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Gender productivity differentials: The case of cereal farmers in the Upper West Region of Ghana

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ABSTRACT

The study was conducted to determine the role gender plays in the production of maize and rice in the Upper West Region of Ghana. Secondary data was obtained from the Monitoring Evaluation and Technical Support Services (METSS) of USAID involving 156 randomly selected agricultural households in the Region. Descriptive statistics was used to determine the relative contributions made by men and women in the maize and rice production whereas multiple linear regression was used to identify the determinants of maize and rice in the Region. Results from the study revealed that, the mean output levels of maize by gender were 288.68kg and 139.52kg for men and women respectively, whereas that of rice was 102.41kg and 63.19kg for men and women respectively. The study further revealed that, land size, household income, marital status, location of farmer and access to credit were the key determinants of maize and rice production in the region, however, gender was found to be insignificant. It was therefore recommended that holders of arable lands that are not under cultivation should give them out to interested farmers to farm on (especially the youth) since the population of farmers in the region are mainly youth or those in their youthful age and are expected to be very strong and healthy to work hard. The study further recommends that government as well as NGOs should implement programs and policies that would go a long way to increase food crop production in the Upper West Region.

1. Introduction

Gender relates to the socially assigned roles and behaviours of men and women. It is the social meaning of biological sex differences. Gender affects the distribution of resources, wealth, work, decision-making, political power as well as the enjoyment of rights and entitlements within the family and in public life (Welch et al., 2000). The concept of gender has been considered in agriculture and development where food production opportunities are not the same for men and women. Agriculture has been recognized as the main engine through which food could be secured when both men and women contribute to food production actively. But the sector seems to be facing a lot of challenges in many developing countries because of gender inequalities with respect to their contribution to food crop production.

In the sub-Saharan Africa region, increase in food crop production has been observed to be lagging population growth (population increases by 3% per annum whiles food production increases by 2% per annum) which means there is a deficit to be supplemented. Net cereal imports increased from 1.5 million tons in 1967 to 12 million tons in 1997, and projections indicate that the region will require about 27 million tons of cereal imports to satisfy demand in 2020 (Rosegrant et al., 2001). Increasing per capita food production, productivity and raising rural incomes are key challenges facing small-scale farmers around the globe and the Upper West Region of Ghana cannot be left out. In Ghana, agriculture contributes about 38.8% of Ghana's GDP (TAD/CA/APM/WP-Global Forum on Agriculture, 2010). Though the occupation of the people of the Upper West Region is predominantly farming or agricultural related, there has not been any study to investigate the contribution of gender to food crop production in the Upper West Region, with reference to maize and rice, which are staple foods in Ghana. Many researchers and policymakers have rather focused on the impact of adoption of new technologies in increasing farm productivity and income, thereby creating a

knowledge gap that needs to be filled. In view of this shortcoming in research, this study sought to investigate the relative contribution of women to food crop production in the Upper West Region of Ghana and explore the factors that affect their production in the Region.

The rest of the paper is organized as follows: Section 2 explores some relevant literature. The methodology adopted for this study is discussed in section 3. Results and discussion of the findings from the study are in section 4 and section 5 is the conclusion and recommendation.

2. Literature Review

In this section, literature relevant to the study are reviewed. Africa is the only developing region where crop output and yield growth are lagging seriously behind population growth (Savadogo et al., 1994). Meanwhile the sector is the most important source of income in most African countries.

According to studies by FAO (2011), farmers are still generally perceived as 'male' by policymakers and development planners. This is an indication that gender bias persists. For this reason, women find it more difficult than men to gain access to valuable resources such as land, credit and agricultural inputs, technology, extension, training, and services that would enhance their production capacity. In sub-Saharan Africa, women produce up to 80% of basic foodstuffs both for household consumption and for sale (Omwoha, 2007). Women who are often a crucial resource in agriculture and the rural economy through their roles as farmers, labourers, and entrepreneurs, almost everywhere face more severe constraints than men in terms of access to productive resources. According to the Food and Agriculture Organization (FAO, 2011), this happens not because women are less skilled, but because they do not have equal access to the resources and opportunities, they need to be more productive. If women had the same access to productive resources as men, they could increase yields on their farms by 20 to 30 percent. This could raise total agricultural output in developing countries by 2.5 to 4 percent, potentially reducing the number of hungry people in the world by 12 to 17 percent (FAO, 2011). Despite the important roles that women play in farm and household production, they have not been given due recognition in the agricultural sector; there has been a great disparity between women and men in the size of landholdings as well as over trends of increasing landlessness (Ankrah and Afful, 2020). Efforts by governments and the international community to achieve their goals for agricultural development and economic growth would be achieved if the gap of gender inequalities towards the access of agricultural inputs were bridged.

