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ORIGINAL ARTICLE

Farmers Empowerment: Drivers and Challenges among Smallholder Farmers in Mezam Division, Cameroon

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ABSTRACT
This study is captured: Farmers Empowerment: Drivers and Challenges among smallholder farmers in Mezam Division, Cameroon. The objectives targeted are: to identify and discuss the drivers and constraints associated with farmer's empowerment in Mezam Division, Cameroon and to decompose the factors into gender of household head. Methodologically, the study employed primary data collected among 361 farmers using a well-structured questionnaire. The Cobb Douglas production function is used to estimate the result. In overall, farm experience, rich farmer's financial status, acquisition of modern equipment, urban resident, age of farmers, land tenure system, household size and farm records are observed to be significantly influencing farmer's empowerment in Mezam Division. Meanwhile rich farmer's status, size of farm land, acquisition of modern equipment, farm records and household size are corroborating with the empowerment of male farmers and rich farmer's status, acquisition of modern agricultural equipment and household size are positively influencing the empowerment of female farmers. The challenges faced by farmers in the acquisition of empowerment in Mezam are observed to be: training cost, access to trainers, source of training program, time constraint, application of training techniques, interest of farmers and ignorance. The study suggest that the decision makers should consider the collective farmers characteristics when planning for farmers empowerment. This is an important step towards farm efficiency and poverty alleviation.

Keywords: *Farmers Empowerment, Drivers, smallholder farmers, Mezam Division, Cameroon*

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INTRODUCTION

Issues related to empowerment are at the top of policy agenda in the world today. The place of empowerment in research is gradually spreading across the continents of the world as confirmed by the Sustainable Development Goals (SDGs) number 2 and 5 of the United Nations Organization (UNO) which emphasizes on eradicating hunger, achieve food security, improved nutrition and promote sustainable agriculture (SDG2) as well as to empower men and women for poverty reduction (SDG5) (FAO, 2012). It is evident therefore that empowerment and agricultural production is of great importance in most development programs across the world today (FAO, 2012). Empowerment permits rural farmers especially those practicing mixed cropping to fully develop or increase their capacities and knowledge on the use of modern tools of cultivating products. It shows how vital it is to invest in quality improvement of existing products, how to develop new products, establish market linkages, and build farmer organization and capacity (World Bank, 2011). Nowadays, it is possible for every farmer to augment production and live above the poverty line due to empowerment (Friis-Hansen, 2001; Ado, 2017).

Empowering rural farmers rarely focus on farming, but rather on what can be done for farmers to be self-sufficient. Empowering poor or marginalized farmers make them feel integrated into the society and their participation in the group, increases confidence and self-esteem thus, improving the living conditions of these farmers (Carr and Rollin, 2016). Profoundly, empowerment goes beyond skills training but rather its built on capacity building since, there is an opening up of new options that were not even thought possible before. Capacity-building is needed to empower farmers so as to avoid clientelism and political interference, which is a common challenge for all state-sponsored programs (Fernandez 2006; Carr and Rollin, 2016).

Empowerment has gone a long way to influence agricultural production. Each time the farmers, get into specialization of farm products, it builds them to be demand driven. For effective agricultural production to take place, the farmers needs to be empowered, this empowerment must be a tool through which farmer's livelihoods should be improved (Carr and Rollin, 2016). To reach these, the objective of empowerment must be linked to other objectives of poverty reduction, the inclusion of marginalized groups in decision-making affecting their collective and individual well-beings. As a problem, research on empowerment and it linkages is still young, especially in relation to agricultural production (Sullivan, 2017; Carr and Rollin, 2016). This may perhaps be due to the fact that appropriate indicators and the mechanism linking empowerment to agricultural production are yet to be identified. Empowerment is therefore highly needed in the economy of every nation and especially in Cameroon which has recently been unstable in its economic performance.

Moreover, what puffers our imagination from the look of things is that despite the numerous major projects taken by the Cameroon government to augment empowerment such as:(1) the Integrated Support Project to Stakeholders of the Informal Sector aimed at ensuring better supervision of youths operating in the informal sector and maximize the creation of productive, stable and decent jobs. (2) The Support Programme to Rural and Urban Youth aimed at promoting the socio-economic insertion of Cameroon youth through social mobilization, training and giving of financial support to enable them to become veritable actors of development. (3) the Development of Agricultural Value Chains financed by the African Development Bank aim at ensuring food security in the sectors of plantain, oil palm and pineapples; by means of financial and technical support farmers' organizations

and other youth interested in agribusiness. (4) platform for agricultural risk management, (5) Agricultural competitiveness project aimed to cater for the challenges related to production, marketing and macro-level risk as well as increase farmers income and boost production yields and (6) Youth connekt meant to inspire, create employment via (empowerment) connecting tfarmers'g to various socio-economic and political opportunities in a bid to optimize their empowerment and full participation in the development of the nation (Mbonteh, 2017; Fonkam, 2018). Despite all the numerous empowerment programs listed above the rate of insertion into agriculture is still relatively low and thus a call for concern. From these problematic issues, the objectives of this study arise: to identify and discuss the drivers and constraints associated with farmer's empowerment in Mezam Division and to decompose these factors into gender of household head.

Empirical literature related to factors fueling farmers empowerment have been discussed in different ways and varying results obtained. Among these, is the work of Aliya and Nasra (2015) who attempted to assess the socio-economic determinants of empowerment in Pakistan. They use a sample of 200 farmer's respondents from two renowned districts in Lahore. The sampling procedure was based on convenience and it was revealed that, the content of education, economic participation of farmers, poverty, cultural and social issues as well as economic opportunity available for farmers increases their empowerment. They further highlighted that farmers with bank account has a significant positive impact on empowering farmers thus increases their power. They asserted equally that, the empowerment of farmers is significantly influenced by these factors thus; they strongly recommended that any further studies to increase and enhance the role of farmers in the society should be focus on these determinants.

