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Contribution of farmers' education on farm production in fako division, Cameroon

Nganje Sophie Nanyongo [a]*

Abstract

This study assesses the contribution of farmer's educational training on farm production in Fako Division, Cameroon. Methodologically, we employed probit elasticity model to analyze our primary data. The result shows that farmers' educational training is strongly correlating with farm production. Result by farm training type, shows that workshop has a strong effect on farm production as well as professional and on the farm educational training. This study suggests that decision makers should multiply farm educational training through the creation of agricultural schools, workshops and on the farm training.

Keywords: Contribution, Farmer, Training, Agriculture, Production, Cameroon.

Author Affiliation: [a] Department of Rural Engineering, National Advanced School of Public Works, Cameroon

Corresponding Author: Nganje Sophie Nanyongo. Department of Rural Engineering, National Advanced School of Public Works, Cameroon

Email: sophietambi@yahoo.com

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1. INTRODUCTION

The place of agricultural training in determining agricultural production in the world is indisputable in this era of population growth. Training in agriculture can take many forms such as: professional training, seminar and workshop training as well as on the farm training and depending upon the type of training farmers received will determine the way they manage their agricultural farms and hence the quality and quantity of produce farmers will harvest (Balihuta, 1996). Agricultural training goes beyond the use of farm tools such as hoes, cutlass, diggers, wheel-barrows and or tractors, to cultivate farms or raise animals for local consumption or commercial purposes. Training nowadays includes the transformation of agricultural products into many other forms, to create variety, make more money and feed the masses of the fast growing world population (Cotlear, 1990). Cereal crops such as maize, rice, sorghum are widely consumed by almost all households in Cameroon and most African countries, they are equally the most derivate products, for example maize can be derivate as well as consumed in many other forms, such as corn fufu, pap, corn beer, Koki, dried or roasted maize; it can also be consumed alongside many other foods such as beans, vegetables etc. This means that agricultural training is an important element of food security and poverty alleviation in Cameroon.

We are attempting to investigate the contribution of different agricultural training farmers have received and their effects on agricultural production in Cameroon. Food crops (rice, maize) are most consume by almost all people across the world, they are equally most derivate products in the agricultural family in Cameroon, therefore both food crop and cash crops are considered in our study as agricultural production. Maize for example is produce in large quantities in all the ten regions of Cameroon, maize is among the six most widely grown crops in the world and the most affordable in terms of market price and cost of seeds and widely grown crop in Africa and Cameroon (Epule and Bryant, 2015).

In order to increase incomes and improve livelihoods, the farmer needs to have a good mastery of the market situation and system of production, (Noor and Dola, 2011) revealed that education is a factor which has an impact on agricultural production while (Närman, 1991) complemented that farmers with some years of basic schooling are more likely to adopt and correctly apply agricultural innovations and also that training offered at various agricultural service institutions requires that applicants have an appropriate background in formal education to be efficient as training for farmers has been proven to yield variety of results. Considering the case of Bangladeshi small farmers, Murshed-E-Jahan and Pemsl (2011) concluded that building the capacity of farmers through training is more valuable than

the provision of financial support in terms of raising production and income. A study by Tripp et al (2005) confirms that training is important in the enhancement of farmers 'skills in agricultural works while studies on the effectiveness of training for farmers showed that only training programs carefully revised and designed to address particular farm needs can increase production in farms. They also reported that some success stories were related to using non-formal education and focusing on learning-discovery approach and filling in the gaps in farmer's knowledge misconceptions (Sligo and Massey, 2007).

Following MINADER (2015), agricultural training in Cameroon may either take the form of professional training, workshop/seminar, on the farm training and or no training. From the statistics department of Ministry of Agriculture and Rural Development, we observed that in Cameroon, 77.9 percent of agricultural households had no training meaning that until date agricultural training is still an issue to be discovered and understood in Cameroon. The statistics also reveals that considering the national territory, only 1.6 percent of farmers received professional training; 8.7 percent had workshop/ seminar training while 11.8 percent of household farmers received on the farm training. The reasons for low agricultural training can be many:

- Culturally, most rural dwellers in Cameroon belief that one doesn't need to be trained in other to do agriculture, with this idea in mind, it becomes difficult to acquire training as a farmer.
- Lack of knowledge and ignorance has caused many agricultural workers to be indifferent so far as agricultural training is concern.
- Government intervention and policy, the government has not yet taken it as a priority to emphasis on the training of agricultural workers. It's a profession that require just manpower; it's difficult to find people sacrificing to learn except government impose on them.
- Aid from support institutions like international bodies (FAO, WFP, World Bank) to Cameroon agriculture is oriented towards cash and kind (agricultural tools, i.e. hoes, machetes…,).
- Elites from local communities have also failed to explain the necessity of this exercise to their local environment.
- Many farmers are still resistant to the adoption of new technology or practices in their methods. This resistant has hindered agricultural training and education.

