Enhancing the performance of women in staple crop production with support of non-governmental organisations in Wa East District, Ghana

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ABSTRACT

The study examined staple crops production and non-governmental organisations (NGOs) support for women farmers to enhance food crop production in the Wa East district, Ghana. Despite several government and NGOs interventions targeting women food crop production, crop yields targets remain unmet, necessitating the investigation of NGOs interventions to address these concerns. Economic empowerment theory guided the study. Cross-sectional research design was adopted for the study. It was considered appropriate for the collection of data at a single point, and it aligned well with the objectives of the study. A multi-stage sampling procedure was applied for the study. In the first stage of sampling, probability sampling technique was used to select the communities for the study. These communities were selected on the basis that NGOs have implemented some projects targeted at women farmers. The data analysis involved multinominal logistic regression, pattern analysis, Pearson correlation coefficients and chi-square tests. The results showed that NGOs have significantly contributed to provision of agricultural inputs, and extension services, NGO intervention and estimated crop yields were positively correlated, underlining the significance of support models tailored to farmers' needs. Identified challenges that hindered women's crop productivity included financial constraints, limited access to productive lands and labour. A main conclusion of the study is that women crop yields were significantly improved by NGOs contributions. The study recommended increased support for staple crops such as maize and soya, prioritizing agricultural mechanization and financial inclusion for enhanced productivity and women empowerment.

Keywords: Farmer's Needs, Ghana, NGOs Support, Staple Crops, Women Empowerment, Women Crop Production

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I. INTRODUCTION

Ghana's economy is characterized as agrarian (Kugbega, 2020) with 53 % of the population largely depend on agriculture and agriculture is the main activity and employer of the country's labour force Nonetheless, many smallholder farmers in Ghana are still stacked with obsolete and rudimentary farming methods that could be modernized to enhance productivity (Asafo-Adjei & Buabeng, 2016). Agriculture needs critical attention to improve technology and upgrade professional methodologies in order to realize the expected output margins. Technological advancement is the surest means to maximize productivity. The success of modern agriculture depends on access to productive resources, technology, management, investment, markets, and supportive private sector initiatives (Motes, 2010). The intervention of individuals and other institutions including NGOs to collaborate with the government to help realize the full potential of the sector is important (Khatri-Chhetri et al., 2019).

Agricultural development agencies such as the Ministry of Food and Agriculture (MOFA), the International Fund for Agricultural Development (IFAD) and various non-governmental organizations (NGOs) offer support models to increase agricultural productivity (Dhingra et al., 2018). These support measures often target farming practices and value chain optimisation, with a focus on the sector's full potential in promoting farming systems that are both profitable and sustainable. In rural areas, modern agriculture is both a business and an important source of livelihood. (Adjei et al., 2012) have noted that the beginning of the 21st century, the importance of NGO activities has increased significantly, this, with intensive cooperation with development partners to achieve the Sustainable Development Goals (SDGs), especially SDGs 1 and 2.

Non-governmental organisations have advanced several economic recovery programmes across Ghana especially in rural areas, which has led to poverty reduction and livelihood improvement for the vulnerable population especially women and children (Dahie, 2019). Some NGOs have transcended boundaries of Africa in building a resilient network of small and medium enterprises, notable among these include the Adventist Relief and Development Agency

(ADRA), the center for rural research and poverty reduction, and the hunger project. These SMEs supports agriculture activities and women empowerment through capacity-building programs aims at reducing poverty and livelihood improvement (Dahie, 2019).

Anderson et al. (2021) reported that about 80% of women in Ghana are actively engaged in various economic ventures especially the informal agriculture, manufacturing and services. The essential role of women is not limited to production, but also it extends to processing, marketing and distribution along the value chain thus emphasizing the indispensable role of women (Kabeer, 2017a). (Egyir et al., 2023) argues that gender inequalities require a holistic approach in the agriculture sector by recognizing the essential contribution of both men and women and the workload reduction of women. Prioritising agriculture as a global concern requires upscaling the activities and committing to the needs of smallholder farmers who represent a large proportion of the labour force (Nkegbe, 2018). Women farmers constitute a large part of these smallholder farmers in Ghana, yet little is known apart how targeted support from NGOs to women crop farmers address the concerns of women farmers. For example, although Anderson et al. (2021) studied the benefits of women in agriculture, their research did not identify specific areas of support which can contribute to the process of women empowerment. It is important to note that in the Upper West Region of Ghana, currently there is no empirical research highlighting the concerns of women crop farmers, who received support from NGOs yet seems to be entangled in problems which inhibit their empowerment.

1.1 Statement of the Problem

Extant literature has demonstrated women challenges in agriculture including limited access to resources and technical barriers among other bottlenecks (Bamwesigye et al., 2020). In the Upper West Region of Ghana and women in Wa East district suffer some forms of inequality including access and control over productive resources. Government policy targeted at women inclusion in agriculture development through a designated desk of women in agriculture development (WIAD) at all regional and district departments of agriculture have not achieved the needed outcome especially in gender mainstreaming and capacity-building (Akudugu et al., 2012). According to Dugle et al. (2015), NGOs have prioritized food security in the Upper West Region, where 94% of their activities are concentrated in rural areas and the Wa East district has received substantial number of NGO sponsored projects. Although most of these projects supported both male and female farmers, some had a special focus on women and other vulnerable groups in the district. Nonetheless, women's effort at enhanced staple crop production in the study area is problematic. Factors that account for this situation remain unclear thereby necessitating this study. Discourse about the relevance of women's empowerment in agriculture, (Anderson et al., 2021 is increasing, yet little is known about how such intervention impacts on women beneficiaries of specific interventions by NGOs. Therefore, the study examines NGOs support to women staple crop farmers and how they are economically empowered through such agricultural assistance.

1.2 Research Questions

i. How do NGOs assist women in crop production?
ii. What factors contribute to increased productivity among women engaged in staple crop farming for economic empowerment?
iii. What factors undermine women's efforts in staple crop production?

II. LITERATURE REVIEW

2.1 Theoretical Review

In sub-Saharan Africa (SSA), about 70% of the poor and hungry live in rural areas where farming is at the center stage of their livelihood (Otekunrin et al., 2020). However, the extent of agricultural contributions to economic growth in sub-Sahara African countries varies considerably. For instance, the share in Ethiopia hovers around 65 % and 75% in Ghana, 54% in Uganda and Kenya, and 65% in Zambia (Diao et al., 2010). The production of crops is therefore essential in combating food insecurity and the diet of many of the dwellers in these countries is based on one or more of the following as staple crops; maize, rice, or sorghum. According to (FAO, 2015a) Africa has a vast agricultural land area predominated by smallholder farmers and is considered the center for the production of most cereals (sorghum, rice, millet, maize) which are staples in Sub-Saharan Africa (Alene et al., 2009a).

