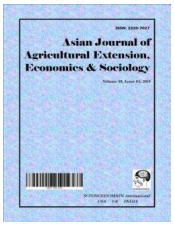

Asian Journal of Agricultural Extension, Economics & Sociology

25(4): 1-11, 2018; Article no.AJAEES.41642
ISSN: 2320-7027

Socioeconomic and Biophysical Analyses of Food Crop Production in Mbiame Sub-Division, North West Region, Cameroon

Lukong Christian Jaidzee[1*] and Moye Eric Kongnso[2]

[1]Department of Agricultural Extension and Rural Sociology, Faculty of Agronomy and Agricultural Science, University of Dschang, P.O.Box 222, West Region, Cameroon.
[2]Department of Geography, University of Dschang, P.O.Box 222, West Region, Cameroon.

Authors' contributions

This work was carried out in collaboration between both authors. Author LCJ designed the study, collected the data, wrote the first draft of the manuscript and managed the literature searches. Authors MEK and LCJ performed the statistical analysis and managed the analyses of the study. Both authors read and approved the final manuscript.

Article Information

DOI: 10.9734/AJAEES/2018/41642
Editor(s):
(1) Anthony N. Rezitis, Professor, Agricultural Policy, Department of Economics and Management, University of Helsinki, Finland and Department of Business Administration of Food and Agricultural Products, University of Patras, Greece.
Reviewers:
(1) Surkov Sergey, International Institute of Management LINK, Russia.
(2) Olutosin A. Otekunrin, Federal University of Agriculture, Abeokuta, Nigeria.
Complete Peer review History: http://www.sciencedomain.org/review-history/25112

Original Research Article

Received 18th March 2018
Accepted 1st June 2018
Published 13th June 2018

ABSTRACT

This study was undertaken to analyses the impacts of multiple socioeconomic and biophysical factors influencing food crop production in Mbiame, North West Region of Cameroon. To show this, we used a comprehensive data of socioeconomic and biophysical environment to investigate their potential determinants of food crop output. An assessment on the trend in yields showed a general decreased with soya beans (14.29 percent), maize (18.57 percent), groundnut (18.57 percent), beans (17.14 percent), cocoyam (8.57 percent), Irish potato (14.29) and cassava (8.57). A cause evaluation analysis was undertaken through a farmer participatory approach (with 150 questionnaires) and focus group discussion (Njanawa women's group, mbohnso maize producers, Rifem common initiative group, Mbohchari farmers group and Ngorin farmers group); with a 69.3 percent acceptance that socioeconomic and biophysical factors are responsible for food crop fluctuation.

**Corresponding author: E-mail: lukongchristian@yahoo.com;*

Keywords: Biophysical; socioeconomic; food crop production; yields.

1. INTRODUCTION

Food crop production is a major sector that produces food to sustain the rural population. The population of Mbiame has continued to increase thereby putting more pressure on food resources. Agriculture is the single and largest contributor to the wellbeing of the rural poor in Cameroon, sustaining 90 percent of the rural population needs [1]. Biophysical and socioeconomic factors are major determinants of food crop production output in Cameroon [2]. Cameroon's agro-ecological diversity hosts three main farming systems dominating most of the sub-Saharan African region. These are forest-based, tree-crop based and cereal-root crop-based farming systems [3]. Cameroon, therefore, has a range of 23 major crops, one of the greatest in Africa [4]. Most countries around the Sahel and Sudan-Sahel have only about 12 [3,4]. Nevertheless, all parts of the country do not necessarily provide suitable biophysical and socioeconomic conditions for the production of all crops being cultivated. The country's agriculture is rich and varied, but largely under-utilized. The major food crops are tubers (cassava, cocoyam, yam, Irish potato and sweet potato), plantain, cereals (rice, maize, sorghum and millet) and vegetables (beans, cowpeas, groundnuts and soya). Agriculture, apart from plantations, is generally intensive, based on subsistence with the surpluses sold in the markets to purchase other needs [5].

