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RESEARCH ARTICLE

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EXTENSION AND ADVISORY SERVICES AND THE IMPACTS ON YIELDS, FOUMBOT AND FONGO-TONGO, WEST REGION OF CAMEROON

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ABSTRACT

The purpose of this study was to examine the various benefits tomato and Irish potato participants (farmers) get from extension and advisory services (EAS) in the West Region of Cameroon. The sample under survey consisted of 210 farm households of those who benefited from EAS. Data was generated from primary and secondary sources and were analysed through descriptive and inferential statistical technique using Statistical Package for Social Sciences and Micro Soft Excel. The results revealed that 54.3% of participants of EAS faced difficulties in treating crop pests and diseases, lacked good quality seeds (43.3%), and 2.4% of participants lacked the means of preserving and transforming goods. Furthermore using group leaders by EAS as a means of distributing inputs to participants caused low yields. The results equally indicated that 69.52% of participants experienced increased in yields as they became adopters of EAS and 43.3% of participants benefited from improved farming techniques. The study strongly recommends that EAS and research units should focus more of their attention on providing solutions on the treatment of crop pests and diseases affecting crops.

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INTRODUCTION

Meeting the growing demand for food security in the developing countries is one of the biggest challenges nowadays. At the time when the world is clamouring for food safety, most developing countries still depend on the importation of food for local consumption. Most farmers, especially the smallholder farmers in Africa, tend to face some challenges in the process of production and this has played a big role in affecting their yields (Magdalena, 2015). To remedy the situation of low yields, which Cameroon is not excluded, extension and advisory services (EAS) were put in place by the government to check these lapses in production and also to improve on farmers' livelihood (Kristin, 2014, Audrey 2016, Yeyoung *et al*, 2017, Amungwa 2018).

Furthermore, the implementation of EAS became more practical in Cameroon at the time when the nation was facing a lot of crises around 1986 and 1987. To solve this problem, many programs were introduced. The most active ones in the area of study that is Foubot, and Fongo-Tongo, West Region of Cameroon includes, Institutes of Research and Rural Development (IRAD), National Agricultural Extension and Research Program (PNVRA) put in place in Cameroon since 1990, ACEFA and PROSAPVA. Since then, different programs are being introduced almost every day in the agricultural sector of Cameroon (Okolle, 2016). Despite the important role of EAS in the development process, the Cameroon agricultural extension services still faces several challenges inadequate training of extension personnel, ineffective agricultural research and extension linkages (Amungwa, 2018, Tsafack *et al*, 2014). Equally, (Mumtaz, 2016) also revealed that the lack of adequate extension

contacts among small scale farmers hinders their productivity. Also, according to Audrey (2016), EAS are lacking in the domain of keeping their staff up to date, they are poorly trained and ill-equipped in carrying out more innovative extension programs on the field. The importance of EAS has long been recognized in the area of farmers' yields in the two municipalities but, however, much is still expected to be done in the domain of agricultural extension and advisory services. Inadequate EAS are available for tomato and Irish potato farmers of Fongo-Tongo and Foubot municipalities, West Region of Cameroon. It is suggested that, the standard of training rendered to EAS should be ameliorated by enabling them to go in for more training and research programs so as to be able to meet up with the immediate day-to day innovations in the agricultural sector. This will go a long way in solving the immediate problems of farmers in the study area.

MATERIALS AND METHODS

Presentation of the Study Area: The study was carried out in Fongo-Tongo and Foubot subdivisions, West region of Cameroon. The area has a population of 98819 inhabitants and a population density of 134 inhabitants per km². The climate is an equatorial or humid tropical climate with two seasons: a short dry season (November to March) and a long rainy season (from March to November). The average annual temperature is between 22°C and 32 ° C. The average rainfall in this area ranges between 2500 and 5000mm per year.

Site selection and sampling techniques: Data collection was done using the following stages: In stage one, two regions were purposively selected (Noun and Menoua) based on their high concentration in the cultivation of crop such as tomatoes and Irish potatoes respectively. The second stage involved the Purposive selection of one subdivision each from each of the two divisions selected, namely: Foubot in the Noun division and Fongo-Tongo in the Menoua division and 210 questionnaires were administered successfully in this study area. Finally in stage Five, participants were selected using a question of Yes and No to single out the participants of EAS from the Non-participants. Those who responded Yes, represented the participants of EAS and No represented the non-participants. Hence, the study worked with participants of EAS.

