The Determinants of Access to Agricultural advice in the West Cameroon Region

Arnold Billy T. Fokou[1], Fon Dorothy Engwali[2], Tohnain Norbert L[3]

[1,3]Department of Agricultural Extension and Rural Sociology, University of Dschang
[2]Department of rural economy, University of Dschang

Abstract— *This study analyzes the determinants of access to agricultural advice in the West Cameroon region. Farm surveys and interviews with agents of the ACEFA advisory were conducted to examine the supply and demand for agricultural advice. The results show that the majority of farmers carry out several agricultural activities and seek various advices, while the offer of advice is mainly intended for a small audience, and much more oriented towards the modernization of production systems and centered on improvement of agricultural techniques. Among the variables identified and included in the logit model, 7 of them positively influence access to agricultural advice*.

Keywords— access to agricultural advice, advisory service, agricultural advice.

I. INTRODUCTION

1.1 Background and Objective of the Study

In agriculture, advice is considered important for improving the performance of farms by development factors, because it facilitates access to information and training (Rebuffel et al., 2015). Although in the countries of the South some research shows that access to agricultural advice is limited (Faure et al., 2011). In Cameroon, the evolution of agricultural policies since independence aims to seek solutions to help producers in rural areas to achieve their development objectives. They are concerned with improving technical and economic performance, structuring agricultural activities in the production chain and promoting income growth and employment in rural areas.

Access to agricultural advice can be considered as the capacity for a producer to be supported by the services of a consultative body and to benefit from the support offered to him. Thus, access to agricultural advice is perceived as the very accessibility of the advice by the strategies deployed and the objectives pursued, and the fact of being able to take advantage of its services once the producer is supervised. Several social, economic, institutional, anthropological, technological factors can therefore influence access to agricultural advice, such as the producer, the service provider or even the agricultural environment.

Access to agricultural advice can then be influenced by the disparity between supply and demand, as shown by Agunga and Igodan (2007) for producers in the United States. Or even ethnic considerations of gender or social status, which define the place of the individual in society and their possibility of accessing agricultural advice, as emphasized by Hoang et al. (2006) in their study in Vietnam. It should be noted that the gender issue in terms of access to agricultural advice is particular in certain southern countries, such as Nigeria (Lahai et al., 1999). In addition, access to agricultural advice relates to the service provider who adjusts offer according to its objectives, means, and scope (Rebuffel et al., 2015). Finally, public policies can play an important role in the supply of services by directly participating in the definition of the content of agricultural advice, in particular for taking into account the environmental or social dimensions of agriculture, and access methods (Rivera and Alex, 2004).

The objective of this article is to characterize the determinants of access to agricultural advice in the West Cameroon region within the Program for the Improvement of Competitiveness of Family Agro-pastoral Farms (ACEFA). It is therefore a question of better understanding the different aspects which promote access to advice within the farming community and which contribute to improving their living and working conditions. Results which can be enlightening for the strengthening of the agricultural advisory systems deployed in the said region and the other regions and countries of the South.

1.2 Approach and method

The study was conducted with 360 producers in rural areas in the Menoua, Mifi, Bamboutos and Koung-Khi divisions of the West Cameroon region. To address the issue of access to advice, we have taken into account the approach to advice for

family farms deployed within the ACEFA system, which was chosen because of its presence in all the divisions of the region. In addition, we have made the assumption that the access of farmers to agricultural advice is related to the demand of producers and the methods of providing advice. As the demand for advice varies according to the type of operation, the social characteristics of the producers and the nature of the production, the advisory service depends on the governance policies deployed within it.

The analysis of quantitative data was done using descriptive statistics and the logit model; the latter is used to determine the factors that affect access to agricultural advice among the population surveyed. If we set P the probability of accessing agricultural advice or not, and X the independent variable likely to influence the occurrence of such a situation, the mathematical formulation of the logit model is expressed in equation:

$$Y = \text{logit}(P) = \ln\left(\frac{P}{1-P}\right) = \alpha+\beta x \quad (1)$$

by deriving P from the equation (1) we obtain:

$$P = \frac{1}{1+[exp^{-(\alpha+\beta x)}}} \quad (2)$$

with P: probability of access to agricultural advice, 1-P: probability of non-access to agricultural advice, X: independent variable which represents the factor influencing access to agricultural advice, Y: dependent variable which indicates whether or not producers have access to agricultural advice, Exp: is the exponential function with natural logarithmic base, β: is the slope coefficient, α: is the intercept term.