Mulyaningsih and Sumantri (2019) studied Empowerment of farmers in increasing production of environmentally friendly soybean plants. The study was aimed at analyzing the
empowerment of soybean farmers in Pandeglang Regency since the plant is one of the food commodities needed as a food supplement and it is rich in vegetable protein, carbohydrates and fats. The sample population was soybean farmers and comprises of 150 targeted farmers. They use descriptive and inferencial statistics for data collection and the Mann Withney Test was use to analyze the data. The result showed that, there were significant differences in the empowerment of farmers in Pandeglang District, where the empowerment of soybean farmers in Carita District was lower than that of Soybean Farmers in Panimbang District.

Alessandra et al (2017) carried out a comprehensive analyses on farmers' empowerment through seed improvement and seed governance: evidence from participatory barley breeding in pre-war Syria" by linking the empowerment of men and women, seed improvement through Participatory Breeding and seed governance via household food security. They use indicators of changes in empowerment to assess the effects of empowerment of the farmers, through intensive dialogue with the respondents such as (i) recognition of gender base farmers, (ii) access to and control of productive resources like seed and information, (iii) access to opportunities and (iv) decision making. They further explore changes in these indicators with the respondent farmers through a number of exercises that included joint analysis of data on family structures and activity charts, semi-structured interviews, the sustainable livelihood framework and matrix analysis. An overview of seed governance at international and national level was obtained through desk research, and also by eight key informant interviews with plant breeders, extension agents in the field, local government officials and a member of FAO that were carried out throughout. Esha et al (2014) poxit on gender Empowerment in Agriculture in Bangladesh

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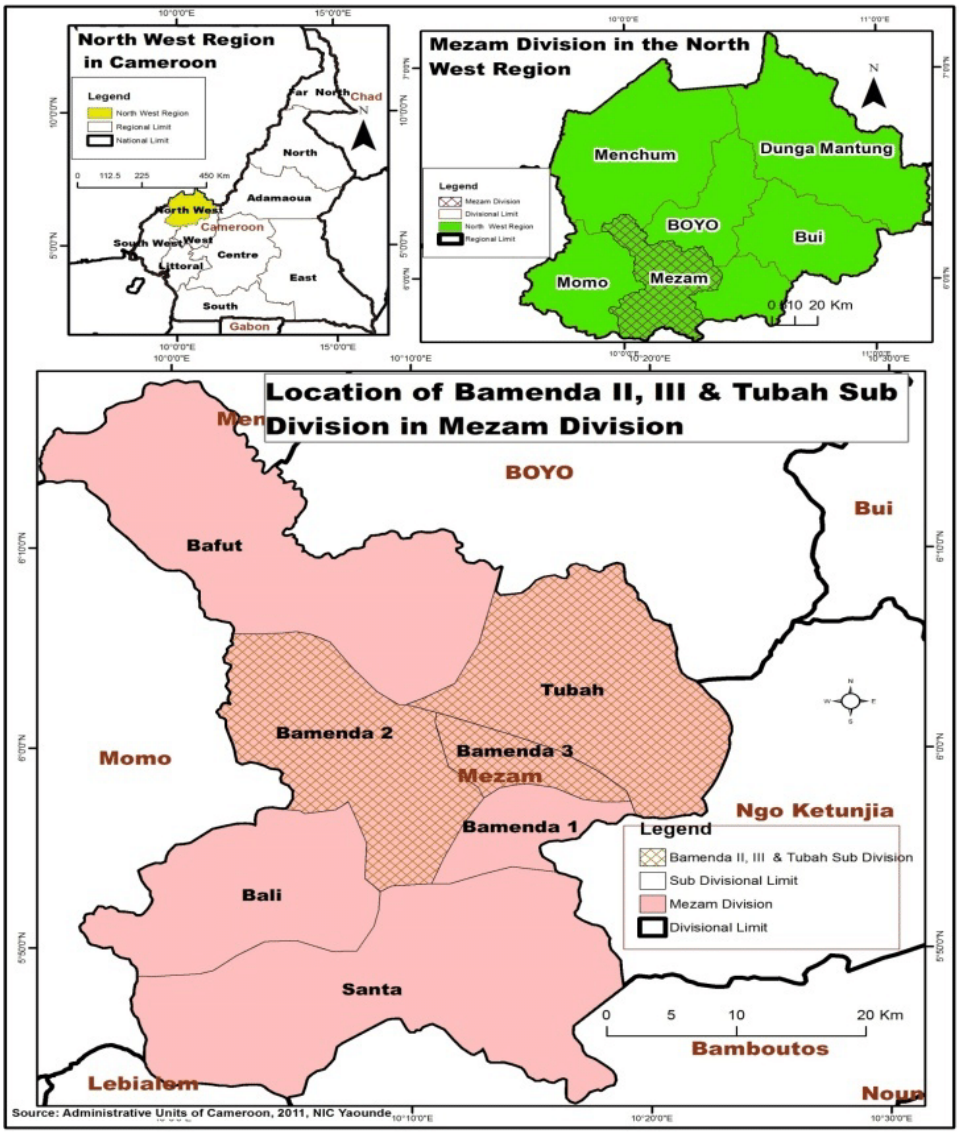
Using a nationally representative survey from Bangladesh, by examining the relationship between farmers' empowerment in agriculture, measured using the Empowerment in Agriculture Index, and per capita calorie availability, dietary diversity, and adult body mass index (BMI).

METHOD

The study will be conducted in Mezam Division of the North West Region. Mezam Division is located between latitudes 5°40' and 7°50'North and longitudes 9°80' and 11°51' east of the Greenwish Meridian (World Bank, 2016); with a total surface area of 1,841.45 km2 with a total population of 524,127 inhabitants as per 2017 census. Mezam is blessed with fertile soil, abundant rainfall and suitable climate for food production. Nonetheless, it is still a net food importer and has not yet achieved a food trade balance surplus. Therefore, the agricultural population is estimated at 258,467 inhabitants representing 43.07% of farm families (MINEFI, 2021).