The FAO opined that, rural women, in developing countries, act as a keystone of small-scale agriculture and daily family subsistence as they play a key role in contributing to food security. The recognition of their crucial roles and contribution in agricultural production has recently increased. Women make essential contributions to the agricultural and rural economies in all developing countries (Meinzen-Dick et al., 2019). However, their roles vary considerably between and within regions, changing rapidly in many parts of the world, where economic and social forces are transforming the agricultural sector. As a result, there is no clear distinction between the relative contribution of male and female to food crop production. Many of these activities are not defined as economically active employment in national accounts which could contribute to the household income, but they are essential to the well-being of rural households. In view of this, this study seeks to examine the relative contribution of women to the production of maize and rice and establish factors militating against their production in the Upper West Region of Ghana.

Women's substantial contribution to agriculture continues to be systematically marginalized and undervalued in conventional economic analyses and policies, while men's contribution remains the central, often the sole focus of attention by Governments and stakeholders (FAO, 2011). This has led to less emphasis on the actual contribution of men to food crop production, towards which, according to most literature, women play a significant role. About 70 percent of the agricultural workers, 80 percent of food producers and 10 percent of those who process basic foodstuffs are women and they also undertake 60 to 90

percent of the rural marketing, thus making up more than two-third of the workforce in agricultural production (FAO, 2011). The roles both men and women play have an impact on their contribution to food crop production.

Several studies have been conducted to determine the contribution of women to food security but have neglected to examine their relative contribution to food crop production. For instance, Shoo (2011) has indicated that approximately 10.9 million children die each year and malnutrition and hunger related disease is estimated to cause 60 percent of the deaths due to food insecurity. Another study by Girma et al. (2006) on the roles of gender to agriculture production shows that, both males and females participate in farming activities under close supervision of the head of the household.

Various empirical models have been used by different researchers to estimate the level of production and how to estimate determinants that caused differentials of gender to productivity. For example, a study conducted by Gao (2012) used a Cobb-Douglas Frontier production function to estimate economic efficiency of production. In the same study, stochastic frontier production function model of Cobb-Douglas functional form was employed to estimate the farm level technical efficiency of food crop farmers. Also, a study by Vincent et al. (2014) used a simple Cobb-Douglas production function, regressing total harvest on fixed inputs and control variables. Mulinga (2013), Msuya et al. (2008) and Danso (2013) used Cobb Douglas stochastic frontier model to estimate the technical efficiency of production. Mohammed and Abdul Quadri (2012) used simple descriptive statistics to determine comparative analysis of gender involvement in agricultural production in Nigeria.

Bethlehem and Stein (2008) determined the differences in maize productivity between male and female headed households in Uganda, using multiple linear regression and bivariate probit models to estimate and to test for productivity differentials among male- headed households and female – headed households, they concluded that there are gender productivity differentials because resources held by males are different from those of the females.

Olaolawa (2010), in a study of socio-economic determinants of maize production in Yewa, Ogun State, Nigeria used multiple linear regression model. Also in 2015, Urasa used multiple linear regression of the natural logarithm form to estimate factors influencing maize production in Tanzania. Okpachu et al. (2014) also analyzed the impact of education on agricultural productivity of small-scale female farmers in Nigeria using multiple linear regression model. Anigbogu et al. (2015) also found income and type of technology used as factors which positively and significantly determines agricultural productivity whiles gender is significant and inversely related to agricultural productivity.

Mohammed and Abdul-Quadri (2012) study revealed that involvement of both sexes in various field activities may be sex specific, but they are complementary and reciprocal. Moreover, a study by Olaolawa in 2010, indicated that age, educational level, farm size, experience, household size were positive and significant variables which influenced maize production in Yewa, Ogun State, Nigeria. Danso (2013) also found weedicides and access to credit to have positive influence on maize production in the Asante Akyem North District and Ajah & Nmadu (2012) also found out that, age, household size and land area cultivated to have positive and significant influence on maize production. Regardless of the contribution of gender to food crop production to the development of agricultural sector in Ghana, less attention is paid to the relative contribution of women to food crop production and their determinants in the Upper West Region, a gap this study sought to address by asking the following questions: what is the relative contribution of men and women in food crop production? What are the factors that are affecting food crop production in the Upper West Region?

