production capabilities in Kogi State, Nigeria. A multistage random sampling technique was employed to select 160 respondents, and data were collected through interview schedules. The data were then analyzed using percentages, means, standard deviations, and Pearson Product-Moment Correlation. Results indicated that the mean age, farming experience, farm size, and annual income of respondents were 52.0 ± 4.5 years, 14.0 ± 5.5 years, 0.7 ± 0.4 hectares, and $\text{₦}40,150 \pm 3.0$, respectively. A majority (71.3%) had no formal education, 91.9% cultivated less than one acre, 88.1% sourced agricultural information from fellow farmers, and 92.5% were not affiliated with any women farmers' association. Furthermore, 92.5% of the respondents reported low levels of production and output. Major gender-related constraints identified included limited access to farmland (181.7), inadequate farm finance (178.3), lack of extension visits to women (176.7), and insufficient access to labour (161.7). A significant negative relationship was found between gender-related challenges and food production ($r = -0.624^{**}$, $p < 0.001$), indicating that these constraints had an adverse impact on production levels. The study recommends the formulation of targeted empowerment policies that enhance women's access to land, formal capital, and agricultural extension services, thereby improving their food production capabilities.

Keywords: Access to Productive Resources; Agricultural Empowerment; Gender Constraints; Gender Equity in Agriculture; Women in Agriculture; Agricultural Productivity

1. Introduction

Agriculture remains the backbone of many developing countries, with a significant portion of the rural population, both men and women, deriving their livelihood from agricultural activities (Dwomoh et al., 2023). In Africa, the central goal of agricultural programmes has been to enhance farm productivity (Asogwa, Omah, & Asogwa, 2020). Despite similar efforts by successive governments in Nigeria, the country remains food-deficient (Shaibu, 2021). Studies revealed that stunting affects one-third of children under five, and nearly half (48.5%) of women of reproductive age suffer from anaemia (Omotosho et al., 2019). A significant portion of the food-insecure population consists of farm families in rural areas, who rely almost exclusively on agriculture.

This paradox is largely due to the dominance of small-scale, resource-poor farmers in Nigeria's agricultural sector, underscoring the urgent need for coordinated efforts to drive sustainable agricultural development. One notable oversight in past initiatives is the marginalization of women farmers. Abushe et al. (2023) noted that the agricultural sector underperforms partly because women, who constitute a vital component of the rural economy as farmers, labourers, and entrepreneurs, remain largely unsupported. Addressing this gap necessitates increased focus on women within agribusiness development strategies (Asogwa et al., 2020).

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Women in rural Nigeria engage in a diverse range of roles, including crop cultivation, animal husbandry, food processing, marketing, caregiving, and domestic management (Sasa et al., 2022). According to FAOSTAT (2016) and Ashagidigbi (2022), women represent 75% of Nigeria's farming population and contribute 43% of the global agricultural labour force. Rural African women are often considered the "unsung heroes" of agricultural productivity. In Nigeria, women constitute 80% of small-scale farmers and make significant contributions to food processing and rural marketing (MuGeDe, 2005; Ehigocho, Ilemona, & Okwori, 2023).

Despite these substantial contributions, agriculture is still perceived as a male-dominated domain. Women's roles are frequently undervalued and excluded from conventional agricultural and economic analyses (Abushe et al., 2023). Moreover, rural women farmers face more significant barriers than men in accessing productive resources, largely due to entrenched gender disparities. This "gender gap" limits women's access to land, credit, inputs, education, and technology, subsequently hampering their productivity and reducing their contributions to food security and economic development (FAOSTAT, 2016; Ashagidigbi et al., 2022).

Gender inequality in agriculture exacerbates the marginalization of women, contributing to poverty and food insecurity. Addressing this issue is crucial for enhancing agricultural productivity and achieving sustainable development (Adeyeye et al., 2021). Therefore, gender-sensitive policies and services across the agricultural value chain are essential for empowering women alongside their male counterparts (Sahel, 2014).