Food crop production is, by its very nature, a major user of natural resources, although in different ways and to different extents depending on farming system [6]. Climate is a major determinant in food crop production and Mbiame lies in the humid tropical belt with two distinct seasons: dry and rainy seasons, these two seasons greatly influence the type of food crop cultivated in this area such as maize, Irish potato, beans, soya beans among others. The rainy seasons runs from mid-March to late October which falls in line with the planting season while dry season continues from late October to Mid-March and support only few food crops like beans, soya beans, cassava and Irish potato [7]. Food crops have continued to perform below its potential due to determining factors like farmers level of education, land tenure systems, credit facilities, natural disasters, diseases and climate variability [8]. This is true in many parts of Africa in particular where, with some important exceptions, agricultural productivity has shown only little or no growth. Low rates of agricultural growth combined with high rates of population growth mean that many African countries have gone from being net food exporters to become net food importers.

A key observation of the 2009 International Assessment on Agricultural Science and Technology for Development (IAASTD) is that "agriculture operates within complex social, economic and environmental systems and so should be seen as multifunctional in its nature" [9]. Agriculture's multiple roles which encompass not only food production systems but also issues such as social organization, issues related to access to land, resources and local markets, the continuum between rural and urban environments, cultural identities and local and indigenous knowledge and sustainable tourism call for an integrated approach in analyzing causes of food crop fluctuation.

To meet the growing demand for food, biophysical and socioeconomic determinants need to become more productive and less wasteful [10]. They need to provide decent incomes for farmers, including the landless and waged agricultural workers, and create employment in the rural areas that respect labour standards. They must be more efficient and more sustainable, in terms of their use of, and effects on, the natural resource base. They need to be more resilient to shocks and changes, better able to withstand increased climatic shocks and rising temperatures. They have to reduce their levels of greenhouse gases emissions. They also have to provide other important ecosystem services, such as water provision, pollination, flood and disease control and maintenance of soil fertility [6,11].

The underlying problem of this study was on the basis that, food crop production in Mbiame has been decreasing and biophysical and socioeconomic environment ranging from climatic variability, soil infertility, pest and diseases, land ownership, use of outdated tools and inadequate credit facilities have been tag to the low output. As a result, the main objective was to make an analysis of socioeconomic and biophysical factors as determinants of food crop production.

2. MATERIALS AND METHODS

2.1 Tools of Data Collection and Analysis

Data was collected using primary and secondary sources. Primary data was obtained using field techniques such as direct observation, in-depth interviews with stakeholders, focused-group discussions and household questionnaires. The population of the study comprised the total population of Mbiame Sub Division, which stands at 51000 inhabitants, 13068 inhabitants in the urban area and 37,932 inhabitants in the rural area. The target population constituted mostly food crop producers who make up more than 80% of the rural population. Considering the ratio 1:250 inhabitants as the base, the sample size was calculated using the formula; Total rural population/Base (37,932/250 = 150). The sampling procedure used in this study was stratified random sampling technique in the sense that the population was first categorized according to the activities under consideration and from each category simple random sampling technique was applied to select the respondents. The 150 questionnaires were distributed as follows;

Generally, villages in Mbiame share a lot of common characteristics and share similar biophysical and socioeconomic problems as far as food crop production is concerned. This implies that the percentage interviewed may be small compared to the estimated farming population but the results reflect the entire village. Njanawa, Mbohnso, Rifem, and Mbochari had the highest number of questionnaires 25,20,23,17 respectively because of their high farming population. This is because they still have relatively fertile soils still attracting many farmers from other parts of the Division.

The first section of the questionnaire tackles the socioeconomic characteristics of the population involved in food crop production like sex distribution, age, marital status, level of education, occupation, type of agriculture practiced and farming experience relating these variables to food crop production. In Section two, the questionnaire seeks to identify the evolution of food crop production and the biophysical and socioeconomic factors affecting food crop production. The questions were both opened and closed-ended. We adopted the on-the-spot method to administer the questionnaires which gave a high respondent rate of 95 percent.

Also, five focus groups were organized such as Njanawa women's group, mbohnso maize producers, Rifem common initiative group, Mbohchari farmers group and Ngorin farmers group. Each group comprised of at least 10 persons involved in food crop production either directly or indirectly. These groups enabled us to understand how biophysical and socioeconomic factors have been affecting their production differently. The composition of the groups took into consideration gender issues.