The cultivation of these crops is a crucial factor in combating food insecurity, especially in times of scarcity, shortages, and pandemics, as they are staple foods in many regions of the sub-region. As outlined in the 1996 Rome World Food Summit Report, food security is defined as a state in which all people have stable physical and economic access to an adequate supply of safe and nutritious food to meet their nutritional needs. (FAO, 2015a). This and many other factors have served as motivation to staple food production globally. The case of sub-Sahara Africa is not unique where most of the populace is wallowing in abject poverty and are rural dwellers (Diao et al., 2010). Proponents of agriculture in Africa argue that the agricultural sector has the essential potential and growth linkages to profoundly influence aggregate demand and supply mechanisms, thereby fueling economic growth in numerous African countries (Gollin, 2023). This is possible because extensive production of staple foods correlates directly with household income, food security, and employment opportunities, thereby raising the standard of living of the population. (Loizou et al., 2019a)

Maize cultivation has gained dominance in Africa, this is due to its ability to thrive in different ecological zones (Epule et al., 2022; Santpoort, 2020). The important role of maize as a staple food in most sub-Saharan African (SSA) regions is comparable to that of rice or wheat in Asia (Grote et al., 2021). It is estimated that around two hundred and eight million Africans depend on maize for their food security and economic prosperity. Unfortunately, the growing population of SSA raises a lot of concerns about the ability to sufficiently meet the food demands and curb insecurity (Giller et al., 2021).

According to Ferreira et al. (2022) SSA has an abundant labour force and fertile land suitable for growing crops. However, the region faces significant problems due to insufficient inputs such as fertilizers and an unreliable water supply, mainly because it relies on rain-fed agriculture. In the case of Benin, the agricultural sector faces constraints in various areas, including limited and inadequate credit, infrastructure deficits, and inefficient use of inputs such as fertilizers, insecticides, and seeds (Chauvin et al., 2012; Mandal et al., 2020).

Staple foods vary greatly from one region to another and reflect local preferences and agricultural practices (Chang et al., 2018). In Ghana, staple foods include cereals, root and tuber crops, pulses, fruits, and vegetables. Maize and rice are the most important cereals grown throughout the country (FAO, 2015b).

It is approximated that around 155,000 square kilometres, representing 68% of Ghana's total land area, are categorised under agricultural land. Of this, 78,500 square kilometres are used for arable farming, with about 300 square kilometres earmarked for irrigation (Asante-Yeboah et al., 2022; World Bank, 2008). This indicates that arable land in Ghana is under-utilised due to a variety of factors, which hampers the productivity of the agricultural workforce. Poverty, malnutrition, and food insecurity are more pronounced in the northern regions of Ghana than in the southern areas (World Bank, 2008)There is, therefore, a need to promote the production of staple foods, especially maize, which is the most widely grown staple food in the country and contributes significantly to daily calorie intake.(Asare et al., 2023).

In the Upper West Region, it has been observed that certain staple crops are predominantly grown by men or women. Yam and maize are traditionally associated with male farmers, but there is a clear trend of increasing female participation in maize cultivation. (Kapulu et al., 2023)Conversely, soya beans and groundnuts are grown by both men and women (Abujaja, 2023). Considering the cultivation of these crops, (Mehra & Rojas, 2008) emphasized that women largely produced the global food demands.

In Ghana, the NGO sector is vibrant and diverse, with a wide range of organizations working on issues such as education, health, agriculture, and women's empowerment (Kwao & Amoak, 2022). In the Upper West Region, a relatively underserved area, numerous NGOs are working to improve the socio-economic conditions of residents. These NGOs work with local communities, governments and international donors to address the region's unique challenges such as poverty, food insecurity, and limited access to education and healthcare(Arhin et al., 2018; Kwao & Amoak, 2022). The combined efforts of these NGOs have led to significant progress in improving the quality of life for many people in the Upper West, although challenges remain in terms of sustainability and long-term impact.

NGOs in the Upper West Region play a central role in empowering women, who often form the backbone of the rural agricultural economy (Ibrahim & Alagidede, 2020) The interventions are aimed at improving women's livelihoods by providing them with access to resources such as credit and agricultural inputs as well as training women in sustainable farming practices and financial literacy. By focusing on women, the NGOs aim to eliminate gender inequalities in agriculture and ensure that women have the means and knowledge to increase their productivity and income, thereby improving their economic independence and social status. These initiatives not only improve food security and economic resilience but also contribute to the broader goal of gender equality and women's empowerment in rural communities.

2.2 Empirical Review

According to Stein's (1997) definition as cited by Mahbub, (2021a) “empowerment is a social action process that promotes the participation of individuals, organizations, and communities in gaining control over their lives within their communities and larger societies”. The empowerment theory on the other hand emphasised economic, political, cultural and spiritual independence and strength of an individual or community. Emphasising on the control over productive resources, full participation and the right to make strategic decisions and life choices. According to (Kabeer, 2017a), women's economic empowerment encompasses their ability to engage in existing markets on an equal footing with men, gain control over productive resources, secure access to dignified employment, exercise autonomy over their time, lives and bodies, and exert greater voice and influence in economic decisions ranging from the household to the global arena

The ability for women to control productive resources and have a say in decision making process in relation to agriculture is considered as empowerment in this perspective. This is largely achieved because of NGOs' interventions through training, access to credit facilities and active participation in market activities.

2.1.1 Women in Staple Crops Production, Challenges and Prospects

Studies by Anderson et al., (2021) and Klasen, (2018) confirm that women's empowerment is critical to economic growth and social inclusion, and impacts communities and households. Enabling women to transition from subsistence farming to high-value agriculture is a fundamental pathway out of poverty, facilitated by better access to resources (Alene et al., 2009b).

However, women farmers in rural Ghana face numerous challenges in maximizing production. Agarwal, (2018) points out that the higher productivity of women in agriculture depends on factors such as technical training and support, availability of credit, and crop selection. Women in crop production face barriers such as insufficient access to credit, limited technological innovation, land tenure issues and limited access to extension services (Anoglo et al., 2014). Despite these constraints, women continue to be the most important food producers worldwide (Mehra and Rojas 2008). Furthermore, Ajapnwa et al. (2017) argues that female farmers are technically more efficient than their male counterparts. Mishra et al. (2017) points out that crop production has considerable value for female-headed households, further supporting Ajapnwa et al., (2017) assertion about women's technical efficiency in agriculture.