Farm educational training is therefore important in poverty alleviation, food security and consequently economic growth yet, in Cameroon emphasis in increasing agricultural production by 2035 is more on improved seeds, increasing the quantity of seeds planted, increase in arable land and increase in farm use equipments as well as creation of available markets for the sale of agricultural production. The government has not yet consider agricultural training to be a priority and there are practically countable number of institutions and faculty conducting training in agriculture. Most NGOs in this domain have caught the habit of training; however they are so few and mostly located in the urban centres (Ashby et al 2009) Närman (1991) Lovell (1993).

Ashby et al (2009) noted that the demand for agricultural commodities is changing and new opportunities are challenging farmers, for instance increase demand for higher value products, introduction of advanced agricultural technology as well as new variety of seeds. Based on this, Närman (1991) affirms the assumption that farmers without education may remain outside technical evolution in agriculture, meaning that if the entire farming community is to be concerned by a process of change, the extension personnel must pay special attention to non-educated farmers, while Lovell (1993) assume that education instead affect the efficiency of the farmer in transforming inputs into output but do not affect the process by which production occurs. In all these the conclusion is that agricultural training is a strong determinant of agricultural production and sustainability in the world at large. Despite all these advantages, Cameroon farmers especially those in rural communities are still very backward vis-a-vis training. It has also been proven that farmer's training is a major determinant of agricultural production in countries such as China, Brazil, India, Ethiopia and New Delhi (Weir, 1999; Ram and Schultz, 1979) whereas in Cameroon it's not yet the case.

In terms of gap in literature, we have not come across any study that has attempted to quantify the effect of training on agriculture in Cameroon. Enoh-Tanjong (2008) demonstrated in an analytical way the role of higher education on sustainable growth, however, this study failed in using actual data to demonstrate this empirically. Out of Cameroon, many studies have approach this study (Epule and Bryant, 2015; Noor and Dola, 2011; Lovell 1993) with controversy in result. Most of these studies failed to handle the endogeneity problem that may arise as a result of simultaneously determining factors of training and farm production or performance and so most of the results are understated. The previous studies also failed in estimating the type of training farmers actually received before determining their global effects. This study attempts to not only handle the problem of endogeneity but we shall also estimate the impact of the type of training

on agricultural production in Cameroon and Fako division in particular. The main objective of this study is to assess the socio-economic contribution of farmer's agricultural training on agricultural production. Specifically to: analyze the characteristics of farmers involve in agricultural production, explore the determinants of Farmers' agricultural training in Fako division, investigate the contribution of farmers' farm training on agricultural production and examine the training effect on agricultural production by Type of farm Training.

2. LITERATURE REVIEW

Education may have both cognitive and non-cognitive effects upon labour production. Cognitive outputs of schooling include the transmission of specific information as well as the formation of general skills and proficiencies. Education also produces non-cognitive changes in attitudes, beliefs and habits. Increasing literacy and numeracy may help farmers to acquire and understand information and to calculate appropriate input quantities in a modernizing or rapidly changing environment. Improved attitudes, beliefs and habits may lead to greater willingness to accept risk, adopt innovations, save for investment and generally to embrace productive practices (Appleton and Balihuta 1996; Norris, 1996). Education may either increase prior access to external sources of information or enhance the ability to acquire information through experience with new technology. That is, it may be a substitute for or a complement to farm experience in agricultural production. Schooling enables farmers to learn on the job more efficiently (Rosenzweig, 1995).

