

Factors Influencing Women Participation in Agricultural Production in Juba County: A Case Study of Lirya Payam

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Abstract- Agriculture stands as a crucial economic activity in South Sudan, where women serve as the primary workforce. However, ongoing gender-based disparities pose considerable obstacles, including unequal access to credit, technology, and extension services. This study aims to document the factors influencing women participation in agricultural production in Juba County. Purposive and random sampling techniques were used to select 100 sample size. A structured questionnaire was used, followed by descriptive and multiple regression analysis. Results showed that 59% of female were within 20 – 30 years age bracket, mostly married 65%, and had a family size of 6–10 people (52%). The majority of the women lacked formal education (66%), with most having 11–15 years of farming experience (52%). Most of the respondents had (53%) farm sizes less than one Feddan. The result shows that 100% of the women were involved in weeding, harvesting (100%), drying (100%), storage (100%), marketing (100%), fetching water (100%), cooking (100%), planting 9%, digging 6%, and land clearance 4%. Sorghum (34%), Cowpea (17%), Okra (9%), Groundnut (26%), maize (7%), and cassava (6%). were the major commonly grown crops. Age, household size, level of education and farm size (feddan) significantly ($p < 0.01$) influences the participation of women in agricultural production activities. Insufficient extension services and restricted access to credit facilities were the highest ranked constraints faced by the women. It was recommended that women farmers be given the opportunity to access credit, that primary societies be educated and encouraged to join, that female extension workers be trained, and that farm input distribution be completely depoliticised.

Keywords- Socio-economic, Women Participation, Agricultural Production, Constraints

I. INTRODUCTION

Agriculture is one of the most important economic activities in South Sudan. Agriculture, presently, constitutes 36% of the non-oil GDP in South Sudan, accruing from 80% of the population residing in rural areas who predominantly relies on subsistence farming[1],[2]. In rural areas, agriculture sustains the majority of the population, with women playing a crucial role as the primary workforce and significantly contributing to economic growth[3]. This practice is prevalent in most of the African countries, where small-scale farmers, mainly rural women, account for 80% of agricultural production[4]. It is widely recognized that the contributions of women in the agricultural labor force in Africa surpass that of men[5], particularly in labor-intensive agricultural tasks, such as digging, planting, weeding, application of manure or fertilizer, harvesting, threshing, grinding, cooking, fetching water and marketing[6].

Today, the role of African women is increasingly becoming significant in food processing, purchasing, and preparation, as they also make important contributions to national agricultural production by cultivating both food and cash crops[7]. As a result, women play