This paper analyzes the factors which are determinants to the farmer's access to agricultural advice. As there are several factors, the logit model considers them as covariates or explanatory variables. By extending equation (1) to a multivariate case in which there are 17 covariates or explanatory variables (X_1, X_2,..., X_{17}) like in this study, we obtain equation (3) expressed as follows:

$$Y = \text{logit}(P) = \ln\left(\frac{P}{1-P}\right) = \alpha+\beta_1X_1+ \beta_2X_2+\ldots+ \beta_{17}X_{17} \quad (3)$$

From equation (3), we can compute the probability P by taking the exponential (Exp) in both sides of the expression. Hence, the predicted probability value P of adopting compost is expressed as

$$P = \frac{1}{1+[exp^{-(\alpha+\beta1X1+\beta2X2+\cdots\ldots\ldots\ldots\ldots+\beta17X17)}}} \quad (4)$$

Where, Y: farmer group being dichotomous can take two values (with 1 = access to agricultural advice, 0 = no access to agricultural advice); X_1: Gender, this is the sex of the respondents coded 1 = man, 2 = woman; X_2: Age, corresponding to the age of the respondents in coded years 1 = > 40 -old-, 2 = ≤ 40 -young-; X_3: Marital status, specifies the marital status of the respondents coded 1 = married, 2 = single; X_4: Household, this is the number of people for whom the head of the family is responsible, coded 1 = > 10 -large-, = ≤ 10 -small-; X_5: Education, it refers to the education of the respondents coded 1 = educated, 2 = without education; X_6: Experience, this provides information on the duration in years of practice of the agricultural activities of the respondents coded 1 = > 20, 2 = ≤ 20; X_7: Membership, it refers to the respondents' membership in a producer organization coded 1 = yes, 2 = no; X_8: Training, it allows us to know if the farmers surveyed have received training in agriculture before or during their activity coded 1 = yes, 2 = no; X_9: Area, these are the dimensions in hectares of the farm surveyed coded 1 = > 1ha -grand-, 2 = ≤ 1ha -small-; X_{10}: Acquisition, it refers to the mode of land acquisition by respondents coded 1 = owner, 2 = tenant; X_{11}: Activity, it corresponds to the different types of main agricultural activities carried out by the respondents coded 1 = agriculture, 2 = livestock, X_{12}: Residence, this is the distance from the place of residence of the respondents in relation to the agricultural advisory service coded 1 = close (≤100km), 2 = distant (> 100km); X_{13}: Awareness, it refers to the producer's knowledge of the existence of agricultural advisory services and the services they offer coded 1 = yes, 2 = no; X_{14}: Availability, information on the participation of respondents in the activities of the advisory service which supervises them coded 1 = yes, 2 = no; X_{15}: Proximity, this is the quality of the advisers' interactions with producers through their presence in the field coded 1 = ≤ 14 days -near-, 2 = > 14 days -distant-; X_{16}: Request, it is a question of taking into account the requests of the respondents by the advisor 1 = yes, 2 = no; X_{17}: Collaboration, it is the collaboration between supervised producers and non-supervised producers among the respondents coded 1 = yes, 2 = no). α:

Intercept term; β_1, β_2,…..,β_{17} (termed as βk) are respectively the slope coefficients of the explanatory variables X_1, X_2,….., X_{17} (termed as Xk), to be estimated in SPSS software.

The Odds Ratio (OR) derived from the equation (1) where ln (P / 1-P) called log Odds Ratio (OR), representing the degree regression is used to facilitate the interpretation of the results obtained. The exponentials of the slope coefficients βk associated to the explanatory variables are interpreted as OR of adopting the compost (or of occurrence of the event) for each increase in the explanatory variable. In general, since the OR of logit model are just the exponentials of estimated coefficients βk, the positive coefficients will usually display an OR greater than one (OR>1) whereas the negative coefficients will generally indicate an OR lower than one (OR<1). Usually, the expression 1/Exp(B) designates the inverse OR which is computed in order to facilitate the interpretation of the variables with negative coefficients (Wooldridge, 2009).