Map of the North West Region showing Mezam Division.
Source: World Research Institute, 2019

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Empirical Specification

The econometric model adopted for this study applied the framework as proposed by Xuan and Rasmussen (2005). Thus in determining the drivers of farmer's empowerment, we make use of a Cobb Douglas production function as presented in the model below:

$$EMP_i = \sigma + \beta_i X_i + \varepsilon \quad \text{..........} (1)$$

The EMP_i is farmers' empowerment, σ is the constant term, X_1 is the exogenous characteristics influencing empowerment. If one incorporate the individual demographics (family size, family income, Experience, farm size, household income, Marital status, Socio-economic status, distance to market, transportation cost,..,) into equation 1, the equation can be transformed to a functional form express as:

$$EMP_i = f(X_1, X_2, X_3, X_4, X_5, X_6, ..., X_n) \quad \text{..........} (2)$$

Where: EMP_i is farmers empowerment, X_1 is family size, X_2 is family income, X_3 is Experience, X_4 is farm size, X_5 is household income, X_6 is Marital status, X_n is other factors influencing empowerment (Socio-economic status, distance to market, transportation cost,...,) and $f()$ is a production function. However, empowerment includes a number of related variables as it is multidimensional concept, which can be used to create an empowerment index for the farmers. These variables include: formal education, professional/technical education, post of responsibility in a professional association, assistance from family, assistance from friends and associates, assistance from religious association, assistance from solidarity association, has a savings account and shareholder. In order to measure the farmer's empowerment level, these different variables had to be aggregated into one measurement unit/index. We used the following method for aggregating output data based on their contribution-values. $EMP_i = \sum_{i=1}^{n} W_{ik} X_{ik}$

Where: W_{ik} is the actual contribution of ith-variable (factor) for k farmer empowerment and Z_{ik} is the quantity of the total number of k farmers empowered in the Mezam division on the basis of our study for the ith factor. The index k is a product index, including all the farmers/agripreneurs who received: formal education, professional education, responsibility in a professional association, assistance from family, assistance from friends and associates, assistance from religious association, assistance from solidarity association, has a savings account and shareholder. This method of aggregating is simple and easy to apply, because the quantity of the different categories of variables used and their respected contributions are collected. In case any contributing variable has a different unit of measurement (which may not be the case as our collected variables are qualitative in nature with two outcomes) this may be converted into the following formula: $X_{1i} = \frac{\sum_{k=1}^{n} W_k X_{ik}}{W_b}$ Where: X_{1i} is number of variables raised on the ith-farmer and W_k is average value of the k'th-category of the different unit of measurement (formal education, professional education, responsibility in a professional association, assistance from family and other), X_{ik} is number of persons in category k on farm i and W_b is average value of variable. Doing this, we assumed that all the variables use to compute our empower indicator have the same unit of measurement.

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In specifying the function, a Cobb-Douglas function is chosen as the functional form of the production function (Xuan and Rasmussen, 2005). The reason for choosing this type of production function is that it is linear in its logarithmic form, and therefore easy to estimate by using ordinary least squares estimation technique (OLS). At the same time, this function type has been widely used for production function analysis by many authors (Seyoum et al., 1998). The function has the
following form.

$$EMP_i = aX_{1i}^{\beta_1} X_{2i}^{\beta_2} X_{3i}^{\beta_3} X_{4i}^{\beta_4} X_{5i}^{\beta_5} X_{6i}^{\beta_6} \exp(e_i) \quad \text{.....(3)}$$

Where: $a, \beta_1, ..., \beta_n$ are parameters to be estimated and e_i is an error term. Prior to the model estimation, the variables will be examined for multi-co-linearity. Taking logarithms on both sides, we get:

$$\ln EMP_1 = \delta + \ln(a) + \beta_1^* \ln X_{1i} + \beta_2 \ln X_{2i} + ... + \beta_n \ln X_n + e_i \quad \text{..... (4)}$$

The parameters $\beta_1^*, \beta_2, \beta_3, ..., \beta_n$ will be estimated using Ordinary Least Squares analysis (OLS). Here, the value of β_1 will be estimated as: $\hat{\beta}_1 = \hat{\beta}_1^* - \hat{\beta}_2 - \hat{\beta}_4$ where $\hat{\beta}_1$ is the estimated value of β_1 and $\hat{\beta}$ on the other variables refer to estimated values. All estimations will be performed using the procedure reg in STATA 14.0. The estimated parameters are shown in chapter four of the result section. The parameters $\beta_1^*, \beta_2, \beta_3, ..., \beta_n$ are the parameter estimates of the empowerment function in the Mezam division.

Data setting and the Computation of Empowerment Synthetic Variable

Basing on the data, the data for this study will be collected through a detailed structured questionnaire which will be administered to 361 smallholder farmers of the Mezam division cultivating different types of crops. The questionnaire will be administered by myself and with the help of some trusted classmates in the University of Bamenda under strict personal coordination. Field visits to the five sub divisions of Mezam will be organized every morning and evening to meet the farmers in their homes and at churches as well as the market and some specific street corners. In this process, we will collect quantitative data that will be analyzed in Microsoft SPSS and STATA 14.0 software. We will equally collect some qualitative data that will be interpreted directly to permit we achieve robust results.

In constructing the empowerment index, given that empowerment is the expansion in people's ability to make strategic life choices in a context where this ability was previously denied to them, has implications on the agricultural production of households can-not be collected as a single variable in our sample survey, hence it is important for an indicator of this variable to be constructed (Epo and Baye, 2011). Thus, particular to this study, we shall construct an empowerment index which has great merits as compare to using an already constructed index (Sahn and Stifel, 2003) this is clearly demonstrated in the next section of this chapter. Further, to construct an index is suitable to our context as have been demonstrated by the World Bank researchers since 1998 (Filmer and Pritchett, 1999). To avoid negative values on our constructed index, we shall normalize the index so that the values of the index are scale to a [0, 1] range. To do this, we use the normalization indicator through the application of the formula: normal_indicator = (indicator-r(min))/(r(max)-

r(min)). The application of this command in STATA 13.0 normalizes the value of our empowerment index directly.