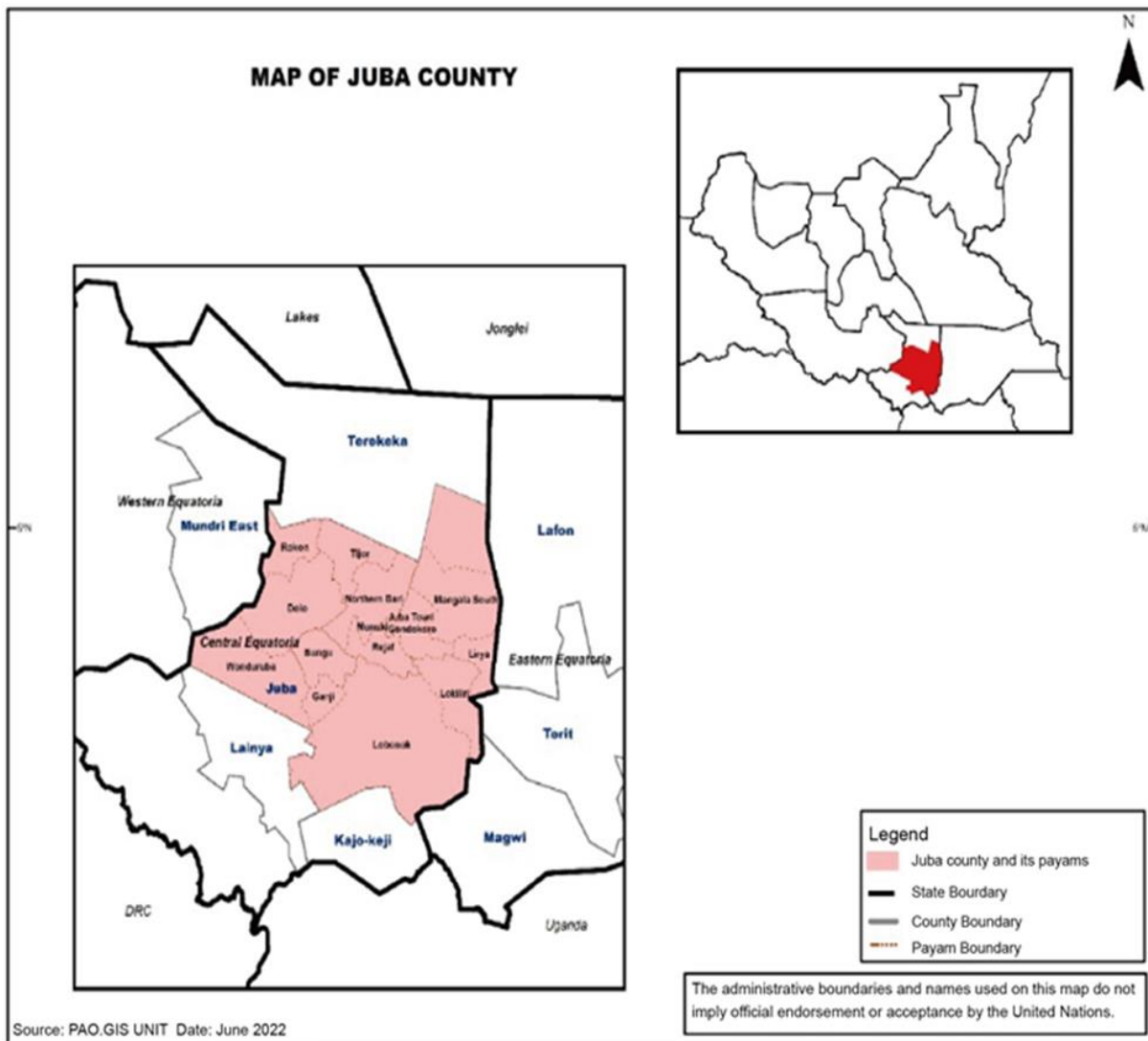
important role in small-scale agriculture, serving as the main agricultural workforce and supporting families on a daily basis[8],[9]. For example, they represent 70% of agricultural workers, 80% of food producers, and processing basic foodstuffs is solely done by women while handling between 60% and 90% of the marketing activities.[10],[11]. Although women's involvement in agricultural production is on the rise, ongoing gender-based inequalities present substantial obstacles, such as unequal access to land, credit, technology, and wage disparities[12]. This obviously does not end there because policymakers who are predominantly male, may view women as secondary in terms of economic and resource importance[13]. Most of the time, research and development programs often overlook rural women, leading to their exclusion from access to skills and new technologies[3]. The situation is more severe in communities, where men bear the main responsibility for making crucial farm management decisions, both at home and in social contexts[14]. This contributes to the underperformance of the sector in many African countries including South Sudan, as women, who often play significant role in agriculture and the rural economy, face barriers that diminish their participation and productivity[15].

In South Sudan, women remain essential if not the major contributors to rural subsistence agricultural production in South Sudan. Nevertheless, no research has never been carried out in South Sudan to document the participation of women in agricultural activities and the socio-economic factors and constraints affecting their participation. As a result, this study was designed with the aims to (i) identify the socioeconomic characteristics of women engaged in agricultural production; (ii) examine the level of women's participation in agricultural production; (iii) analyze factors affecting women's participation in agricultural production; and (iv) investigate the constraints faced by women farmers in Juba County, South Sudan.