II. RESULTS AND DISCUSSION

2.1 Sociodemographic description of respondents

TABLE 1
STAFF AND WORKLOAD OF THE DTU IN THE STUDY AREAS

Division	Type of adviser	Size	Agricultural assets	Family farm	Number of PO registered	ACEFA EFA observatory portfolio	ACEFA Portfolio PO
Bamboutos	DTU	1	104 595	47 360	1900	80	221
	TECO	1					
	PO. MC	1					
	FMC	1					
	STC VP	1					
	STC AP	1					
	PGC	33					
Menoua	DTU	1	441000	98000	2619	86	323
	TECO	1					
	PO. MC	1					
	FMC	1					
	STC VP	2					
	STC AP	2					
	PGC	38					
Koung-khi Mifi	DTU	1	342000	8000	2839	25	360
	TECO	1					
	PO MC	2					
	FMC	1					
	STC VP	2					
	STC PP	2					
	PGC	39					

Source : Survey

ACEFA's action strategy rests on its basic structure, namely the divisional technical unit (DTU) with one (1) single head of the DTU who ensures the prioritization of the service, supported by one (1) Technical and Economic Counselling Officer (TECO). However, the number of Producer Oganization Management Counsellor (PO MA), Farm Management Counsellor (FMC), Specialised Technical Counsellor in Animal Production (STC AP) and Plant Production (STC PP), Producer Group Counsellor (PGC)), varies according to the service and average needs of the program as shown in Table 1. The services offered are aimed at agro-pastoral family farms (AFF) through producer organizations (PO), and professional agro-pastoral organizations of 2nd and 3rd level (POa), which are unions of producer groups, federations and cooperatives essentially intended to provide economic services to their members.

With a registration rate of nearly 2,500 POs on average per DTU, the supervisory capacity is close to 250 POs in the four divisions, or around 10% of demand (Table 1). This raises the question of means and workload and therefore the ability of the system to provide proximity advice to all the holdings in its portfolio. Table 1 showing that the DTU surveyed respectively have less than 50 counsellors with a well-developed portfolio for specialist advisers. In fact the divisional technical unit (DTU) Mifi and Koung-Khi are merged within the ACEFA program for administrative reasons.

TABLE 2
SOCIO-DEMOGRAPHIC CHARACTERISTICS OF PRODUCERS

Variables	Modality / Description		Size	Percentage
Gender	Man		208	57,77
	Woman		152	42,22
Age	≤ 30		9	2,5
	31-40		42	11,66
	41-50		122	33,88
	51-60		136	37,77
	> 60		51	14,16
Level of education	No education		55	15,44
	Primary level		199	55,43
	Secondary level		96	26,61
	Higher education		9	2,47
Producers' experience	≤ 10		64	17,8
	11-20		82	22,74
	21-30		136	37,8
	> 30		78	21,66
Household size	≤5		93	25,83
	6-10		172	47,77
	11-15		38	10,55
	16-20		44	12,22
	> 20		13	3,61
Type de production	Man	Pig breeding	36	10
		Poultry farming	22	6,11
		Goat farming	9	2,5
		Market gardening	64	17,77
		Subsistence agriculture	55	15,27
		Cocoa, coffee, fruits tree	22	6,11
	Woman	Pig breeding	4	1,11
		Poultry farming	12	3,33
		Goat farming	0	0
		Market gardening	11	3,05
		Subsistence agriculture	122	33,88
		Cocoa, coffee, fruit tree	3	0,83
Belonging to a PO	Yes		122	33,88
	No		238	66,11
Being adviced	Man	Not adviced	164	45,55
		Adviced	44	12,22
	Woman	Not adviced	127	35,27
		Adviced	25	6,94
Training in agriculture	Not trained	Not adviced	235	65,27
		Adviced	22	6,11
	Trained	Not adviced	56	15,55
		Adviced	47	13,05

Source: Survey

The results in Table 2, which presents the socio-demographic characteristics of producers, confirm those of Table 1 with regard to the penetration rate of agricultural advice, since 19% of the producers in the sample claim to be supervised by the ACEFA advice system. This clearly shows that the device's (dispositive) penetration rate is low, and the difference in supervision between the data collected from ACEFA and that of producers is due to the double level of supervision encountered in the field. Indeed, some producers, although they are not part of the ACEFA portfolio, can benefit from secondary supervision by attending the monthly meetings organized by the adviser in their constituency.

