Working Paper

Farmer-to-farmer extension in Cameroon:

A survey of extension organizations

Sygnola Tsafack, Ann Degrande, Steven Franzel, Brent Simpson

World Agroforestry Centre

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ABBREVIATIONS

ADD	Alternative Durable pour le Développement
AJESH	Ajemalibu Self Help
ANCO	Apiculture and Nature Conservation
ARC	Agroforestry Resource Centre
BERUDA	Belo Rural Development Association
CERUT	Centre for the Environment and Rural Transformation
CIEFAD	Centre Intégré d'Expérimentation et de Formation en Agriculture Durable
CIMAR	Centre d'Incertion aux Métiers Agricoles et Ruraux
CIPCRE	Cercle International pour la Promotion de la Création
CTA	Technical Centre for Rural and Agricultural
ERUDEF	Environmental and Rural Development Foundation
F2F	Farmer-to-farmer
FAO	Food and Agricultural Organization of the United Nations
FONJAK	Fondation Fritz Jacob
FS	Field staff
Gic PRO AGRO	Groupe d'initiatives communes des Promoteurs d'Agroforesterie de l'Ouest
HPI	Heifer Project International
ICRAF	World Agroforestry Centre
IFAD	International Fund for Agricultural Development
INADES	Institution Africaine pour le Développement Economique et Social
LF	Lead farmer
MIFACIG	Twantoh Mixed Farming Common Initiative Group
MINADER	Ministère de l'Agriculture et du Développement Rural (Ministry of Agriculture)
MINEPIA	Ministry of Livestock, Fisheries and Livestock Industries
NGO	Non-Governmental Organization
NOWEFOR	North-West Farmers' Organisation
PLANOPAC-Ouest	Plate-forme des Organisations Agro-sylvo-pastorale de l'Ouest Cameroun
RARC	Riba Agroforestry Resource Centre
SAILD	Service d'Appui aux Initiatives Locales de Développement
SIRDEP	Society for Initiatives in Rural Development and Environmental Protection
SNV	Netherlands Development Organization
SOCADYC	Société Coopérative des Agriculteurs Dynamiques du Centre
UCOPADCAM-BINUM	Union des Sociétés Coopératives Binum des Producteurs Agropastoraux du Cameroun

SUMMARY

Despite the central role that farmers play as agricultural producers in developing countries, they are often inadequately served by research, extension and advisory services. Extension approaches such as the farmer-to-farmer extension (F2F) approach were developed to improve service to farmers, but little is known about how this approach is being used in Cameroon. This paper examines the experiences of organizations using the F2F extension approach.

Specifically, the study characterizes and assesses F2F extension approaches in Cameroon to determine which practices are most effective in different circumstances. A semi-structured questionnaire was used to collect data from 24 selected organizations in seven regions of the country. The F2F extension approach in Cameroon is used by farmer organizations as well as national and international non-profit organizations. Neither governmental services nor private sector companies use this approach. Those organizations using F2F extension had on average five field staff (FS), and mainly targeted farmer groups.

Fifty-eight percent of organizations interviewed had one woman or no women among their field staff. Though respondents stated that their organizations were using many different extension approaches, in addition to the F2F approach, 41 percent identified F2F as the most effective method. The main sources of technical information for FS were personal reading, information exchanged during seminars and workshops, staff members' own experiences and research institutes.

Field staff were in charge of capacity development and follow-up of lead farmers (LFs). On the basis of mutually agreed upon criteria, LFs were usually selected jointly by FS and the community. According to the organizations interviewed, individual FS were working with 17 LFs on average, and the latter were training approximately four groups, each with about 43 members, in addition to 48 individual farmers outside of these groups. These LFs were considered an extension of FS in their communities and usually offered their services on a voluntary basis.

Some organizations supported LFs by providing per diem during training workshops and meetings, and helping them set up income-generating opportunities such as selling livestock or seedlings. Among the main motivations for one to become a lead farmer mentioned by respondents were altruism and early access to technologies, followed by job benefits and social status. To remain in the position, LFs were motivated by opportunities for income generation and altruism, as well as social networking. Most of the organizations gave F2F a score of 8 (on a scale of 1-10) for effectiveness, so it is clear that the F2F approach is considered highly effective in Cameroon.

Keywords: Agricultural extension, lead farmers, farmer-to-farmer extension, voluntarism.

INTRODUCTION

Context

Rural farmers provide up to 80 percent of the food consumed in a large part of the developing world (IFAD, 2012). Promoting growth of the agricultural sector is among the most effective ways of tackling poverty and reducing hunger and malnutrition (FAO, 2012), but small-scale farmers and the rural poor have largely been underserved by formal research and extension services (CTA, 2011). Simply put, farmers need more effective support so that they can improve their knowledge and skills, and take advantage of new technologies and markets. Against this background, many extension services – including the private sector, government, non-profit and farmer organizations – have developed alternative extension approaches that are more participatory, demand-driven and market-oriented, and that focus on farmers as the principal agents of change in their communities. Such approaches aim to enhance farmers' learning and empowerment, thereby increasing their capacity to innovate, train other farmers and improve their livelihoods (Sulaiman and Davis, 2012).

After decades of underinvestment in agriculture, and particularly in extension, the tide has begun to change, with more funding becoming available for agricultural extension. The current interest in agricultural advisory services is emerging as part of a broader shift in thinking that focuses on enhancing the role of agriculture for pro-poor development (Birner et al*.,* 2006). The role of extension has increased, responding to the challenge for more information and ideas and stronger organizational capacities to develop agricultural systems that will meet complex demand patterns, reduce poverty, and preserve and enhance ecological resources (Degrande et al., 2012).

In many countries, extension systems have undergone profound changes in the past 20 years. Centrally controlled, top-down approaches are being replaced by those that encourage organizations to interact with farmers as equal partners (CTA, 2011). Owing to the difficulty in acquiring knowledge, skills and inputs, however, new technologies often do not spread easily (Franzel and Wambugu, 2007). Research on the performance of various advisory service models can make important contributions to improving the quality of services offered to farmers and to the management of service provider contracts (Birner et al., 2006). Volunteer farmer trainer programs have been shown to increase the effectiveness and efficiency of farmer advisory services (Kiptot et al., 2012), but not enough is known about the role of these types of extension approaches within the agricultural innovation system (Sulaiman and Davis, 2012) in Africa, and especially in Cameroon. There is need to understand how organizations use F2F extension, their challenges and successes, and how the approach has changed over time.

Objectives

The overall objective of this study is to assess F2F extension approaches in Cameroon, and to determine which practices are most effective in varying circumstances.

More specifically, the study attempts to:

1. Assess the range of extension services using F2F across various contexts in Cameroon.
2. For organizations interviewed, determine the perceived effectiveness of the F2F extension approach.
3. Determine the motivations of the lead farmers involved, as viewed by organizations.
4. Identify the benefits and challenges of the F2F approach, as viewed by organizations.

METHODOLOGY

Study area

The study involves organizations that use the F2F approach to disseminate agricultural innovations in southern Cameroon. It was conducted in three agro-ecological zones of the country – the western highlands, the forest monomodal and the forest bimodal rainfall zones. Characteristics of the study sites are summarized in Table 1. Figure 1 shows the locations of interviewed organizations.

Table 1. Summary of the characteristics of the study zones.

Characteristics	Agro-ecological zones		
	Western highlands (Hauts Plateaux)	**Forest monomodal rainfall**	**Forest bimodal rainfall**
Location	From Nde Division to North-West Region and part of South-West	From Littoral to South-West, and coastal area of South Region	Centre, South and East Regions
Surface	31,192 km^2	45,658 km^2	165,770 km^2
Coordinates	5^o 00" - 7^o 00" N ; 9^o 50" – 11^o 15" E	4^o 00" – 6^o 30" N; 8^o 30" – 10^o 00" E	2^o 00" – 4^o 00" N; 10^o 31" – 16^o 12" E
Relief and vegetation	Mountainous areas characterized by savannah vegetation; plateaus and valleys crossed by gallery forests.	Mountains with steep slopes and valleys. In the west, dominated by a volcanic chain (Mts. Cameroon, Manengouba, Nlonako and Koupe).	Mid-altitude plateau (300 - 600 m above sea level).
Soils	Young soils on slopes (Incepticols), highly weathered soils (Oxisols), soils with horizon B (Alfisols and Ultisols) and plateau with rich volcanic soils. Organic material more than 1.5%. Moderate to high N level, high Mg level and very low K.	Rich and deep Andosols in the north. In the south, lowlands with sandy Ferralitic soils.	Mainly Ferralitic, acid, clay soils that are red or yellow according to the season. Low nutrient-retention capacity. Rapid degradation of nutrients after cultivation.
Climate	Two seasons: dry season (mid-November to mid-March) and rainy season (mid-March to mid-November). Rainfall between 1500 and 2600 mm.	Type equatorial oceanic; hot and humid with two seasons: rainy season (mid-March to mid-November) and a dry season with high humidity.	Subequatorial Congoguinea type, with four seasons: short rainy season (March-June), short dry spell (July- August),

Characteristics	Agro-ecological zones		
	Western highlands (Hauts Plateaux)	**Forest monomodal rainfall**	**Forest bimodal rainfall**
	Relatively low temperatures (20^oC on average).	Rainfall of 4000 mm per year, with records of 11,000 mm on the slopes of Mt Cameroon. Constant temperatures (25^oC on average).	long rainy season (Sept-Nov), long dry season (Dec- Feb). Rainfall between 1500 and 2000 mm over 10 months. Rather constant temperatures (23^o - 27^oC)
Agro-ecological potential	Fertile soils suitable to agricultural activities, especially food crops (maize, beans, potato, gardening), horticultural crops and Arabica coffee, often in association, and two cropping cycles per year. Small livestock husbandry.	Northern part has big industrial plantations of banana, rubber, tea and oil palm. Also food crops (tubers, maize, cowpea, ginger, pepper), cocoa, coffee and horticultural crops. Small livestock husbandry and aquaculture.	Soils suitable for cultivation of banana, plantain, cocoyam, cassava, sweet potato, yam, maize, groundnut, pineapple, cocoa, oil palm, rubber, vegetables and robusta coffee. Small livestock husbandry and aquaculture.
Socioeconomic characteristics	80% of population is involved in agriculture. Three main agricultural areas: Bamoun land (moderate population density, vast spaces for livestock), Bamilike land (high population density, multistrata agricultural systems), grass fields in North-West. Land is mostly inherited, and agriculture on average is small-scale (1.3 ha per household).	Considered the agro-industrial hub of Cameroon. Average population density: 176 inhabitants per km^2. About 40% are immigrants from other parts of the country and abroad.	Low population density, apart from areas around Yaounde and in the Lékié division. Land is mostly inherited, and agriculture is small-scale, characterized by high rural exodus. Shifting cultivation is still the dominant agricultural practice.

Source: MINADER (2009) and Degrande et al. (2012).