The empowerment index used in this study has been constructed for the purposed of this study. This index will be constructed using the Multiple Correspondence Analysis (MCA). The Multiple Correspondence Analysis approach have been popularized in the field of multidimensional poverty analysis and in current literature MCA is applied in the analysis of multidimensional welfare (agricultural production) (Epo and Baye, 2011; Asselin, 2005). Technically, MCA is obtained by using the standard correspondence analysis on an indicator matrix by selecting the synthetic variable as well as its different modalities comprising the variable. In our case, we used the Multiple Correspondence Analysis to construct the composite index for farmer's empowerment index. It should be noted that in this case, the modalities used to construct the synthetic variable respect the fundamental requirements as outlined in Asselin and Tuan (2005). The modalities or indicators use have an ordinal ordering consistent with their contributions in the first factorial axis as stated in the existing literature (Asselin and Tuan, 2005; Moses, 1998). Regarding our synthetic variable - farmers' empowerment, we choose 09 indicators (variables) with each having two modalities and place them in an increasing ordinal order. The variables selected for our empowerment indicator are as follows:

Table 1. Variables use to construct the Empowerment indicator

Variable	Modality		Nature
Received formal education	Yes	No	Dummy
Received professional/technical education	Yes	No	Dummy
Has a post of responsibility in a professional association	Yes	No	Dummy
Receives assistance from family	Yes	No	Dummy
Receives assistance from friends and associates	Yes	No	Dummy
Receives assistance from religious association	Yes	No	Dummy
Receives assistance from solidarity association	Yes	No	Dummy
Has a savings account	Yes	No	Dummy
Shareholder	Yes	No	Dummy

Source: Author, *N/B: designed for the purpose of creating empowerment indicator*

From these variables, our indicator will be computed using the MCA and it's the constructed index that we will used in this study to estimate the contribution of empowerment on agricultural production. The detail of this indicator is summaries in the descriptive statistic table as shown in chapter four of this study.

RESULTS AND DISCUSSION

Characteristics of Sampled Empowered Farmers

Figure 1 reveals that among the sampled population, 42.9 percent of the farmers actually received professional training in agriculture. This type of training is common to farmers who went to agricultural professional institutions such as College of Technology, Faculty of Agronomy and Agricultural Sciences and their regional centers. Most of the farmers, may equally have been trained by research institute and specialized organizations such the Agricultural Research Institute for Development, the Cameroon Development Corporation, North West Development Mission and Ministry of Agriculture and Rural Development. Notwithstanding, a greater number of the sampled population 76.70% attained formal education which gave the smallholder farmers basic knowledge in agriculture thereby explaining the low rate of illiteracy (8%) among farmers and methods of farming technics. This is in line with Palanivelu and Madhupriya (2013) observed that value

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chain, high-tech agriculture, global marketing, and organic farming have led to improved performance of the farmers and enhanced human resource development initiative.