Table 2 shows that not many young people are interested in agriculture, and that gender influences access to agricultural advice, as well as in terms of types of agricultural activity. In addition, it shows that training in agriculture is a factor which

strongly influences access to agricultural advice with 13.05% management for those who are trained and 6.11% for those who are not.

Despite the diversity of the services offered by the system, the advisory service is still largely guided by a certain vision of agriculture so the aim is to allow farmers to generate income to enable their families to live on this sole activity and be committed to a form of modernization. However, due to lack of resources, some farmers are struggling to embark on this path of professionalization, because farming is only one of the components of their activity systems (Fusillier et al., 2006).

2.2 Results of the estimation of the coefficients and the odds ratio of the logit model

2.2.1 Odds ratio [Exp(β)] and inverse odds ratio [1/Exp(β)] of coefficients (β) estimated from the logit model for access to agricultural advice

TABLE 3
ESTIMATION OF THE COEFFICIENTS OF THE LOGIT MODEL

Explanatory variables	Coefficient β	Sig	Exp(β)	1/Exp(β)
Gender (1= man, 2= woman)	1,779*	0,053	3,620	//
Age (1=> 40 -old-, 2=≤ 40 -young-,)	0,153	0,781	1,551	//
Marital status (1= married, 2=single)	0,78	0,812	1,382	//
Collaboration (1= yes, 2= no)	1,759*	0,057	2,860	//
Householde (1= > 10 -large-, 1= ≤ 10 -small-)	0,209	0,601	1,423	//
Belonging (1= yes, 2= no)	1,911**	0,026	6,154	//
Éducation (1= educated, 2= not educated)	0,753	0,324	1,010	//
Awareness (1= yes, 2= no)	1,959*	0,059	4,526	//
Training (1= yes, 2= no)	1,606**	0,041	5,218	//
Land size (1= > 1ha -big-, 2= ≤ 1ha -small-)	0 ,432	0,555	1,621	//
Proximity (1= ≤ 14 days -near-, 2= >14 days -distant-)	1,486**	0,034	7,115	//
Activity (1= agriculture, 2= livestock)	-1,008	0,177	,915	1,24
Availability (1= yes, 2= no)	0,789	0,455	1,973	//
Demandn(1= yes, 2= no)	1,859*	0,050	3,970	//
Experience (1 = > 20, 2= ≤ 20)	-0,78	0,763	,948	1,91
Residence (1= proche ≤100km, 2= far > 100km)	-1,001	0,107	,825	1,43
Acquisition (1= owner, 2= tenant)	-0,199	0,757	,931	1,56
Constance	-1,232			
**= significant at 5% ; *= significant at 10% ; -2 Log resemblance = 70,071 ; Chi square(x^2) = 38,031 ; R-two of Cox and Snell= 0,486 ; R-two of Nagelkerbe = 0,617 ; Percentage of model prediction = 81,6%				

Table 3, which presents the estimate of the logit model used to determine the factors determining access to agricultural advice in this study, shows that the Chi-square (x^2) = 38.031 at 0.081 significance and therefore significant at 10%. This shows that there is a significant relationship between the dependent variable and the independent variables, that the hypothesis H_0 according to which several factors do not influence access to agricultural advice is rejected and the hypothesis H_1 according to which several factors influence access to agricultural advice is validated. Furthermore, the prediction percentage of the model is 81.6%, the R-two of Nagelkerbe = 0.617, which indicates the independent variables presiding over the dependent variable.

Indeed, seventeen variables were included in the analysis model, the estimation results of which are presented in Table 3, were validated, because its prediction rate is 81.6% and the Chi-square test -two x^2 was significant at 10%. With regard to the parameters estimated by the model, seven variables contained in the model significantly influence access to agricultural advice, three at 5% and four at 10%.

2.2.2 Presentation and interpretation of Model results

These results show that the gender variable X_1 significantly influences the model at the 10% threshold, which implies that men are 3,620 times more likely to have access to agricultural advice. These results are consistent with the analyzes of Rebuffel et al. (2015) in Mayotte as well as those of Lahai et al. (1999) in their study on gender and agriculture in Nigeria.

Indeed, in rural areas, gender still greatly influences social status, the distribution of roles and the differentiation of tasks, since the activities carried out can be influenced by culture, customs and traditions.