Norris (1996) describes three different types of education: formal, non-formal and informal. Formal schooling is what is usually meant by the term education. Non-formal education includes agricultural extension contacts and apprenticeships as well as adult literacy training. Informal education may refer to a wide range of experiences, including 'learning by doing' and migration or other activities which provide exposure to new ideas and facilitate learning. Formal education tends to promote formation of cognitive skills and abstract reasoning ability as well as changes in attitudes. Non-formal education most often serves to transmit specific information needed for a particular task or type of work. Informal education may serve mainly to shape attitudes, beliefs and habits.

Benefits of investment in schooling may accrue not only to the person who has acquired the education, but also to other members of that person's household or village. Internal (or private) benefits of schooling include enhanced income-generation capacity as well as other quality of life improvements. External (or social) effects of schooling include the diffusion of new farm inputs and production-enhancing techniques. Ironically, the presence of externalities may obscure evidence that education affects production at the household level (Newman and Gertler, 1993). Lucas (1988) suggest that external effects of education upon farmer production may not be apparent when the household is the unit of analysis, since less educated farmers may copy the agricultural practices of their more educated (more productive) neighbours. As well as presenting an empirical consideration, this point is highly relevant from a policy perspective, since the presence of externalities may reduce the private demand for schooling, while at the same time raising its social value.

Flippo (1961) differentiated between educations and training, locating these at the two ends of a continuum of personnel development ranging from a general education to specific training. While training is concerned with those activities which are designed to improve human performance on the job that employees are at present doing or are being hired to do, education is concerned with increasing general knowledge and understanding of the total environment. Education is the development of the human mind, and it increases the powers of observation, analysis, integration, understanding, decision making, and adjustment to new situations. To clarify this, Noor and Dola, (2011) summarized the impact of training on farmers into six major benefits according to priority: (a) increased in work quality, (b) increased in farm products, (c) cost savings, (d) time savings, (e) increased in income and finally (f) increase in networking. They concluded that training provided to the farmers has not only helped them improved their individual capabilities, boost their morale, but it also acts as a motivation that contribute to their positive performance level.

3. METHODOLOGY

This study is conducted in the Fako division of the South West region of Cameroon. The Fako division covers an area of 2,093 km^2 and as of 2001 had a total population of 534,854. The capital of the division lies at Limbe. In general the following sub-division made up the Fako division: Buea, Idenau, Limbe, Muyuka and Tiko. The study area is located in Cameroon, Central Africa, Africa, with a latitude of 4° 10' (4.1667°) north, the longitude is 9° 10' (9.1667°) east while the average elevation is 2,833 meters (9,295 feet). The study zone can be presented in a map as follows:

In this, because of its location at the foot of Mount Cameroon, the climate in Fako tends to be humid, with the neighborhoods at higher elevations (Buea, Muea, Idenau) enjoying cooler temperatures while the lower neighborhoods (Muyuka, Tiko,

Limbe, Mutengene, Ekona) experiencing a hotter climate. Extended periods of rainfall, characterized by incessant drizzle, which can last for weeks, are common during the rainy season as are damp fogs, rolling off the mountain into the town. Just as it's with other part of the country, the North East and South West (SW) trade winds cause the dry and wet seasons. This harmattan winds blows from mid-October to mid-March causing dryness while the SW winds which are damp appear from mid-March to Mid-October causing rainy season. The figures below present the monthly rainfall and Temperature characteristics of the Fako division from 2011 to 2015 as collected by the Limbe meteorological station in the South West region. As noted earlier, this division often use to experience extended periods of rainfall, characterized by incessant drizzle, which can last for weeks, are common during the rainy season as are damp fogs, rolling off the mountain into the town. The map of the study is presented below

Data Presentation

The data for this study is collected through a detailed questionnaire which was administered to 200 farmers of the Fako division cultivating different types of crops. The questionnaire was administered by some trusted persons with the help of some classmates in the University of Buea under strict personal coordination. Field visits to the five sub divisions of Fako were 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 collected quantitative data that was analyzed in Microsoft SPSS and STATA 13.0 software. We equally collected some qualitative data that was interpreted directly to ensure robust result.

The collected data was manually manage through proper verifications and was later slotted in SPSS and transfer to STATA 13.0 software using STATA transfer for quantitative computation, onward processing and the treatment of the data to cater for the missing variables. The qualitative information was rearranged in preparation for analysis and inclusion in the empirical result. To achieve our aims in this study: Objective one is analyze using descriptive statistics (tables presenting absolute, relative and cumulative frequencies, graphs (bar charts and pie charts, histograms). This was made possible through the use of Excel after estimating the variables in SPSS. Objective two and three were analyzed using the probit model that calculates the marginal effects and elasticities of the effect of agricultural training on agricultural production. Base on the result of objective one, two and three, we suggested an appropriate policy to capture objective four.