Women are challenged with ownership of agricultural lands for independent farming (Bamwesigye et al., 2020). According to (Slavchevska et al., 2021) women and settlers are given land by chiefs or families for various purposes, but ownership of this land is subject to strict conditions. Such land can be reclaimed at any time if the owners are dissatisfied with the conditions under which the land was given. These singular acts constrain women to hold larger plots of land for commercial production as compared to their male counterparts. Studies from various countries have shown that female farmers are just as efficient as their male counterparts, but they have less land and use fewer inputs, so they produce less (FAO, 2015a). Improvement of agriculture productivity in the Upper West is at the heart of both government and NGOs thus leading to many sponsored projects in the Region (Alam, 2019). However, women's access to land has been a major setback (Anoglo et al., 2014).

2.2.2 NGOs Agricultural Activities in Upper West Region of Ghana

According (Dzakaklo et al., 2024; MoFA, 2017) large percntage of the total budget for the agriculture sector is through development partners outside the GoG financial management system. Several NGOs have existed in the Upper West Region for the past decades and have implemented projects complementing government's efforts. The work of these NGOs extends to many important economic sectors such as education, health, environment, agriculture, water supply, and sanitation and has a huge impact.

In the agricultural sector, government and non-governmental organizations have been providing various support services to enhance agricultural productivity in the Upper West Region ((Dugle et al., 2015). Some key projects that NGOs have implemented include the Northern Ghana Food Security Resilience Project (NGFSRP), the Plan Ghana-EU Food Facility Project, the Rice Sector Support Project (RSSP) and CRS support for the vulnerable in rice project (MoFA 2019). Though most of these projects supported both male and female farmers, some had a special focus on women and other vulnerable groups in the district.

III. METHODOLOGY

3.1 Profile of the Study Area

The study was conducted in the Wa East District, one of the eleven districts in the Upper West Region of Ghana. Originally part of the Wa District, it was established as an independent district in 2004. The district, the capital, Funsi, is located in the south-eastern part of the Upper West Region and is about 115 kilometres away from Wa, the capital of the region. Wa East borders Mamprusi-Moagduri to the north-west, West Gonja to the south-east and the district of Sissala East to the north. With a total area of approximately 4335 km², it covers latitudes 9º 55 "N to 10º 25 "N and longitudes 1º 10 "W to 2º 5 "W, accounting for 19.3% of the region's land mass (18,478.4 square kilometres/km2).

According to the 2020 Population and Housing Census, the district has a total population of 91,457 inhabitants, which represents 10.2% of the region's population. There are 46,621 men and 44,836 women in the district, which is exclusively rural with no urban settlements. The economy is predominantly agrarian. 94.5 % of the population work in agriculture. Agriculture is the mainstay and employs 85% of the labour force, followed by industry (10%) and the service sector (5%). The agricultural sector includes crop and livestock production, with crops such as sorghum, yam, millet, maize, cowpeas, peanuts, rice, soya beans, cassava and vegetables being grown by around 96% of farmers.

Both men (90.3%) and women (87.3%) are predominantly employed in unskilled jobs in agriculture, forestry and fishing. The proportion of women employed in the service and sales sector (4.6%) exceeds that of men (1.4%), who are mainly employed in the informal sector, particularly in manufacturing industries such as pito brewing, gari processing, shea butter extraction, weaving and pottery. Despite the district's great agricultural potential, limited access to markets and the poor road network poses a challenge.

The climate in Wa East is tropical-equatorial, typical of the northern part of Ghana, characterised by scattered trees, shrubs and grasses at varying heights. Geologically, the district consists of igneous and metamorphic rocks containing minerals such as gold. Illegal mining (galamsey) is widespread in many communities in the district. The district is multi ethnic, comprising of the Sissala, Waala , Chakalia and Dagaabas/Lobi as the dominant ethnic groups (GSS, 2013).

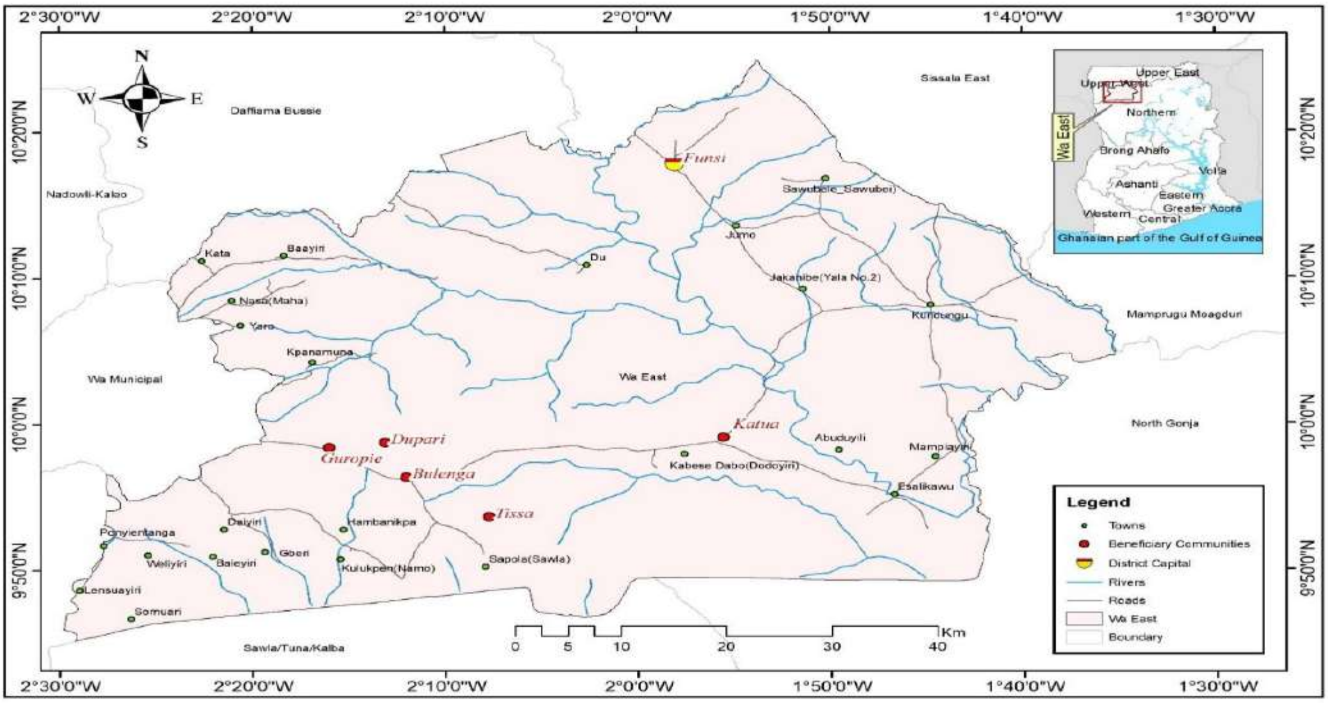

Figure 1
Map of Wa East
Source: Authors' construct (2020)

3.2 Research Design

Cross-sectional research design was adopted for the study. It was appropriate for the collection of data at a single point in time, which aligned well with the study objectives of the study. According to Wang & Cheng, (2020), the research design is the cardinal point guiding the collection of data and structuring the entire research process, including data analysis in accordance with study objective. Quantitative data collection focused on the crop production margins of women that are beneficiaries of NGOs interventions. Findings from qualitative data served to contextualize and corroborate the results obtained from the quantitative data.