II. MATERIALS AND METHODS

2.1-Study Area

This research was conducted in Lirya Payam in Juba County located under Central Equatoria State. This area is situated in the eastern southern region of South Sudan, along the Torit Highway. Lirya is a payam, a sub administrative division, of Juba County in Central Equatoria State, South Sudan, located 68 kilometers east of the capital city of Juba. **Figure 1** shows the location of Juba County and position of Lirya Payam in relation to the South Sudan map.



2.2 Sampling Techniques and Sample Size

Purposive sampling method was used to select the respondents in the study area. Simple random sampling technique was then employed in selecting twenty women farmers from 5 villages that engage in agricultural production to give a total of 100 women respondents were used for the study. The villages are Ngangala, Ngulere, Ilangari, Lirya, and Langabu.

2.2 Data Collection

The data required for this study were collected using a well-structured questionnaire on socio economic characteristic of the respondents (age, marital status, educational qualification, household size, farm size, occupation and farming experience), participation of women in various agricultural activities and constraints encountered by women when participating in agricultural production.

2.3 Data Analysis

The data were analyzed using statistical package for the social sciences (SPSS 25) and MS Excel. Descriptive statistics using percentage to satisfy objectives (i, ii, and iv), while objective iii was analyzed using linear regression model function presented as follows:

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 + e$$

Where: Y = Participation of women farmers in agricultural production, X_1 = Age (years), X_2 = Years of farming experience in agricultural production (years), X_3 = educational qualification, X_4 = Marital status, X_5 = Household size, X_6 = Occupation, X_7 = Farm size (Feddan), $b_1 - b_6$ = Regression coefficients, a = Constant term, e = error term.

III. RESULTS AND DISCUSSION

3.1- Socio-economic Characteristic of the Respondents

The result of the socioeconomic characteristics of the respondents is depicted in **Figure 2**. It reveals that majority of the respondents, 59 % were within the age bracket of 20 – 30 years. This implies that most of women were still within the active productive prime working years. They were suitably equipped to provide the labour required for this kind of agricultural activity. In traditional agriculture, younger farmers often participate much more actively in labour-intensive farming tasks than older farmers. This aligns with earlier studies indicating that the majority of female farmers fall within the age range of 20–50 years, a demographic profile that supports the labour supply in agricultural production[16], [17], [18],[14]. This study showed that 65% of the women farmers were married, and only 7% were single indicating that women who participate actively in agriculture were often married ones. Observing their young age range, suggests that early marriages are promoted amongst the community living in this area. Most of the women respondents (52%) had household sizes ranging from 6 to 10 people within the range reported by[19],[20]. The size of a household which is likely to influences the labor supply available for farm work and size of the farm owned by each household. Regarding the educational background of the women farmers, a significant majority, 66%, did not have formal education. This might obviously hinder their readiness to embrace innovations and improve their farming techniques to increase their level of agricultural production. The outcome is also consistent with [21] who reported that the majority of the women living in poor countries, particularly in sub-Saharan Africa, have low educational levels, and enhancing their level of education could likely boost agricultural productivity and alleviate poverty. Similarly, [22],[23] indicated that the educational level of farmers positively impacts their ability to adopt improved technologies and allows them to understand the teachings related to any enhanced agricultural practices. The level of education achieved by farmers therefore significantly influences their ability to adopt new agricultural innovations with ease, which can lead to an increase in farm output and, consequently, higher profits for the farmers and alleviate them from poverty[24]. the sizes of farms owned by 53% of the female farmers were all less than one feddan (Ha). This is an indication that this community participate in very small-scale agriculture, the total production of which may not be sufficient to feed the 6-10 members of the family until the next harvest.

Despite the small sizes of farms, 65% of women were actively engaged in agriculture since their lack of education forces them to take up farming as the only source of livelihood. These activities require minimal support but have the potential for further development. More than 52% of women farmers possess 11 to 15 years of farming experience which might allow them to gain more experience in farming and produces much higher outputs than those with little experience.