Empowerment, in this context, refers to enabling individuals, especially those previously disadvantaged, to make informed decisions and gain control over their livelihoods. Mobarok, Skevas, and Thompson (2021) define empowerment as the capacity to make informed life choices that were previously denied. Rathnachandra (2020) emphasized that women's empowerment encompasses decision-making autonomy, access to resources, and social participation. In agriculture, empowerment also includes increased access to technology, information, and financial capital, all of which improve livelihoods (Abushe et al., 2023; Adeyeye et al., 2019; Adeleke & Akinbile, 2019).

The United Nations' Sustainable Development Goal 5 prioritizes gender equality and the empowerment of women and girls (Adam & Njogu, 2023). Strategies to empower rural women include providing agricultural education, improving rural infrastructure, enhancing access to credit and inputs, and promoting female-targeted extension services (Asogwa et al., 2020; Njuki, Parkins, & Kaler, 2016). If these interventions are implemented effectively, women's agricultural potential can be fully realized, thereby boosting food production and rural development.

FAO (2011) and Asogwa et al. (2020), citing Bachelet in MuGeDe (2005), argue that empowering women is vital for agricultural development and global food security. Their analysis shows that granting women equal access to resources could increase their yields by 20–30%, boost national agricultural production by 2.5–4%, and reduce the number of undernourished people by up to 150 million. Against this backdrop, this study investigates the empowerment needs of women farmers to enhance food production capabilities in Kogi State, Nigeria. The following specific objectives guide the study.

- Determine women farmers' output in the last 12 months.
- Determine the level of production of women farmers, and
- Identify gender related constraints faced by women farmers

1.1. Hypothesis of the study

The research's hypothesis is formulated in the null form, stating that there is no significant relationship between the gender-related constraints faced by women farmers and their production capabilities.

2. Methodology

The study was conducted in Kogi State, located in the North-Central agricultural zone of Nigeria. Geographically, the state lies between latitudes 7°30'N and 8°10'N and longitudes 6°01'E and 7°50'E, covering an approximate area of 1,147 km². Kogi State comprises three senatorial districts—West, Central, and East. The study area is predominantly rural and serves as a major food crop production zone due to its favourable edaphic and climatic conditions. These natural endowments support extensive agricultural activity among both men and women. However, entrenched cultural norms often place men in a more advantageous position than women in accessing agricultural production resources.

A descriptive survey research design was adopted for this study. A multistage random sampling technique was used to select respondents. First, two senatorial districts, Western and Eastern, were selected using simple random sampling.

From each district, two Local Government Areas (LGAs) were randomly selected: Kabba/Bunu and Yagba East from the West, and Omala and Ibaji from the East. Five villages were randomly selected from each of the four LGAs, giving a total of twenty (20) villages. From each village, eight (8) women farmers whose primary occupation was farming and who served as household heads were selected, resulting in a total sample size of 160 women farmers.

Data were collected using a structured interview schedule, which was subjected to face and content validity. The reliability of the instrument was assessed using the split-half method, yielding a reliability coefficient of 0.80. Gender-related constraints to agricultural production were assessed using a three-point Likert-type scale: *serious constraint (2)*, *mild constraint (1)*, and *not a constraint (0)*. Weighted scores were computed accordingly. Data were analyzed using percentages, means, standard deviation, and the Pearson Product-Moment Correlation.

3. Results and discussion

3.1. Socioeconomic Characteristics of Rural Women Farmers

Results presented in Table 1 reveal that the mean age of respondents was 52.0 ± 4.5 years, with 60.0% of the women farmers falling within or above this age range. This suggests that most respondents are still in their active and productive years. Age is a critical factor in farming, often associated with accumulated experience, which is essential for effective farm management and productivity. A significant majority (78.3%) of the respondents had no formal education. This lack of educational attainment is likely to hinder their ability to access, process, and apply relevant agricultural information. This finding aligns with Oluyomi (2010a), who noted that most farmers in Nigeria are non-literate, which negatively impacts their exposure to innovations and agricultural technologies. The respondents had a mean farming experience of 14 ± 5.5 years, indicating that a substantial number of them possess long-term involvement in agricultural activities. Such experience is expected to positively influence their knowledge base, attitudes, and adoption of improved farming practices. This corroborates Oluyomi (2010b), who emphasized that increased years of farming improve farmers' knowledge and the likelihood of adopting agricultural technologies.