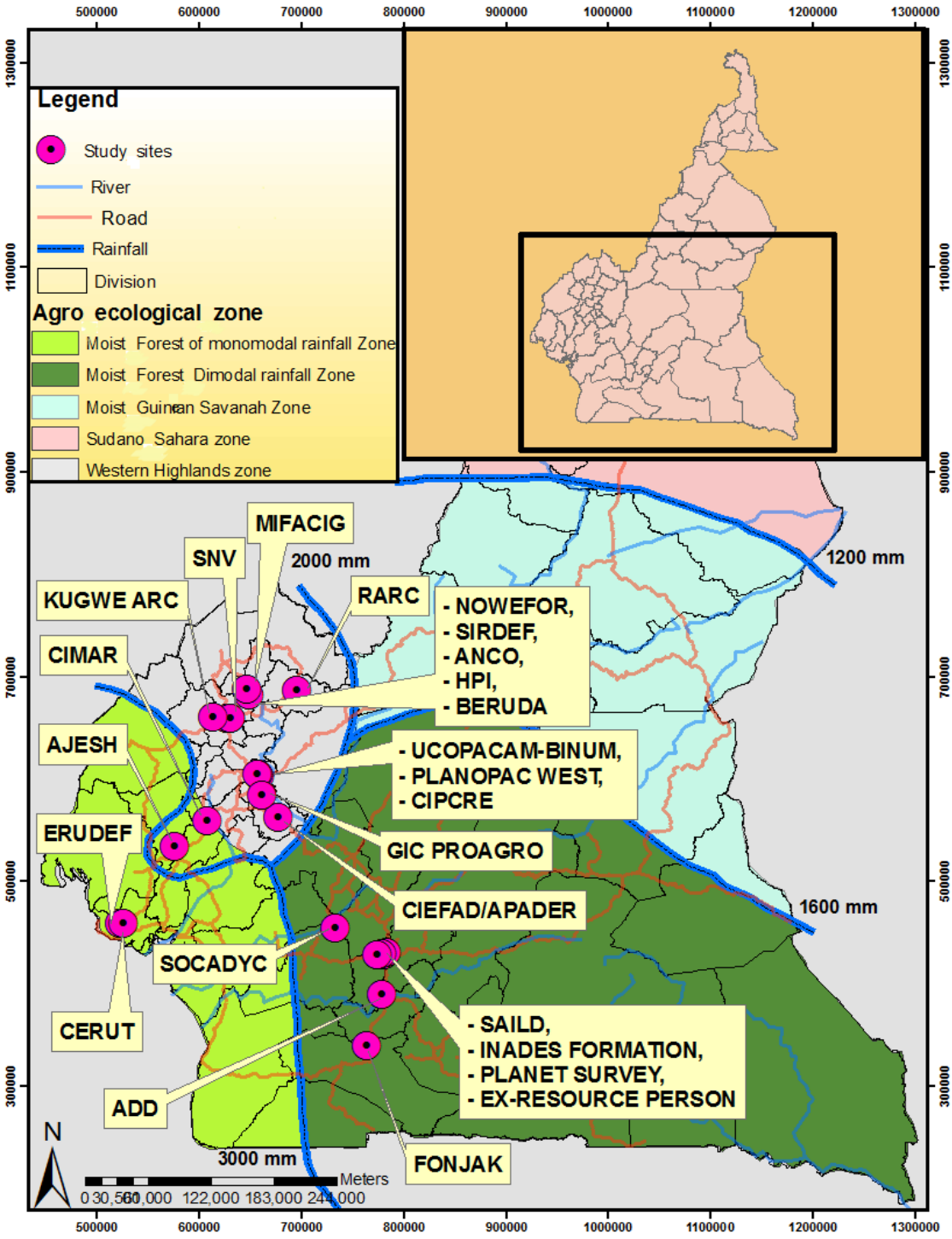


Fig 1. Location of organizations studied in Cameroon.

Sampling

A stratified sampling technique was used in this study. In the first stage, among the five agro-ecological zones found in Cameroon, three were chosen on the basis of the similarity of the main crops grown in these areas – which may lead to similar innovations being promoted – and because the zones were within the intervention zone of ICRAF's agroforestry program.

The second stage was the selection of organizations using F2F extension. A purposive sampling approach was used here. During March and April 2013, 151 organizations working in the three agro-ecological zones (spanning seven regions) were identified, and reconnaissance visits made to 119 of them. Among those visited, 47 had experience with F2F extension, and 31 were chosen for interview, taking into account criteria such as type of organization, length of experience, number of LFs and gender of the manager. Ultimately, interviews were carried out with 25 organizations; three were not available, and three more were deemed not to have met the selection criteria because they were professional training schools. The distribution of organizations identified, visited and interviewed is shown in Table 2.

Table 2. Distribution of organizations identified, visited, selected and interviewed.

Region	**Number of organizations**				
	Identified as potential	Visited	With experience in F2F extension	Selected	Interviewed
Centre	38	32	11	4	4
North-West	37	32	15	11	8
West	33	24	9	6	5
South-West	29	20	7	5	3
Littoral	2	2	2	2	2
South	4	2	1	1	1
East	8	7	2	2	2
Total	**151**	**119**	**47**	**31**	**25**

Data collection and analysis

To address the objectives of this study, interviews were conducted with extension program managers from the selected organizations using a semi-structured questionnaire. The sample included extension program managers from local and international non-profits and farmer organizations. No government or private sector organizations were identified amongst those that used the F2F approach. The government approach is based on the training-and-visit system, as indicated in the national extension strategy of Cameroon (MINADER and MINEPIA, 2003).

On average, the interview was completed in two hours. The main questions comprised the organizations' characteristics and experiences in using the F2F extension approach. Topics covered in the survey were methods of selecting lead farmers, motivation and incentives, training and other support provided, numbers and responsibilities of lead farmers, dropout rates and lessons learned.

To analyse the effectiveness of the F2F extension approach, that is, to check whether organizations achieved results consistent with their objectives (Badibanga et al., 2013), respondents were asked to match objectives and outputs of their organizations and score the effectiveness of the approach on a scale of 1 to 10, with 1=Not effective and 10=Very effective. Responses were analysed using Excel and SPSS software, and analysis of the responses is reported as descriptive statistics.

RESULTS

Who is using the farmer-to-farmer extension approach?

The F2F extension approach was used by three categories of organizations: local non-profits (60 percent), international non-profits (24 percent) and farmer organizations (16 percent). This study found no private or public enterprises that use F2F extension. Around three-quarters of the organizations using the approach were established before the year 2000 (Table 3). About half (52 percent) were established between 1990 and 1996. The two oldest were created in 1963 and 1970, while the most recent was established in 2009. International NGOs started using the approach earlier than local NGOs and farmer organizations.

Table 3. Year in which organizations using F2F extension approach were established.

Year established	General view		International NGO		Local NGO		Farmers' organizations	
	Frequency	Percentages	Freq.	%	Freq.	%	Freq.	%
1963	1	4	1	16.7	0	0	0	0
1970	1	4	1	16.7	0	0	0	0
1974	1	4	1	16.7	0	0	0	0
1988	1	4	1	16.7	0	0	0	0
1990	3	12	1	16.7	2	13.3	0	0
1991 to 2000	11	44	0	0	9	60	2	50
2001 to 2009	6	24	0	0	4	26.8	2	50
Don't know	1	4	1	16.7	0	0	0	
Total	25	100	6	100	15	100	4	100

All respondents were staff members of the organization, and around 40 percent were directors or coordinators. Most respondents had been with their organizations for more than five years (Fig. 2); the average number of years with the organization was 10.

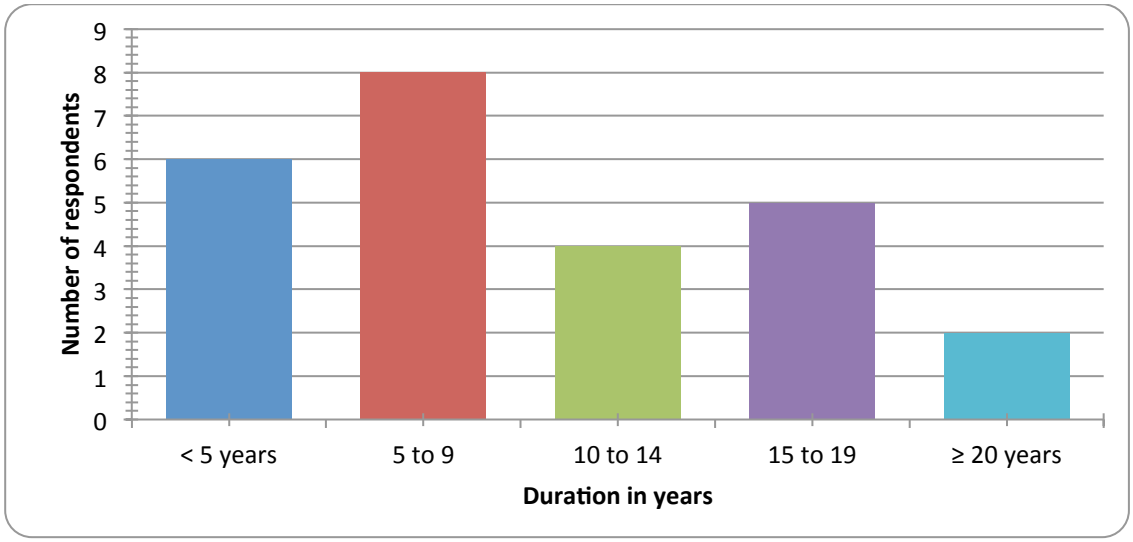
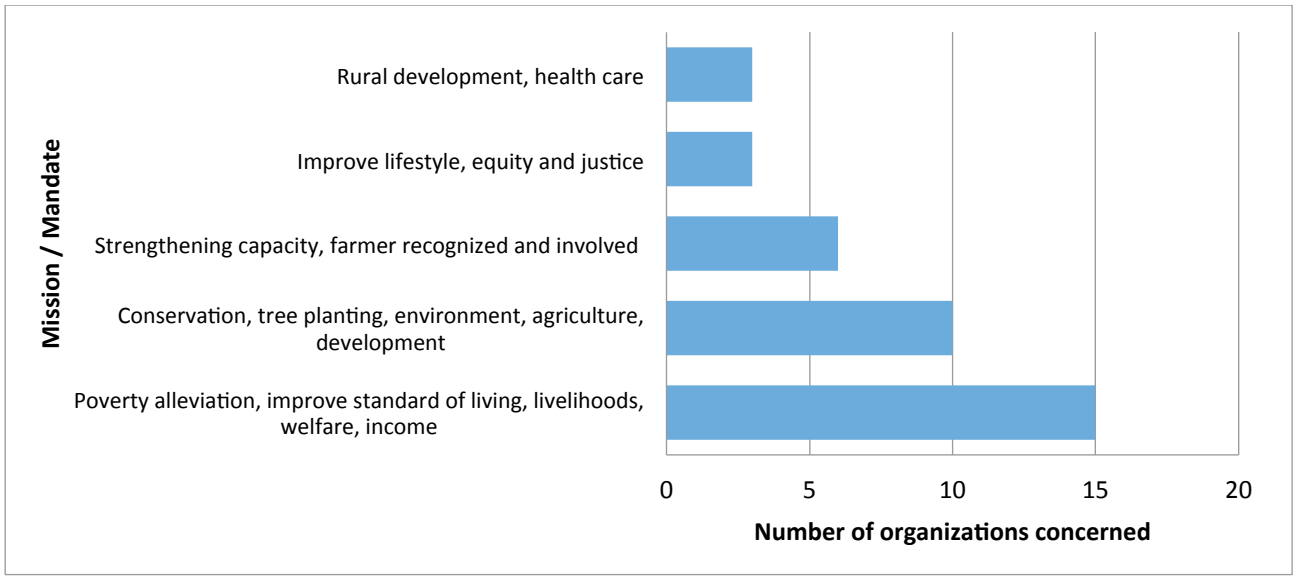


Fig 2. Respondents' tenure with their organizations.

In describing their organizations' missions, most respondents (60 percent) used key words such as poverty alleviation, socioeconomic purpose, and improve standard of living, livelihoods, welfare and income. The remaining 40 percent cited conservation of nature, tree planting, sustainable environment, agriculture and/or development (Figure 3). In summary, organizations worked toward economic development first, followed by the pursuit of environmental and social objectives.

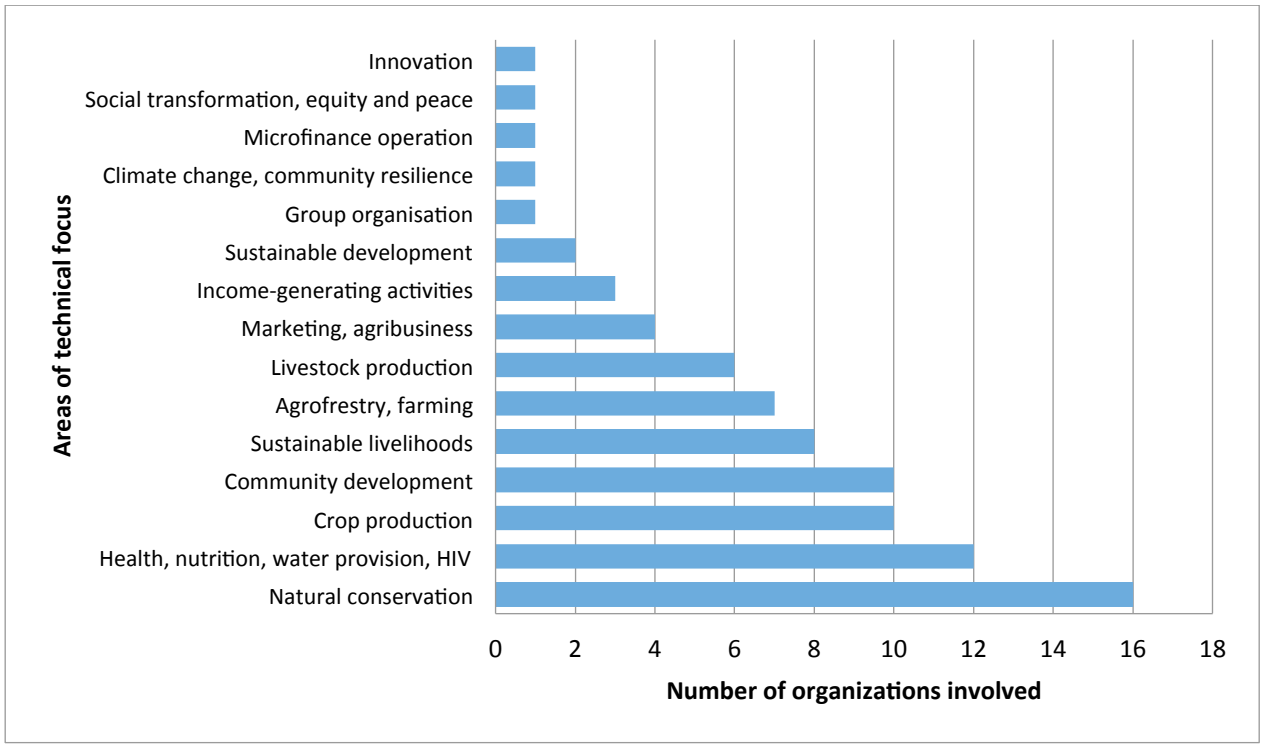


Note: frequencies add up to more than 25 because some organizations gave multiple responses.