3.3 Sample Size Determination

To obtain the required sample size for assessing the contributions of non-governmental organizations on the performance of women in staple crops production a list of women farmers in the study communities from the Ministry of Agriculture, showed that around 80% of women were involved in crop production. About 1551 women in the communities studied were supported by NGOs.

The sample size was determined using Cochran formula cited by Paudel et al., (2021)for Sampling techniques.

Sample size $(No) = z^2pq/e^2$

e =margin of error

p =population affected

q = population not affected

Z -score= 95%

CI= Confidence Interval is 1.96

The sample size obtained was 163 women.

The population for the study were rural women, who are actively engaged in crop production, and are residents of the Wa East District at least for half a decade. This is because women farmers who have stayed there for half a decade probably have received NGO support and might have completed at least one NGO project cycle. Communities were selected on the basis that NGOs have implemented some project targeted on women farmers and empowerment. The list of communities within the study area were identified and the researchers grouped them into twenty-five (25) electoral areas. As regards the sampling technique adopted, the study communities were randomly selected from each electoral area using random number generation in Microsoft Excel. The processes were repeated several times and the dominant communities in the process were considered for the study. Five communities within the study area that have received NGO support in agriculture and women empowerment projects were identified. The communities selected for the study included Goripie, Dupari, Bulenga, Katua and Tiisa

In the second stage of sampling, all women crop farmers from the selected communities in Wa East District selected were considered and segregated into two groups - beneficiaries of NGO programmes and non-beneficiaries. Different samples within each group were taken, of which proportions were allocated to ensure representativeness.

Sampled beneficiaries provided insights into the contributions of NGO interventions on yield performance and production margins before, during and after NGO support. Simple random sampling was used to select women who were farming in the selected communities but had not received NGO support. Each woman as a respondent was given an equal probability of being selected through simple random sampling. Key informant interviews, questionnaires and focus group discussion (See Table 1) were used for the collection of data.

Table 1
Focus Group Discussions

Community	Group Name	Number of Members	Duration
Goripie	Goripie Women Group	11	1hr 30 mins
Tiisa	Tiisa Women Group	10	1hr 30 mins
Katua	Katua Women Group	12	1hr 30 mins
Bulenga	Bulenga Women Group	10	1hr 30 mins
Dupari	Dupari Women Group	12	1hr 30 mins

3.4 Data Analysis

The qualitative data was analyzed through theme formulation and pattern analysis. The Statistical Package for Social Scientist (SPSS version 25) and Microsoft Excel (version 2016) were used to facilitate quantitative data analysis. Pearson's correlation coefficient was used to determine the relationship between socio-demographic factors and area allocated for crop production and duration of NGO support services utilized by the women. A multinomial logistic regression was used to determine the contribution of different support packages on crop yield. A chi-square test was used to compare the mean yields of the different food crops in each community, using the least significant difference method to separate the crops that had significant means. Qualitative data was thematically analysed.

IV. FINDINGS & DISCUSSION

4.1 Demographics

The data revealed that majority (82.00%) of the women were below the age of 50 years (Table 2). This demography was similar for beneficiary and non-beneficiary women farmers. This implies that irrespective of NGO support, there is a relatively young population of women engaged in staple crop production in the district.

Table 2
Demographic Characteristics of Respondents (N = 150)

	Beneficiaries		Non-Beneficiaries		Total	
	Freq.	**Percent**	**Freq.**	**Percent**	**Freq.**	**Percent**
Age						
20- 29	11	14.67	5	6.67	16	10.67
30- 39	24	32.00	32	42.67	56	37.33
40- 49	30	40.00	21	28.00	51	34.00
50 and above	10	13.33	17	22.67	27	18.00
Marital Status						
Married	73	97.33	73	97.33	146	97.33
Widowed	1	1.33	2	2.67	3	2.00
Separated	1	1.33	0	0.00	1	0.67
Household head Status						
Yes	26	34.67	2	2.67	28	18.67
No	49	65.33	73	97.33	122	81.33
Educational status						
No Formal Education	67	89.33	37	49.33	104	69.33
Primary	5	6.67	24	32.00	29	19.33
SSS/SHS	0	0.00	10	13.33	10	6.67
Middle/ JSS/JHS	0	0.00	4	5.33	4	2.67
Tertiary	3	4.00	0	0.00	3	2
Additional Occupation						
None	57	76.00	6	8.00	63	42.00
Trading	9	12.00	43	57.33	52	34.67
Artisan	2	2.67	21	28.00	23	15.33
Civil Servants	7	9.33	0	0.00	7	4.67
Public Servants	0	0.00	5	6.67	5	3.33
Length of residence in community						
5-10 years	74	98.67	75	100	149	99.33
11 years and above	1	1.33	0	0.00	1	0.67

However, in the beneficiary group, the age class of 40-49 had the highest number of respondents (40.00%) the age class of 30 -39 had the highest (37.33) in the non-beneficiary group. There is a far less proportion (81.33%) of women who are the main decision makers in their households. However, the proportion of women who are the household heads in the beneficiary group (34.67%) is greater than the proportion of women who are household heads in the non-beneficiary group (2.67%). This indicates that women who fall under the beneficiary group have more power in implementing household policies, than their counterparts who are not beneficiaries. This implies that women that are beneficiaries or engaged in some form of NGOs projects are self-empowered over their counterparts in the non-beneficiary group, especially in exercising powers on decision making.

As regards additional occupations, majority of women in the beneficiary category have no other occupation (76.00%) while in the non-beneficiary category, most of the women are involved in petty trading (57.33%). These differences indicate that most women who are beneficiaries are limited in their sources of income, with most of them solely depending on staple crop production for their incomes. This can be a threat to the households of these women as the beneficiary women population has a greater number of these women as household heads who are responsible for making provisions for the households.