Collected data from the field was analyzed qualitatively and quantitatively using descriptive and inferential statistical tools to ensure easy appreciation of the facts and figures. Linear regression was used to the correlation between biophysical parameters and socioeconomic factors as determinants of food production, tested at 0.5% level of significance (one-tailed test). ANOVA (analysis of variance) was also used to analyze the effect of biophysical and socioeconomic factors on the food crop production. The post hoc multivariate comparison test was used to compare the significant difference between two or more factors revealed by ANOVA. The questionnaires were analyzed using SPSS version 20 and graphs and charts generated in Micro Soft Excel. Finally, the results were subjected to inductive, quantitative and

Table 1. Questionnaire distributed by villages

Villages	Estimated farmers	Number of questionnaires	%
kovki	392	12	18
Njanawa	2000	25	37.5
Mbosong	753	15	22.5
Kovjoh	118	11	16.5
Lam	531	15	22.5
Mbohnso	1000	20	30
Ngorin	689	12	18
Rifem	2000	23	34.5
Mbochari	1050	17	25.5

qualitative judgments based on the data collected.

3. RESULTS PRESENTATION AND ANALYSIS

3.1 Socioeconomic Characteristics of Farmers

Results of the socioeconomic characteristics of the respondents are presented in Table 1. Sex distribution of food crops producers clearly showed that 81.1percent of the villagers who are into food crop production are females when compare to their male counterpart. The reason is because women are responsible for feeding the household and food crops are basically for consumption. Women's triple roles as food producers, income earners, and home managers make them indispensable in the drive towards food security [12]. Majority of those who are involved in food crop production are adults with a percentage of 31.3 and 24.7 for the old. The adults make up the majority because they are settled and active. They have already built their own families and need to produce food for family sustenance.

Married people dominate production with 53.33 percent because food crops are basically for consumption and those who are still single (26.67 percent) do not engage into it but instead focus on cash crop production that will give them cash for other adventures. In Kenya, [13] the same experienced was shared when looking at the influence of demographic characteristics on the adoption of improved potato varieties realized that 58 percent were married.

This is backed by the fact that because they obviously have children that need to be guaranteed food security. Food crop production is dominated by those who attended just primary education (50 percent) and no formal education (38 percent). In Namibia, a study carried on agricultural livelihood strategies components confirmed that 35 percent had no formal education [14]. Food crop production is in the hands of those who ended their education at primary level or no education at all. This was because they turn to agriculture since they cannot compete in other sectors that require former education though their knowledge has been enhanced through farmer field schools.

3.2 Food Crop Production Trends

For a better understanding of how biophysical and socioeconomic impact food crop production, an analysis of the past trends of production was diagnosed. It is important for the past trend of output to be established as to ascertain whether food crop production has been increasing, decreasing or has remained constant. Table 3 clearly depicts the trend of selected food crops.

Table 2. Characteristics of food crop producers

Variables	Food crop producers	Percentage
Sex		
Male	122	81.1
Female	28	18.3
Ages		
>10	11	6.6
21-30	25	16.6
31-40	37	24.5
41-50	49	31.1
51-60	27	17.9
Marital status		
Single	40	26.5
Married	80	53
Divorce	17	11.3
Widows	13	8.6
Level of Education		
No formal education	57	38
Primary school	75	50
Secondary/high school	10	6.7
Tertiary education	8	5.3

Table 3. Food crop production trends

Food crops	Decreasing	Increasing	Constant	Total
cassava	6(30.0%)	5(25.0%)	9(45.0%)	20(100%)
Irish potato	10(50.0%)	5(25.0%)	5(25.0%)	20(100%)
Cocoyam	6(30.0%)	4(20.0%)	10(50%)	20(100%)
Beans	12(54.5%)	10(45.5%)	0(0.0%)	22(100%)
Groundnut	13(56.5%)	4(17.4%)	6(26.1%)	23(100%)
Maize	13(52.0%)	10(40.0%)	2(8.0%)	25(100%)
Soya beans	10(50.0%)	6(30.0%)	4(20.0%)	20(100%)
Total	**70(46.7%)**	**44(29.3%)**	**36(24%)**	**150(100%)**