Fig 3. Missions of organizations working with the F2F extension approach in Cameroon.

Sustainable management was cited among the technical foci by 64 percent of the organizations, followed by health promotion (48 percent), crop production (40 percent) and community development (40 percent). Sustainable livelihoods and tree planting were

identified by about a third (32 percent and 28 percent, respectively) of the respondents (see Figure 4).



Note: frequencies add up to over 25 because some organizations gave multiple responses.

Fig 4. Areas of technical focus of organizations using the F2F approach in Cameroon.

About two-thirds of the organizations using F2F in their extension strategies concentrated their activities in one or two regions/districts (Figure 5). Twenty percent of them, mostly international non-profits, covered the entire country, even though they had activities in selected districts.

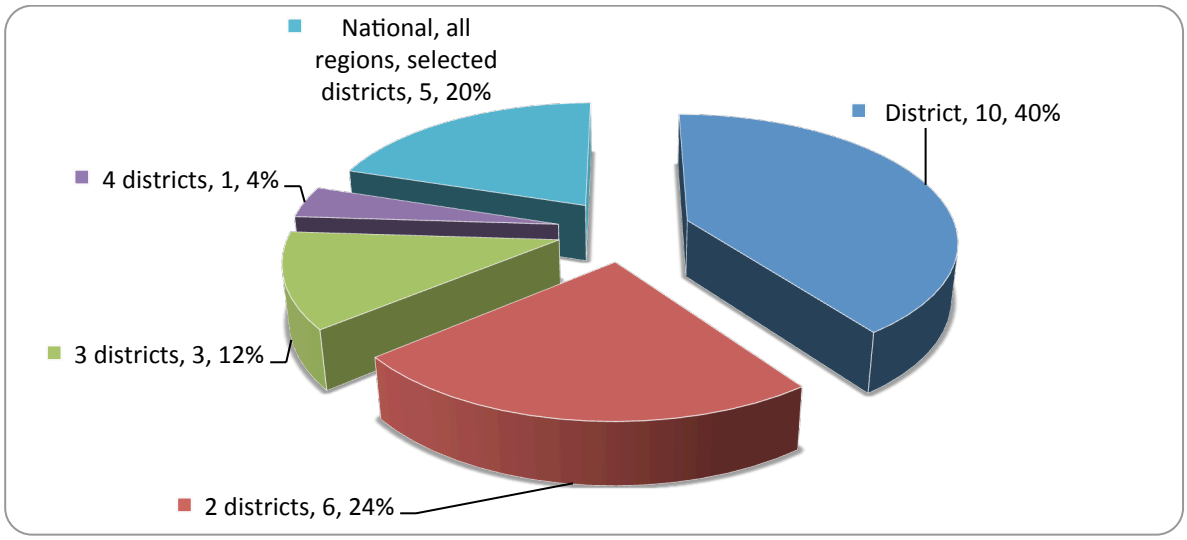
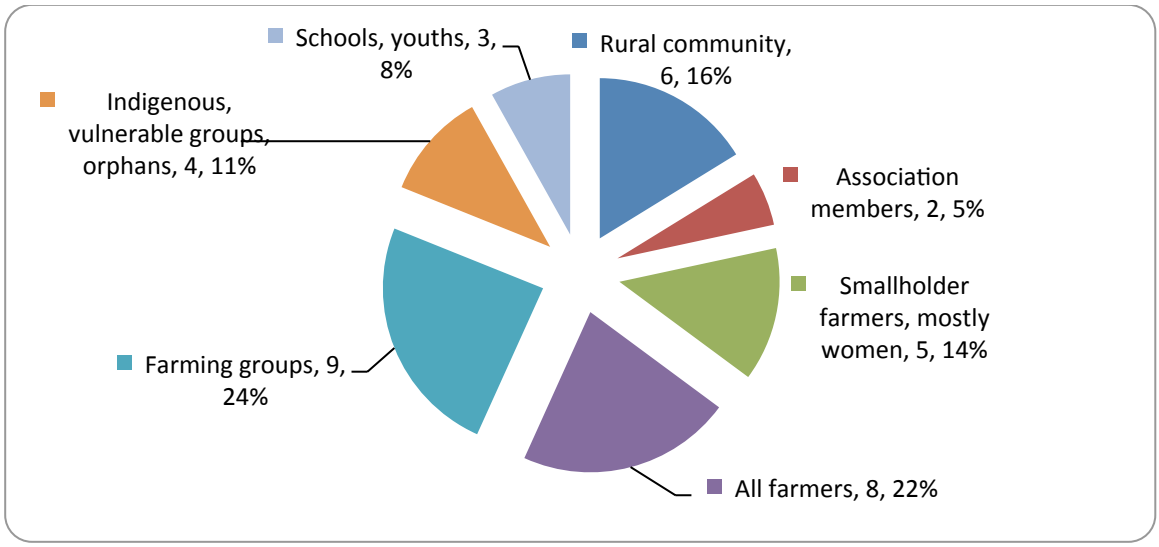


Fig 5. Distribution of intervention areas of organizations that use F2F in Cameroon.

For the great majority of organizations (88 percent), farmers were the main target group. Among these organizations, eight out of 25 targeted all farmers, nine focused on groups, while five worked specifically with women (Figure 6). Six of the organizations interviewed targeted rural communities as a whole.



Note: frequencies add up to more than 25 because some organizations gave multiple responses.

Fig 6. Distribution of specific groups targeted by organizations.

General staffing information on farmer-to-farmer extension

The average number of staff members of organizations working with F2F in Cameroon was 5.7 persons. Though this number ranged from zero to 17 persons, with a mode of two. The standard deviation of 4.3 indicates that most organizations were concentrated around the average, as illustrated in Figure 7.

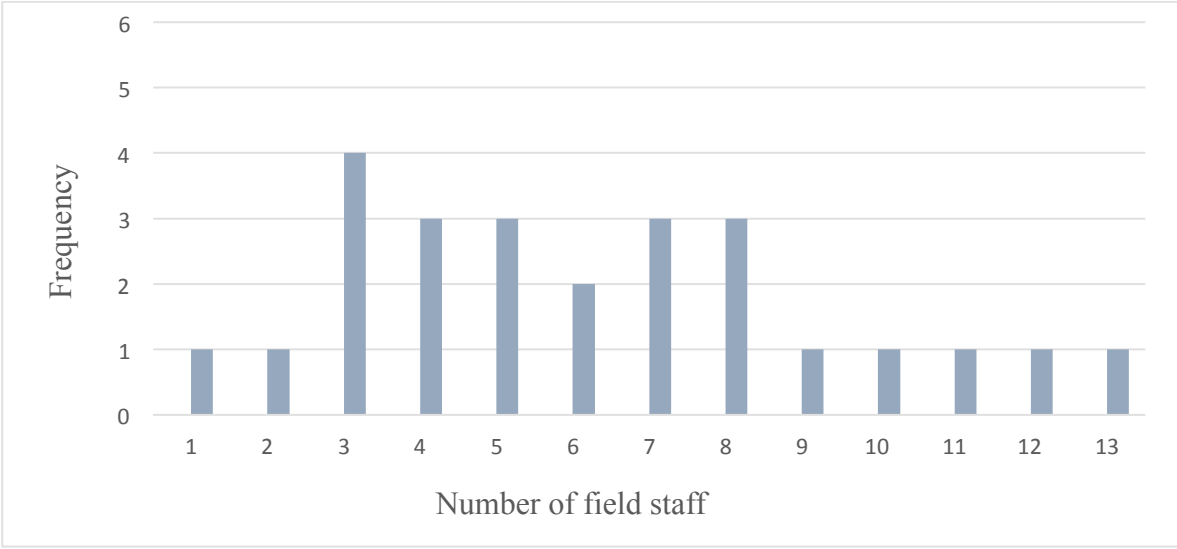


Fig 7. Distribution of field staff in organizations that use F2F in Cameroon.

Among the FS interacting with farmers in the field, an average of 2.1 were women. The standard deviation shows a high dispersion. One organization reported 10 women among this category of staff members, 29 percent of the organizations had no women working in the field, and another 29 percent had only one woman (Table 4). The average proportion of women involved in extension services among the organizations interviewed was 28 percent (min = 0, max = 71).

Table 4. Number of women conducting field activities in organizations that use the F2F approach.

Number of women	Frequencies	Percentages (%)	Cumulative percentages (%)
0	7	29.2	29.2
1	7	29.2	58.3
2	4	16.7	75.0
3	1	4.2	79.2
4	1	4.2	83.3
5	2	8.3	91.7
8	1	4.2	95.8
10	1	4.2	100
Total (missing value = 1)	**24**	**100**	

Three-quarters of the FS in those organizations interviewed had some level of university training, with nearly 50 percent having earned diplomas (see Table 5).

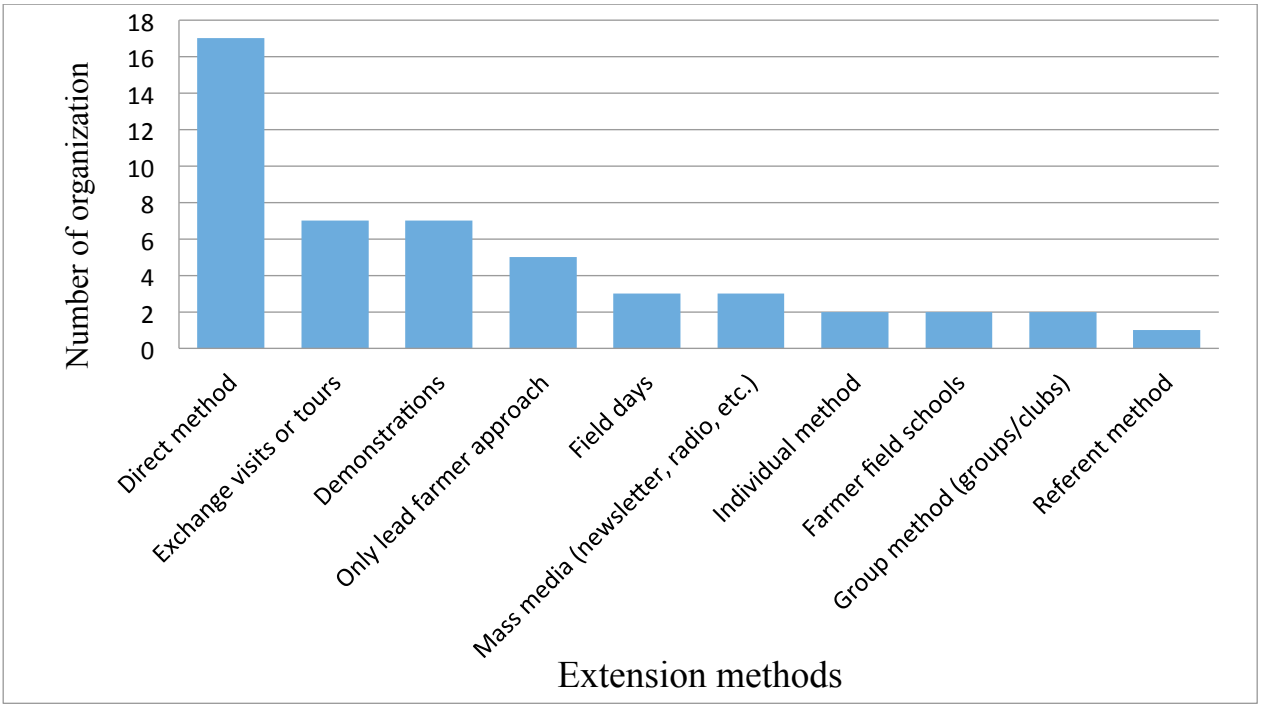
Table 5. Most common educational levels of field staff members in Cameroon.