Data collection: Primary Data were collected using questionnaires, direct interviews and field observation. Questionnaires were necessary because this study wanted to find out the challenges and benefits of EAS in the study area. Quantitative analysis was done using Micro Soft Excel for the imputing of information and bring up of histograms and pie charts, SPSS (Statistical Package for Social Sciences) Focus group discussions were equally applied to get more clarifications from Participants and extensionists. Secondary data were gotten from journals, articles, documented materials, thesis and dissertations related to various agricultural extension and advisory services in the world.

RESULTS AND DISCUSSION

Main difficulties faced by participants and the effects on yields

Lack of knowhow by participants in treating crop pests and diseases: The results indicated that that majority of participants from the study area (54.3%) found it difficult treating crop pests and diseases as indicated in Table I.

This was because improved quality seeds were evolving every day and the fact that they were being accompanied by strange diseases, made it difficult to be handled by participants, thereby causing low yields. Also, participants continued to face such difficulties because the study found little or no improved techniques available to handle such strange diseases which usually accompany newly improved tomato and Irish potato seeds. According to participants, Extension agents introduced to them different innovations techniques without providing solutions to such innovations should in case farmers happen to face difficulties as such.

Table 1. Main difficulties faced by participants in crop production

Main difficulties faced by participants	Frequency	percentage
Lack of know-how in treating crop pests and diseases	114	54.3
Lack of good quality seeds	91	43.3
Lack of transformation and storage facilities	5	2.4
Total	210	100.0

Furthermore, the study equally found out that EAS were more of innovation- oriented than a problem solver, hence making the unable to provide total solutions to problems. This is in line with Samir *et al.*, (2013) who indicated that the information made available by EAS is a way of knowing other agricultural techniques, which confers the extension work more innovation-oriented than a problem-solving feature. Hence, if extensionists are more of innovation-oriented than a solution provider, then it automatically means that farmers will continue to face such challenges until something tangible is done as soon as possible to remedy the situation on ground. Furthermore, another problem is that most extensionists on the field were not actually experts or specialists and because of that they found it difficult providing solutions to problems faced by participants especially in the area of treating pests and diseases. This is consistency with Guillaume *et al.* (2017) who revealed that extension agents trained in different domains are given different functions in other domain which they find difficult to perform because they are not specialists in that area, limits them from providing solutions in different domains. The study revealed that the difficulties faced by participants in treating crop pests and diseases, forced them to use organic fungicides and insecticides in treating tomato and Irish potato crops as seen on plate 7 and 8.

Procedures involved in the treatment of pests and diseases on Irish potatoes using organic fungicides and insecticides: Findings from this study revealed that, farmers grind sweet potato leaves, black jack mixed together with water and spray on Irish potatoes crop for the prevention and treatment of pests and diseases on crops. Plate 7 below showed the various elements used in the treatment of pests and diseases on Irish potato.



Plate 7. Leaves of sweet potatoes and black jack used for the treatment of fungicides and pesticides on Irish potato.

Elements used by farmers in the treatment of pest and diseases on tomatoes in the study area: For tomatoes, participants used grind pawpaw leaves, garlies and mixed with soap that has been transformed into liquid form by boiling. The soup is allowed to get cold for a while before it is put into a container together with the grind pawpaw leaves and garlies. This was then used as fungicides for the treatment of pest and diseases on tomatoes. The function of soap is to prevent the insecticides from being washed away by rain immediately after spraying According to participants who had tried this method; it has proven to be effective in the treatment of pests and diseases on tomatoes. The elements used for the treatment of pest and diseases on tomatoes are indicated in Plate 8.



Plate 8. Some elements used in the treatment of pests and diseases on tomatoes

Difficulties faced by participants using organic fungicides and insecticides for the treatment of pest and diseases on tomatoes and Irish potatoes in the study

- Participants seem to have a problem with this treatment as it is time consuming and very strenuous and because of that, it is impossible to practice these methods on a large piece of land.
- Participants equally had a problem because they usually go contrary to instructions especially in the area of what quantity of input should they use at a time. This was because they believed that applying much would give them high yields which were not usually the case.
- Participants were not ready to apply organic pesticides and fungicide because they believed that it was very slow to react on crops and as such, they preferred inorganic pesticides for the treatment of crops even though dangerous to health. Reason being that the main purpose why participants cultivate crops is for sale, so they did not care if it was dangerous to health or not. Hence, trying to substitute inorganic fertilizers with organic by most EAS to participants, had not been all that successful.