The study population comprise of farmers in the Fako division. The actors chosen to respond to the questionnaire are typical farmers cultivating different types of crops as indicated above. Our study considered both men and women working in the agricultural farms. However, our survey covers more of men because they were more willing and available to respond to the questions and about 200 persons responded to our questionnaires. The method use here is the purposive sampling method; this method consist of choosing members of the sample population at random, thus, every member has the same chance of being a part of the sample population. Those considered for the survey were presented a questionnaire of 19 questions after intense interview, other relevant information judged necessary but not included in the questionnaire was collected during the interview process. At the end of the sampling exercise over 200 farmers were interviewed.

Empirical Specification

Theoretically we make used of the economic model of the family developed by Becker (1965) and as applied by Frijters et al (2008). This forms the conceptual basis for our analysis of the contribution of Farmers' Training on agricultural production. Based on these authors, the relationship between farmers training and agricultural production can be described within the framework of a simple household production model (Blau and Grossberg, 1990). Thus, the generic model of agricultural productivity for farmer i, is assumed to be:

$$AP_i = \lambda_1 \chi_i + \delta_1 FT_i + \varepsilon_{1i} \quad (1)$$

Whereby AP_i is a binary variable representing farmer i's farm production in the Fako division; x_i is a vector of household characteristics such as: sex of farmers, ownership of land, place of residence, education, access to credit, etc. These are factors belief to be influencing agricultural production apart from farmers' training. FT_i is farmers' agricultural training which can either be: professional, workshop or on the farm training. Further, ε_i is a random error term while the coefficient δ_1 is the parameter of primary interest and represents the impact that farmers' training has on agricultural productivity and λ_i shows the effect of the other factors apart from farmers' agricultural training.

The equation (1) above reports the Probit estimate that measure the marginal effects of farmers' training on agricultural production. The probit estimate is an appropriate estimate in this type of a study because it attempt to capture the impact of any training addition to a farmers ability

or know how being formal or informal on production. However, this single-equation estimate may be upward or downward biased depending upon the effect that training has on agriculture and on the correlation between omitted variables and farmers training. For example, if training has a positive impact on agricultural production, then we would expect the probit estimate of δ_1 to be biased upward. To avoid this problem of endogeneity, we have seriously scrutinized our selection of variables in the agricultural production equation. This means that our model is void of any biases.

Inaddition, as reviewed in Frijters et al (2008), we can calculate the marginal effects of farmers' training on agricultural production based on the following equation;

$$ME(\chi^K) = \frac{1}{N}\sum_i \frac{\partial \hat{P}(AP_i = /\chi_i, FT_i, \hat{\beta}, \hat{\lambda}, \hat{\delta})}{\delta \chi_i^k} \quad (2)$$

Where: χ^k as the average of the marginal effect of everyone in the sample and χ_i is a vector of characteristics with χ_i^k the k'th element in that vector, thus, the marginal effect of farmers training on agricultural production will be:

$$ME((\chi) = \frac{1}{N}\sum_i \langle P(AP_i = 1|FT_i = 1) - P(AP_i = 1|FT_i = 0)\rangle \quad (3)$$

The marginal effect of farmers' agricultural training on agricultural production will be estimated in STATA 13.0 as clearly demonstrated in the next section.

4. EMPIRICAL RESULTS

This result has principally four different sections that has clarifies our study with respect to our objectives as noted in the introduction. Thus, in this section we are interested at presenting and discussing the results of our study with respect to: (1) the socio-economic characteristics of farmers involve in agricultural production, (2) the determinants of farmers agricultural training in Fako division, (3) the socio-economic contribution of farmers agricultural training on agricultural production and (4) the marginal effect of farmer's training on agricultural production by type of farmer's agricultural training.