The collaboration variable X_{17} positively influences access to advice; moreover it is linked to the dependent variable at a significance threshold of 10%. The results obtained show that producers who collaborate with each other are 2,860 times more likely to have access to agricultural advice. Producers who constantly interact with other producers and especially those who are supervised by advisers have easier access to agricultural advice than the others. Indeed, during the survey, several producers claimed to have had knowledge and access to agricultural advisory services through regular collaboration with their colleagues. Thus, participating in meetings of supervised producers, realizing the improvement in the activities of a colleague, his new orientations, skills and knowledge can push producers to enter into relations with the agricultural advisory service, following the example of the collaboration between PO SALAM and EMA in Menoua Division. This is the same conclusion drawn from Remy et al. (2006) on the impact of collaboration within the framework of agricultural advice between producers in their sphere of activity.

The training variable X_8 has a positive influence on access to advice at a significance level of around 5%. These results show that those who are trained in agriculture are 5.218 times more likely to have access to agricultural advice than those who have no training. Indeed, training in agriculture would allow producers to better understand their agricultural environment and the importance of advice. In his analysis, Maragnani (2008) also shows how training in agriculture is a real tool for strengthening capacity for access and dissemination of knowledge.

The knowledge variable X_{13}, which refers to awareness of an advisory service and of the objects implemented, positively influences access to agricultural advice and is significant at 10%. These results show that producers who know a farm advisory service are 4.526 times more likely to have access to advice than those who do not. Yet, information on the existence of a consultancy service, what it does, what it can bring, where it is, the profile of advisers and even its methods, can significantly influence the choices of producers. This therefore calls upon the communication strategies deployed by the agricultural advisory service to make itself known to the public. It is in the same vein as Agunga and Igodan (2007) show that the relevance of advice and its expansion through good communication tools would encourage adhesion by producers.

The demand variable X_{16} highlights the perception and expectations of producers about agricultural advice. This variable significantly influences access to advice at 10%. These results show that producers who know that their needs can be taken into account are 3,970 times more likely to seek agricultural advice. These results are in line with those of Pennings et al. (2005) for whom farmers' expectations and perception of advisory performance and its compatibility with their production and commercial strategies influence their decisions. The less the producers' requests are taken care of by an advisory service, the more they become discouraged. This is the case for producers with little or no education encountered during the study who prefer to use their colleagues in case of difficulty they find more experienced than them to take advice. According to them, the advisers from organizations are more theoretical than practical "because agriculture is practiced in the field and not in offices"; moreover, the use of writing is a handicap for them within the system.

Membership in a production organization X_7 positively affects access to agricultural advice and is significant at 5%. These results show that producers belonging to a producer organization (PO) are 6.154 times more likely to have access to agricultural advice than those who do not belong to a PO. Producer or farmer Organizations then appear as the preferred framework for advice, because they facilitate group work either through supervision by an adviser or because the PO itself provides advice to its members. This is moreover the observation made by Achancho (2012) which shows that through POs, producers obtain and exchange information with their advisers, share their experiences on new technologies and production techniques; cooperate with POs with the aim of mentoring others, and can easily receive funding and similar services.

The proximity variable X_{15} is the one that refers to the proximity of farmers to advisers; it significantly affects access to advice in the order of 5%. These results show that producers who have real local supervision are 7.115 times more likely to have access to advice by taking advantage of the supervision. Proximity then refers to the adviser's availability and the methods he uses to convey his advice. The goal of the advisers is that through all their activities in the field, they should supervise the farmers by maintaining constant interactions. These results are in agreement with those of Parrot et al. (2010) who show that the level of proximity between the advisor and the producer during supervision is decisive for access to advice. It is therefore important for good accessibility through a constant presence of the adviser in the field with the producers. As Glin (2014) notes, the less the producers are supervised, the less they organize themselves and the less they master not only the advisory tools; but also struggle to appropriate the knowledge, skills and innovations disseminated.

The marital status X_3 and household size X_4 variables, although positive, have no effect on access to counseling, since they do not significantly influence the model. These results show that married producers are 1.382 times more likely to access

advice, while households with the largest number of people are 1.423 times more likely to access it. On the contrary, we expected that the larger the family, the more it has means of social mobilization due to the diversification of interactions it produces, and the more it should develop strategies to increase its productivity. This shows that the logics and strategies of producers are generally subject to the influence of socio-cultural factors; given that a rural producer does not seek to get closer to advisory services because of the size of his family or his marital status (Guillermou, 2015).