Lack of good quality seeds: Results obtained from the study indicated that most participants faced difficulties in having access to good quality seeds because they found it difficult to multiply seeds successfully. Participants found it difficult to multiply seeds due to the fact that new improved seeds were mostly affected with strange diseases which when planted more than once, cannot be repeated again. Even though, very few farmers did succeed in planting more than once, but they still had problems because their yields were found reducing each time they made an attempt to replant the same seeds. Furthermore, the study equally revealed that participants did have problems with newly improved seeds because the seeds were usually very scarce and expensive to afford. This contributed in reducing the yields of most participants as they

could not boast of having good quality seeds in their possession.

Participants lack preservation and transformation means for produce: Lack of preservation and transformation means was another major problem to the participants. This was so because participants seem to be losing a lot of their output simply because there were no means of transformation. This study found out that the prices offered for tomatoes and Irish potatoes especially during the raining seasons were not encouraging at all and because of that, participants had no other choice but to sell at low prices. To these participants, it was a big challenge because they did not have an enterprise or a factory especially that of tomatoes whereby they could be supplying tomatoes at very good prices and by so doing, dumping grounds for such goods could be avoided. Hence, the lack of means of preservation and transformations has led to a fall in output of many farmers as it discouraged some not to cultivate during these periods. Another consequence was that, it led to a fall in the incomes of participants as low prices were being offered for goods. The study is consistent with that of Khan *et al*, (2019) who reported that farmers are offered very low prices to their goods and as a result, it has contributed in discouraging farmers not to produce in large quantities.

Other difficulties faced by participants of extension and advisory services

Procedures of inputs distribution to participants and the effects on yields: Distributing inputs through group leaders and traditional rulers has caused more harm than good in the study area especially on yields. The study reported that the fact that majority of participants (45.7%) received inputs through group leaders made it very difficult for especially the small scale farmers. This was because some of them ended up not receiving inputs especially seeds at all and when they do, the seeds were usually in very small quantities which usually not enough to cultivate large portions of land. Also, most at times, the real seeds meant for participants are being exchanged with that of poor quality before given to them. Furthermore, another problem was that, seeds were rarely distributed to farmers and according to them; there were moments whereby they could even stay for more than three years without receiving inputs from EAS. All these issues rose, contributed in reducing the yields of most participants. The results of the study are consistent with Laoubi *et al*, (2012), who reported that several factors have hampered farmers' output including lack of investment, insufficient access to inputs especially seeds and lack of extension services support.

Furthermore, the results revealed that EAS were found to concentrate mostly on teaching farmers with modern farming techniques. To participants, teaching them those farming techniques were not considered to be the most priority and what they needed most from EAS was to provide them with enough farm inputs which they considered the most important and requested that inputs should be distributed directly to them. This finding is equally in harmony with Audrey, (2016), Yeyoung (2017), who in their studies found extension to be having one common vision which is to educate farmers on improved techniques of farming all over the world.

Teaching methods used in training participants and its influence on yields: From the results obtained from Table II, showed that, learning by group method has proven not to be the best method as farmers found themselves not following or

understanding as when compared to the individual method. This has helped in reducing the output of majority (57.1%) of participants who received training through group method. This study equally reported that, teaching farmers individually through extension agents increases farmers output than the group method. This is because at individual levels, farmers are able to express themselves better by sharing their worries and by so doing, they are able to master and apply the various farming techniques put at their disposal very well than those farmers being taught in groups. This explained one of the reasons for low yields in the study area as majority (57.1%) of the participants are being taught using group method as indicated in Table II.

Table II: Extension agents and teaching methods used in training participants

Teaching methods used	Frequency	Percentage
Individual method	38	18.1
Group method	120	57.1
Mass method (television)	29	13.8
Radio broadcasting	23	11.0
Total	210	100.0

Furthermore, only 11% of participants as indicated in Table 2 received information through radio broad casting methods, which indicated that radio broad casting, was the least amongst the various methods used by EAS in educating participants, followed by 57.1% of beneficiaries who received training through group method. The findings is contrary to Hassan *et al*, (2014), who carried out a study in Nigeria and reported that more than a majority of farmers ranked radio as first extension methods, followed by farm and home visit as the various methods used in teaching participants.

Most benefited domains by participants of extension and advisory services: Despite the challenges faced by EAS which affected yields so much, participants had been able to benefits from EAS as indicated in Table III. The most benefited domains by participants included increased in incomes (41.0%), gained knowledge on improved farming techniques (43.3%) and 1.4% of participants could really boost of havened gained knowledge on the treatment of pests and diseases on tomatoes and Irish potatoes in the area.