Looking at the cross table analysis above, it can be established with certainty that the general food crop production trend has been decreasing. Cassava production indicated that it has been decreasing by 30 percent as respondent admitted, 25 percent disagree that it has been increasing while 45 percent responded that the output has remained static for the past years. Irish potato does not differ a lot with cassava as 50 percent accepted that Irish potato has been decreasing while 25 percent and 25 percent stood for the fact it has been increasing or constant respectively. Cocoyam, Beans, Groundnut, maize and Soybeans corresponding to 54.5 percent, 56.5 percent, 52 percent, 50 percent respectively as farmers accepted that the food crops has been decreasing. The reason for this decrease in yields was attributed to biophysical and socioeconomic challenges faced by food crop producers. It is evident from Table 3 that some farmers are witnessing an increase in yields and this can be explained by the fact that they are lucky to be located in areas where soils are still fertile like farmers in Mbonso or fortunate to be financially viable.

3.3 Biophysical and Socio-economic Analysis

How food crop production progress in any given area or environment depends on the interaction of the biophysical and socioeconomic parameters such as soil forming factors like fauna and flora, natural disaster such as floods and strong winds, financial viability, land availability among others [10]. Given the hilly topography of the western highlands agro ecological zone which Bui Division is part, production is subject to extreme weather conditions (erosion, rainfall variations and winds).

Table 4, clearly indicates the various production determinants identified by the farmers as the reason behind yields. The highest rank problem is that of diminishing soil fertility and climate variability. Socioeconomic variables are equally bringing yields down ranging from credit facilities which are the highest rank by farmers as their main problem. This is because if they are financially viable, they can take care of other variables such as inputs, farm tools and land

Table 4. Biophysical and socio economic factors

Biophysical and socio economic parameters	Respondents			
	SA	A	D	SD
Soil fertility	53.3	6.7	6.7	33.3
Pest and diseases	53.3	26	20.0	0.0
Climate variability(drought and rainfall	73.3	6.7	13.3	6.7
Weed (unwanted grass)	53.3	20	13.3	13.3
Natural disasters	33.3	20	13.3	33.3
Land ownership	40.0	6.7	6.7	46.7
Inadequate inputs(seed, fertilizer, pesticides)	80.0	6.7	6.7	16.7
Outdated tools	40.0	6.7	46.7	6.7
Credit facilities	53.3	33.3	6.7	6.7
Poor road network	90.0	20.0	20.0	0.0
Total %	54.0	15.3	15.3	15.3

SA=strongly agreed, A=agreed, SD=strongly disagreed, D=disagreed

Table 5. Biophysical and socio economic factors multi compared

Biophysical factors	(J) factors	Mean difference (I-J)	Std. error	Sig.
Soil fertility	land ownership			
	Outdated tools	-.73333*	.21705	**.042**
		-.93333*	.21705	**.001**
Pest & diseases	land ownership	-1.13333*	.21705	**.000**
	Inadequate inputs	-1.06667*	.21705	**.000**
	Credit facilities	-.93333*	.21705	**.001**
Climate variability	land ownership	-1.40000*	.21705	**.000**
	Inadequate inputs	-1.33333*	.21705	**.000**
	Credit facilities	-1.20000*	.21705	**.000**
Weed(unwanted crops)	land ownership	-1.40000*	.21705	**.001**
	Inadequate inputs	-1.33333*	.21705	**.000**
	Credit facilities	-1.20000*	.21705	**.000**
	Poor road network	-.93333*	.21705	**.000**
Natural disaster	Inadequate inputs	-1.00000*	.21705	**.000**
	Credit facilities	-.86667*	.21705	**.005**
Socio economic(I)	**Biophysical(J)**			
Land ownership	Soil fertility	.73333*	.21705	**.042**
	Pest and diseases	1.13333*	.21705	**.000**
	Climate variability	1.40000*	.21705	**.000**
	Weed	1.40000*	.21705	**.000**
	Natural disasters	1.06667*	.21705	**.000**
Inadequate inputs	Pest and diseases	1.06667*	.21705	**.000**
	Climate variability	1.33333*	.21705	**.000**
	Weed	1.00000*	.21705	**.000**
	Natural disasters	1.33333*	.21705	**.000**
Outdated tools	Pest and diseases	1.33333*	.21705	**.000**
	Climate variability	1.60000*	.21705	**.000**
	Weed	1.26667*	.21705	**.000**
	Natural disasters	1.60000*	.21705	**.000**
Credit facilities	Pest and diseases	.86667*	.21705	**.001**
	Climate variability	1.20000*	.21705	**.000**
	Weed	1.20000*	.21705	**.005**
	Natural disaster	.93333*	.21705	**.000**
Poor road network	Climate variability	.93333*	.21705	**.001**
	Weed	.93333*	.21705	**.001**