The availability variable X_{14} refers to the motivation of the producer or even his rationality, although positive it is not significant in the model and shows that producers who attend meetings of the organization are 1,973 times more likely to " have access to advice. Availability, which calls for mixed objectives and challenges, not only makes it possible to know where we are, but also where we are going to in order to use the means available to get there. However, the availability of producers is itself a function of the relevance of the advisory service and the handling of requests from producers, which would explain the commitment or participation of producers in an agricultural advisory system (Ndiaye, 2018). Thus, to make producers participate more in meetings, these must really be in line with their needs or bring them to realize the relevance of the themes treated.

Age X_2, although positive, does not have a significant influence on access to advice. The results show that older people are 1.551 times more likely to have access to agricultural advice. This is certainly due to the fact that very few young people are interested in farming and that the people most involved are older. This is moreover the observation made by Hoang et al. (2006) who show the low involvement of young people in agricultural activities which affects all activities from upstream to downstream. In addition, the results can be influenced by the fact that ACEFA supports farmers of all ages by encouraging young producers.

The level of education X_5 and experience X_6 of the producers also do not significantly affect the dependent variable. The results show that those who went to school are 1.010 times more likely to have access to farm counseling and those with more experience 1.91 times more likely to have access to it. These results are contrary to those of Faure and Compagnone (2011) for whom the level of education of producers and their experience strongly influence access to agricultural advice. This simply shows that governance and public policies implemented in a counseling system can favor more educated or more experienced people or, on the contrary, give chances to all categories of people as is the case with ACEFA.

The activity exercised X_{11} with a negative sign is not significant in influencing the dependent variable. The results show that farmers are 1.24 times more likely to have access to agricultural advice than ranchers or livestock farmers. These results are substantially close to those of Remy et al. (2006) for whom the type of production activity in rural areas can favor the supervision of certain producers to the detriment of others, because certain agricultural speculations sometimes receive more attention. The low disparity of results in the model may be due to the diversification of skills and services made available to producers by the ACEFA system and the orientation of agricultural advice more by demand than by offer of service.

The variable place of residence X_{12} also with a negative sign is not significant, since it does not influence access to agricultural advice. The results show that those closest to advisory services are 1.43 times more likely to have access to agricultural advice than those who are distant. These results are distinct from those of Parrot et al. (2010) on the isolation and proximity to the agricultural council which show that distance is a serious obstacle to access to the agricultural council. This difference in results can certainly be explained by the fact that in the study area the agricultural advisory service is distributed almost identically, the organization also providing motorcycles to its advisers to move around in the field.

The mode of land acquisition X_{10} has no significant impact on access to agricultural advice; in fact land tenants are 1.56 times more likely to have access to agricultural advice than landowners. These results contrast with those of Remy et al. (2006) for whom the owners and land tenants of do not generally display the same behavior when dealing with the management of available opportunities. Although access to agricultural advice is an important issue in farm management, most of the land tenants surveyed do not find it binding to rent land as long as the gains from production can manage the expenses incurred without further planning. This shows that rental charges would still be affordable in the areas surveyed and that agricultural advice would be considered equally by landowners and tenants.

The variable area of the holding (X9), although positive, is not significant to influence access to agricultural advice. The results show that owners of large spaces are 1.621 times more likely to have access to agricultural advice. These results do not agree with those of Parrot et al. (2009) who think that the size of the farm positively influences access to agricultural advice, because it affects producers' perception and their relationship to earnings. This difference in result is certainly due to the fact that the producers in the study area would naturally like to increase the area of their exploitation as far as their means permit, because as Pagès (2005) notes, land is still considered as an element of savings and not capital in certain rural areas. In addition, ACEFA supports both small and large farms, by allocating resources according to the needs of producers.

III. CONCLUSION

Access to agricultural advice in West Cameroon region also depends on the socio-demographic characteristics of producers, governance mechanisms, advisory methods, financing mechanisms, and the capacities of service providers. Among the 18 variables analyzed in this study, 7 of them are in favor of access to agricultural advice, namely gender, collaboration between producers, training in agriculture, knowledge of the service provider and its advisory services, the consideration of producers' requests, membership of a producer organization, and the proximity of advisers in management. The other variables which do not affect access to agricultural advice without being negligible are mostly due to the structure and functioning of the ACEFA advisory system.