Educational level	Frequencies	Percentages	Cumulative percentages
Diploma	1	4.2	4.2
Primary school	5	20.8	25
University: agricultural technician diploma	7	29.2	54.2
University: engineer diploma	4	16.7	70.8
University certificate	7	29.2	100
Total (missing value = 1)	**24**	**100**	**100**

A few organizations expressed their preference for not recruiting FS with high educational levels, having observed that better educated staff members often leave the organization once a more interesting opportunity comes along. In addition, some organizations, though acknowledging that they need personnel with higher qualifications, do not have sufficient financial resources to maintain FS with university qualifications.

General orientation

Various methods were used by organizations to take their services to farmers. Among the methods mentioned, the direct approach, that is, FS carrying out dissemination activities directly with farmers or farmer groups without any intermediary, was the approach used by the majority (68 percent) of organizations. This method was followed by demonstrations and exchange visits (28 percent each). Some organizations (20 percent) only used the F2F extension method (Figure 8).



Note: frequencies add up to more than 25 because some organizations gave multiple responses.

Fig. 8. Extension methods used by organizations in Cameroon.

According to 23 percent of the organizations, all their extension methods were important. Since the methods were complementary, they found it difficult to separate them in terms of effectiveness. However, 41percent evaluated the lead farmer approach as the most effective method, while 36 percent found that the direct approach was the most effective (Figure 9). For those who were supporting the direct approach, the view expressed was that farmers are not as skilled as professional FS in transmitting technical information. Others considered farmers as the most suitable persons to efficiently disseminate such information. Twenty-three percent of respondents were unable to determine the most effective method.

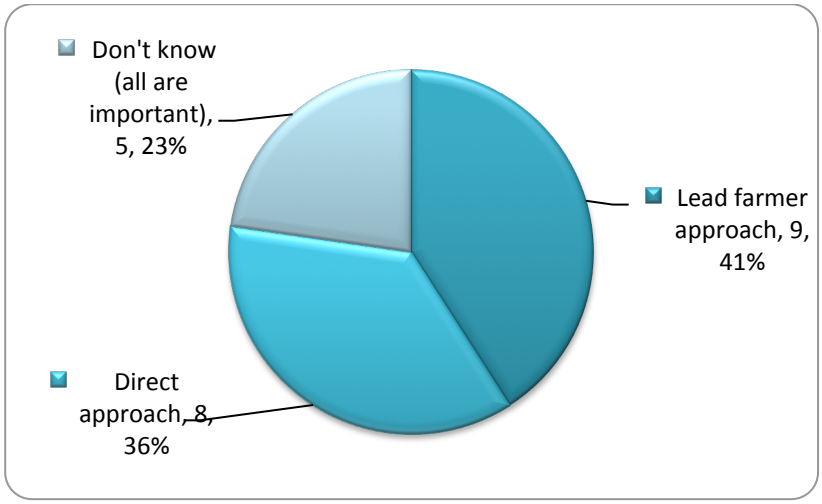


Fig. 9. Classification of the most effective extension approaches.

All respondents stated that gender was a specific feature in their extension approach. Indeed, 40 percent of the organizations interviewed involved all farmers and took steps to achieve a gender balance during their activities. Many organizations reported gender as a cross-cutting component in their strategy; some restricted gender considerations to working with women only (Figure 10).

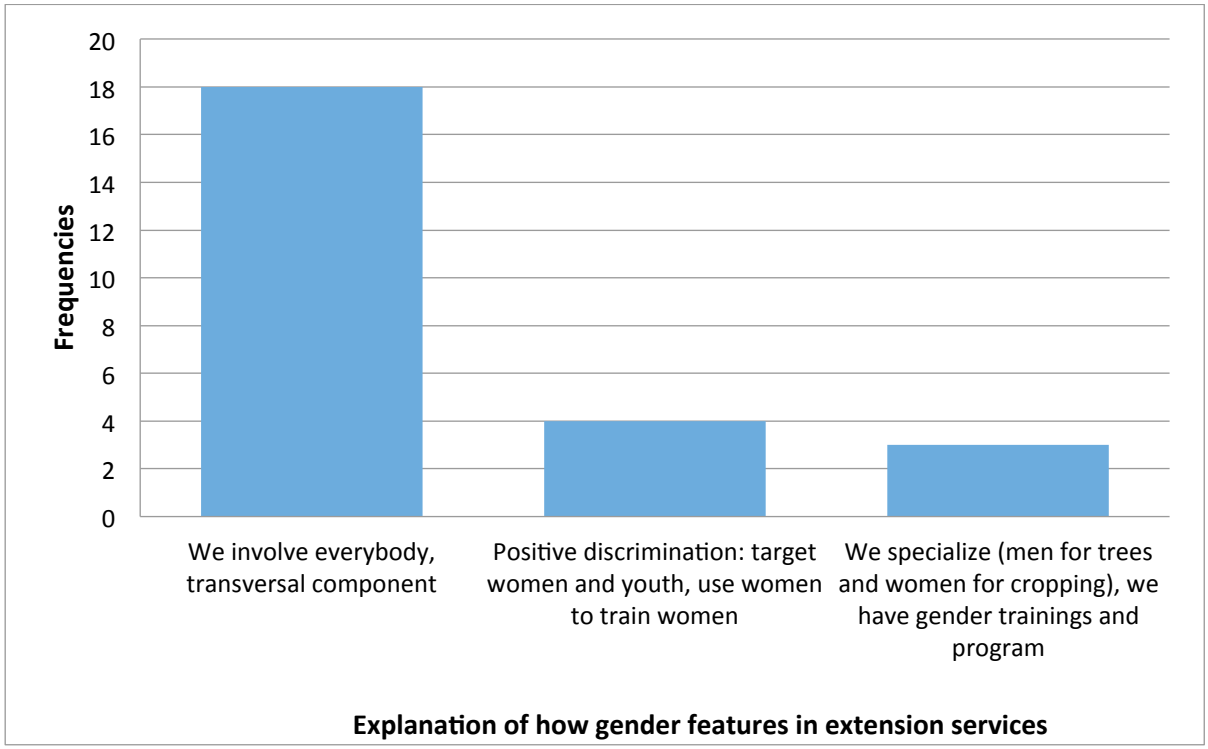
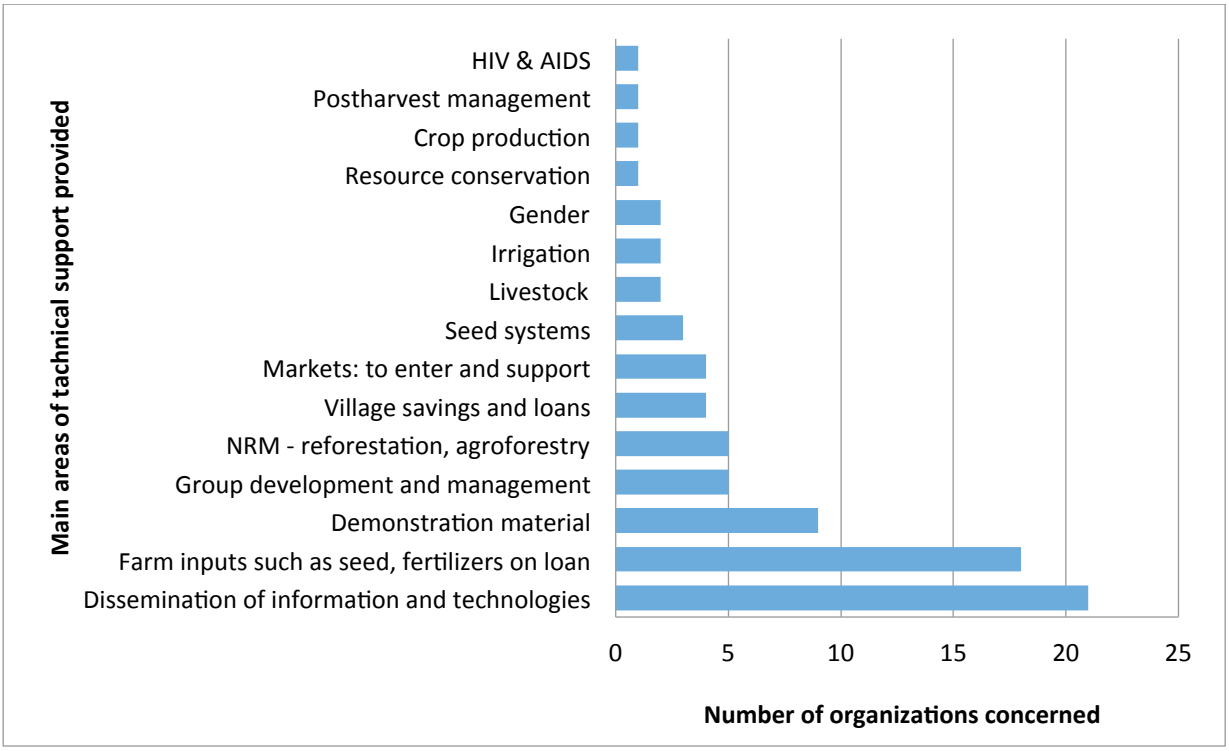


Fig. 10. Explanation of how gender features in extension approaches of organizations.

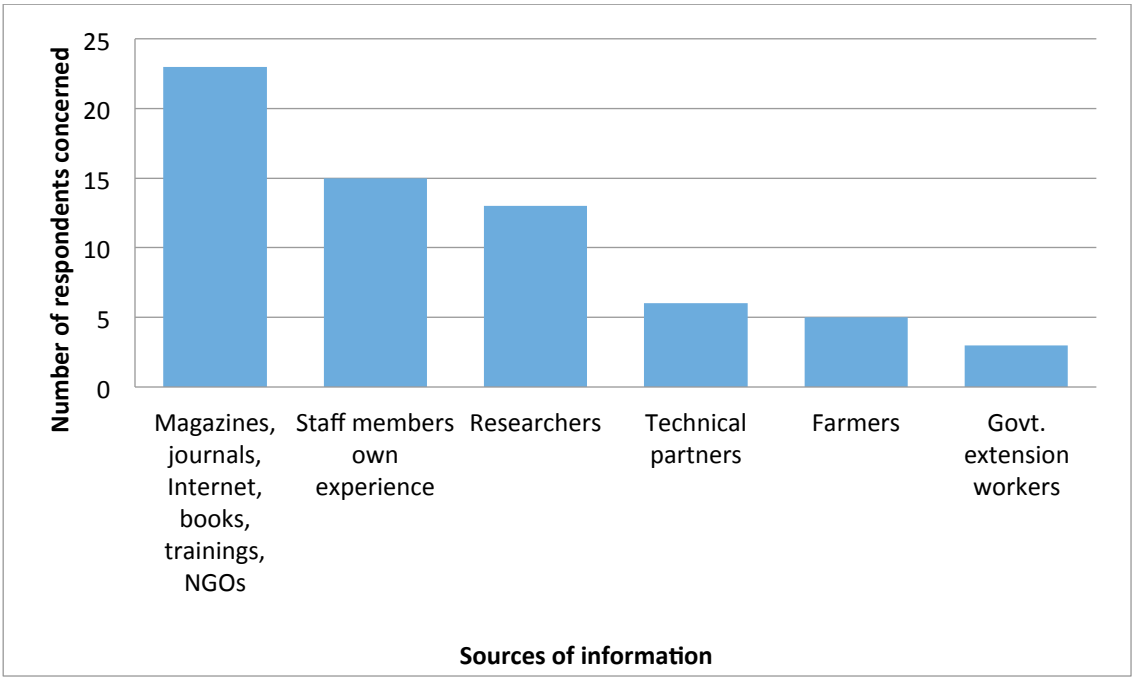
Concerning the main areas of technical support, organizations focused mainly on the dissemination of information and technologies, followed by improvement of access to farm inputs such as seeds, fertilizer and access to credit. Provision with demonstration material was mentioned by around one-third of the organizations interviewed (Figure 11). These types of support were closely related to the areas of technical focus of the organizations, mainly in the domains of natural resource management/conservation, health care, crop production and community development. Each technical area requires awareness creation, training and supply of inputs and equipment.



Note: frequencies add up to more than 25 because some organizations gave multiple responses.

Fig. 11. Main areas of technical support provided by organizations to farmers.

The main sources of technical information disseminated by the FS for the organizations interviewed came from personal reading and ideas shared in seminars and workshops. These sources were mentioned by almost all respondents (92 percent). The staff members' own experience, and researchers were cited by 60 percent and 52 percent of the organizations, respectively, as the main source of technical information provided to farmers (Figure 12). Government extension agents were the least consulted source.