4.1.1 Support Models NGOs Offered to Women in Staple Crops Production

The majority (79.30%) of the respondents had been beneficiaries or have had previous interactions with one or more of the four NGOs - advance-acdi/voca, pronetnorth / meda, masara n’ziki and actionaid. advance had a wider reach (66.41%) of women farmers and PRONET North had the least reach (31.30%) of women farmers.

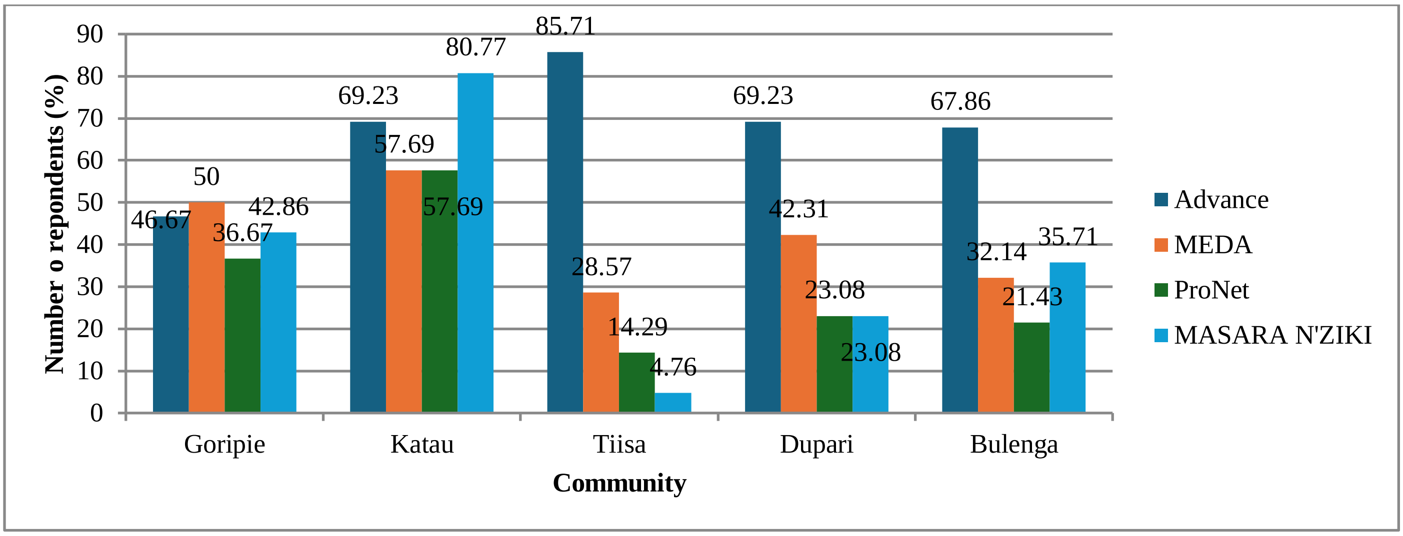

Figure 2
NGO Presence in Communities

From figure 2, for ADVANCE, majority of women in each of the five communities in the district had dealings with them, except in Goripie where more than half (53.33%) of the women indicated they had not dealings with them. In addition, Goripie, the most common NGO in operation is MEDA, while in Katua, the most common is MASARA N'ZIKI. In the three other communities (i.e. Tiisa, Dupari and Bulenga), ADVANCE NGO had the most presence. Dugle et al., (2015) observed that NGOs are very supportive in the Wa East District.

. This is in line with previous studies by Ponnusamy et al. (2017), which emphasised the tendency for private sector or NGO initiatives to use cooperatives and similar farmer groups for project implementation. Consequently, this approach has encouraged the formation of women farmers' groups in the communities studied. The analysed data shows that about 70% of the women farmers interviewed belong to one or more farmer organisations, community-based organisations or smaller farmer groups through which they receive support.

Table 3
Types of Support Services Received

	ADVANCE		**MEDA**		**PRONET NORTH**		**MASARA N'ZIKI**		**TOTAL**	
	Freq.	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
Agro inputs	82	94.25	55	98.21	41	100	39	100	134	96.4
Extension and Training	70	80.46	38	67.86	24	58.54	3	7.69	94	67.63
Marketing	68	78.16	41	73.21	35	85.37	21	53.85	97	69.78
Mechanisation	62	71.26	38	67.86	30	73.17	23	58.97	98	70.5
Financial Support	53	60.92	26	46.43	21	51.22	25	64.1	90	64.75

Many women farmers working with ADVANCE (80.46%), MEDA (67.86%) and PRONET (58.54%) stated that they primarily receive support in the form of advice and training. On marketing support, more than half of the farmers affiliated to NGOs stated that they received this assistance because of their involvement with these organisations. A similar pattern emerged for mechanisation and financial support. The most common form of support for women in crop production was the provision of and access to agricultural inputs. These inputs were largely in the form of inorganic fertilizers and improved seeds on credit basis. *Through NGO, Duri Farms Ltd (an aggregator) gives us fertilizer on credit and later we pay after harvesting* (Interview with women group member, 20/08/2020). NGOs equally offered agriculture extension services through training farmers on good agronomic practices (GAPS), improved and modern ways of farming and dissemination of relevant agriculture information through the entire crops value chain. The study, however, revealed that little support was received around agriculture mechanisation, especially access to tractor services during on-season activities. In a focus group discussion, women farmers indicated that they are often discriminated against in accessing tractor services since service providers and aggregators concentrate more on men to the detriment of women farmers. *During farming season, the tractor owners focus on the men before delivering services to we the women* (Interview with a group member, 20/08/2020). This affirms gender inequality in agriculture, especially in accessing productive resources, markets and services (Kabeer, 2017b).

Contrary to expectations, the data showed that the provision of agricultural inputs is the most important form of support from NGOs. However, it was found that women farmers who grow staple foods are most in need of a tractor. This indicates a clear discrepancy between the support provided by NGOs and the critical needs of farmers. Women farmers said that projects and programmes are implemented based on NGOs interest: *When I joined the group whatever intervention brought forth by the NGO is what we embarked on not what we wanted* (Interview with a group member, 20/08/2020). This statement was revealed in all five women groups interviewed. This implies that beneficiaries depend largely on NGOs' interest against the farmer's interest. However, there was a contrary view during key informants' interviews, where NGOs suggested that projects are implemented based on farmers' interest. Therefore, there is a mismatch between NGOs prioritised support areas and farmer basic needs in crop production.

4.1.2 Support Services Requirements of Farmers

Majority of the women farmers indicated that the crop for which they mostly needed support is maize. The implication of this finding is that the surest way to attain women economic empowerment could be through staple crop production such as maize and soya, thus ensuring domestic food security. Women farmers should be supported to move beyond subsistence production to high-value addition along the chain. Since an estimated 95% and 85% of women in Africa are engaged in value addition in the crop value chain (Loizou et al., 2019a). However, according to Ajapnwa et al. (2017), female farmers have higher technical efficiency than male farmers, suggesting that supporting female farmers can lead to greater benefits.