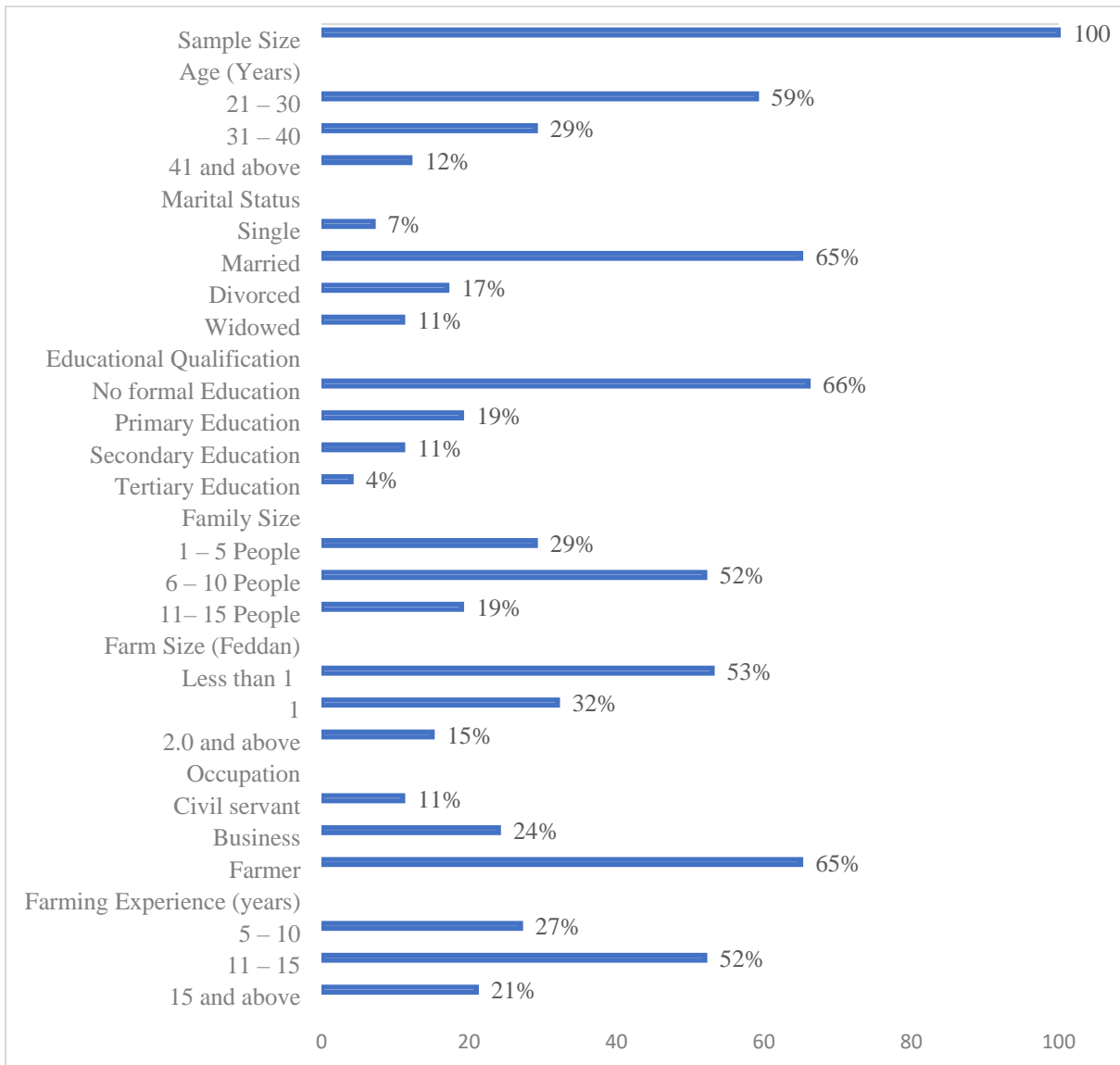


Figure 2: Percentage Socio-economic characteristics of the women respondents

3.2-Level of women participation in agricultural production

Table 2 shows that women were fully participated in various agricultural activities, including weeding (100%), harvesting (100%), drying (100%), storage (100%), marketing (100%), fetching water (100%), and cooking (100%). However, they were less involved in land clearing (4%), digging (6%), and planting (9%) because they may have been working in groups or as hired labour. This is in line with past research that showed women are a big part of agricultural work in northern Nigeria, notably during the planting, weeding/thinning, and harvesting stages[25],[26],[9].