Note: frequencies add up to more than 25 because some respondents gave multiple responses.

Fig. 12. Sources of technical information used by field staff members.

Use of lead farmer approach by organizations in Cameroon

The terms that organizations used for the farmers that they use to train and/or inform other farmers varied. About one-third of the organizations used the term "lead farmer". The same proportion of respondents called them "locally based trainer", "farmer trainer" or "contact farmer". As shown in Figure 13, about a quarter of the organizations use the term "animator", "facilitator" or "resource person".

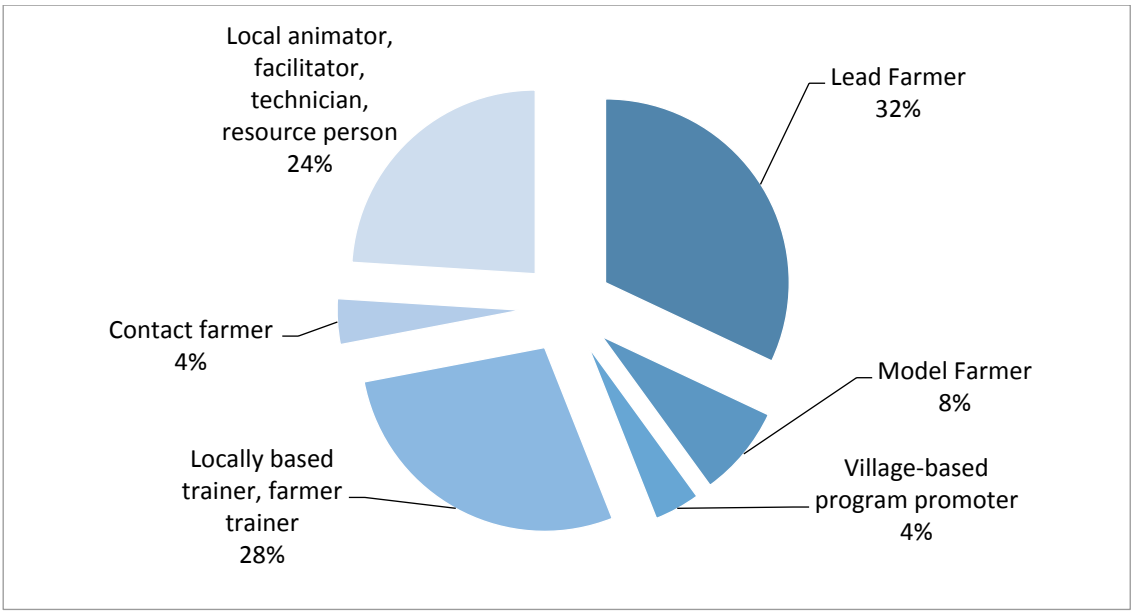


Fig. 13. Names used by organizations for lead farmers in Cameroon.

Almost half (45 percent) of the organizations interviewed in Cameroon started using the F2F extension approach fairly recently – between 2005 and 2009 (Table 6); 29 percent adopted the approach before the year 2000.

Table 6. Period of first use of the lead farmer approach by organizations in Cameroon.

Period	Frequencies	Percentages	Cumulative percentages
Before 1990	2	8.3	8.3
1990 - 1994	3	12.5	20.8
1995 - 1999	2	8.3	29.2
2000 - 2004	3	12.5	41.7
2005 – 2009	11	45.8	87.5
2010 – 2013	3	12.5	100
	N = 24 (missing = 1)		

Thirty-seven percent of the organizations reported adopting the approach to reach farmers. A quarter of respondents adopted the approach either to increase the sustainability of their actions or to increase efficiency in communicating with farmers (Figure 14). Few organizations (11 percent) mentioned that the main purpose of this approach was to build capacity.

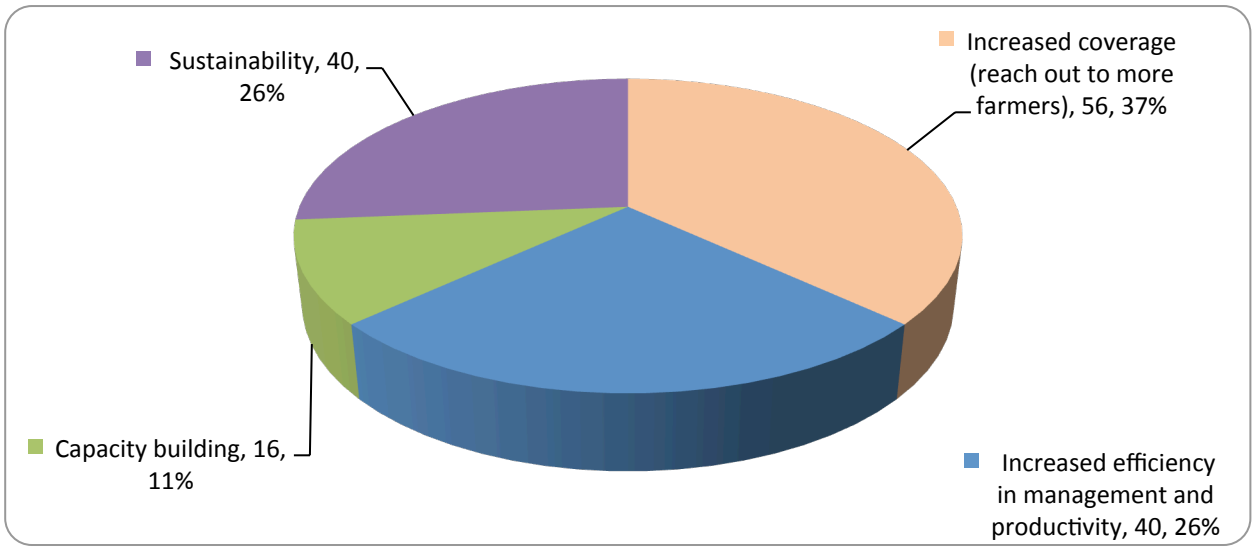


Fig. 14. Reasons for adopting the lead farmer approach in Cameroon.

According to the majority of respondents (64 percent), the decision to use the F2F approach in their extension programs originated from an internal brainstorming (Table 7) when organizations were facing many challenges. For example, two organizations stated that their projects were coming to an end. As they were worrying about follow-up, they decided to "train some farmers who could train others." Twenty percent of respondents heard about the

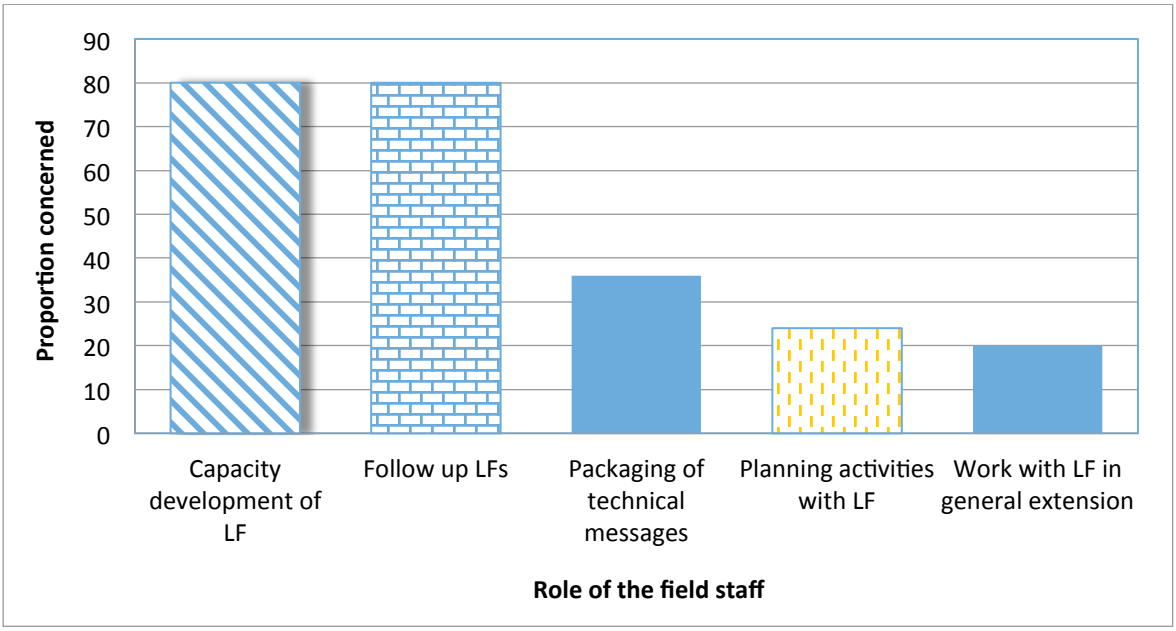
approach from partners, and only one organization said that it learned about the approach in school. Within the proportion that developed the approach internally, five organizations (31 percent) noted that farmers learn more from their peers than from extension staff. According to another respondent, LFs are members of their communities and understand the context of their area better than those coming from outside.

Table 7. Places where organizations in Cameroon learned about the F2F approach.

Origin of knowledge	Frequencies	Proportions
Internal brainstorming	16	64
Schools	1	4
Technical partner	4	16
Collaborating partner	1	4
Don't know	3	12
Total	**25**	**100**

Current use of the lead farmer approach in Cameroon

The role of the FS in the F2F approach consisted mainly of training and supporting LFs (Figure 15). In 36 percent of the cases, FS were also in charge of packaging technical messages for dissemination. Half of the organizations provide their FS with written guidelines on how to work with lead farmers.



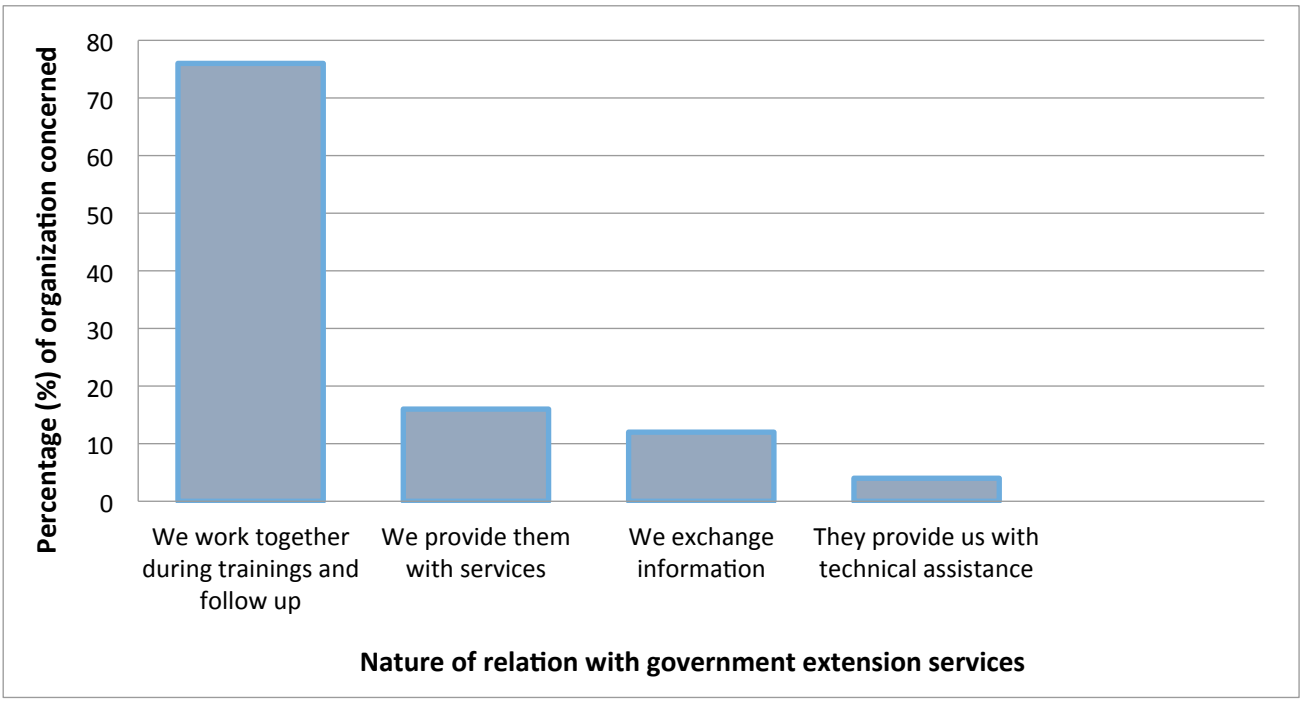
Note: percentages add up to more than 100 because some organizations gave multiple responses.