The mean farm size was 0.7 ± 0.4 acres, confirming the dominance of smallholder farming in the study area. This has significant implications for agricultural development, as small landholdings often limit economies of scale and potential productivity. Similar findings were reported by Ajani and Igbokwe (2012), who observed that the majority of Nigerian farmers cultivate less than 1.3 hectares. Respondents had a mean annual income of $₦40,150 \pm 3.0$, indicating low-income levels, likely a result of their small-scale, subsistence-oriented farming systems. This observation aligns with Ayoola's (2012, cited in Oluyomi, 2016) finding that a significant proportion of farmers earn less than ₦100,000 annually, underscoring the challenges of resource poverty and financial vulnerability among rural farmers.

In terms of seed sourcing, 60.0% of respondents obtained seeds from previous harvests, while 36.7% sourced from local markets. The high reliance on recycled and potentially low-yielding seed stock is concerning and poses a threat to crop productivity and food security. This finding supports Oluyomi (2009; 2016), who similarly reported that most Nigerian farmers rely on seeds saved from prior seasons.

Table 1 Distribution of respondents according to their Socioeconomic Characteristics (n = 160)

Characteristics	Total		Mean
	Freq	%	
Age (in years)			
< 20	00	00.0	
20 – 40	56	35.0	52.0 ± 4.5
41 – 60	96	60.0	
Above 60	08	05.0	
Marital Status			
Married	131	81.9	
Single	29	18.1	

Formal education			
Had formal education	46	28.8	
No formal education	114	71.3	
Secondary occupation			
Had secondary occupation	125	78.1	
No secondary occupation	35	21.9	
Years of farming experience			
<10 years	32	20.0	14±5.5
10 -20 years	104	65.0	
above 20	24	15.0	
Farm size			
< 1 acre	147	91.9	0.7±0.4
1-2 acres	13	08.1	
> 2 acres	00	00.0	
Annual income			
Less than = ₦50,000:00	136	85.0	
₦50,001:00 - ₦100,000:00	24	15.0	₦40,150±3.0
More than ₦100,000:00	00	00.0	
Sources of seed input			
Self-supplied from previous harvest	96	60.0	
From market	60	37.5	
From Extension agent	04	02.5	
Sources of Agric. Information			
Extension Agent	04	02.5	
Other farmers	141	88.1	
Print media	05	03.1	
Mass media	10	06.3	
Membership of Women farmers Assoc.			
Membership of association	12	07.5	
Non membership of association	148	92.5	
Extension visits			
Had extension contact	05	03.1	
No extension contact	155	96.9	