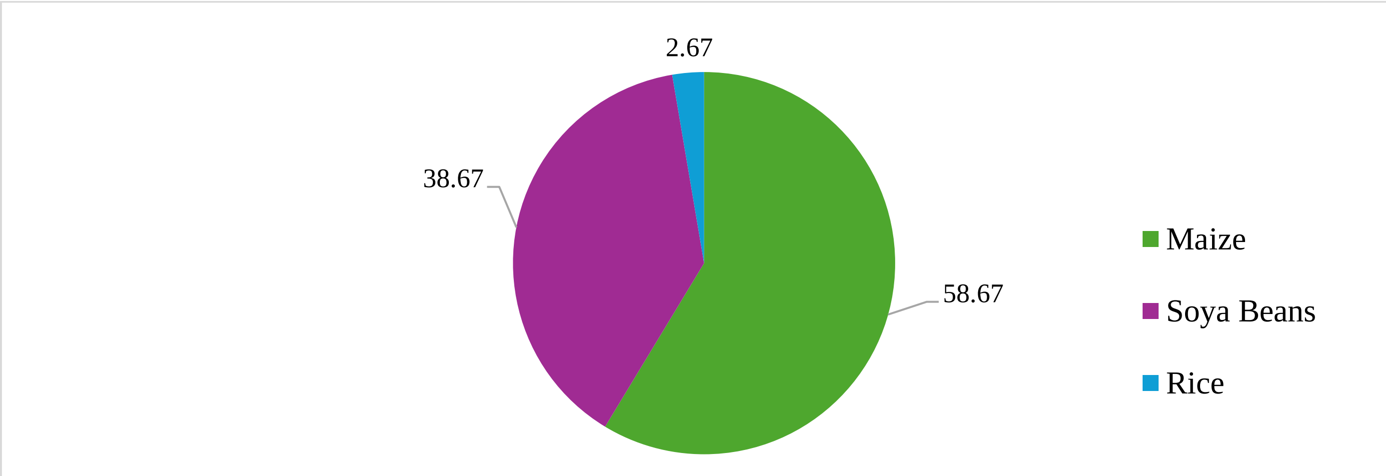

Figure 3
Crops in Need of Support

There were a variety of production support needed, these included tractor services, financial services, fertilizer, and seeds. Among these needs, tractor services which is often required to make land preparation easier and faster was a support needed by majority (58.00%) of the women farmers. This need can be attributed to agriculture mechanization mindset for commercialising production by women since they form majority of smallholder farmers globally (Loizou et al., 2019b). The tedious nature of using human labour in land preparation especially for women farmers is another factor. Mishra et al., (2017) suggested that empowering smallholder farmers to increase production is the most effective strategy to achieve economic recovery and resilience in the face of disasters and crises. (Alene et al., 2009a) posited that it will enhance access to and control over resources which is a key component of empowerment.

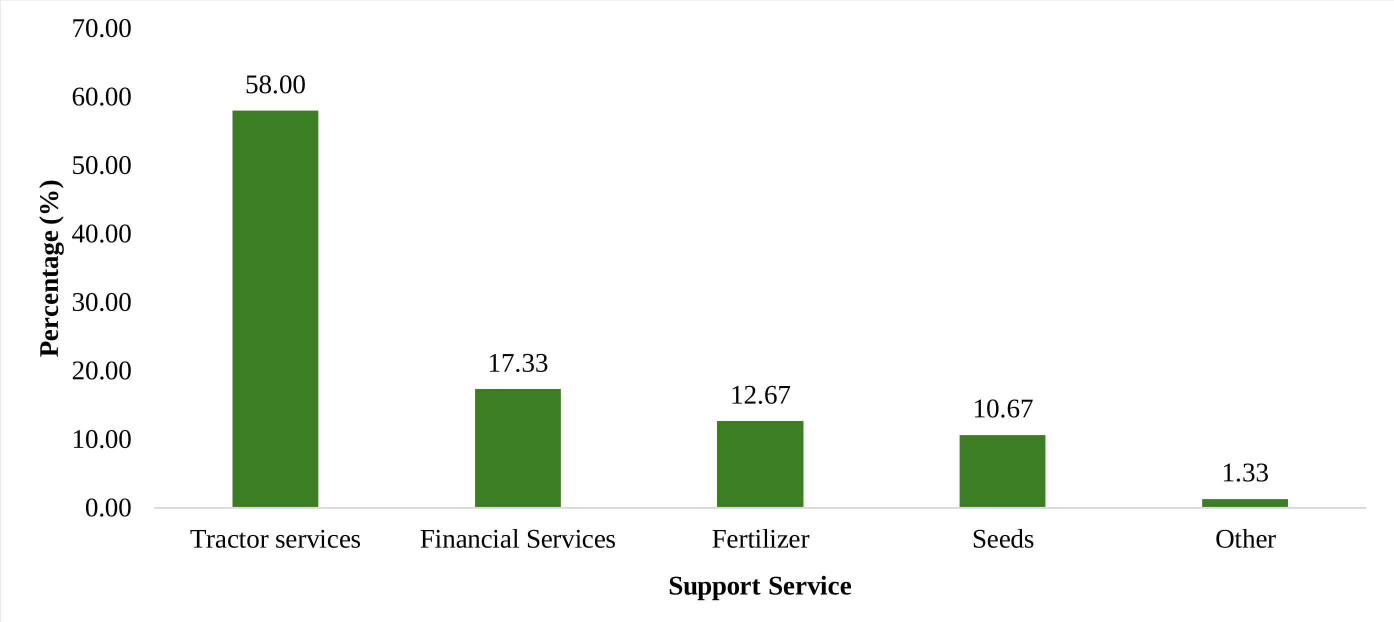

Figure 4
Types of Crop Production Support Needed

Types of support they needed for enhanced crop production covered financial services at (17.33%) indicated as the most preferred, followed by support in the form of agro inputs such as fertilizers (12.67%) and seeds (10.67%). This could be because poverty is widespread among women, especially in rural areas of Ghana, as emphasized by (Giller et al., 2021).In terms of farmers' most prioritized needs for general crop production, majority of the farmers (58.67%) claimed their most pressing need was tractor services. Inputs (27.33%) ranked second, and financial services (14.00%) formed the other two most pressing service needs of the farmers.

Farmers indicated that aside from the most pressing needs, they had other service support needs which could help them. The most prominent of these was the need for more financial support (56.67) and an adequate supply of inputs (42.00%).