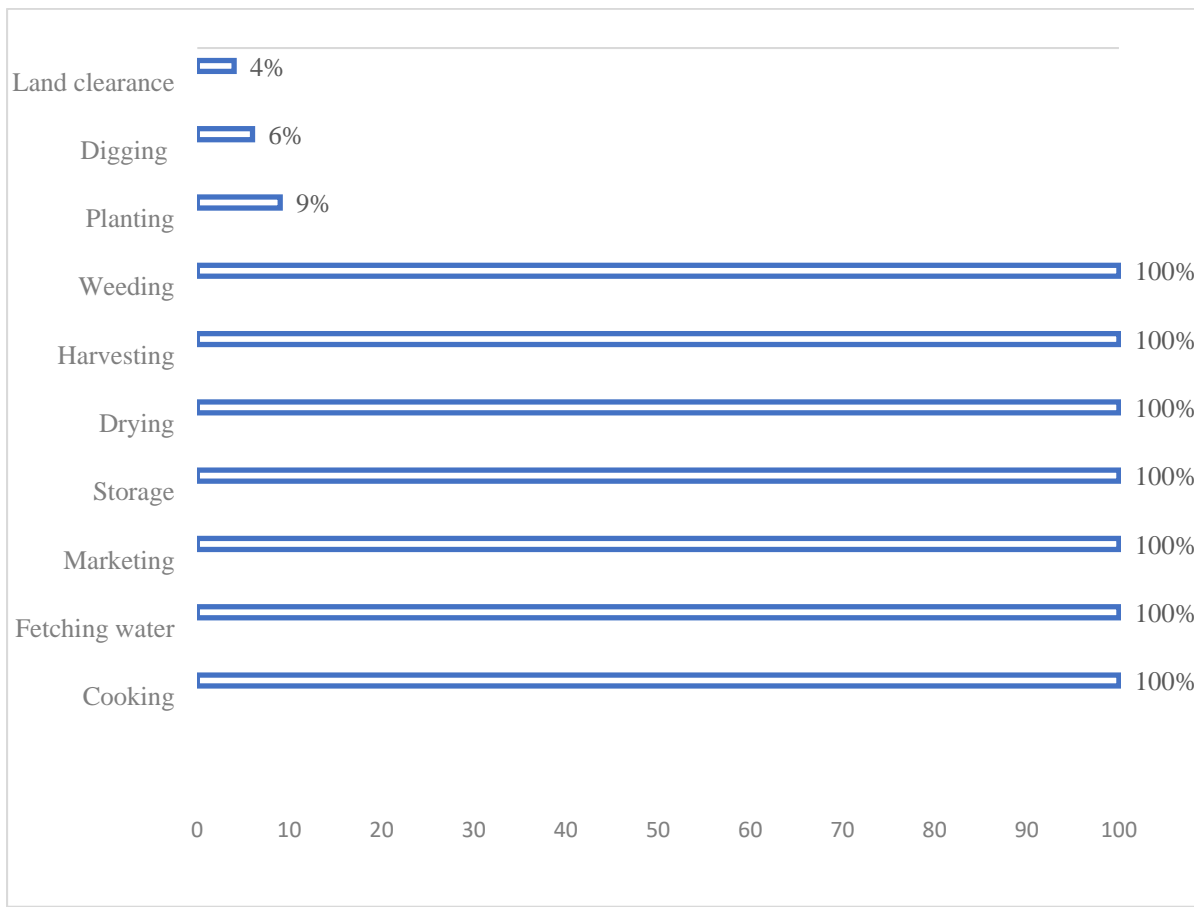


Figure 3: Percentage level of women participation in agricultural production

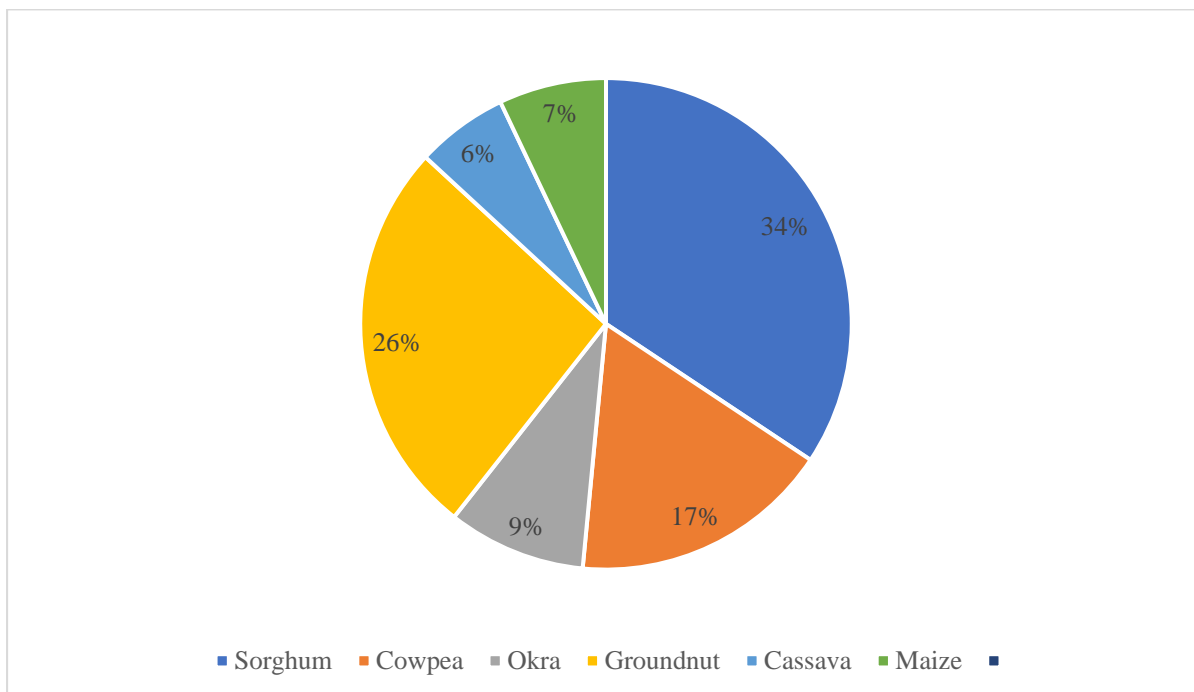


Figure 4. Common grown crops in Lirya Payam.

3.3- Common grown crops in Lirya Payam.

Figure 4 shows that women grow Sorghum (34%), Cowpea (17%), Okra (9%), and Groundnut (26%) to feed their families and make a little extra money by selling the extra food at local markets. Other crops are planted in limited amounts, such as maize (7%) and cassava (6%)

