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The Role of ICT in Effective Dissemination of Extension Information among Women Livestock Farmers in North West Region of Cameroon

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

Over the past years, extensive efforts have been made throughout the world to provide female farmers with effective, suitable technology, training, and information. As a result, positive effects are beginning to show in agricultural production and family welfare. But the successes are limited at a time when public sector investments in agricultural research and extension are under pressure, when ever-greater demands are being placed on rural women in the face of rapid social transformation and in an increasing number of areas, when evidence of environmental degradation is growing. ICTs are now being used to provide basic solutions to farmers and are increasingly being supported by extension practitioners for use in agricultural production and marketing

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systems. This paper is intended to investigate the role played by ICT in the dissemination of effective extension information among women livestock farmers in the North West Region of Cameroon. Primary data were collected through the use of structured questionnaires, observations, focus groups and interview guides. Secondary data were obtained from books, journals, research projects and scientific articles. These provided the necessary quantitative and qualitative data that were used to draw conclusions. Multi stage sampling techniques were used to select the female farmers for the study. Four hundred (400) questionnaires were administered randomly to collect data from the communities. The women were examined using different channels like media, phone calls, friends, and agricultural technicians. The results from the study shows that, the media seemingly are doing a great job in disseminating of appropriate agricultural information. Therefore, 40.5% of the farmers get information from the media or magazines but only (7.8%) get information through phone calls. The findings of this study can go a long way to help policy makers in planning and designing need-based information infrastructural system for rural farmers.

Keywords: Dissemination; extension; information; livestock; farmers.

1. INTRODUCTION

"ICTs are now being used to provide basic solutions to farmers and are increasingly being supported by extension practitioners for use in agricultural production and marketing systems. Extension Advisory Services (EAS) are embodied in various ICTs-enabled services. These ranges from traditional radio programs using add-on features, to television shows using short message services to request information on agricultural varieties or farming practices, to the emerging mobile technology services and internet. Increasing use of ICTs can potentially speed up the effective dissemination of information. It also enhances the interactive functionality provided by traditional and modern ICT services" [1]. ICT-based solutions are viewed as an enabling tool for EAS delivery targeting rural women farmers.

"In rural India for example, women farmers are reported to be using ICTs for treatment of sick animals as well as accessing knowledge on the latest prices for vegetable produce" [2]. "Rural areas in Nigeria are progressively being provided with telecentres where women farmers can access varied agricultural information using traditional means but also new applications such as e-mail, internet browsing and distance-learning tools" [3]. A recent study revealed that, "there is increasing women's ownership of and control over mobile phones in rural Kenya as an important contribution to increasing access to agricultural information services delivered by mobile technologies. All these success factors indicate the increased role of ICT-enabled solutions in promoting women's empowerment through their participation in information sharing and decision-making processes" [2]. "The provision of agricultural EAS using ICT-based applications is an innovative approach for enhancing agricultural productivity for rural women farmers. This is illustrated by the increasing number of public and private sector initiatives in different countries to reach rural women farmers and the poor using ICT-based agricultural services" [4].

"Despite the above techniques put in place to involve women in agriculture, the fact still remains that in most developing countries, rural women's access to ICTs and their usage is observed to be less than men's" (Olatunji, 2015). "This is due to a range of barriers faced by rural women (e.g. low literacy levels, lower technological skills, time-consuming domestic tasks, control of the mobile phones etc.) which contribute to persistent gender imbalances in rural livelihoods" (Olatunji, 2015).

2. MATERIALS AND METHODS

2.1 Presentation of Study Sites

2.1.1 Population of study

Data for this work was collected in five subdivisions which namely; Mbengwi, Fundong ,Nkambe, Tubah and mezam as seen on Table 1. Consequently, eleven villages were selected for the study which are; Acha-Tugi, Binshua, Bainjong, Meli, Mentan, Sabga, Ntanbeng, Ndu, Nkembe, Wat, Fundong.