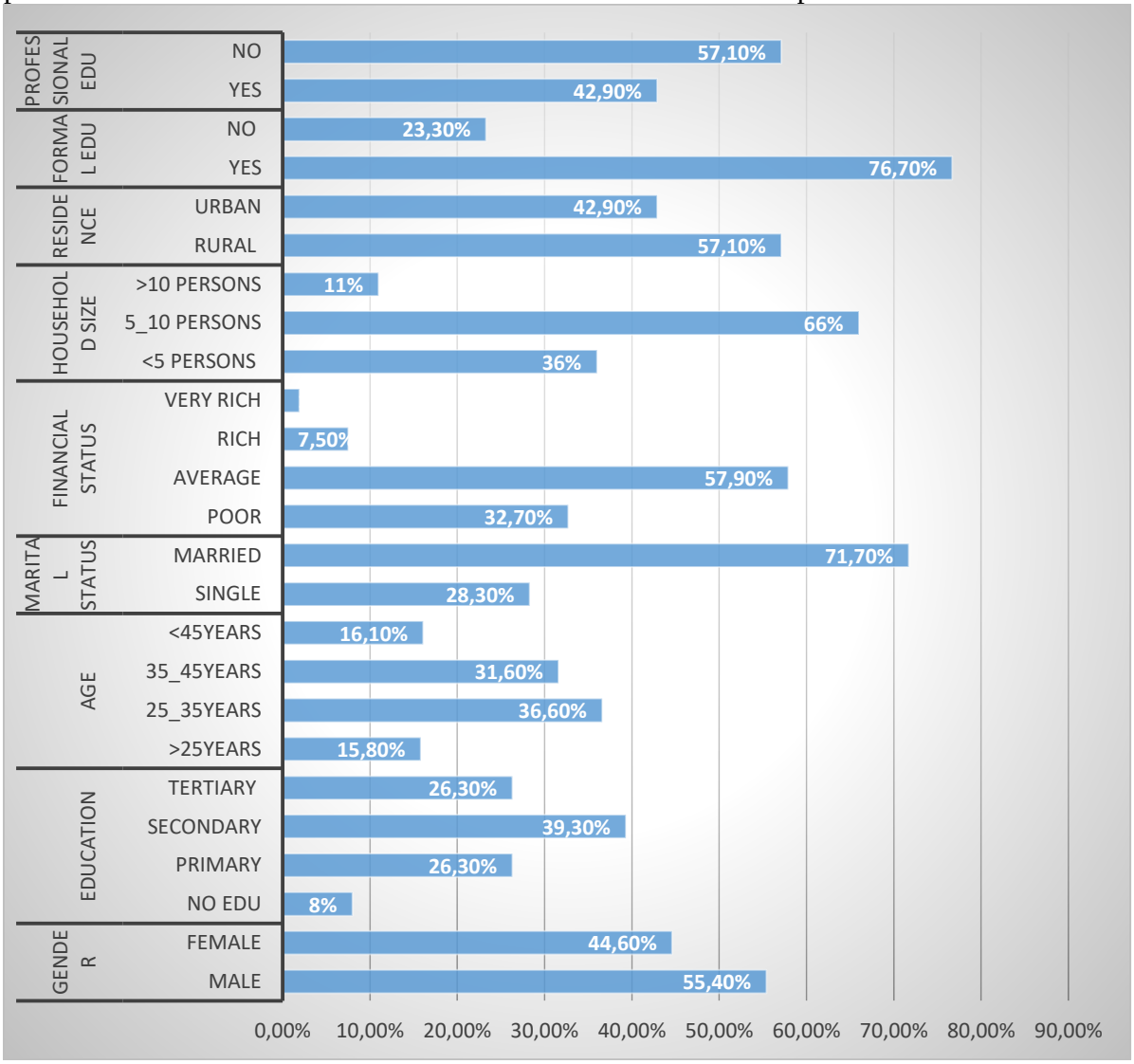

Figure 2. Demographic Characteristics of Respondents

All these structures have facilitated the training of smallholder farmers in both rural and urban centers in the Mezam subdivision. Despite all these, a greater portion of the farmers as per our observation, did not receive any professional training (57.10%). This might be due to low educational level of some of the farmers. As observe in figure 2, the level of professional education of the smallholder farmers is such that: no education (8%), primary education (26.30%), secondary education (39.30%), and tertiary education (26.30%). On like in time past, where most farmers are uneducated, the agricultural sector has been revamp coupled with unemployment to include both the educated and the uneducated. It is also worth noting that, agriculture is a highly rewarding and most diverse industry in Cameroon. This has change the mentality of the educated and increase the number of employers in the sector. This observation is consistent with the views of Uche and Familusi (2018); Ado (2017) and World Bank (2011) who posit that agriculture as an

enterprise is going through transition globally as it is assuming new shape and scope for the population.

Due to population pressure more land is located in the rural areas than the urban centers thus, 57.10% of the respondents settled in the rural areas as compared to their urban counterpart with a 42.90%. This can also be due to the fact that, most rural dwellers hold on agriculture as their main occupational stream since it is where their lively hood depends on. From our findings, it is revealed that, 36.60% of the respondents were between 25-35 years of age, 31.60% were between 35-45 years, 15.80% were 25 years or less and 16.10% were 45 years or more of age. From our observation, about 68.2% of the respondents fell within the age bracket of between 25-45 years. The gender based respondents was such that, male respondent was 55.40% as compare to the female respondents of 44.60% and this can be explained as a result of the fact that the men were open and available to be interviewed. By this 71.70% of the farmers interviewed were married couples while 28.30% were still single. The elevated percentage is due to the fact that, land is mostly owned by married people who intend cultivate and sell the produce to sponsor their children to reduce the rate of illiteracy in the community. The low percentage of the single respondent in our zone of study ties with the result of Mbangari et al (2020) who highlighted the fact that in Mezam, most of the singles do not have responsibilities and access to land for farming.

The results also reveals that, a majority of the respondents 66% have a medium household size between 5-10 persons and this number serves as a source of labor in their farms, 36% registered small household size of 5 persons or less and for those with large household size with 10 or more persons have 11%. Despite this disparity in the household size, most of the farmers' financial statue was average rich 57.90%, rich 7.5%, very rich 1.90% and poor 32.7%. From our findings we realize that the large household sizes are mostly characterized with poverty because of the many mouths to feed with little or no available resources. And also, most of the farmers in this category are mainly subsistence farmers thus the flow of income apparently becomes difficult.

Synopsis of Farmer's Empowerment Indicator

In order to construct the farmers empowerment index, we use the multiple correspondence analysis (MCA) method given that, the empowerment of farmers is a multifaceted domain, it was therefore constructed using eleven different modalities such as; whether farmers received formal education, received professional/technical education, is a shareholder in a financial institution, receives assistance from family members, have a post of responsibility in a professional association, receives assistance from solidarity association, receives assistance from friends and associates, receives assistance from religious group, have a savings account and access to purchase farm input resulting in eleven dimensions. These observations were reduced to one by the MCA method as seen in Table 2. From our observation, we realise that, all the variables contributed to the first dimension, with formal education contributing about 4.3% to the total inertia, shareholder in a financial institution contributed 2.8%, while receives assistance from family members, belonging to a professional association, have a post of responsibility in a professional association, receives assistance from solidarity association, receives assistance from friends and associates, receives assistance from religious group, have a savings account and access to purchase farm input contributed 6.5%, 5.9%, 1.8%, 3.1%, 6.2%, 3.9%, 6.4% and 7.5% respectively.

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Table 2. Synopsis of Farmers Empowerment Indicator

Categories	Overall			dimension_1			dimension_2		
	mass	quality	%inert	coord	sqcorr	Contrib	coord	sqcorr	Contrib
Had received Formal Education									
Yes	0.043	0.967	0.028	0.909	0.967	0.035	0.010	0.000	0.000
No	0.057	0.967	0.021	-0.684	0.967	0.027	-0.008	0.000	0.000
Shareholder in a financial Institution									
Yes	0.028	0.775	0.080	1.455	0.557	0.059	2.432	0.218	0.166
No	0.072	0.775	0.031	-0.565	0.557	0.023	-0.945	0.218	0.064
Received assistance from family									
Yes	0.065	0.723	0.024	-0.323	0.213	0.007	-1.334	0.510	0.115
No	0.035	0.723	0.043	0.588	0.213	0.012	2.429	0.510	0.209
Belonging to a professional association									
Yes	0.059	0.920	0.042	0.934	0.915	0.051	-0.186	0.005	0.002
No	0.041	0.920	0.061	-1.344	0.915	-1.344	0.268	0.005	0.003
Have a post of responsibility in a professional association									
Yes	0.018	0.943	0.065	2.107	0.934	0.081	0.577	0.010	0.006
No	0.082	0.943	0.015	-0.471	0.934	0.018	-0.129	0.010	0.001
Received assistance from solidarity association									
Yes	0.031	0.905	0.078	1.732	0.897	0.094	-0.415	0.007	0.005
No	0.069	0.905	0.036	-0.789	0.897	0.043	0.189	0.007	0.002
Received assistance from friends and associates									
Yes	0.062	0.757	0.022	0.341	0.250	0.007	-1.297	0.507	0.105
No	0.038	0.757	0.036	-0.565	0.250	0.012	2.146	0.507	0.174
Received assistance from religious group									
Yes	0.039	0.868	0.045	1.005	0.664	0.040	-1.488	0.204	0.087
No	0.061	0.868	0.029	-0.651	0.664	0.026	0.965	0.204	0.057
Have a saving account in a financial institution									
Yes	0.064	0.845	0.071	1.119	0.845	0.080	0.039	0.000	0.000
No	0.036	0.845	0.129	-2.013	0.845	0.145	-0.071	0.000	0.000
Access to purchase farm input									
Yes	0.075	0.855	0.036	0.735	0.852	0.041	-0.106	0.002	0.001
No	0.025	0.855	0.110	-2.247	0.852	0.124	0.323	0.002	0.003
Total inertia:		0.04244096							
Number of axes:		2							
Number of obs:		361							