**. The mean difference is significant at the 0.05 level.*
Post hoc multivariate comparison is test used when there is a significant difference between two or more samples revealed by ANOVA.

ownership. In Ethopia, socioeconomic, biological and physical parameter as major constraints to crop production when looking at characteristics of crop production and marketing [15].

From the above analysis, it shows that some of the factors when compared are significant while others are not. Soil fertility, when combined with pest and diseases, is not significant at 0.05 percent level. This is because the p-value is 1.000 which is greater than the 0.05 percent significant level with a mean difference of .40000 in decreasing yields which implies that food crop production is not hindered by these two factors when compared. It can be explained by the fact that if soils are fertile, they can counter the problem of pest and diseases.

Pest and diseases when combined with land ownership are significant at 0.05 percent level of

significance. This is because the p-value is 0.000 which is below the significant level. To this effect, food crop production is decreasing as a result of pest and diseases when combined with land ownership.

Climate variability, when combined with credit facilities, is significant at 0.05 pecent significant level. This is because of the p-value =0.000 (with a mean difference of -1.13333) which is below the error margin. To this effect, that food crop production is decreasing because of these two factors. If climate variability was counteracted by adequate credit facilities, this could not be a problem to food crop producers.

Natural disaster, when combined with soil infertility, is not significant at 0.05 percent significant level. This is because the p-value=1.000 (mean difference -.33333) which is above the level of significance. As a result, the decrease in food crop production is not as a result of natural disaster and soil infertility. This can be explained by the fact that these two factors act independently of each other.

Inadequate credit facilities when combined with weed (unwanted crop) are significant at 0.05 percent level. This is because the p-value=0.000 which is below the significant level. To this effect, decreasing food crop production is as result of inadequate finances and weed. If there is no capital, it is difficult to control weed since herbicides to suppress weed cannot be afforded and equally to hire labour.

4. DISCUSSION

Soil fertility is a great indicator of how successful food crop production can be realized [16]. In Mbiame soil fertility has been diminishing caused by annual bush fires which render the soil bare exposing it to both wind and water erosion during dry and rainy season respectively. From Table 4, 58 percent of respondent strongly agreed that decreasing yields is as a result of reducing soil fertility contrary to 33 percent who strongly disagreed that soils are still relatively fertile. These are respondents from Mbonso, Njanawa, Lip and Ngorin with a low lying topography where sediments containing nutrients are washed from hills and deposited. This soil infertility is cause by poor farming techniques especially the *Ankara system* widely adopted by food crop producers, water erosion especially in uphill farms and water logged areas in Njawana.

Pest and diseases have for the past years been a major problem for food crop producers as their crops are often attacked rendering them unproductive or resulting in low yields. Judging from the data analyzed on the Table 4, 53 percent, 26.7 percent, and 20 percent strongly agreed, agreed and disagreed respectively that pest and diseases have been affecting food crops. Common diseases here are weevils and stem borer (maize), rosette and *cercospora* leaf spot (groundnut) seedling blight, leaf blight, whiteflies, root rot and mosai virus (cassava), leaf spot (beans) potato Beatle, rodents and early blight (irish potato), black leaf blight and bacteria blight (soyabeans) and pythium, corm rot beetle (cocoyam). All these diseases and pest are responsible for reducing yields in Mbiame Sub division though not uniformly distributed that is why 20 percent did not witness a major problem from pest and diseases. In the South West region of Cameroon, yields have been hampered by adverse socioeconomic factors, several pests and diseases as well as high rainfall with low solar radiation [17]. Stem borers were present throughout the maize growing areas and ranked as one of the most important pests of the crop. Most farmers (82.1 percent) perceived that stem borers caused significant damage on maize and were responsible for yield reductions in the crop.