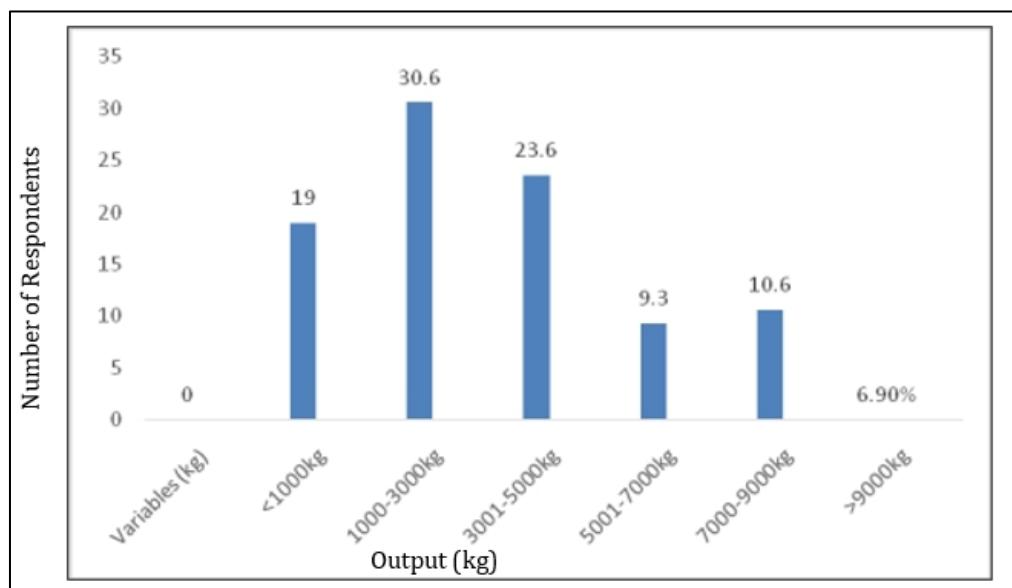
Source: Field Survey, 2023.

The majority (88.1%) of the women farmers received information from fellow farmers, while 6.3% cited the mass media, 5.6% mentioned print media, and only 3.1% had any contact with extension agents, mostly women standing in for absent husbands. This suggests that peer learning remains the dominant information channel, partly due to the informal and social nature of farmer interactions. Furthermore, the lack of institutionalized agricultural extension services for women remains a major gap. This finding aligns with Oluyomi's (2016) emphasis on the role of fellow farmers as a primary source of agricultural information in Nigeria.

Table 1 further shows that 92.5% of the respondents reported no affiliation with a farming association, while only 3.1% were members of such groups. This low level of social participation is disadvantageous, as group membership can facilitate access to inputs, credit, training, and collective bargaining power. This supports the findings of Oluyomi and Fawole (2016), who highlighted the role of farmer organizations in enhancing access to agricultural support services and information. Additionally, 96.9% of the respondents reported never receiving visits from agricultural extension agents, while 3.1% had occasional contact. This highlights a significant limitation in the rural extension system's reach, particularly for women-headed farming households. It further emphasizes the need for inclusive and gender-responsive extension services to bridge the information and capacity gap among rural women farmers.

3.2. Output of Women Farmers in the last 12 Months

The results presented in Figure 1 show the cassava production output of the women respondents over the past 12 months. Although the women were engaged in cultivating various crops and rearing livestock, cassava was the predominant crop cultivated by all respondents. It was therefore used as the basis for measuring agricultural output. The data reveal that 19.0% of the women produced less than 1,000 kg of processed gari for sale, while only 6.9% achieved an output of more than 9,000 kg. These findings demonstrate that, despite limited access to and control over critical production resources, the women made substantial contributions to household and national agricultural output. This underscores their resilience and effective management of the minimal resources available to them. The result is consistent with the findings of Odoemelam, Osahon, and Nwokocha (2014); Adamu and Michael (2021); Sasa et al. (2022); and Abushe et al. (2023), who similarly reported that women farmers, though disadvantaged in terms of access to production resources compared to their male counterparts, still managed to produce meaningful outputs by maximizing the use of the limited inputs at their disposal.