Source: Author

Our findings revealed that, most of the dimensions have significantly contributed to the total inertia. This may be due to the fact that, empowerment is a domain whereby no single factor plays a major role it's a combination of observations that help to increase the skills, abilities and knowledge of farmers permitting them to take part in marketing decisions.

Drivers of Farmers Empowerment and by Gender of Farmers

Overall Estimate of Drivers of Farmers Empowerment

In other to achieve the objective of the drivers of farmers' empowerment in Mezam, The Cobb-Douglas production function via weighted OLS model was conducted to estimate the correlates of empowerment as shown in Table 3. As per the results, it is revealed that the model specified is reliable. This is explained by the F-Statistics, showing that the explanatory

variables are globally significant in determining farmers' empowerment and this is significant at 5% level of significance thus implying that the result is 95% correct. Equally, R^2 reveals that 74.62% of variation in farmers' empowerment is being explained by the independent variables specified in our model**.**

Based on the above results, we observe that the age of farmers, has a negative influence or contribution to farmers empowerment. This is proven by a 27% reduction of farmers' empowerment statistically implying a 10% level of significance thus revealing that the result is 90% correct. This can be explained as the result of the fact that, most of the farmers who were available for trainings were the old and younger farmers; the middle range who are more energetic and vibrant have abandon farming for white collar jobs. In this regard, age is negatively associated with farmer's empowerment. This is inconsistent to prior study of a positive relationship or association. This result is inconsistent with the findings of Abdul-Hakim and Che-Mat (2011) and Akudugu (2012) who found age to be significant and positively related to farmer's empowerment in an agricultural activity.

With regard to household size, the findings reveal that an increase in the household size by one person increases farmer's empowerment by 34%, statistically significant at 5% level of significance. The bigger the family size, the more the family heads disseminate training ideas to the members who act as cheap labour to their farms and thus producing at mass. However, a larger household size is a reflection of a greater variety in food production and consumption patterns as a result of having more people living in the household. Also since there has been a lot of rural urban migration into the city centre especially in our zone of interest, household have become crowed with external relations and thus supplying the necessary man power needed for farming activities. The result is in line with Novarty (2005) in that larger household demands farmers, most especially the married to be involve in other business activities so as to provide for the needs to their families.

Table 3. Drivers of Farmers Empowerment and by Gender of Farmers

Variable	Overall	Gender of Farmer	
		Male	Female
	Farmers Empowerment		
Experience in farming (1= <5 years, 0 otherwise)	0.2055*	0.0743	0.3053*
	(1.76)	(0.45)	(1.74)
Farmer's financial status (1= rich)	0.5181***	0.4613*	0.6222**
	(2.67)	(1.68)	(2.13)
Acquisition of modern agricultural equipment (1= yes, 0 otherwise)	0.4249*** (4.15)	0.4313***	0.4231**
		(3.06)	(2.54)
Farmer place of residence (1= Urban)	0.2233**	-.0536	0.4316***
	(2.16)	(0.38)	(2.69)
Age of Farmers (1= >45 years)	-0.2747*	-.3433*-(1.76)	-0.2303
	(1.84)		(0.91)
Size of farm land (1= >5 hectares)	0.5737**	0.8569**	0.4375
	(2.22)	(2.18)	(1.21)
Land tenure system (1= ownership, 0 otherwise)	0.1811*	0.2188*	0.1793*
	(1.74)	(1.68)	(1.65)
Production for marketing (1 = yes, 0 otherwise)	0.0392	0.0237	.1028
	(0.32)	(0.14)	(0.54)
Place of sales of produce (1= Market)	0.0496	0.0096	0.1021
	(0.48)	(0.07)	(0.61)
Household Size (1= >10 persons)	0.3393**	0.4541**	0.2089*
	(2.03)	(1.99)	(1.78)
Keeping of farm records (1 = Yes, O otherwise)	-0.2881**	0.3357**	0.2536
	(2.55)	(2.24)	(1.39)

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Variable	Overall	Gender of Farmer	
		Male	Female
	Farmers Empowerment		
Constant	0.4099** (2.41)	0.3847* (1.66)	0.4370* (1.67)
R-squared	0.7462	0.1304	0.1936
F-Statistics	15.43 [11, 349; 0.0000]	12.56[11, 188]	13.25[11, 149]
Total Observation	**361**	**200**	**161**

Source: Author, N/B: Notes: ***, ** and * indicate 1%, 5% and 10% levels of significance, estimates in parentheses represent robust T statistics

Similarly, the findings show that farmers' living in the urban area tends to increases empowerment by 22.33%, and is statistically significant at 5% level of significance. This may be attributed to the fact that, most farmers in the urban centers in Mezam have adopted greenhouse and peri – urban farming thereby handling the complications of overcrowding and land insufficiency in the division. Equally most training takes place in the urban areas than the rural areas thus easy application of method where they are found. This finding is similar to that of Ado (2017) who state that farming is a major sector of activity and farmers access to economic resources and control of product act as a source of self-sustenance to it populace. This is also consistent with the work of World Bank (2016) that poxit that, 30% of Africans lived in urban areas and the percentage is likely to increase more than 50% by 2030. In our context in Mezam, majority of rural dwellers have migrated into the town as a result of instability in their home towns.