Climate variability, without doubt, is a major determinant of crops yields as crops depend solely on rainfall for its water provision. Climate variability and change (CVC) among small scale farmers is a major factor for the declining crops yields with 96.7 percent acceptance and poverty the principal cause of the vulnerability to climate variability and change with 98.3 percent acceptance [18]. There have been a lot of inconsistencies in the pattern of rainfall which often confuses farmers on when to prepare the land, prepare seeds and plant their crops. Following the past rainfall trends, rains normally come at mid-March which is the planting season but now either it comes early March or late March. These fluctuations cause crops to wilt or weeds to over shadow crops resulting in low yields. From Table 4, it can be seen that 80 percent of food crop producers admitted that climate variability is evident and causing problems to them.

The rate at which weed grows in farms surpasses food crops especially beans, groundnut and soya beans that take short heights making it another major hindrance to

crop growth and yields. Weed forms a habitat for pest and diseases that precipitate spoilage of food crops. When farms are prepared for food crop planting, weed, first of all, uses the nutrients that could be used by crops for growth before they even germinate. In Tanzania, weeds and parasitic weed, in particular, were among increasing problems facing food and income security among small holder farmers and crop production policies mainly focus on the control of (insect) pest and diseases with relatively little attention for weed prevention [19]. Given the rapid growth of weed, food crop production becomes labor intensive and exhaustive since farmers have to be on the farm every after one month to remove them. The general acceptance that weeds are a problem stood at 53 percent while 20 percent agreed and just 13 percent disagreed. The percentage that disagreed comprised those who are into cassava and cocoyam production since they grow above the weed and do not have to compete for water, space and sunlight.

Natural disasters are known to be the highest uncertain risk food crop producers always have to battle with. Strong winds often destroy crops especially maize, cocoyam and cassava when they are about attaining maturity.

At times ¾ of food crops are lost as a result of winds. Flood cannot be rule out when discussing food crops and natural disaster. Maize, soybeans, beans and groundnut are vulnerable to floods especially in the plains of mbonso, kovki and njanawa. The increased (observed and expected) frequency of natural disasters have negatively impacted agricultural production in Cameroon pushing non poor households into poverty and poor ones deeper into a vicious cycle of poverty [20]. The percentage of farmers who admitted floods and winds stood at 33 percent and 20 percent as they strongly agree and agreed respectively. Farmers with favorable topography and luck did not share the problem of floods and winds that is why 13.3 percent disagreed and 33 percent strongly disagreed.

The land tenure system in Mbiame takes two dimension as we have the traditional system where a large area of land is under the control of the Fon of Mbiame who gives out to his subjects when need be. Another tenure system is the inheritance system and under this system, land is distributed amongst members of family and as family increases land is equally fragmented into small portions which do not favor production. Land due to its immobile nature will always be a scarce resource. Land is a factor of food crop production meaning it's a major determinant of the food crops yields. Land acquisition in Mbiame is not yet a major hindrance in food crop production but still an issue to an extent. Looking at the statistics obtain from the field, the percentages stood at 40 percent, 6.7 percent, 6.7 percent, and 47 percent for strongly agreed, agreed ,disagreed and strongly disagreed respectively,40 percent and 6.7 percent still face problems of land meaning production is hampered by land issues. Land is an important factor of production to both men and women particularly in rural areas but land ownership and control has been a serious problem as women who are major producers of food crops are not allowed to own and control land due to prevailing customary practices [21].