Table 1. Divisions, subdivisions and communities studied

DIVISIONS	Subdivision	Communities
Boyo	Fundong subdivision	Meli - Bainjong - Mentang - Fundong
Donga-Mantung	Nkambe subdivision	Nkambe Binhsua
	Ndu subdivision	Ndu - Wat
Mezam	Tubah subdivision	Sabga
	Bamenda III subdivision	Ntanbang
Momo	Mbengwi subdivision	-Achai- Tugi

Fig. 1. Maps of North West showing divisions of the study
Source: Regional Delegation for Livestock Mezam Division (2012)

2.2 Data Collection Methods

Both Quantitative and qualitative methods were used in data collection. The quantitative method used was the sample survey. The qualitative methods used were the in-depth interview, focus group discussion (F.G.) and participant observation (P.O). The quantitative and the qualitative methods were used because the two methods match each other that is; the quantitative approach enable the measurement of the situation based on numeric numbers, with this method one is able to count the numbers of frequencies using modalities like “how many” and “how often”. While the qualitative, research answered the question "why" which provided an in- depth understanding of situations which are not base on numeric counting of observations. For the quantitative method the main tool used for data collection was the questionnaire while

interview guides were used to get qualitative data.

2.3 Interview

Semi structured interviews were used to collect qualitative data from extension agents. This procedure permitted an in-depth interview and these gave more understanding to some of the answers obtained from the farmers.

2.4 Participant Observations

The participant observation method was used by the researcher throughout the data collection period, especially in the evenings when she spent nights in the operational area. She sometimes visits the homes of some women in the evenings during which they discuss some social issues related to their farm activities. It accorded the researcher the opportunity to have a fair insight into how the people live and why they act as they do.

2.5 Statistical Instruments and Data Analysis

The statistical instrument used for data analyses was the Statistical Package for Social Science (SPSS) version 20. This gave the room to codify treat and analyse variables and also the possibility to test the hypotheses. Some Items about information were given on a Likert scale measure. where A= “high” “B=low” C= “very high” D= “very low” E= “not at all or A= “agree” B= “strongly agree” C= “disagree” D “strongly disagree”. Questions were provided with codes for each modality that allowed easy inputs of data into the SPSS. For example, “1=very often” “2=often” and “3=Not at all”. The purpose was to help identify the frequency of responses for each category of question asked to the farmers.

3. RESULTS AND DISCUSSION

Different communication channels as observed by researchers are useful for good information and awareness programs for farmers, but the method of such channels in delivering information is the key. For instance, Otto, [5] observed that “different channels can be used in getting to identify types of information needs of farmers in rural areas. According to Otto, the use of communication channels or media is of great importance because knowledge will provide keys for understanding and predicting outcomes of agricultural technology. It is important that visual transfer of knowledge be used to deliver information to farmers as this will give better understanding to farmers especially rural farmers who are seen to be less literate”. Therefore, understanding farmers’ information needs is an important first step in designing focused need-based, and user’s information on infrastructure in the agricultural sector. However, much is not known about the level of available information to the female livestock farmers since the interest of this unit was to access the various means through which the female farmers get information about extension services.

The women were examined using different channels like media, friends, and agricultural technicians. The results from the Table 2 show that, the media seemingly are doing a great job in disseminating the farmers with appropriate information. However, 40.5% of the farmers get information from the media or magazines, 20.9% of the farmers get information through and 29.9% of the female livestock farmers get their information from agricultural technicians or extension workers. NGOs, 19.4% through state agents like extension workers, and few of the women (7.8%) get information through phone calls. In a similar study conducted by Abdulla [6], on farmers in India on the means through which farmers get information, he identified that most farmers relied on their personal experience, friends, neighbours, relatives, family members, fellow professionals and persons in agricultural offices. Furthermore, Meitei and Devi (2009) assessed the information needs of farmers’ community in rural Manipur, India, and highlighted the means through which information could be disseminated and found that, rural small dairy farmers obtained information mainly from television, followed by government officials, neighbours and milk stations. Radio, newspapers, books and the Internet were the information sources by which they received very little information (Cavinato, 2019). Another study in Pakistani that studies focused only on agricultural information sources available to rural farmers by Abror, [7] confirmed that “farmers relied mainly on interpersonal relationships with friends, neighbours, relatives, and co-workers and mass media such as radio and television. The use of formal information sources was very low for obtaining agricultural advice”.