Summary Characteristics of Farmers Involved in Farm Production

In this section we have presented the following socioeconomic characteristics: sex of farmer, age group of farmers involve in agricultural training, level of education, marital status, place of residence, household size, farm size, access to credit by farmers and type of training received by the farmer. These characteristics show the mechanism through which

Table 1. Summary characteristics of variables

Variable	Mean	Std. Dev.	Min	Max
Farm Production (1= Crop yield, 0 otherwise)	0.8250	0.3809206	0	1
Education (1= had farm training, 0 otherwise)	0.680	0.4676467	0	1
Gender of Farmer (1= Male, 0 otherwise)	0.5550	0.4982129	0	1
Level of Education (1= Secondary, 0 otherwise)	0.3350	0.4731749	0	1
Marital Status (1=Married, 0 otherwise)	0.6050	0.4900774	0	1
Financial Status (1= Medium, 0 otherwise)	0.3750	0.4853378	0	1
<25 years	0.0850	0.2795815	0	1
Between 25_35 years	0.3150	0.4656815	0	1
Between 36_45 years	0.350	0.4781665	0	1
>45 years	0.250	0.4340993	0	1
Access to Credit (1= received credit, 0 otherwise)	0.410	0.4930675	0	1
Professional Association (1= farmer belongs to an association, 0 otherwise)	0.470	0.5003516	0	1
Equipment (1= farmer use modern equipments, 0 otherwise)	0.620	0.4866045	0	1
Land (1= farmer owns land, 0 otherwise)	0.630	0.4840159	0	1
Fertilizer (1= fertilizer application, 0 otherwise)	0.710	0.4549007	0	1
Household Size (1= Medium size, 0 otherwise)	0.3450	0.4765612	0	1
Farmer Residence (1= town, 0 otherwise)	0.3550	0.4797141	0	1

Source: Author, from field Survey data

farmers' agricultural training can affect agricultural production and the complementary factors to this effect. In conformity with the above characteristics, we observed that 82.5 percent of farmers were fully involve with agricultural production cultivating all manner of crops, while 68 percent got actual training in which they could apply the necessary agricultural techniques to realize their output. Among the farmers only 33.5 percent attain secondary and high school, 60 percent are married while only 37.5 are averagely wealthy; these are the few that support large farm sizes in the city and a majority of the averagely rich group have access to credit to about 41 percent of them.

Practically, 47 percent belongs to agricultural groupings, among which are 8.5 percent of 25 years of age, 31.5 falls in between 25 to 35 years, 35 percent falls in between 36 to 45 years and 25 percent for greater than 45 years of age. Most of the farmers use modern equipments, fertilizers and owns their own land to about 63 percent especially those living in villages, only 35 percent of them dwells in the city with a small household size of 34.5 percent. The detail of this summary statistics is indicated in Table 1 below; the elements in the table are simply the variables to be use in our regression model for agricultural production function, determinants of farmers' agricultural training and the crop production effect by type of farm educational training.

Farmers Educational Training and Farm Production

Table 2 present the main result of our study in which we are verifying the effects of farmers' agricultural training on agricultural production. From this table we observed that farmers' training is strongly correlating with agricultural production at a one percent significant level and by a percentage point of about 43.2 percent. This result means that other factors that may affect farmers' production being constant; a farmer that receives appropriate and adequate training in agriculture should be 43.2

Table 2. Farmers' educational training effects on farm production

Variable	Estimation method: Probit regression Dependent variable: Farm production		
	Coefficient	Std. Err.	Z
Agricultural Training	0.43196034***	0.1183453	3.65
Male Farmer	0.19530830	0.2664219	0.73
Level of Education	0.7110251***	0.2734712	-2.60
Married Peasant	-0.6307088*	0.3443004	-1.83
Non poor farmer	0.309871**	0.6377137	2.05
<25 years	0.1339667	0.571355	0.23
Between 25_35 years	-0.0487006	0.3438418	-0.14
Between 36_45 years	0.6269637***	0.3612564	3.74
Access to Credit	0.1263887**	0.2984211	2.42
Medium farm size	0.6400122	1.0432198	1.63
Belong to Professional Association	0.1177486***	0.2740325	3.43
Use of Agricultural Equipment	0.1770662***	0.300968	4.59
Ownership of land	0.4497658*	0.2671906	1.68
Farmer applied fertilizer	0.1354199***	0.3260652	5.42
Farmers affected by climate change	0.5606798*	0.3206562	1.75
Medium household size	0.5612895***	0.314982	2.98
Town Household Residence	-0.0061765	0.2802423	-0.02
Constant	-0.5993762	0.6603612	-0.91
Pseudo R2	0.7069	n/a	n/a
Chi Square	38.38 [17, 0.0002]	n/a	n/a
Total Observation			200