Fig. 15. Roles of the field staff members in the lead farmer approach in Cameroon.

In their work locations, the lead farmer was the main point of contact of the FS. Forty-four percent reported contacting both lead farmers and local leaders, 36 percent contacted only the lead farmer, and a fifth indicated that they worked with local leaders as their principal entry point in the community.

All organizations using the F2F extension approach in Cameroon were working with mixed-gender groups. Fifty-six percent mainly targeted gender-based groups. This is in line with the earlier findings that most organizations interviewed were not discriminative, but rather involving everyone in their extension efforts.

All organizations said that they were working with government extension services during the implementation of their activities. They either worked in partnership with extension staff and paid them, or they subcontracted their services for project implementation or inputs supply. Some organizations said that the extension workers take advantage of their achievements to augment their own records. More than half of the respondents (60 percent) said they worked together with government extension agents during training and follow-up, as shown in Figure 16. During follow-up efforts, extension workers reported to the field staff and vice versa. During training, government extension workers were given the responsibility of covering specific topics or were invited and allowed to contribute information they thought was relevant. One of the respondents mentioned that they incorporated extension workers in preparing some of their technical notes. Another one noted, "They have space in our local meetings to talk, and we also expect them to communicate our problems to the government."



Note: percentages add up to more than 100 because some organizations gave multiple responses.

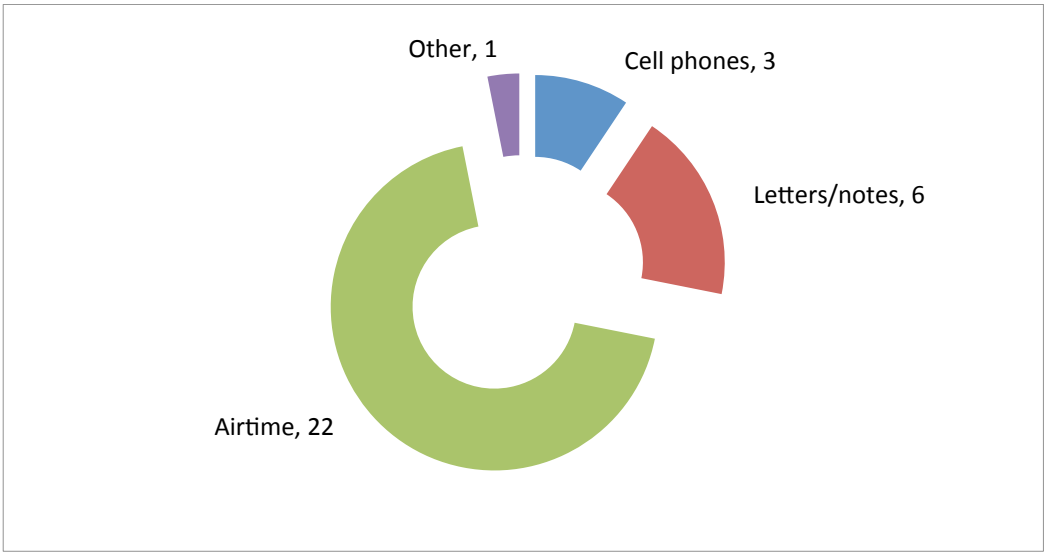
Fig. 16. Ways of working with government extension workers in Cameroon.

The average number of FS per organization working with the F2F approach was 5 persons. Although one farmer organization was running the F2F approach without any FS, other organizations had up to 14 FS interacting with lead farmers. The numbers were almost identical to the total FS in the organization, indicating that almost all FS were involved in implementing the F2F approach.

The average total number of LFs per organization was 64 persons (min: 4; max: 250). On average, each FS worked with 17 LFs, ranging from one to 100 LFs per FS. Half of the organizations had between 10 and 25 LFs. Overall, a total of 1588 LFs were inventoried, and of those, 581 (37 percent) were women. Of the total number of LFs per organization, it was estimated that 23 percent were women. Sixteen percent of the organizations did not have any women among their LFs, and 40 percent had at most three. Nevertheless, four organizations had 48, 80, 100 and 120 women LFs, respectively. These values represented between 60 percent and 68 percent of the organizations' total number of LFs.

The majority (62.5 percent) of organizations provided their FS with motorbikes. Few of them (16.5 percent) provided a car. Field staff from the remaining organizations mainly used public transportation in their extension activities.

Respondents also stated that their FS were provided with means of communication. Almost all (91 percent) were giving airtime. Some organizations (12 percent) provided their extension workers with phones (Fig. 17). One-fifth of field staff were often obliged to communicate by letters, especially in areas where there was no cell phone network coverage. None of the FS were supplied with computers.



Note: frequencies add up to more than 25 because some organizations gave multiple responses.

Fig. 17. Types of communication provided for field staff by organizations in Cameroon.

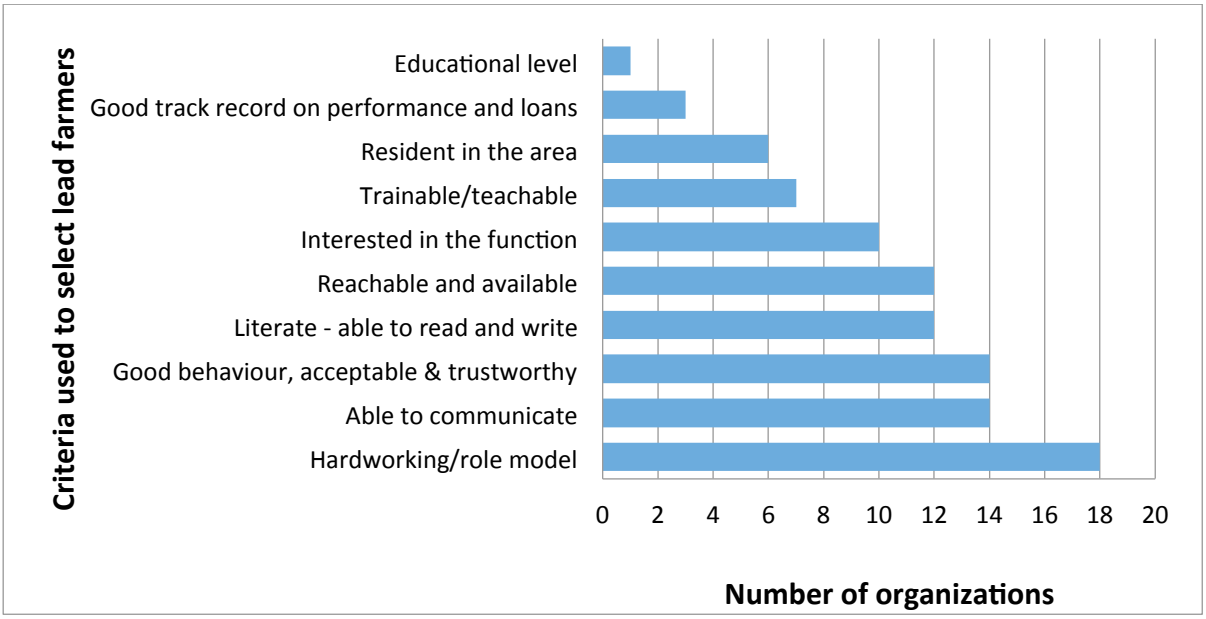
Selection of lead farmers

The process of selecting LFs varied among organizations (Table 8). Organizations generally informed community or producer groups on the F2F extension approach and then pre-selected potential lead farmers (60 percent). In most cases, after this phase, community members elected their LFs on the basis of the selection criteria mutually agreed upon between FS and the community. In two cases, LFs were selected through a formal application process. Some respondents (16 percent) stated that the selection process was not participatory and that the LFs were selected by the organization or a partner. For instance, one respondent said, "We do not know how our LFs were selected. Only the partner knows."

Table 8. Procedure used to identify lead farmer candidates in Cameroon.

Procedure	Frequency	Proportion (%)
Community identifies lead farmer using identified criteria	1	4
Community in conjunction with extension staff identifies LF using identified criteria	2	8
Field staff identifies lead farmer on the basis of set criteria	4	16
Field staff in collaboration with the community identifies lead farmer on the basis of agreed upon criteria	15	60
Call for application and written test by LF candidate after rapid appraisal process in the community	1	4
LFs apply, field staff members investigate their farms, and community elects during general assembly	1	4
Partners selected and trained LFs	1	4
Total	**25**	**100**

The most common selection criteria, used by 72 percent of the organizations, were that LFs should "be hardworking and serve as a role model". Other important criteria were good behaviour, good communication skills, ability to read and write, and availability. In 40 percent of the cases, it was noted that the future LFs must be interested in the task (Figure 18). The level of education was not an important criterion; in fact, it was mentioned by only one organization. Instead, many organizations found that a person could be well-educated but not meet the other criteria mentioned above.



Note: frequencies add up to more than 25 because some organizations gave multiple responses.

Fig. 18. Criteria used to select lead farmers in Cameroon.

Irrespective of the criteria used, the role played by communities in the selection of LFs, included proposing, endorsing, identifying and electing their future LFs. However, respondents' procedures differed in that they did not actually make as much use of communities in selecting LFs (Table 9).

Table 9. Role of the community or group in selecting lead farmers in Cameroon.

Role of the community	Frequency	Percentage
Identify and elect lead farmers	14	56
Endorse identified lead farmers or provide additional information on candidates to field staff	4	16
Add two more candidates to those identified by the field staff (FS)	2	8
Identify the potential LFs via election, then FS select	1	4
Select LF candidates and contribute food during their training	1	4
None	3	12
N = 25		

Opinions varied on the differences in educational levels between lead farmers and other members of the community/group. Fifty-two percent said that the education level of LFs was higher, and 48 percent found no remarkable differences. Fifty-nine percent of respondents

placed the education of their LFs at secondary school level, while 41 percent placed the education level at the primary level.

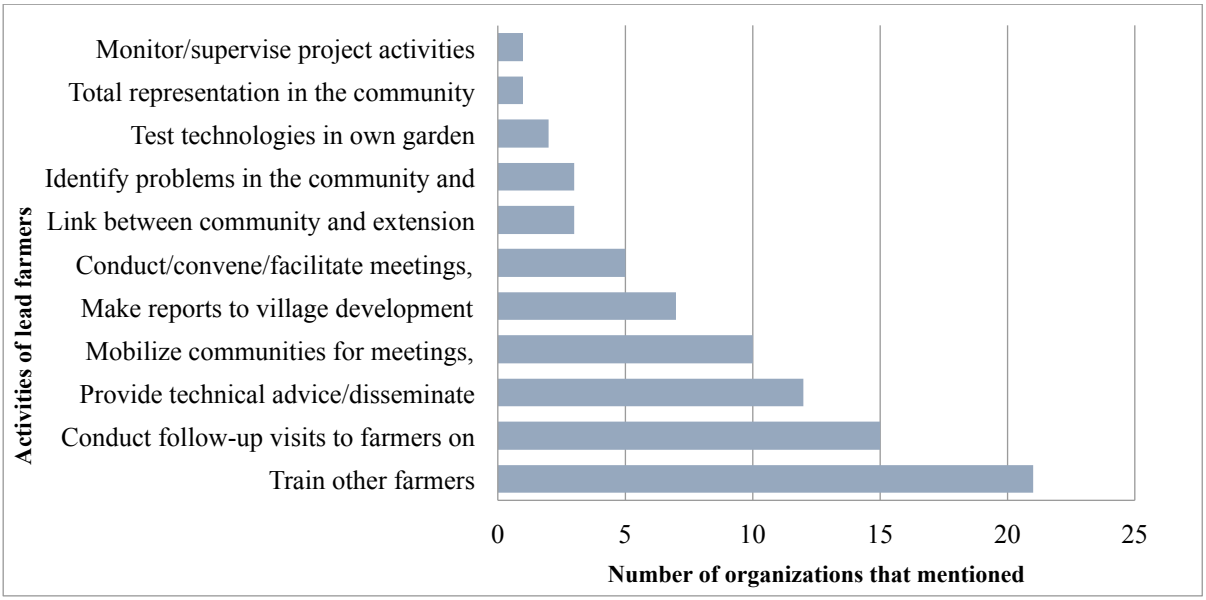
Forty-eight percent of respondents noted that the elected LFs were in the same age range as other members of their group/community. Around the same proportion (44 percent) stated that LFs were younger, and 8 percent said that LFs were older. Respondents with older LFs said that they faced difficulties in finding younger people during the selection process. Most organizations (56 percent) estimated the age of their LFs at between 36 and 50 years old.