Table 2. Sources of extension information

Channels Information	Frequency	Percent
Agric technicians/ extension workers	51	20.9
Media/magazines/leaflets	99	40.5
Researchers /Friends	23	9.4
NGOs	51	20.9
Phone calls	19	7.8
Total	244	100.0

Source: Computed data from field survey 2018

Fig. 2. Mbororo Women in Sabga
Source: Picture from Field Survey (2018)

In addition, Gêmo et al., [8] see NGO as the best tool in delivery information to farmers although it has its own challenges in that it is expensive but can easily be accessed by highly talented people. It is evident that, the women have a good number of NGOs who provide them with information through their services right in their communities. Examples are the MBOCUDA, LEFIDEP, SHUMAS, GP-DERUDEP, ACEFA. These NGOs offer different types of services to the famers for instance LIFIDEP, GP-DERODEP and MBOSCUDA provide services related to animal wellbeing. It should be noted that effectiveness of extension delivery services depends on the amount of information access by the farmers.

Information gap keeps rural famers waiting and they cannot participate actively in the process of national development. There seems to be a very weak interaction between the farmers and agricultural extension workers because the farmers, in some cases, did not feel that they had a need for information. The findings of this study can go a long way to help policy makers in planning and designing need-based information infrastructural system for rural farmers. Therefore, more effort has to be put in by extension agents to increase their scope of reaching these women using the best possible information channel.

Sofoluwe *et al.,* (2011) explained that “education plays an important role in adopting a new system

of farming. As a farmer acquire more education, their ability to obtain and use information become necessary. It also enables them to analyze and interpret given information and be able to relate them in farm activities". Enujeka *et al*., (2012) added that "education is expected to influence the perception of farmers and enhance adaptation of innovation among farmers". It is therefore important for extension agents to look for the best methods possible to disseminate useful information on livestock farming to these women who are involved in livestock farming considering their level of education [9-11].

> *"Gone are those days when our parents did not want us to go to school because they wanted us to marry. Today we have seen the importance of educating a girl child so we cannot allow them stay at home. Before the crisis, we had some teachers who come and teach women at home and even some of us old women could learn how to read and write which was very good. Because of this we saw the importance of education although our own time has passed. Today, even if my husband refuse my daughter from going to school I will work and send my girl children to school because you can see I am suffering today because I never went to school, if I went to school I would have had a good government job, drive my own car and even eat good food too. I will not let my own girl child to surfer like me".*

4. CONCLUSION

This study is a review on the role played by ICT in effective dissemination of extension information among women livestock farmers in North West Region of Cameroon. The results revealed that a number of ICTs channels are available to the women including NGOs. It was also realized that 40.5% of agricultural information is gotten from the medias. This include radios magazines and leaflets, although in the north west region there exist a variety of local radio stations which sometimes promote the spread of agricultural information. However, it was rather unfortunate that some of the women interviewed did not see the need of having innovative extension information and this set of women believed in what they already know that is helping them. It was also realized that extension information will hardly reach the women at the rural area since there is absolute lack of infrastructural facilities in most of the rural areas thus limiting extension staff from reaching there.

5. RECOMMENDATION

5.1 Development of Infrastructures

The government should develop infrastructures like good roads, office space and ICT centers that will help facilitate the capacity of extension workers in the disseminations of innovations will help women livestock farmers while leaving in the communities. Set up strategies to retain skillful qualified extension staff.

The extension workers should develop mechanisms for the distribution of booklets, brochures, handouts where necessary in the local languages on basic livestock breeding and animal health care.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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