Source: Author from field data using STATA 13.0; Note: ***, ** and * indicate 1%, 5% and 10% levels of significance respectively. N/B: Dependent Variable is Farm Production

percent producing higher than their counterpart who had not received any training in agriculture. This observation is consistent with the views of Noor and Dola (2011) and Närman (1991), our result is also consistent with the case of Bangladesh small farmers from which Murshed and Pemsl (2011) concluded that building the capacity of farmers through training is more valuable than the provision of financial support in terms of raising production and income.

Other variables corroborating with agricultural production in our study are non-poor farmers, farmers of age 35 to 45 years, access to credit, belonging to a professional group, use of modern equipment, ownership of farm land, application of fertilizer, favourable climate change and averagely large household size. The non-poor farmer variable is showing that the rich farmers can financially support their farms through increase input, such as hire labour and so increasing their output. The farmers' age of 36 to 45 is the most contributive age in human life implying that at this age farmers can maximumly sacrifice their energy to increase their output. Access to credit and other factors numerated above have similar effects on agricultural production. With credit many more farm input can be bought such as insecticide/pesticide to kill destructive insects or pest and hence creating a favourable environment for crops to grow. Belonging to a professional group simply means increase in social capital that is also associated with much benefit in terms of agricultural production. Use of modern equipments such as tractors, combine harvesters and so on facilitate manual labour input and rearranges the soil for mass planting and harvesting. Ownership of land increases the farm size under cultivation, application of fertilizer increases soil fertility, favourable climate is simply perfect growth of crops while medium household size is adequate labour input to realize excellent growth. A favourable blend of these complementary variables in association to training will result to increase agricultural production.

The level of education and marital status are negatively correlating with agricultural production. Culturally, it's believed that farming is a job for the uneducated hence the more an individual is educated the more they focus on white collar jobs than otherwise. Further, married couples spread their efforts and so discouraging agricultural production. These results are robust given that the chi square is greater than 10, in addition the magnitude of the significance variables is convincing enough, thus we can conclude that the more farmer's agricultural training everything being equal the greater the agricultural production, this result is summarized in Table 2.

Agricultural Training effects by Type of Farmers' educational Training

Decomposing the above result by type of farmer's educational training as indicated in Table 3, we noticed that professional, workshop and on the farm training are correlating with agricultural training while other method of training is insignificant. Among the different types of training, workshop or internship training has a higher magnitude of 75.9 percent significant at one percent, followed by professional training with 68.1 percent significant at one percent level and finally field training with about 53.7 percent significant at 5 percent level.

These results show that in overall farmers' training affects agricultural production, more so workshop training, professional training then field training. Considering the learning theory and particularly the different approaches to training such as the traditional approach, experiential approach and the performance-based approach as proposed by Ram and Schultz (1979), we can conclude that workshop training is most important for agricultural training than otherwise. Even when farmers have had other formal training what will increase more farm output all factors put together is workshop training, from the learning theory workshop training response to the performance-based approach.

Discussing on the respective covariates, we observed that other factors associated to professional training covariates include non-poor farmers, farm size, use of modern equipments and medium household size. The variables associating with workshop training covariates are: male farmer, non-poor farmer, ownership of land and household size while the variables associating with on the field training covariates include: male farmer, non-poor farmer, household size and town residence. Focusing on the associated variables correlating with the three covariates, we notice that non-poor variable and medium household size are very important. Thus, irrespective of the type of training a famer wish to undertake, finances and labour are always very important to agricultural production, the detail of this result is presented in Table 3.

Determinants of Farmers' educational Training

Table 4 presents the factors influencing farmers' agricultural training in the Fako division of the South West region of Cameroon. From our marginal effect estimate, the following variables correlates with farmers' training: male farmer, level of education, non-poor households, age group 36 to 45 years, access to credit, belonging to professional association, use of agricultural equipment, famers application of fertilizer and place of residence (town).