Plate 1. Destruction of crops by wind storm

Farms input are very important given that what we put in like fertilizers, pesticides, herbicides, improved seeds and tools have a direct correlation to output. This is a major problem for farmers of food crops as the ability to afford these inputs is difficult given that their purchasing power is too low. In developing countries, households allocate financial resources to buying inputs after putting aside a minimum amount for household food, especially when there is a credit Constraint [22]. As such, some households exhaustively consume their harvest and are later constrained to buy inputs such as fertilizer. The price of fertilizers keeps increasing steadily and given the decreasing rate of soil fertility, yields are bound to reduce considerably. If food crops are not properly taken care of, they will be attacked by pest and diseases and given the difficulty to acquire pesticides, crop failure becomes inevitable. 80 percent of food crop producers strongly agreed that inadequate inputs are a realistic problem to them.

Traditional tools have proven laborious and less productive from time immemorial. The continuous use of tools like hoes, cutlasses, spades and oxen makes yields far more or less than the potential output. What a tractor does in two hours takes weeks to be done manually making it difficult for farmers to complete farm preparation on time. Looking at the opinion sample from the field, 40 percent strongly agreed the low yields associated with the use of outdated tools though 47.75 percent disagreed, blaming yields on other factors of production. Credit facilities affect food crop production in all facets it cut across from inputs to farm management till harvest. Inability to purchase farm inputs like seed, pesticides, farm tools, hire labor, transportation will make it difficult to enhance food crop production .why the poor farmers keep getting poor is simply because of the inability to put factors of production into effect. According to opinion sample from the field, 86 percent admitted not having access to finances as a major hindrance to food crop production. 6.7 percent disagreed and 6.7 percent strongly disagreed that credit facility was not their problem. Food crop production cannot see the light of the day if accessibility is not ensured. Road network in Mbiame is not commendable as having access to farms at certain months (late July, August and September) is difficult and this slows down attention given to crops and their related effects like pest and diseases attacking crops because of untimely attention and transporting inputs into the farm. When the opinions of farmers were sampled, 60 percent strongly agreed while 20 percent agreed meaning poor road network is a reality in Mbiame.

5. CONCLUSION AND RECOMMENDA-TIONS

The level of food crop production is determined by the ability of the farmers to optimize the determinants of food crop yields which falls within biophysical and socioeconomic parameters. In Bangladesh, [10] yields gaps are mainly caused by biological, socioeconomic, climate and institutional policies. Enhancing food crops implies that productivity should be maximized from the determining factors and this can be done by applying these various techniques improve seeds, inorganic fertilizers (replenish Nitrogen and Potassium contain the soil), use of compost manure and animal droppings at the input level. Equally the improvement on farming techniques such as conservative and soil sustainable methods like slashing and mulching, minimum tillage, direct seeding, agroforestry, cover cropping, intercropping and weed management with the interaction of socio economic variables. Achieving and attaining food security cannot be concluded without mentioning the indispensible efforts extension agents are putting in especially in capacity building and establishment of farmer field schools.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. MANU Ibrahim Nformi, BIME Mary-Juliet, FON Dorothy Engwali, Ajaga NJI. Effects of farmer-grazer conflicts on rural development: A socio-economic analysis in Cameroon. Scholarly Journal of Agricultural Science. 2014;4(3):113-120.
2. Yengoh GT, Brogaard S. Explaining low yields and low food production in Cameroon: A farmers' perspective. GeoJournal. 2013;9(3):279-295.
   Available:http://link.springer.com/article/10.1007/s10708-013-9493-y
3. De Graaff J, Kessler A, Nibbering JW. Agriculture and food security in selected countries in Sub-Saharan Africa: Diversity

in trends and opportunities. Food Security. 2011;3:195–213.

4. Westphal E, Embrechts J, Ferwerda J, van Gils-Meeus H, Mutsaers H, Westphal-Stevels J. Cultures vivrières tropicales: Avec référence spéciale au Cameroun. Wageningen: Pudoc; 1985.
5. Appraisal report grass field decentralised and participatory rural development project. Department of Agriculture and Rural Development West and Central Region. OCAR; 2003.
6. Tankou CM, De Snoo GR, Persoon G, de longh HH. Evaluation of smallholder farming systems in the Western Highlands of Cameroon, IOSR Journal of Engineering (IOSRJEN). 2017;07(01)V1:01-11.