Table III. Most benefited domains by participants

Most benefited domains	Frequency	Percentage
Increase in income levels	86	41.0
Gained knowledge on improved farming techniques	91	43.3
Satisfied with yields	30	14.3
Treatment of pest and diseases	3	1.4
Total	210	100.0

How incomes gotten from the sales contributed to rural development in the study area: This study found that, with incomes made by participants in the study area, participants were able to open up more provision stores; built good houses, bought bikes and also paid off workers with little or no stress. To this effect, the infrastructures gave the study area a new look as it contributed in beautifying the various villages under study. Also, participants who had in their possession provision stores and bikes gave them extra incomes as it enabled them employed more workers to work on their farms and this contributed in reducing the rate of unemployment in the area of study.

Buying of bikes by participants also contributed in transporting farm produces from the farms to the market with very little cost of transportation. Lastly, the availability of more bikes increased the circulations of more buyers, into the interior villages and by so doing, brought more money into the villages, hence raising the standard of living. The study is in consistence with the results of Yeyoung *et al* (2017) who in his study reveals that agricultural extension services had a significantly positive impact on gross farm revenue, and profit of farmers. The study is equally consistence with that obtained in the West Region of Cameroon by Arnold *et al*, (2020) as they revealed that access to advisory services therefore contributes to raising the standard of living of producers through increased production, higher prices or the two combined elements.

Participants output after adopting extension and advisory services: The study reported that, 69.52%, of participant have experienced increased in their yields, 11.9% of participants are of the opinion that their yields have reduced and 18.57% of participants had no change as they became adopters of EAS as indicated in Figure I. This is proven without any reasonable doubt that the services put in place by EAS has created and is still creating a positive impact on farmers' yields. This confirms the works of Sulaiman *et al*, (2016), who in their studies indicates that in less developed countries, EAS have been shown to contribute to the reduction of hunger and poverty and increase productivity. Furthermore, according to Cristoplos, (2010), Yeyoung *et al*, (2017) and Amungwa, (2018), in their studies revealed that it is of great important to note that Extension and advisory systems also had a positive impact on agricultural productivity in developing countries.

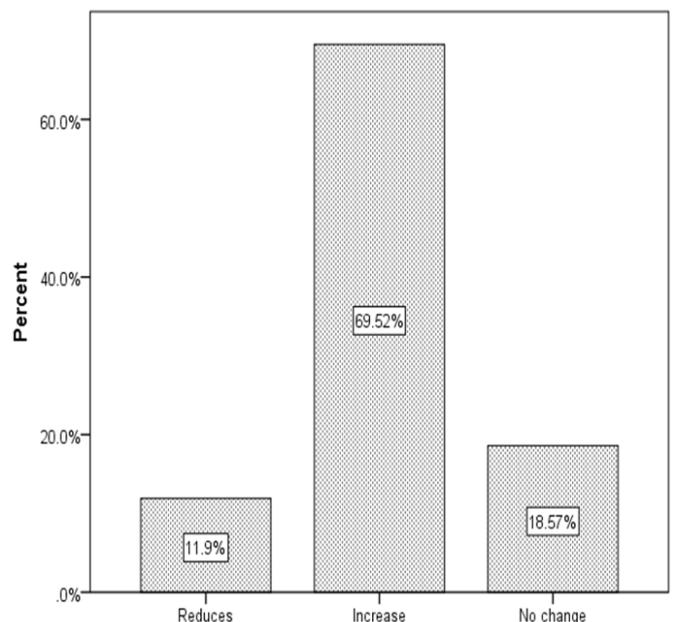


Figure I. Participants Farm yields after extension and advisory services

Conclusion

From the study, inadequate extension and advisory services were responsible for the various challenges participants went through, which caused them low yields. Some of the major difficulties included difficulties in treating pests and diseases on tomatoes and Irish potato due to the fact that new seed varieties were accompanied by strange diseases which made it

difficult for EAS to provide immediate solutions to such issues. Equally, the lack of means of preservation and transformation by participants caused them low yields as majority experienced crop damaged. The study equally indicated that using group method by EAS as a means of distributing inputs by participants resulted to low yields. However, participants still benefited from EAS in the area of farming techniques which contributed in increasing yields. Equally, through incomes gotten from sales, participants contributed in giving their municipalities a new look, and above all offered employment to others despite the various challenges they went through.

RECOMMENDATIONS

To Institute of Research and Rural Development (IRAD) extensionists, the study strongly recommends that more research should be carried out on pests and diseases affecting tomatoes and Irish potatoes participants. To extensionists, inputs distributions and training should be offered to farmers directly concerned and not through group leaders. Equally, more attention should be given especially to small scale farmers. To participants of EAS, they should make sure they follow instructions given to them strictly by EAS. Failure to do so will equally contribute to low yields.

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