Table 3. Farmer educational effects by type of farmers training

Variable	Estimation Method: Probit regression			
	Dependent Variable: Farm Production			
	Professional	Workshop	Field Training	Others
Agricultural Training	0.681*** (2.65)	0.759*** (3.09)	0.537** (2.12)	0.555 (0.12)
Male Farmer	0.110 (1.46)	0.963** (2.08)	0.441** (2.07)	0.421 (1.07)
Level of Education	0.982*** (2.75)	0.233 (0.50)	0.345 (0.47)	0.645*** (3.47)
Married Peasant	-0.116* (1.72)	-0.370 (0.28)	-0.820 (0.42)	-0.220 (0.44)
Non poor farmer	0.070* (1.96)	0.936** (2.17)	0.942* (1.87)	0.342* (1.77)
<25 years	0.727 (0.58)	-0.370 (0.28)	-0.370 (1.01)	0.110 (1.21)
Between 25_35 years	0.014 (0.02)	-0.962 (1.57)	-0.202 (0.24)	0.033 (0.10)
Between 36_45 years	0.891* (1.81)	-0.109 (0.19)	-0.724 (0.87)	0.422*** (5.60)
Access to Credit	0.056 (0.06)	0.233* * (2.45)	0.742 (0.84)	0.742*** (3.48)
Medium farm size	2.615* (1.81)	-0.384 (0.73)	0.639 (0.49)	0.831*** (4.49)
Professional Association	0.727 (1.03)	-0.208 (0.44)	-0.371 (0.51)	-0.173** (2.00)
Equipment	0.230** (2.37)	0.359 (0.72)	0.791 (1.06)	0.199 (0.06)
Ownership of land	0.137 (1.52)	0.678* (1.70)	0.803* (1.73)	0.338 (1.10)
Farmer applied fertilizer	-0.020 (0.02)	0.128 (0.21)	-0.319 (0.32)	0.331 (0.43)
Climate change	0.956 (2.55)	0.004* (1.91)	0.446 (0.61)	0.614 (1.32)
Medium household size	0.070 *** (2.96)	0.245** (2.38)	0.112* (1.69)	0.112** (1.99)
Town Residence	-0.161 (0.16)	-0.328 (0.69)	0.165*** (4.55)	0.112 (1.50)
Constant	-0.420** (2.02)	-0.518 (0.40)	-0.789** (1.65)	0.789 (1.45)
Pseudo R2	0.6337	0.7448	0.7406	0.6206
Chi Square	41.95 [16; 0.0004]	32.54 [17; 0.0009]	23.66 [14; 0.0003]	22.42 [14; 0.0054]
Total Observation	37	51	40	8

Source: Author from field data using STATA 13.0; Note: ***, ** and * indicate 1%, 5% and 10% levels of significance respectively while values in parentheses represent robust t-statistics. N/B: Dependent Variable is Farm Production

Table 4. Factors affecting farmers' educational training

Variable	Estimation Method: Probit regression		
	Dependent Variable: Farmers' educational Training		
	Coefficient	Std. Err.	Z
Male Farmer	0.77673978*	0.4267801	1.82
Level of Education	0.34438492***	0.1107347	3.11
Married Peasant	-0.57695911	0.6340210	-0.91
Non poor farmer	0.58069414***	0.1379321	4.21
<25 years	-1.17965388	0.8135544	-1.45
Between 25_35 years	0.98842482	0.6418343	1.54
Between 36_45 years	0.62947444***	0.1256436	5.01
Access to Credit	0.97227661*	0.5284112	1.84
Professional Association	0.89809348**	0.4027325	2.23
Use of Agricultural Equipment	0.03175752***	0.0093680	3.39
Ownership of land	0.4775027	0.7126906	0.67
Farmer applied fertilizer	0.73872091**	0.3065232	2.41
Climate change	0.03460327	0.7120654	0.05
Medium household size	0.51273008	0.4134920	1.24
Town Household Residence	0.04403991***	0.0128023	3.44
Constant	0.60175206	0.6612660	0.91
Pseudo R2	0.59146	n/a	n/a
Chi Square	26.02 [14, 0.0000]	n/a	n/a
Total Observation	136		

Source: Author from field data using STATA 13.0; Note: ***, ** and * indicate 1%, 5% and 10% levels of significance respectively. N/B: Dependent Variable is Agricultural Production