3. Methodology

3.1 *Source of data*

The study made use of secondary data which was collected by Monitoring, Evaluation and Technical Support Service (METSS) of the United States Agency for International Development (USAID) on the Savannah Accelerated Development Authority (SADA) Regions in 2012 and

published in 2014, as part of USA government's flagship global initiative to combat hunger and poverty (USAID, 2014).

3.2 Analysis of data

Descriptive statistics was used to analyse the relative contribution of men and women to food crop production and multiple linear regression model was used to estimate the contributions made by gender to each of the food crops in the Region.

Table 1: Description/measurement and expected signs of variables used in the study

Variables	Description	Measurement	Expected sign
FCP (output)	Food crop	Kilograms(kg)	
LS	Land size	Number of hectares cultivated	+
MS	Marital status	Dummy (1=married,0=not married)	+
HHS	Household size	Number of people in a house eating from the same cooking pot	+
AGE	Age of household head	Number of years	+/-
EDU	Educational level	Dummy (1=educated ,0=none)	+
HHINC	Household income	Amount in Ghana cedis	+
GEN	Gender of farmer	Dummy (0=female 1=males)	+
ACSCDRT	Access to credit	Dummy (1= yes 0=no)	+
LSRC	Lending Source	Dummy (1=formal, 0=informal)	+
LOC	Location of farm	Dummy (0=urban, 1=rural)	+

Source: Author's construction (2021)

The factors that influence food crop production are briefly explained below:

Land size: total area of land cultivated which is positively related to the dependent variable.

Marital status: this shows whether the farmer is married or not and is positively related to the dependent variable

Household size: Number of people in a house eating from the same cooking pot. It is positively related to the dependent variable

Age: It is the years attained by the household's head during the survey. It has both positive and negative relationship with the dependent variable.

Educational level: the educational status attained by the farmer positively related to the dependent variable.

Household income level: the income of the household positively related to the dependent variable.

Gender: It is sex traits of the household head. It is positively related to the dependent variable

Access to credit: It is an individual's chance of acquiring financial assistance for payment to be made later. It is positively related to non-food consumption.

Type of Location: It is the geographical environment, where the farm is being situated. It can be urban or rural. It has a positive relationship with the dependent variable.

Lending source: It is the source where farmers acquire their loans which can either be formal or informal.

A variety of models could be used to estimate the factors influencing food crop production. However, in this study, the multiple linear regression model was used. Mathematically, this model could be represented as:

$$Q = f(X_i) \quad (1)$$

Where:
Q is the quantity of food crop produced
X_i is the set of explanatory variables of farmers

Expanding equation (1), gives us:
$Q = f(\text{land size, marital status, household size, age, educational level, household income, gender, access to credit, leading source, type of locality})$ (2)

The empirical model can be estimated from equation (1) and (2) as:

$$ln\text{FCP} = \beta_0 + \beta_1 lnLS + \beta_2 MS + \beta_3 lnHHS + \beta_4 lnAGE + \beta_5 EDU + \beta_6 lnHHINC + \beta_7 GEN + \beta_8 ACSCDRT + \beta_9 LSRC + \beta_{10} LOC + \varepsilon \quad (3)$$

Where;
FCP = output of food crop production (kg)
ε = error term,
β_0= intercept or constant term

β_1 ... . β_{10} = the slopes or coefficients of the regressors or multipliers that describe the size of the effect the independent variables have on the dependent variable.

The parameters to produce the two crops (maize, rice), were estimated using a statistical software, STATA version 14.0. Heteroscedasticity, which is a common feature of cross-sectional data was tested using the robust standard error. Multicollinearity test was conducted using the Variance Inflation Factor (VIF) to identify any potential misspecification problems that may exist in the estimated model.

4. Results and discussions

4.1 Socio-demographic characteristics of the households

Table 2: Demographic characteristics of maize farmers

Characteristics	Mean	Minimum	Maximum	Freq	%
Location					
Urban				36	23.08
Rural				120	76.92
Gender					
Male				125	80.13
Female				31	19.87
Marital status					
Married				47	30.13
Not married				109	69.87
Land size	0.83	0.1	15.8	-	-
Output	259.03	10	8700	-	-
Income	80.04	1.2	9,100	-	-
Age	24	1	87	-	-
Edu.					
None	-	-	-	116	74.36
Formal	-	-	-	40	25.64
Household size	5	1	18	-	-