Survey results highlight the low rate of access to agricultural advice in the region. This is partly related to the resources of the advisory body, the mismatch between supply and demand, governance and the advisory methods deployed by the system. The objective of the device is to professionalize producer organizations through intensive agriculture, proximity of the advisory services are least little practiced and training is also neglected because of the workload of the advisers.

To facilitate access to agricultural advice, advisory bodies must take into account socio-cultural realities and the objectives of producers in order to promote the adequacy of advice. This is why proximity advice and training in agriculture must be priorities for the providers of advice, which will enable them to really take into account the demands of farmers and to rationalize producer organizations.

REFERENCES

[1] A. Maragnani, « Les enjeux de la formation professionnelle et technique dans le secteur agricole et le milieu rural cas de l'Afrique de l'ouest, » 2008 www.agropolis.fr/formation/pdf/2008-maragnani-Enjeux-formation-agricole-MAEE ADEA.pdf

[2] A. Ndiaye, Système d'innovation agricole : Guide stratégique et pratique de conseil agricole, Sénegal, L'Harmattan, 2018.

[3] A. Pagès, La pauvreté en milieu rural, Mirail, Presses universitaires du Mirail, 2005.

[4] B. Lahai, P. Goldey, and G. Jones, « The gender of the extension agent and farmers' access to and participation in agricultural extension in Nigeria», Journal of Agricultural Education and Extension, vol 6, p.223-233, 1999.

[5] G. Faure, and C. Compagnone, « Les transformations du conseil face à une nouvelle agriculture, » Cahier Agricole, vol 20, n°8, p.321-326, 2011.

[6] G. Faure, Y. Desjeux, and P. Gasselin, « Revue bibliographique sur les recherches menées dans le monde sur le conseil en agriculture, » Cahier Agricole, Vol 20, n°5, p.327-342, 2011.

[7] J. Pennings, S.H. Irwin, D. Good, and O. Isengildina, « Heterogeneity in the likelihood of market advisory service use by U.S. crop producers,» Agribusiness New York, n°21, p.109-28, 2005.

[8] J. Remy, H. Brives, and B. Lemery, Conseiller en agriculture, Paris, Dijon : Inra Educagri éditions, 2006.

[9] JL. Fusillier, JP. Choisis, and M. Piraux, « Le modèle d'exploitation agricole familiale réunionnais face à l'accroissement des contraintes foncières et économiques, » Cahiers Agricultures vol 15, p.542-548, 2006.

[10] JM. Wooldridge, Introductory Econometrics: a Modern Approach, McGraw-Hill, New York, USA, 2009.

[11] L. Glin, « Caractérisation des producteurs-chercheurs et leurs perceptions sur les innovations testées en milieu réel. Système coton bio au service de la sécurité alimentaire, » CahAgric, vol 24, p.112-164, 2014.

[12] L. Parrot, S. Simon, and J. Sotamenou, Transfer stations for sustainable municipal solid waste management in africa : evidence from cameroun, herzog, Nova, 2010.

[13] L.A. Hoang, J.C. Castella, and P. Novosad, « Social networks and information access: Implications for agricultural extension in a rice farming community in northern Vietnam,» Agriculture and Human Values, vol 23, p.513-527, 2006.

[14] P. Rebuffel, C. Lemoine, and G. Faure, « Le difficile accès au conseil pour les petites exploitations agricoles : le cas de Mayotte », CahAgric, vol 24, p.269-276 ; 2015.

[15] R. Agunga, and C. Igodan, « Organic farmers' need for and attitude towards extension,» Journal of Extension n°45, 2007, http://www.joe.org/joe/2007december/a6

[16] V. Achancho, Le rôle des organisations paysannes dans la professionnalisation de l'agriculture en Afrique subsaharienne : le cas du Cameroun,AgroParisTech, 2012, Français. <NNT : 2012AGPT0095>. <pastel-00935522>.

[17] WM. Rivera, and G. Alex, « Extension system reform and the challenges ahead,» Journal of Agricultural Education and Extension, vol10, p.23-36, 2004.

[18] Y. Guillermou, « Les logiques paysannes à l'épreuve du marché et des inégalités, Agricultures familiales et mutations sociales (Ouest Cameroun, Sud tunisien), » dans Revue Tiers Monde, n°222, p.141-160, 2015.