3.4- Factors influencing women participation in agricultural production

Table 1 presents the regression analysis of the factors influencing agricultural production by women farmers. The result showed an R² coefficient of multiple determinations of 0.767, indicating that 77% of variation in the agricultural production can be explained by variation in the explanatory variables included in the model. Five (age, marital status, education level, farm size (feddan) and family size) of the variables were significantly (P=0.01) related to level of participation of women farmers in agricultural production. The age of women, their marital status, farm size (feddan), their educational attainment, and the size of their families will greatly affect the level of their involvement in agriculture. [17] found age and educational qualification was significantly related at the 1% level with the respondents' involvement (58%) in seed systems. This is likely that combination of age and education provides women with a degree of independence in their activities together with increased income[14]. In addition,[27] indicated that age and education were significantly associated with the level of participation of women in agricultural production at the 5% and 1% levels of significance, respectively. Information from [28] showed that young and middle-aged energetic women individuals were the most engaged in agricultural production activities to enhance high productivity. The negative coefficient of (-0.364) as the level of education rises shows that participation in agricultural production activities tends to decline. This decline is expected because, as the educational level of the farmer increases, so do the opportunities for securing better-paying jobs in other fields rise. Other studies, including that of [29] support this abandonment of agriculture women face when they achieve higher academic standards.

Table 1: Regression Analysis on Factors Influencing Women Participation in agricultural production

Variables	Coefficient	Standard error	t-ratio	Sig
Age	0.722	0.101	7.135	0.000*
Marital status	0.730	0.086	8.486	0.000*
Education	-0.364	0.078	-4.660	0.000*
Family size	0.402	0.126	3.191	0.002*
Family size	-0.472	0.118	-4.008	0.000*
Occupation	0.111	0.101	1.068	0.288 NS
(Constant)	-0.581	0.151	-3.848	0.000
R=0.876	R ² =0.767	Adjusted R ² =0.752		

Significant at *=1% level of significance NS = Not Significant Source: Field Survey, 2026

3.5- Constraints affecting women participation in agricultural production

In Table 2, women identified lack of capital and credit facilities, high input costs, non-membership in women's groups, and ineffective extension services, among others, as the primary barriers to their participation in agricultural production. This aligns with the earlier work of [19], who indicated that the primary challenges faced by women farmers included the prevalence of pest and diseases, the high cost of pesticides and fertilizer, inadequate finance, high cost of labour, high cost of farm inputs ,inadequate land and poor storage facilities. Furthermore, [29]and[11] similarly reported that inadequate capital, lack of adequate storage facilities, high rate of illiteracy, lack of market and inadequate access to land were the major factors influencing women's involvement in agricultural production.

Table 2: Constraints affecting women participation in agricultural production

Constraints	Very serious	serious	Not serious
Lack of capital and credit facilities	95	2	3
Lack of capital and credit facilities	95	2	3
Drought	66	19	9
High cost of inputs	80	15	5
Ineffective extension services	79	4	17
Pest and disease infestation	68	7	25
Non membership of women's group	87	5	8
Poor storage facilities	59	19	22

IV. CONCLUSION

Based on the findings of the study, it can therefore be concluded that the majority of the women farmers were married and did not attend any form of formal education in the study area. The majority of women farmers are small-scale cultivators, tending to less than one feddan of land and typically supporting a family of 6 to 10 individuals. The result also reveals that women farmers were involved in weeding, harvesting, drying, storage, marketing, fetching water, cooking, planting, digging, and land clearance. Their primary occupation is farming, and they have gained significant experience in agriculture to meet their household and essential needs. Sorghum, cowpea, okra, groundnut, maize, and cassava were the major commonly grown crops. The study further reaffirmed the claim that age, household size, level of education, marital status, and farm size (feddan) were factors influencing women's involvement in agricultural production in the study area. Lack of capital, the high cost of inputs and credit facilities, non-membership of women's groups and ineffective extension services were the major constraints militating against the involvement of women in agricultural production in the study area. Thus, we can generalise the findings to encompass the entire Lirya payam. We recommend, based on the findings of the study, that:

- [1] Women farmers should be given the opportunity to access credit in order to improve agricultural production
- [2] Women who are not members of primary societies should be educated and encouraged to join these groups, allowing them to take advantage of new technologies shared by extension agents to enhance agricultural production.
- [3] There is also a need to train female extension workers and to ensure that the distribution of farm inputs is free from political influence.

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