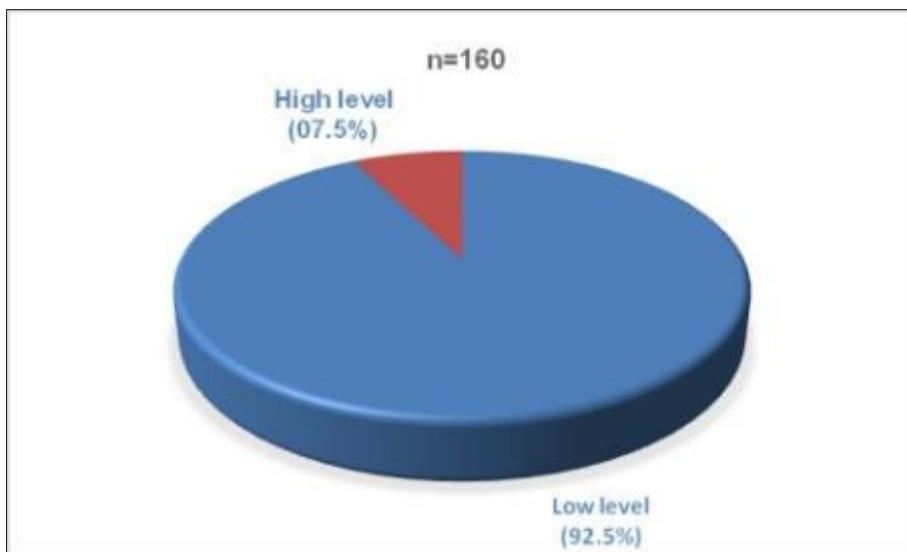
Source: Field Survey, 2023.

Figure 1 Respondents' output in the last 12 months

3.3. Level of Agricultural Production among Women Farmers

As shown in Figure 2, the mean production score among respondents was 11.6 ± 5.5 . Based on this result, the analysis revealed that a significant majority (92.5%) of the women farmers operated at a low level of production, while only 0.5% achieved a high level of production. This overwhelming prevalence of low production levels suggests that most respondents were unable to fully optimize their farming activities. This low productivity can be attributed to a variety of gender-related constraints, including limited access to farmland, inadequate agricultural financing, shortage of labour, lack of access to timely agricultural information and extension services, low literacy levels, and limited use of improved technologies. These structural limitations significantly hinder women's ability to scale their agricultural production.

The findings are consistent with those of Asogwa et al. (2020) and Ashngidingbi et al. (2022), who noted that gender disparities in access to agricultural resources and services, often skewed in favour of men, have a detrimental effect on the productivity and performance of women farmers in Nigeria.



Source: Field Survey, 2023.

Figure 2 Level of Agricultural Production among Women Farmers**3.4. Gender related Constraints faced by Women Farmers****Table 2** Gender related constraints faced (n = 160)

Variables	Severe constraints	Mild constraints	Not a constraint	Weighted Scores
1. problem of acquiring farmland	85.0	11.7	03.3	181.7
2. lack of access to farm labour supply	70.0	21.7	08.3	161.7
3. lack of access to farm finance	80.0	18.3	01.7	178.3
4. lack of access to agrochemical	50.0	33.3	16.7	133.3
5. poor market information & marketing of produce	58.3	28.3	13.3	144.5
6. lack of access to storage facilities	61.7	21.7	16.7	145.1
7. lack of access to extension services	75.0	26.7	15.0	176.7
8. lack of access to improved seeds	38.3	43.3	18.3	119.5
9. lack of access to farm modern tech./mechanization	66.7	25.0	08.3	158.4
10. lack of Government assistance	37.9	23.2	42.1	099.0
11. Govt. agric. policies not in favour of women	90.4	09.6	00.0	190.4
12. Tradition and customs are against women	97.3	02.7	00.0	197.3
13. insecurity	10.3	27.5	81.1	048.1
14. climate change	19.2	21.3	70.4	059.7

Source: Field Survey, 2023

Results presented in Table 2 reveal that the most pressing gender-related constraint faced by women farmers in the study area is the lack of access to farmland, with a weighted score of 181.7, indicating its prominence as a critical barrier. This is closely followed by inadequate farm finance (178.3), inadequate extension visits (176.7), and limited labour supply (161.7). Other notable constraints include insufficient access to farm mechanization (158.4), inadequate storage

facilities (145.1), limited marketing infrastructure (144.5), high costs of agrochemical inputs (133.3), and restricted access to improved seeds (119.5). The implications of these findings suggest that women farmers are constrained by a broad spectrum of challenges primarily linked to restricted access to essential agricultural production resources. These limitations hinder their ability to scale beyond subsistence-level farming, thereby reducing their potential contribution to agricultural output and exacerbating poverty and food insecurity in the area.