4.1.3 Women Decisions Making Capability and Factors that Influence Women Choices in Staple Crops Production

Mahbub (2021b) opined that women empowerment means "having control or a say and being listened to or being able to create women's perspective and able to influence the social choices affecting the entire society and recognised as equal citizens and humans with a contribution to make. As regards who is primarily responsible for crop production decisions in their household it was found that for beneficiary farmers, most agricultural decisions in the household are made by their spouses (57.55 %), while non-beneficiary farmers are more likely to be responsible for household decisions on crop production (53.33 %). This implies that women farmers do not deal with third parties without the consent of their spouses. Also 9.33% of the beneficiary farmers indicated that they made the household decision in conjunction with their spouses as opposed to 6.67% for the non-beneficiary farmers. It means that farmers in the beneficiary category will need to get the permission of their spouses before they can implement any policies on what crops to produce or what inputs to use on their farms. However, during a focus group discussion, women groups believed they are empowered through NGOs interventions since they could form associations, and these offered them opportunity to take certain decisions at the group levels.

Considering the demographic distribution of women, it can generally be seen that there is a far less proportion (33.33%) of women who are the main decision makers in their households as against 57.33% of those who say major decisions are taken by their spouses in beneficiary group. An opposing trend was observed in the non-beneficiary group where 53.33% of women says major decisions were taken by themselves while 40.00% admitted that major decisions were taken by spouses. There is a higher proportion of women (34.67%) as heads of household in the group of beneficiaries than in the group of non-beneficiaries, in which only 2.67% of women have this role. This indicates that women who fall under the non-beneficiary group have more power in implementing household policies, than their counterparts who are beneficiaries. It points to the fact that when third parties are not involved, women easily take decisions on their own as indicated in the non-beneficiary group. This implies that men (spouses) are critical part of women decision making in crop production, especially when interacting with NGOs or other partners and their permission and consent is required to achieving women participation in staple crop production.

The study revealed that NGOs reach out to women farmers largely through farmer-based organizations (FBO) and cooperative societies. This has confirmed the claim by Ponnusamy et al., (2017) that private sector or NGOs projects are implemented through cooperative societies and other farmer groups. However, women who belong to FBOs have some powers in implementing household decisions than non-beneficiaries, which implies that women empowerment can be achieved through a combined voice and synergy in the form of farmer-based organizations since women rights are well articulated at groups levels.

As regards land acquisition for crop production, it was revealed that majority of beneficiary group (97.3%) and majority of non-beneficiaries (85.3%) acquired lands from their spouses. Whilst a little percentage of the respondents, 2.7% and 14.4% of beneficiaries and non-beneficiaries respectively inherited their farmlands. This implies that women do not have absolute control and ownership of lands for production in the study area, hence they are not empowered enough in terms of land use. It was revealed in a focus group discussion that, generally men made lands available to them for farming on request however ownership of such lands is not guaranteed. The discussions in the focus groups also revealed that men allocate untouched land to women for production but often reclaim it as soon as fertility has improved. This implies that general access is not a hinderance but access to productive lands is the major challenge.

4.1.4 Reasons Women Gave for Engaging in Crop Production

For maize production, majority of the production involved in by the beneficiary farmers (65.33%) and non-beneficiary farmers (93.33%) are for household consumption, which implies that most of the women are engaged in farming to supplement household food consumption.

Table 4

Purposes for Cultivating Crops

	Beneficiaries		Non-Beneficiaries		Total	
	Freq	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Maize						
Consumption	49	65.33	70	93.33	119	79.33
High returns	26	34.67	5	6.67	31	20.67
Soya bean						
Consumption	19	28.36	9	16.67	28	23.14
High returns	48	71.64	45	83.33	93	76.86
Rice						
Consumption	18	58.06	23	58.97	41	58.57
High returns	13	41.94	16	41.03	29	41.43
Groundnut						
Consumption	6	75.00	0	0.00	6	25.00
High returns	2	25.00	16	100.00	18	75.00
Okro						
Consumption	0	0.00	7	58.33	7	38.89
High returns	6	100.00	5	41.67	11	61.11
Yam						
Consumption	5	100.00	0	0.00	5	100.00

For the beneficiaries, other crops like rice, soya bean (71.64%) and Okro (100.00%) are mostly produced to get income and not for consumption, while crops like rice (58.06%) and groundnut (75.00%) are mostly produced for household consumption. For non-beneficiaries, the purposes of production of the crops are like the purposes indicated by the beneficiaries, except in crops like groundnut and Okra where it was indicated that majority of the production was for high income returns (100.00%) and consumption (58.33%) respectively. Generally, women in the district engage in maize and rice production to provide food for their households.

4.1.5 Staple Crop Yields of Women Beneficiary Farmers and Women Non-Beneficiary Farmers

Table 5 shows the production levels of maize, rice, soya beans and groundnuts for the two groups of farmers, which enables a comparison as these are the crops most grown by the women in the study area.

Table 5
Staple Crop Yields of Women Farmers

	Beneficiaries		Non-Beneficiaries		Total	
	Freq	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Maize						
5 bags and below	7	9.33	5	6.67	12	8.00
6 bags	0	0.00	36	48.00	36	24.00
7 Bags	1	1.33	34	45.33	35	23.33
8 Bags	7	9.33	0	0.00	7	4.67
9 Bags	9	12.00	0	0.00	9	6.00
10 Bags and above	51	68.00	0	0.00	51	34.00
Soya bean						
5 bags and below	17	25.37	15	33.33	32	28.57
6 bags	7	10.45	14	31.11	21	18.75
7 Bags	3	4.48	5	11.11	8	7.14
8 Bags	2	5.98	11	24.44	13	13.40
10 bags and above	36	53.73	0	0.00	36	32.14
Rice						
5 bags and below	16	41.03	10	23.26	26	31.71
6 bags	3	7.69	9	20.93	12	14.63
7 Bags	3	7.69	24	55.81	27	32.93
10 Bags and above	17	43.59	0	0.00	17	20.73
Groundnut						
5 bags and below	0	0.00	12	46.15	12	27.91
6 bags	1	5.88	9	34.62	10	23.26
7 Bags	3	17.65	0	0.00	3	6.98
9 Bags	0	0.00	5	19.23	5	11.63
10 bags and above	13	76.47	0	0.00	13	30.23

From Table 4 in maize production, beneficiary farmers have a higher level of production than that of non-beneficiary farmers, considering that a greater proportion of beneficiary women farmers produce more than 10 bags of maize (68.00%) as opposed to many farmers in the non-beneficiary group producing 6 bags (48.00%). A similar result obtained in maize production can be seen in soybean production as most of the farmers who were beneficiaries produced ten or more bags (53.73%) while most of the non-beneficiary farmers produced 5 bags and below (33.33%).