Size of farm land was significant at 5% level of significance and a marginal effect of 0.5737. The size of the farm explains a positive relationship with empowerment of farmers thus an increase in the size of the farm of the respondent by one hectare, will increase the empowerment by 57.37%. This result suggests that as farm size increases many plots will be available for on the farm training subsequently enabling the farmers to use more intensive modern technology and inputs which in turn lead to higher yield and hence higher income, which is the major focus of farmers.

This is also possible due to the fact that, owners of large farm size find it easier obtaining credit from financial institutions than small land size all because large farm size are mostly associated with higher income after harvest. For example, in Ghana some rural banks inspect the size of the farm of a farmer before giving him credit/loan. This is to ensure that the size of the farm gives an estimation of income after harvest. The result is consistent with that of Abdul-Hakimand Che-Mat (2011) who indicated that as the size of agricultural land increases, the probability for the respondent to participate in off-farm activity decreases because farmers obtain higher income from large farms.

Looking at financial status of the farmers it reveals that farmers who are rich have an increasing effect on empowerment with the results being statistically significant at 5% level of significance. This result indicate that, an increase in the income of the respondent farmer by one franc will intend cause an increase empowerment by 51.81% thereby implying that, farmers with better financial status have better access to resources and their capabilities will expand, hence augmenting their empowerment. Furthermore, majority of the respondent farmers can access credit by them belonging to different social groups and this permit them to quickly access cash, as well as afford for household expenses. Also, the increase in income will help the farmers improve on their economic activities and subsequently leading to an increase in farm yields.

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From our findings, it is revealed that, the acquisition of modern agricultural equipment was significant at 1% level of significance. The result shows that any increase in farming equipment by one will increase the empowerment of the farmer by 42.49%. Empowering rural or urban farmers rarely focus on farming as already revealed in the literature, but rather on what can be done for farmers to be self-sufficient. Farming today has become digital for instance in India they have develop a technic called SMART technology in other to detect PEST in their farms. Equally in Cameroonian, Agrix Tech has developed a mobile app that helps farmers to prevent and treat crop diseases utilizing machine learning technologies. Such technologies can be transmitted to other countries through training programs organized by NGOs in different communities. Most farmers no longer use rudimentary tools like sticks in their farms, they are open to new technology such as farm machines, crop sensors which have increase the capacities and knowledge of farmers in cultivating products consequently, every farmer can increase production yield. This finding is in line with World Bank (2011) indicating how vital it is to invest in quality improvement of existing products and technology, learn how to develop new products, and establish market linkages, as well as build farmer organizations.

Considering land tenure system the results demonstrate that an increase in a hectare of an owners land will only have 18.11% increase in farmer's empowerment. This result further reveals that, it is statistically significant at 10% level of significance. The finding is in conformity with the literature stating that most smallholder framers own less than 2 hectare of land and constitute millions of farms around the division. Due to this fact, only a limited per unit of hectare is available for farming and demonstration plot for trainers. Equally, the plots that are owned sometimes are either been leased, sharecropped and given for rent. In addition to this therefore, keeping of farm record becomes difficult for the farmers due to the fact that, most of the farmers are old, sufficient mechanism in order to empower the farmers on skills and extension contact have not been fully established. In addition, illiteracy of some of the farmers will not permit any form of recording keeping. It is with this draw back that, the result was significant at 5% level of significance. This simply indicates that, an increase in the keeping of farm record by one will lead to a decrease in the rate of empowerment of the farmer by -28.81%. this findings is consistent with Maue et al (2020) who demonstrated that, smallholders often lack formal records, and typically cultivate multiple plots and crops, harvest at multiple times, and can be surveyed weeks or months after harvesting their fields. The negative effect on the record may be because the farmers have a low priority in record keeping and so see no reason why they should be empowered on that.

Moreover, experience in farming was significant at 10% level of significance with a marginal effect of 0.2055 which implies a significant positive effect on empowerment and proves that, an increase in farm experience by one year will increase the empowerment by 20.55%. The result ascertains that, the farmers are well experienced since majority of them had more than five years of experience in the farm and it shows that they are not blind farmers when agricultural issues are concern. This confirms the assertion that they don't need to be trained before they can cultivate the land and that, they are accustom to the practice right from when they were small.

From the above findings, it is reveal that size of farm land, acquisition of modern agricultural equipment, financial status, household size, land tenure system, farming experience and being resident in the urban region positively and significantly affect empowerment of smallholder farmers in Mezam while keeping of farm records as well as age of the farmers has a negative and significant effect empowerment of smallholder farmers

in Mezam. On the other hand, place of sales of produce, and production for marketing have a positive result but statistically has an insignificant effect on empowerment of smallholder farmers in Mezam division. The sole reason for this possible insignificance of the above result is that most studies focusing on empowerment of smallholder farmers itself as our outcome of interest are more likely to rely on primary data sources.

Male Correlates of Drivers of Farmers Empowerment

Considering the male correlates of our findings, the following observations where made such as: Keeping of farm records was significant at 5% level of significance and shows that, an increase in farm records by one will lead to an increase in empowerment by 33.57%. Household size reveals that an increase of a member in the house by one will augment the empowerment by 45.41% and this shows that the result is significant at 5% level of significance. Likewise, the size of farm land was also significant at 5% level of significance implying that, an increase in a hectare of land will cause an increase in the empowerment factor by 85.69%.