Source: Computed from METSS, 2012

Table 2 is a summary of the analysis of the demographic characteristics of the maize farmers. From the table, majority (76.92%) of the maize farms are in the rural areas with only 23.08% located in the urban areas. It is also observed that 80.13% of the farmers are male-headed households while the rest 19.87% are female-headed households. This could be because the men are the heads of the families in this part of the country and will have to work hard to feed the family. One interesting revelation from the study is that 69.87% of the farmers are not married, only 47, representing 30.13% are married. The study further revealed that among the maize farmers, only 25.64% (40) had formal education with the rest 74.36% (116) having no formal education. The mean household size was found to be 5 persons with the maximum household size being 18 persons. Average age of the maize farmers was found to be 24. This means that more youth are into maize cultivation in the region than the elderly, an indication that the region has an active working age group.

The average land size for the cultivation of maize was found to be 0.1 hectares with the largest land size cultivated to be 16 hectares. This means that on the average the cultivated land size is very small, and this could negatively affect maize output. The average and maximum maize output was computed to be 259kg and 8700kg respectively. The mean income from the sale of this output was GHS80 with the highest income being GHS9100.

Table 3: Demographic characteristics of rice farmers

Characteristics	Mean	Minimum	Maximum	Freq	%
Location					
Urban	-	-	-	36	23.08
Rural	-	-	-	120	76.92
Gender					
Male	-	-	-	29	18.59
Female				127	81.41
Marital status					
Married	-	-	-	47	30.13
Not married				109	69.87
Land size	0.22	0.1	4.9	-	-
Quantity	70.48	25	1500	-	-
Income	23.36	4	2,400	-	-
Age	23	4	71	-	-
Edu:					
None	-	-	-	109	69.87
Formal	-	-	-	47	30.13
Household size	5	1	28	-	-

Source: Computed from METSS, 2012

Table 3 is a summary of the demographic characteristics of rice farmers in the region during the study period. From the table, majority (76.92%) of the rice farms were in the rural areas with only 23.08% located in the urban areas. Like the maize farmers, male-headed households were the majority (81%) of the rice farmers with the female-headed households constituting only 19% during the study period. Forty-seven (47) representing 30% of the rice farmers had formal education whereas 109 (70%) had no education. The mean land size cultivated was approximately 0.2 hectares and the maximum land size was approximately 5 hectares. This

means much land is used in cultivating maize than rice. The mean output for the rice was 70kg and the maximum output was found to be 1500kg. The mean income from the sale of the output was approximately GHS 23.00 and the maximum income was GHS 2,400.00.

4.2 Relative contribution of gender to maize and rice production

The relative contributions of men and women in maize and rice production are shown in Table 4. From the table, the quantity of maize produced by males is 36085kg with a maximum output of 8700kg whilst females contribute 4325kg with a maximum of 1100kg. From this descriptive analysis one can say that men contribute more to maize production than women.

For the rice, it was observed that the male produced 8025kg and the female produced 2970kg. Again, the male farmer is seen to contribute more to rice production than the female farmer. The maximum output for the males and females for rice were 1500kg and 1000kg respectively. From the study, one can generally say that for the relative contribution of gender to food crop production, males contribute more to food crop (maize and rice) production than the females in the Upper West Region of Ghana. This finding is consistent with Ayoola et al. (2011) who found out that males on average contribute more than females in food crop production.

Table 4: Relative contribution of men and women to maize and rice production

Variable	Observation	Median	Std. Dev.	Min.	Max. QTY (kg)
Maize Output:					
Females	31	200	236.27	50	1100 4325
Males	125	225	835.43	10	8700 36085
Rice Output:					
Females	29	200	292.75	50	1000 2970
Males	127	100	155.39	25	1500 8025

Source: Computed from METSS Surveyed Data, 2012

4.3 Statistical test for gender output of maize and rice

Table 5: Statistical test of maize output by gender

Status	Mean	Std. Err
Male	164.5161	49.11549
Female	139.5161	42.4355
Diff	25	68.28349

Pr (|T|>|t|) = 0.3584, t = 0.3661

Source: Calculated by author based on METSS survey data

The statistical test in table 5 shows the mean output levels of maize for male and female are respectively 164.5161kgs and 139.5161kgs, with a probability value of 0.3584 indicating no statistical difference between the mean output levels of maize farmers in terms of their gender. This means that farmers in the region's output do not depend on whether one is a male or female, both are actively resourceful in food crop production. This finding supports that of Quisumbing (1996) where gender was found to be insignificant in the production level of the farmers. That is, female farmers are equally efficient as male farmers, once individual characteristics and input levels are controlled. This result, however, contradicts the findings of Bethlehem & Stein (2008) who in determining the differences in maize productivity between male-and female-headed household in Uganda found out that productivity was significantly lower for female-headed household than their male counterparts.