These findings corroborate earlier studies by Asogwa et al. (2020), Ashagidigbi et al. (2022), Sasa et al. (2022), and Abushe et al. (2023), all of which highlight that Nigerian women farmers often face systemic disadvantages in accessing land, capital, labour, and extension services compared to their male counterparts. Such disparities continue to undermine the productivity and socio-economic empowerment of women in agriculture.

3.5. Relationship Between Gender Constraints and Agricultural Production

The hypothesis was tested using the Pearson Product-Moment Correlation (r). As shown in Table 3, a statistically significant and negative relationship was found between gender-related constraints and agricultural production among women farmers ($r = -0.624$, $p = 0.000$). This result suggests that as the intensity of gender-related constraints increases, agricultural production decreases significantly. Consequently, the null hypothesis is rejected, confirming that gender constraints have a measurable adverse effect on women's agricultural productivity. This finding aligns with previous research by Mosses et al. (2022) and Ashngidigbi et al. (2022), who reported that production outcomes improve when women have greater access to agricultural inputs and resources through targeted empowerment initiatives. Similarly, Rathnachandra (2020) and Mobarok, Skevas, and Thompson (2021) found that empowering women in agriculture is strongly associated with increased productivity, improved efficiency, and the adoption of modern technologies. These improvements are largely attributed to the enhanced decision-making autonomy that female farmers have regarding their agricultural activities.

The results underscore the urgent need to minimize gender-related constraints through targeted empowerment strategies specifically designed for women farmers. Ensuring their equitable access to farmland, finance, extension services, and other productive resources, as enjoyed by their male counterparts, is critical to enhancing their productivity and overall contribution to national food security and poverty reduction efforts.

Table 3 PPMC (r) analysis of gender related constraints faced and agricultural production (n = 160)

Variables	r-value	p-value	Decision
Gender related constraints faced and agricultural production	-0.624**	0.000	Sig.

** Correlation is significant at the 0.01 level (2-tailed); Source: Field Survey, 2023

4. Conclusion

Recognizing the crucial role of rural women in agriculture is essential for improving gender relations, enhancing productivity, and ensuring sustainable development. Women constitute a significant proportion of the agricultural labour force, yet they continue to face numerous gender-related constraints that limit their access to productive resources. Governments and development stakeholders must prioritize the empowerment of rural women to unlock their full potential, enhance rural livelihoods, and bolster national food security. Bridging the gender gap in agriculture is not only a matter of equity but a strategic approach to reducing poverty and hunger in Nigeria.

Given the findings of this study, agricultural intervention programmes must adopt transformative, inclusive, and multidimensional strategies that empower women and dismantle structural barriers. Accordingly, the study recommends the following

Recommendations

- **Abolition of Discriminatory Practices:** All policies, traditions, and cultural norms that restrict women's rights to access and control productive resources, such as land, finance, and inputs, must be reviewed and abolished to ensure equal opportunities for both men and women in agriculture.
- **Provision of Gender-Friendly Credit Schemes:** Government agencies, financial institutions, and donor organizations should design and implement interest-free and collateral-free loan packages targeted at women. These should be accessible through women's cooperatives, associations, and community-based groups.

- Strengthening Agricultural Extension Services for Women: There is a need to recruit and deploy more female extension agents to rural areas. This will facilitate the dissemination of gender-sensitive knowledge and promote the adoption of modern, climate-smart agricultural practices among women farmers.
- Promotion of Women-Specific Agricultural Technologies: To address drudgery and labour shortages, agricultural tools and technologies that are affordable, energy-efficient, and scaled to women's needs should be developed and made readily available. This will enhance women's productivity in production, processing, storage, and marketing.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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