In critically examining these variables, we observed that male farmers as the head of households will obviously want to be trained so as to better lead the family in terms of the agricultural farm. While the women concentrates with child bearing and the household chores, such as the fetching of water, fuel (e.g. fire wood), sanitation of the house, cooking and serving of food as well as food crops in the case of married couples the men focuses on cash crop cultivation and production and which necessitates training in other to better produce to meet-up with the family and economic exigencies. As concerning the level of education, the more an individual studies the greater the will to acquire more knowledge objectively. Education create awareness and increases the desire to be competitive, therefore educated farmers with the desire to be competitive in the farming sector will zealously demand for training in agriculture so as to achieve this goal. Profitability in terms of producing more is another driving force of farmers to request for agricultural training, all these explains why level of education is correlating with agricultural training. This factor can be associated with non-poor households in the sense that most rich people are always drive with the edge to make more profit, so they are always ready to exploit every avenue possible to enjoy super normal profit, hence with this tendency they will always solicit for agricultural training.

Any farmer in position of a new modern agricultural equipment and fertilizer to be use in the farm will sought for ideas to use or apply it, this will always motivate farmers to grasp every training opportunity that will enlighten them and enable them use their resources effectively. Access to credit will facilitate the learning process of farmers through the easy payment of learning dues. With money the learning process being professional, workshop and on the farm is facilitated. Town dwellers have a strong proximity to training being in church or through any professional network; in the same way belonging to professional association is a call for training because as observed with extension services and in conformity with the government agenda most agricultural training takes place only through groups such as professional association. Lastly, the age group 36 to 45 years is a stage in human life that is focus on perfecting ones career and necessitates

much learning of either renovating old techniques or acquisition of new knowledge; all these are associated with training. The detail of this result is presented in Table 4.

5. CONCLUSION

This study attempts to carry out a comprehensive analysis on the contribution of farmers' agricultural training on agricultural production in the Fako division of the South West region of Cameroon. Training in agriculture has been observed to be a strong determinant of agricultural production in other countries in the world such as Ethiopia, China and Brazil, to name a few. However, in Cameroon training in agriculture has not been very effective for the following reasons: first, culturally, most rural dwellers in Cameroon belief that one doesn't need to be trained in other to do agriculture, with this idea in mind, it becomes difficult to acquire training as a farmer. Second, lack of knowledge and ignorance has caused many agricultural workers to be indifferent so far as agricultural training is concern. The main objective of this study was to assess the socio-economic contribution of farmer's agricultural training on agricultural production. Specifically to: analyzed the characteristics of farmers involve in agricultural production, explore the determinants of farmers - agricultural training in Fako division, investigate the socio-economic contribution of farmers agricultural training on agricultural production, examine the marginal effect of farmer's training on agricultural production by type of farmer's training and to derived policy recommendations on the basis of the analysis.

As concerning the results, verifying the effects of farmers' agricultural training on agricultural production, we observed that farmers' training is strongly correlating with agricultural production at a one percent significant level and by a percentage point of about 43.2 percent. This result means that other factors that may affect farmers' productivity being constant; a farmer that receives appropriate and adequate training in agriculture should be 43.2 percent producing higher than their counterpart who had not got any training in agriculture. Secondly, decomposing the agricultural training effects by type of farmer's agricultural training we noticed that professional, workshop and on the farm training are correlating with agricultural training while other method is insignificant. Among the different types of training, workshop or internship training had a higher magnitude of 75.9 percent significant at one percent, followed by professional training with 68.1 percent significant at one percent level and finally field training with about 53.7 percent significant at 5 percent level. These results show that in overall farmers' training affects agricultural production and more with workshop training. Thirdly, the marginal effect estimate of the factors influencing farmers' agricultural training in the Fako division of the South West region of Cameroon are: male farmer, level of education, non-poor farmers, age group 36 to 45 years, access to credit, belonging to professional association, use of agricultural equipment, famers application of fertilizer and town resident.

On the basis of our result, we observed that agricultural training has untold increase/benefits on agricultural production, this shows that there are considerable opportunities to take advantage of, in agricultural training especially in terms of increase crop production. We therefore recommend that: the decision makers, civil society organizations, council and stake holders operating in agriculture should multiply agricultural training in both former and informer training, through the creation of agricultural schools, workshop/seminars and on the field training in the Fako division in particular and in Cameroon in general. This is a major step towards poverty alleviation and food security in Fako division in particular and Cameroon in general.

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