Table 6: Statistical test of rice output by gender

Status	Mean	Std. Err
Male	42.24138	12.03593
Female	102.4138	54.36298
Diff	-60.17241	57.85869

Pr (|T|<|t|) = 0.1536, t = -1.0400

Source: Computed from METSS survey data

The statistical test in table 6 indicates that the mean difference in rice output for male and female are 42.24138kgs and 102.4138kgs respectively. The probability value of 0.1536 indicates that there is not statistically significant difference between the mean output levels of rice farmers in terms of their gender. This can be attributed to the fact that farmers in the region output do not depend on whether you are a male or female, but both are actively resourceful in food crop production. This finding agrees with Ankrah and Afful (2020)

who found out that there is no significant difference between the rice output for female farmers who have access to technological inputs and males who have access to technological inputs.

4.4 Determinants of maize and rice production

Multiple linear regression was run to identify variables that influence maize and rice production in the region. Table 7 is the Ordinary Least Squares results of estimates of the determinants of maize output. Diagnostics of the model indicates the overall predictive ability of the model to be 85.03% ($R^2 = 85.03\%$) which is an indication that there are other factors other than those in the model that determine maize production in the region. Further diagnostics shows the model has an F-value of 0.0007 and highly significant at less than 1% level. This implies that the model was correctly specified. Four out of the ten predictor variables considered in the model, were found to be statistically significant in determining maize production level in the region and these were land size, household income, access to credit and marital status. Some of the signs of the estimated coefficients were consistent with the prior expectations.

The coefficient of farmland size is positive and significant at less than 1% level. This suggests that the larger the farmland size the higher the maize production level. From the results, the coefficient of farmland size is 0.62, this implies that if the farmland size is increased by one hectare (1 ha) of cultivated land, the output of maize will increase by 62% if the other variables are kept constant. This means that, other things being equal, maize production will increase as the land for cultivation increases. This finding is consistent with that of (Collier & Dercon, 2014; Savastano & Scandizzo, 2017; Gollin, 2018) but contradicts the findings of (Ojo, 2000; Njuki et al., 2006; Oseni et al., 2015; Aguilar et al., 2014; Mukasa & Salami, 2015) who found farm size to be significant and inversely related to maize output.

The coefficient (0.19) of household income variable is also positive and significant at 5% level, an indication that a percentage increase in household income would lead to an increase in maize output level by 19%. This could be that farmers with higher income would be able to purchase improved seedlings and modern farm equipment which would help them increase their output levels. This finding is in line with the findings of Anigbogu et al. (2015) who also found a positive significant relationship between household income and output levels of maize.

Marital status also has a positive and significant coefficient at 10% level. An indication that married farmers increase their output levels by approximately 0.52kg than non-married farmers. This increase could be attributed to the increase in labour forces for the married farmers who have more hands to work on their farms than the non-married farmers. This result contradicts that of Ayoola, et al. (2011) who found that marital status of farmers was negative.

Further analysis indicates that access to credit is negatively related to farmers' output levels and significant at 1% level, meaning that farmers who had access to credit had their outputs reduced by 2.08kg than those who had no access to credit. This could be because farmers who had access to credit could repay with higher interests which might affect their outputs because they have used much of their produce to repay the loans. This finding is in line with Ayambila (2014) who found credit to be significant to farmers' performance.

Table 7: Ordinary Least Squares (OLS) estimates of the determinants of maize

Variable	Coefficient	Standard Error	t	P>|t|
Land size	0.6175***	0.1707	3.6200	0.0030
Income	0.1914*	0.0897	2.1300	0.0530
Age	0.0052	0.1157	0.0500	0.9650
Household size	0.1805	0.2630	0.6900	0.5050
Marital status	0.5197*	0.2489	2.0900	0.0570
Educational level	-0.3821	0.2214	-1.7300	0.1080
Lending source	-0.3695	0.2727	-1.3500	0.1990
Access to credit	-.0788***	0.3146	-6.6100	0.0020
Gender	0.1633	0.5188	0.3100	0.7580
Location	0.1427	0.4979	0.2900	0.7790
Constant	.7767***	0.8018	5.9600	0.0000
Prob > F = 0.0007	R-squared = 0.8503			

$* = P < 0.10$, $** = P < 0.05$, $*** = P < 0.01$

Source: Author's estimation

Multicollinearity test was conducted on the variables to determine whether there was any collinearity among the variables. The outcome of the test indicated that the largest mean VIF values in the maize and rice models were 2.06 and 2.21 respectively, which is below the maximum value of 10 used as a rule of thumb to indicate the presence of multicollinearity. This indicates the absence of multicollinearity among the variables in the estimated models.