Although the majority of organizations (64 percent) said that LFs had about the same wealth level as other group members, 24 percent were of the opinion that LFs were better off than the rest of the community, and 12 percent of respondents estimated that LFs were less wealthy than members of their groups. Additional opinions on this point included those who felt that many LFs were previously poorer than their fellow farmers, but that their welfare had improved, thanks to the dynamism of their work. Those who considered LFs as less wealthy explained that these farmers became busier and took less care of their own farms because they were spending more time responding to requests to help others. This latter point was applied to lazy LFs, who were a distinct minority – most LFs were known as hardworking and planned their time efficiently. In most cases (88 percent), respondents stated that LFs tended to be general leaders in their communities, were respected and had worked hard to overcome various challenges.

The proportion of LFs who had been LFs previously under other projects was estimated at 19.7 percent. The average proportion of LFs who were currently working with other organizations as LFs was double that (39.5), indicating the growing popularity of organizations using F2F extension.

Roles and responsibilities of lead farmers in Cameroon

LFs in Cameroon are responsible for many activities in the use of the F2F extension approach. Among the most common are training and follow-up, mentioned by 84 percent and 60 percent of respondents, respectively (Figure 19). In many cases, they were also responsible for mobilizing communities or groups for meetings or demonstration sessions.



Note: frequencies add up to more than 25 because some organizations gave multiple responses.

Fig. 19. Responsibilities of lead farmers.

The main responsibilities of LFs were identical to those of FS noted above, implying that lead farmers are programmatically an extension of the field staff in their communities or groups. Some respondents reported that activities of LFs depend on the type of projects implemented by the organizations working with them. Nevertheless, the main responsibilities of LFs remained more or less the same.

On average, a lead farmer worked with four groups/communities. The majority of them (60 percent) were covering three or fewer groups/communities (Table 10). The size of groups/communities or number of farmers with whom LFs worked directly was 43 persons (min:15; max:600). The variation was large because some LFs worked mostly with groups, while others were training entire communities constituted of multiple groups. Nevertheless, membership of about half of the groups covered by LFs (54 percent) was between 15 and 20.

Apart from assisting group members, LFs also provided technical advice and training to an average of 48 individual farmers not associated with their primary groups/communities. The large variation in numbers (Table 11) is explained by the fact that some organizations or groups did not allow their LFs to train individuals, that is, farmers who are not members of the group/community they are assigned to, while others did. In addition, around a third of organizations did not know the number of individual farmers assisted by their LFs. Indeed, some respondents said, “We don’t follow our LFs to know how many individuals they work with. But we know that apart from groups/communities they are assigned to work with, they assist those farmers who request and even advise those they find practising inappropriate techniques.”

Table 10. Number of groups/communities led by lead farmers.

Number of groups	Frequencies	Percentages	Cumulative percentages
1	5	21.7	21.7
2	6	26.1	47.8
3	3	13.0	60.9
4	1	4.3	65.2
5	4	17.4	82.6
6	3	13.0	95.7
15	1	4.3	100.0
	N = 23 (missing = 2)		

Table 11. Number of individual farmers (not including farmers in groups) assisted by LFs in Cameroon.

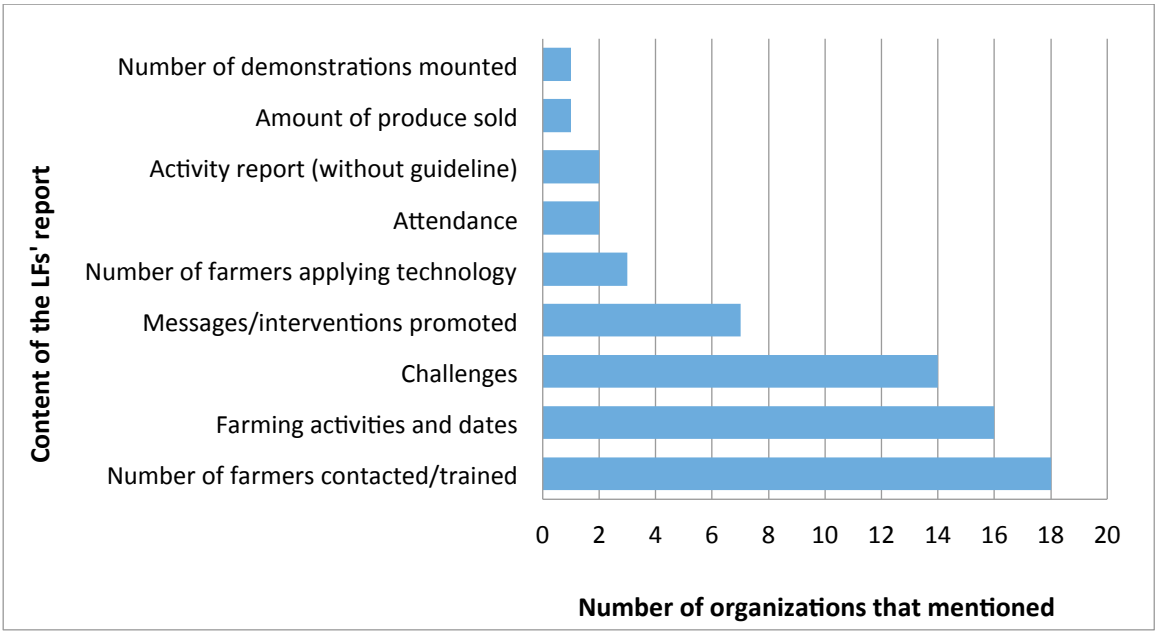
Number assisted	Frequency	Percentage (%)
Don't know	8	32
0 to 5	3	12
6 to 10	8	32
11 to 20	4	16
21 to 30	1	4
600	1	4
	N = 25	100

According to the respondents, LFs meet groups or communities regularly. Around half of the organizations (48 percent) reported that LFs visited their trainees once or twice a week, 32 percent visited once a month, and 12 percent did so twice a month. For the remaining respondents, their visits were not at a particular frequency, but was dependent on the season.

Because they live in the same community, more than half of the LFs (56 percent) walked to meet their trainees. Forty-four percent used motorbikes. Transport cost was paid by the farmers visited in 36 percent of the cases. In 28 percent of the cases, the organization promoting the F2F approach paid for LFs' transportation. LFs and the groups/communities visited both paid transport costs during field activities in 14 percent of the cases. In a few cases (8 percent), transportation costs were shared between the LFs, the farmer visited and the organization promoting the approach.

Almost all organizations (92 percent) stated that their LFs kept records, although these were not always written. Some gave narrative reports during meetings. Some respondents said, "Since we don't pay them, they are not obliged to provide us with written reports. They just do it voluntarily…many LFs are happy to share what they have done." The content of records

kept by LFs included several elements (Figure 20). The number of farmers contacted or trained, and a report of their farming activities (representing 72 percent and 64 percent respectively) were commonly asked for by the majority of organizations. LFs were also requested to share the type of messages or innovations they promoted, as well as challenges faced.



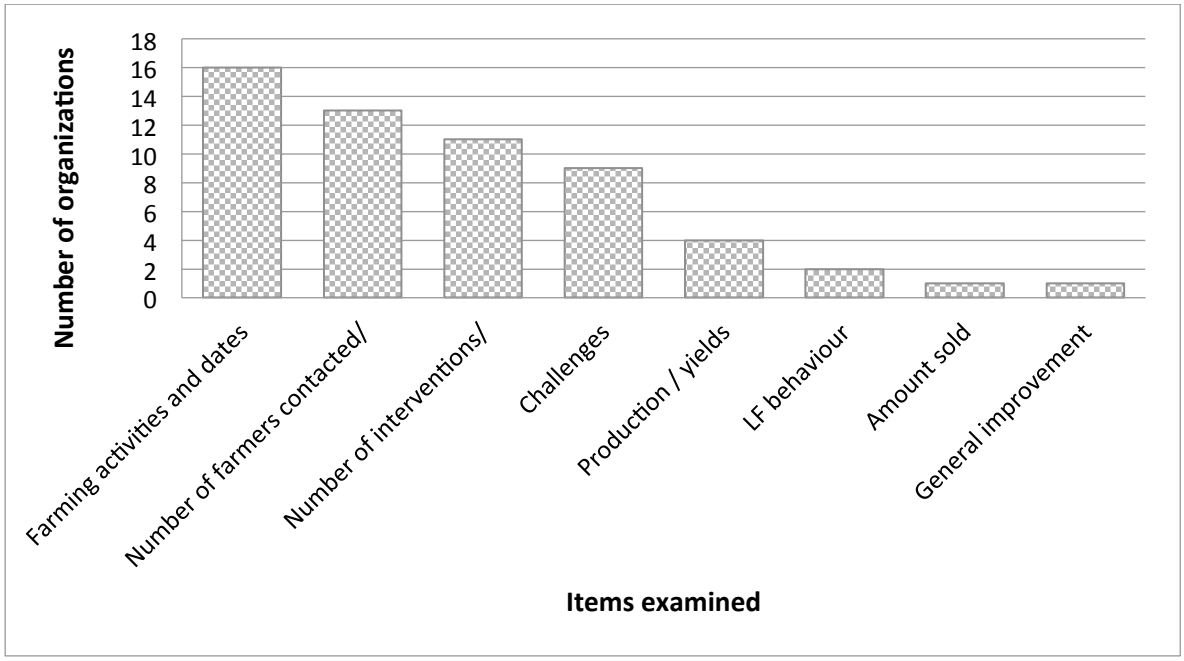
Note: frequencies add up to more than 25 because some organizations gave multiple responses.

Fig. 20. Content of the lead farmer reports.

Assessment of lead farmers' performance

A monitoring system to assess the performance of LFs was used by 80 percent of the organizations interviewed. The information used to assess performance mainly focused on the farming activities and dates of implementation, as well as on the number of training sessions and interventions organized (Figure 21).

If a lead farmer was judged to be underperforming, two possible attitudes were adopted by organizations. Around half (48 percent) of the respondents provided additional technical support in areas identified as weak points for the LF. Another 43 percent of the organizations provided counselling and would drop the LFs if they did not try to improve. A few organizations simply tried to help and encourage lead farmers who were not performing well. A majority (60 percent) of respondents indicated that they had at some point replaced at least one of their LFs. Apart from underperformance, inappropriate behaviour was the cause of replacement in one-third of the cases. In 20 percent of the cases, LFs resigned.



Note: frequencies add up to more than 25 because some organizations gave multiple responses.

Fig. 21. Items examined by organizations during the monitoring of LFs.

Communities were also involved in assessing the performance of their LFs. Sixty-four percent of the organizations mentioned that village heads reported on lead farmers' performance. During the evaluation of LFs, one-fifth of the organizations consulted trainees informally, and another 16 percent referred to the village development committees, which receive and discuss LFs' reports during their meetings.

Capacity building of lead farmers by organizations

The training provided by organizations to LFs was substantial. The majority of organizations interviewed (52 percent) conducted initial training for their LFs using a residential format. One-fifth provided on-the-job training. For 12 percent, training of LFs was a function of the project being implemented. Sixteen percent of the organizations did not conduct any initial training.

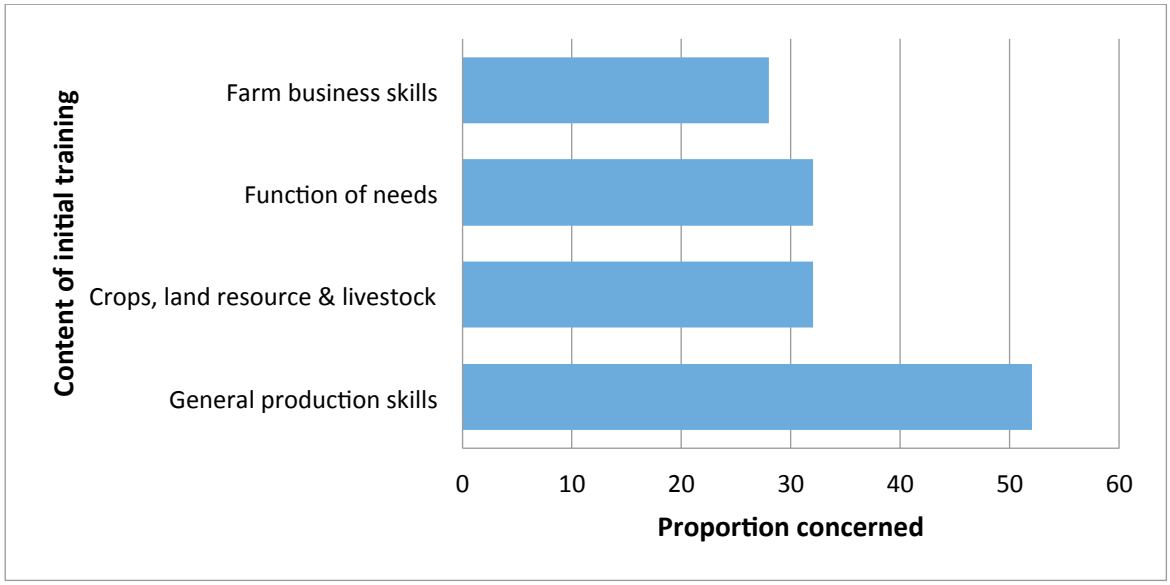
For those organizations that provided initial training, LFs received on average 5.2 days, ranging from one to 10 days of instruction. Half of the respondents trained their LFs for three to four days (Table 12). For many respondents, this duration was sufficient, and they did not need to keep LFs for a longer period. Some organizations could not afford to pay for long-term accommodation for farmers. Many organizations were of the opinion that the initial training was simply an introduction and FS were supposed to continue training of LFs thereafter.