   ISSN (e): 2250-3021,

   ISSN (p): 2278-8719.
7. Munang Tingem, Mike Rivington, Gianni Bellocchi, Sayed Azam-Ali, Jeremy Colls. Effects of climate change on crop production in Cameroon. 2008;36:65–77.
8. Stevenson J, Byerlee D, Villoria N, Kelley T, Maredia M. Agricultural technology, global land use and deforestation: A review. CGIAR; 2011.

   Available:http://impact.cgiar.org/sites/default/files/images/SPIAlandJune2011.pdf)
9. IAASTD. International assessment of agricultural knowledge, science and technology for development (IAASTD): global report. Washington, DC; 2009.
10. Mohammed H. Mondal. Causes of yield gaps and strategies for minimizing thegaps in different crops of Bangladesh, Bangladesh J. Agril. Res. 2011;36(3):469-476.
11. Yengoh GT. Determinants of yield differences in small-scale food crop farming systems in Cameroon. Agriculture & Food Security. 2012;1(1):19.
12. Gohen M. Men own the field, women own the crops; gender and power in Cameroon Grass field; 1996.
13. Isaac Mwaura Njuguna, Cathering Ng'endo Munyua, Susan Kamuru Makal. Influence of demographic characteristics on adoption of improved potato varieties by smallholder farmers in Mumberes Division, Baringocounty, Kenya. Journal of Agricultural Extension and Rural Development. 2015;7(4):114-121. DOI:10.5897/JAERD2014.0607.
14. Nyambe JM, Belete A. Analyzing the agricultural livelihood strategic components in the Zambezi Region, Namibia, Asian Journal of Agricultural Extension, Economics & Sociology. 2018;24(2):1-11. Article no.AJAEES.28619 ISSN: 2320-7027.
15. Bedada Begna, Messay Yami, Eshetu Lemma, Tesfaye Solomon and Tarekegn Etana. Characteristics of food crop production and marketing to improve food security in Arsi Zone, Ethiopia. Journal of Agricultural Extension and Rural Development. 2015;7(4):87-97.

   DOI:10.5897/JAERD2014.0586.
16. James M, Kombiok, Samuel Saaka J, Buah, Jean M Sogbedji. Enhancing soil fertility for cereal crop production through biological practices and the integration of organic and in-organic fertilizers in Northern Savanna Zone of Ghana; 2012.
17. Esther Obi Oben, Nelson Neba Ntonifor, Sevilor Kekeunou, Martin Nkwa Abbeytakor. Farmers knowledge and perception on maize stem borers and their indigenous control methods in south western region of Cameroon. Journal of Ethnobiology and Ethnomedicine; 2015.

   DOI: 10.1186/s13002-015-0061-z
18. Nyong P. Awazi Martin N. Tchamba. Determinants of small-scale farmers' adaptation decision to climate variability and change in the Northwest region of Cameroon. African Journal of Agricultural Research. 2018;13(12):534-543.

   DOI: 10.5897/AJAR2018.12971
19. Marc Schut, Jonne Rodenburg, Laurens Klerkx, Juma Kayeke, Aad van Ast, Lammert Bastiaans. RAAIS: Rapid appraisal of agricultural innovation systems (Part II). Integrated analysis of parasitic weed problems in rice in Tanzania, journal homepage; 2015.

   Available:www.elsevier.com/locate/agsy
20. Roland Azibo Balgah, Gertrud Buchenrieder. The impacts of natural disasters on smallholder Agriculture in Rural Cameroon, American Journal of Experimental Agriculture. 2014;4(3):233-243.
21. Lortman Fonjong. Women's resistance to gender discriminatory practices in land ownership in Anglophone Cameroon,

University of Buea Journal of Applied Social Sciences. 2015;10(1):147-149.

22. Nounamo L, Yemefack M. 2001. Farming systems in the evergreen forest of southern Cameroon: shifting cultivation and soil degradation. The Tropenbos-Cameroon Programme,Kribi. Tropenbos-Cameroon Documents 8, xii + 62 pp.; 12 fig.; 29 tab.; 48 ref; 6 Annexes.

Peer-review history:
The peer review history for this paper can be accessed here:
http://www.sciencedomain.org/review-history/25112