For rice production, most of the beneficiary farmers also produced more than 10 bags (43.59%) while none of the non-beneficiary farmers could meet that level of production. This illustrates that there is a positive reflection of the various support services made by NGOs on yield performance of women staple crop producers.

4.1.6 Effect of NGO Support Packages on Crop Productivity Levels (yield)

The study identified mechanisation, agro inputs, extension and training and financial support as the support packages provided by NGOs to women farmers in the district. A multinomial logistic regression model was used to assess the effect of these subsidy packages on crop yield. The model's likelihood ratio test was used to show the distribution of the individual subsidy packages. For maize production, variables with significant influence on maize yield were extension services and training and provision of financial support. Agro inputs and mechanisation services did not significantly predict maize yield at 95% confidence level.

The findings suggest that beneficiary farmers who received NGOs support services performed better than non-beneficiaries, considering the output margins. The study revealed beneficiaries were able to harvest about 1,500kg (approximately 15 bags) of maize, soya and rice respectively on an acre land. In maize production, beneficiary farmers had a higher level of production than those of non-beneficiary farmers, considering that a greater proportion of beneficiary women farmers produce about 1,500kg of maize as opposed to most farmers in the non-beneficiary, who produce 900kg. This implies that beneficiary group produces about forty percent (40%) higher than non-beneficiaries in maize cultivation. The differences in production margin could be because of support in the form of skills training and the supply of inputs such as fertilizers and improved seeds received by beneficiary groups.

In soybean production farmers who were beneficiaries produced about 1,500kg whiles most of the non-beneficiary farmers produced 750kg and below which represents fifty percent (50%) difference in production between beneficiaries and non-beneficiaries in soybean production. Women who had benefited from NGOs supports were able to maintain their production trends in Soya and maize respectively whilst there was a decline in the yields of Soybean in the case of non-beneficiary group. It can be asserted that private or NGO support on women crop farmers have a positive effect on yields estimates, thus reflecting an increase in income levels. *I sometimes get two (2) or three (3) bags of soya at first but now I can get around six (6) bags per acre* (Focus group discussion (20/08/2020).

4.1.7 Challenges Women Face in Staple Crop Production

Table 5 shows the challenges which affect beneficiary and non-beneficiary women farmers in the Wa East district in their crop production efforts.

Table 6

Challenges of Women Staple Farmers

	Beneficiaries		**Non-Beneficiaries**		**Total**	
	Freq	**Percent**	**Freq**	**Percent**	**Freq**	**Percent**
Main challenges						
Finance	34	45.33	64	85.33	98	65.33
Access to land	18	24.00	0	0.00	18	12.00
Labour	14	18.67	11	14.67	25	16.67
Tractor service	9	12.00	0	0.00	9	6.00
Other challenges						
Labour	34	46.58	49	65.33	83	56.08
Financial	15	20.55	15	20.00	30	20.27
Access to Land	10	13.7	0	0.00	10	6.76
Mechanisation	8	10.96	11	14.67	19	12.84
Harvest Losses	6	8.22	0	0.00	6	4.05

Women who were engaged by NGOs were exposed to empowerment, which men might not be comfortable with. This could possibly account for men's hesitancy in releasing productive lands to women. During FGD, it was revealed that general access to land is not an issue but access to productive lands is the challenge. Whereas (Anoglo et al., 2014) claimed ownership and access to land among others are hurdles confronted by women crop famers in Wa East District, this study found that the challenge is rather on productive lands but not general access to lands. Nevertheless, ownership of land remains a challenge in the district. Evidence from the study suggest that men who are custodians of lands in the district allocate to women farmers unproductive and infertile lands for cultivation which affects yields and production efforts by women staple crop producers. Other pressing challenges included labour and tractor services.

Generally, the peculiar challenge that existed among all categories of women famers in the study area has to do with access to finance and productive lands for crop production. The study observed that inaccessibility to finance in the district by women crop farmers resulted from the unsuitable conditions associated with loans and credit facilities. The study revealed that the topmost need of women in the study communities was agriculture mechanisation in the form of tractor services whilst the most offered support were agro-inputs. Ponnusamy et al. (2017), Anderson et al. (2021) and SEND (2014) had oberved that women are generally provided with inputs to improve crop production. However, there is dearth of literature on efforts of organisations aimed at addressing the specific needs of women crop farmers in rural areas. Available support services are prioritised on the interest of NGOs since majority of the women crop farmers interviewed expressed the view that NGOs support services are targeted at organisation's (NGOs) interest rather than farmer's interest.

V. CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

The results of the study suggest that there is a strong presence of NGOs throughout the district, which support women in the production of staple foods. It can be concluded that various forms of support services were given to women crop producers by NGOs. It was found that mechanization, agro-inputs, extension and training, and financial support were the major support packages provided by NGOs to women farmers in the district.

However, the supply of agro inputs in the form of inorganic fertilizers and seeds was the most supported service offered by NGOs. The study concluded that majority of the women (58.00%) prioritised mechanisation services as the most felt need. It can therefore be concluded that there is a mismatch between NGOs' prioritised areas of support and that of the most pressing need of women staple crop farmers in Wa East. This can have short-and long-term implications on women sustained in interest in collaborative projects geared toward women empowerment in the district. The choice of crop production is largely influenced by two main purposes: domestic consumption (79.3%) and income (76.86%) and the crop types that satisfy these needs are maize and soya respectively. Women economic empowerment can be achieved if women capacities are enhanced in maize and soya production through support in mechanized farming and uninterrupted access to fertile land for crop farming. The study noted that limited finances of women farmers was the most challenging hurdle to staple crops production in the district among other bottlenecks such as access to fertile lands, labour and tractor services.

5.2 Recommendations

It is recommended that the Ghanaian government collaborate more with NGOs to formulate and implement policies to facilitate the expansion and intensification of NGO services to women farmers, thereby contributing to stronger growth of the crop sub-sector. Due to the inconsistencies between the support services prioritised by NGOs (agro inputs) and the urgent needs of women farmers (mechanisation and finance), it is recommended that NGOs and development partners engage in discussions with women farmers during project planning. This approach should prioritise women's needs, particularly in the areas mechanisation and finance because these are the areas where women farmers face the greatest challenges.

The study recommends that NGOs closely work with local government agencies to improve education on women's empowerment, focusing on inclusive decision-making about access to productive land to address the complexity of land tenure in the study area. Such an approach could strengthen the resilience and economic empowerment of women in agriculture.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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