Table 8 is the OLS estimates of the determinants of rice output in the Upper West Region of Ghana. The results indicate that the overall predictive ability of the rice model was found to 92.19%. This means that the variation in the rice output in the region is explained 92.19% by the explanatory variables. Out of the ten predictor variables considered in the model, it was observed that, the household income, marital status, access to credit and locality of the farmer were statistically significant in determining the production level of rice.

From the analysis the coefficient of household income is positive and significant at less than 1% level. This implies that an increase of GHS1 in the household income would lead to an increase in rice output by 30%. This may be because farmers with higher income would be able to purchase improved seedlings, modern farm equipment, access to agro chemicals and extension officers which would help them increase their production output level.

Marital status was positively related to rice output and significant at less than 1% level, indicating that married farmers increase their rice production by approximately 1.08kg compared to non-married farmers. This may be due to increases in income and household size of the married farmers, a finding that contradicts the finding of Ayoola, et al. (2011).

Access to credit was also found to be positively related to farmers' output and significant at 1% level. This means that rice farmers who had access to credit increase their production level by 2.1kg more than those who had no access to credit. This finding is consistent with Ayambila (2014).

Table 8: Ordinary Least Squares (OLS) estimates of the determinants of rice

Variable	Coefficient	Standard Error	t	P>|t|
Land size	0.3511	0.1956	1.7900	0.1230
Income	0.3044***	0.0615	4.9500	0.0030
Age	-0.0452	0.1450	-0.3100	0.7660
Household size	0.2886	0.2538	1.1400	0.2990
Marital status	1.0811***	0.2874	3.7600	0.0090
Educational level	0.0197	0.2279	0.0900	0.9340
Lending source	-0.2070	0.2036	-1.0200	0.3490
Access to credit	-2.0881***	0.2612	-2.6100	0.0000
Gender	-0.2723	0.1972	-1.3800	0.2170
Location	-1.1670***	0.3093	-3.7700	0.0090
Constant	5.6756	0.5943	9.5500	0.0000
Prob > F = 0.0103	R-squared = 0.9219			

$* = P < 0.10$, $** = P < 0.05$, $*** = P < 0.01$

Source: Author's estimation

Location of the farms is negatively related to rice output and is statistically significant at 1 percent level. This implies that more rice is cultivated in the rural areas than the urban areas. This could be due to urbanization where farmers residing in urban areas all have their farms in the rural areas. This may be because, farmers in the urban areas perceived to be richer than those in the rural settings. As a result, the urban farmers purchase and even have access to farm inputs than the farmers in the rural areas. The coefficient indicates that farmers in the urban areas increase rice output by 1.17kg than those in the rural areas.

5. Conclusion and recommendation

The objective of the study was to determine the relative contribution of men and women to maize and rice production and explore the factors that affect their production in the Upper West Region of Ghana. Results from the study indicate that most farmers of the two crops under study were males. The study further revealed that the average age of the farmers was 23 and 24 years respectively for maize and rice farmers. It was again realized that about 80% of the farms were in the rural areas. This could be attributed to the fact that there are some urban dwellers whose farms are in the rural areas due to urbanization.

In terms of the output of the crops, the study showed that the average output for maize was 36,085kg and 4,325kg for the males and females respectively, whilst that of rice was 8,025kg and 2,970kg for males and females. This means that the males contributed more to the total output than their female counterparts in the two crops.

For the factors that determine the production of the staple crops in the region, it was observed that land size, income of households, marital status of the farmer, access to credit, and location of the farmer were significant to the output of the crops while the age of the farmer, household size, educational level of the farmer, gender, and lending source were found to be insignificant.

Based on the findings of the study, it was recommended that programs geared towards the enhancement of food crop production should be gender balanced or more women should be encouraged to go into food crop production, especially rice and maize. Credit facilities could be made available to food crop farmers to increase their production capacities to be able to feed Ghanaians and ensure food security in the country, training on the management of their farmlands should also be given to farmers.

Policy makers should make it possible for the food crop farmer to understand the role of gender in food crop production as this will make it possible to design and adapt new farming techniques which will benefit the farmers in the food crop production.

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