As to farmers' financial status and land tenure system, they were all significant at 10% level of significance. Thus increasing the financial status of the farmer by one unit qualifying him to be rich, will lead to increase in empowerment of the male farmer by 46.13% while if land tenure increase by one male owner, empowerment of that male will increase by 21.88%. Considering the age of the farmer, if the age increases by one year, there will be a significant decrease in the empowerment rate of the male by 34.33% and significant at 10% level of significance. Moreover, acquisition of modern agricultural equipment was significant at 1% level of significance implying that, an increase of an equipment leads to 43.13% of empowerment of a male farmer.

Female Correlates of Drivers of Farmers Empowerment

With regard to the female correlates, it has been significant at 10% level of significance in experience in farming, household size, farmers financial status and land tenure system implying that the result is significantly related to female empowerment thus an increase in either the variables will automatically lead to the empowerment of the females by 30.53%, 20.89%, 62.2% and 17.93% respectively. The female place of residence has been significant at 1% level of significant showing that the result is 99% correct. This also proves that, female farmers in the urban center increases empowerment by 43.16%. Acquisition of modern agricultural equipment reveals a positive effect on female farmer empowerment with a marginal effect of 0.4231. The result shows that, increasing the acquisition of equipment will effect female farmer empowerment by 42.31% and it's significant at 5% level of significance.

Challenges faced to Acquired Empowerment

In the same vain, the proportionate model has been used to estimate the constraints associated with empowerment as indicated in Table 4. As observed, training cost has been a major challenge to the empowerment of farmers in the Mezam division. This is revealed by the percentage of the respondent farmers of 89.2% for the constraints faced to acquire empowerment while just10.8% not for the constraints not to that is 52.62% for strongly agree and 36.57% agreeing while 8.86% disagreeing and 1.94% strongly disagreeing respectively. This result simply indicate that, most training programs tend to be costly to the farmers especially trainings that have to do with testing a new set of tools, learn how to use the tools has posed a serious threat to empowerment. This further explains why any training program which is not free is void of participants and most of the respondent farmers will rather encourage their neighbors to learn and train them. This increase percentage is also because, majority of the farmers earned less after the harvest season and can't meet up with the

demands of training programs. We earlier said that farming today has become digital of which most of these farmers are non – android thus making it difficult for a favorable platform between trainers and farmers to communicate from afar, as well as enhancing the provision of information on new technology adoption.

Moreover, the language of training has not been favorable to most of the farmers. From our results it shows that, about 21.61% strongly adhere to the fact that language is a barrier to empowerment and 31.30% stands to support this fact given us a total sum of 52.91% as against 38.23% disagreeing that language is not a problem to empowerment and 8.86% strongly disagreeing given us 47.16%. This can be explained by the fact that, most trainers on coming do not master the local language of the people going by this communication becomes difficult. On the other hand, some organizations have adopted the use of interpreters from either French to English and or the local vernaculars resulting to the percentage of respondents disagreeing that language of training is not a constraint.

Table 4. Challenges faced to Acquired Empowerment

Challenges	**SA**		**A**		**D**		**SD**	
	F	**%F**	**F**	**%F**	**F**	**%F**	**F**	**%F**
Training Cost	190	52.63	132	36.57	32	8.86	7	1.94
Access to trainers	137	37.95	166	45.98	50	13.85	8	2.22
Source of training program	110	30.47	169	46.81	73	20.22	9	2.49
Time constraint	115	31.86	183	50.69	56	15.51	7	1.94
Language of training	78	21.61	113	31.30	138	38.23	32	8.86
Ignorance	105	29.09	148	41.00	82	22.71	26	7.20
Source of income	111	30.75	161	44.60	80	22.16	9	2.49
Interest of farmers	103	28.53	182	50.42	64	17.73	12	3.32
Application of training techniques	110	30.47	149	41.27	94	26.04	8	2.22
Conflict among farmers	103	28.53	123	34.07	103	28.53	32	8.86
Education of farmers	93	25.76	132	36.57	113	31.30	23	6.37

Source: Author; N/B: SA= strongly agree, A= agree, D= Disagree, SD= Strongly Disagree

Similarly, the interest of farmers is revealed at 28.53% for strongly agree and 3.32% for strongly disagreeing. This may be due to the fact that, three quarter of the training programs are centered in the urban centers thus causing most rural settlers to be reluctant to attend such programs. The respondent farmers agreeing for are up to 50.42% as against 17.73% disagreeing to the fact that the interest of farmers is not a challenge to empowerment. The result clearly indicate that, majority of the farmers are not interested in empowerment because of the way trainers have operated such programs in our zone of interest. In addition, time has also posed a threat to farmers' empowerment in such a way that, farmers who strongly agree have a 31.86% and 50.69% agreeing as oppose to only a 15.51% disagreeing and 1.94% strongly disagreeing. The result shows a strong positive relationship between time and farmers empowerment. What explains this is that, at the time of training, most of the farmers are not available; they might have indulge themselves to other activities. Also, enough sensitization or publicity was not made and the duration of the program for too lengthy for the farmer.

CONCLUSION

From the foregoing, this study, the drivers of farmer's empowerment and Challenges among smallholder farmers in Mezam Division has as objectives: to identify and discuss the drivers and constraints associated with farmer's empowerment in Mezam Division. Methodologically, the study made used of primary data collected among 361 farmers using a well-structured questionnaire. The Cobb Douglas production function is use to estimate our result.

The principal result shows that: farm experience, rich farmer's financial status, acquisition of modern equipment, urban resident, age of farmers, land tenure system, household size and farm records are observed to be significantly influencing farmer's empowerment in Mezam Division. Meanwhile rich farmer's status, size of farm land, acquisition of modern equipment, farm records and household size are corroborating with male farmers empowerment, while rich farmer's status, acquisition of modern agricultural equipment and household size are positively influencing female women empowerment. The constraints faced by farmers in the acquisition of farmer's empowerment are also observed to be: training cost, access to trainers, source of training program, time constraint, application of training techniques, interest of farmers and ignorance.

The study suggest that the decision makers should consider the collective farmers characteristics when planning for farmers empowerment as most of the factors fuelling farmers empowerment are closely related to the farmers characteristics. This is an important step towards farm efficiency.

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