Table 12. Duration of initial training of LFs.

Duration (in days)	Frequency	Percentage (%)	Cumulative percentage (%)
1	3	13.6	13.6
2	3	13.6	27.3
3	5	22.7	50.0
4	6	27.3	77.3
5	1	4.5	81.8
10	2	9.1	90.9
21	2	9.1	100.0
N= 22 (missing = 3)		100.0	

The technical skills training provided to LFs during initial training targeted general farming techniques (Figure 22). Organizations wanted their LFs to be able to assist farmers in various domains. Around one-third of respondents stated that they trained LFs on the basis of needs of communities/groups.

Communication skills training put emphasis on facilitation techniques, and this was taught by more than two-thirds (69 percent) of organizations during lead farmers' initial training. Less effort was put into training on extension skills (only 17 percent of organizations), despite the fact that most organizations were effectively using LFs as frontline extension workers. Only a few of the organizations interviewed (14 percent) included monitoring and evaluation and project management in the initial training. Two of the organizations interviewed conducted training on gender and HIV as cross-cutting issues.



Note: percentages add up to more than 100 because some organizations gave multiple responses.

Fig. 22. Technical topics covered during their initial training of lead farmers.

Additional training opportunities were also provided for LFs. Around half of the organizations (44 percent) reported organizing refresher courses for their LFs. Improving skills on the job or via workshops was mentioned by about a third (32 percent) of respondents. Additional training of LFs depended on the innovation being promoted or on the opportunity, as reported by 24 percent of respondents.

Sixty-seven percent of the organizations reported having organized a training workshop for their LFs in the past year. Of this group, 48 percent had already provided at least one training session in the calendar year prior to the interview. Another 19 percent of the organizations interviewed said they had organized at least one training session for their LFs within the previous two years. Most of the organizations financed their activities through projects. Once individual projects ended, they did not have resources to continue to support LFs with follow-up visits or refresher courses. One organization was trying to set up a mechanism that would help them continue to provide follow-up support for their LFs even after the project.

Operational support of lead farmers

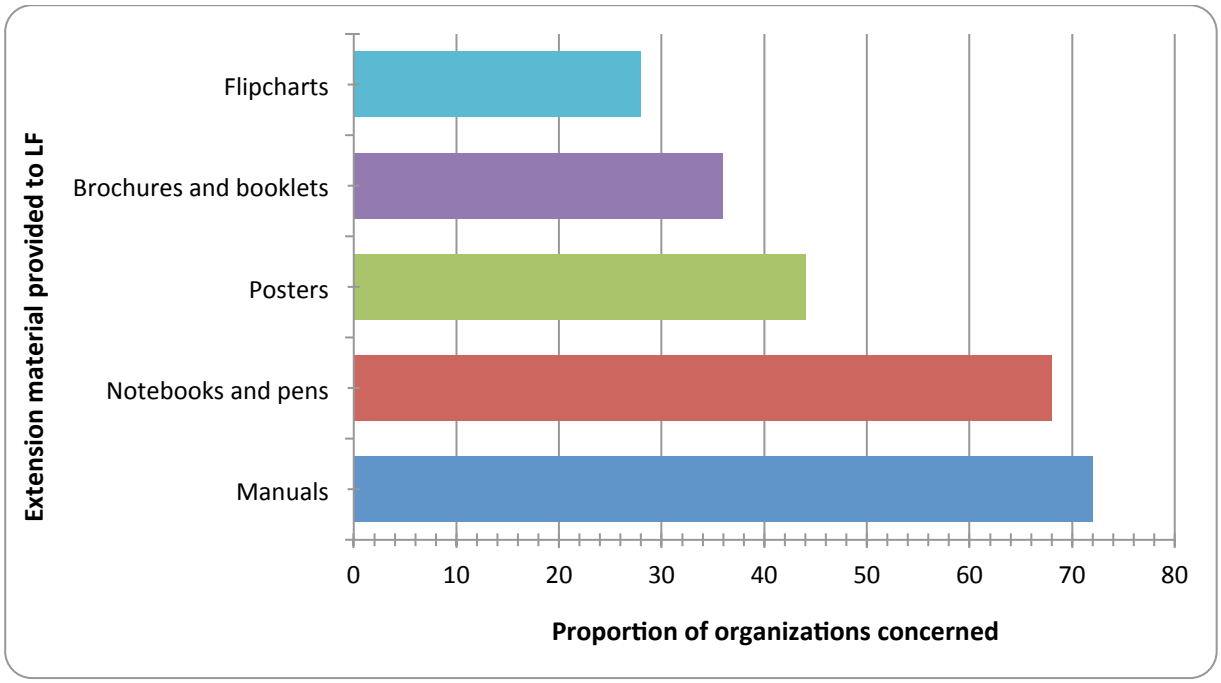
For many organizations (46 percent), contact between LFs and field staff occurred on a monthly basis. One-third reported meeting their LFs quarterly in formal meetings, but field staff also met LFs informally on other occasions, such as at the market place, and during funerals or weddings. In such situations, field staff would share information or discuss challenges the LFs encountered. Twenty percent of the respondents met with their LFs weekly or as needed. Field staff who had weekly formal meetings with LFs were most often living in the same communities as the LFs and usually participated in the weekly meetings of the groups/communities.

In 19 percent of the cases, LFs met field staff in the latters' offices. Around one-third of the organizations reported that LFs waited for the field staff to visit them. Most respondents (72 percent), however, stated that their LFs used mobile phones to communicate with field staff. Communication cost was shared between field staff and LFs in 12.5 percent of the cases. The latter were responsible for communication costs in 42 percent of the cases; organizations paid for communication in 37 percent of the cases. Less than 10 percent of the organizations reported that communities/groups also contributed to covering communication costs of their LFs.

Most organizations provided their LFs with extension materials such as manuals, notebooks and pens (Figure 23). These materials were generally provided during training workshops and less often during follow-up visits by field staff. Most extension materials came from partners of the organizations interviewed or were purchased using project funds.

The situation with field materials is similar. Except for one organization, all others gave their LFs some demonstration materials. Seventy-two percent of the organizations provided seeds, 56 percent equipment such as farming tools or nursery material, and about half (48 percent) were also providing protective clothing, such as gumboots and raincoats. Only 12 percent of

the organizations interviewed were providing chemical fertilizers. Instead, most of them were promoting organic farming. One international organization also distributed T-shirts to its LFs.



Note: proportions add up to more than 100 because some organizations gave multiple responses.

Fig. 23. Types of extension material provided to lead farmers.

Among the organizations interviewed, the LF approach is primarily a voluntary service. Seventy-six percent of the organizations stated that their LFs were not receiving salaries; the remaining 24 percent paid their LFs. Among those groups that paid, variable amounts of money were reportedly given to LFs on an irregular basis, e.g., 2000 FCFA (US$4)/month, 20,000 to 25,000 FCFA (US$ 40-50)/month or 10,000 FCFA (US$20)/six months. One organization had hired LFs as formal staff members, with a payment of 200,000 FCFA (US$400)/month and registered them with the National Social Insurance Fund during the project period. When the project ended, they continued to pay the LFs 25,000 FCFA (US$ 50)/month, minus the insurance fund contribution.

More than two-thirds of the organizations (68 percent) allowed LFs to earn income through activities such as selling seeds/grafted plants or production from demonstration farms. LFs were reported to receive small gifts from satisfied trainees and also benefitted from free labour on their farms whenever training sessions were held there. Some organizations, however, especially those that were paying a salary, prohibited LFs from using their farms for demonstration. More than half of the organizations (52 percent) paid LFs a per diem to attend meetings (e.g., 5000 FCFA (US$10)/day), including transport expenses. In addition, 32 percent of organizations only reimbursed transport expenses for their lead farmers to attend meetings or training workshops. During such events, organizations provided accommodation and meals. If the training activity took place in the community, sometimes the recipient

groups would cater for the LFs. When they no longer had project funds or when they were financially challenged, some organizations only provided accommodation while LFs took care of their own meals during refresher courses. Four-fifths of the organizations provided other incentives, such as study tours. Through their relations with government extension staff members and organizers of agricultural events, field staff sometimes found opportunities for their LFs to attend such events. When organizations organized exchange visits, LFs were often selected to participate.

Less than a third (32 percent) of organizations offered awards to encourage their best LFs. Among those that were using that strategy, three gave certificates, while another awarded LFs with a certificate when they succeeded in training 100 farmers. One organization mentioned, for example, that every year it awards a prize to the best LF. Another organization gave as much as 50,000 FCFA (US$100) as a "golden talent award." Three other respondents encouraged their LFs verbally during evaluation sessions with field staff.

For 80 percent of the respondents, building the capacity of their LFs was their main exit strategy (Table 13). These organizations coupled capacity building and income improvement of their LFs through application of the promoted technologies as the means of encouraging their LFs to continue providing assistance to other local farmers.

Table 13. Exit strategies used by organizations in F2F extension in Cameroon.

Strategies	Frequencies	Proportion (%)
Building capacity of lead farmers	20	80
Transferring follow-up of LFs to communities/groups	10	40
None	8	32

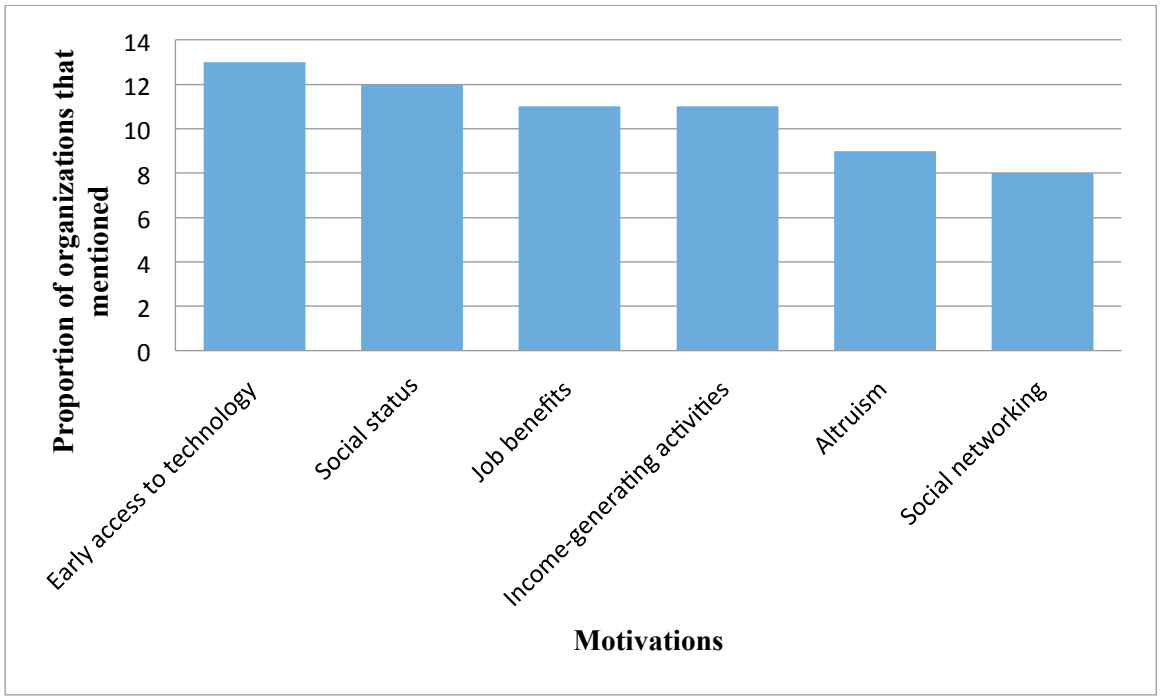
Note: frequencies and proportions add up to more than 25 and 100 because some organizations gave multiple responses.

Involving communities in the selection of LFs and training/follow-up processes also prepared organizations to exit easily. Some organizations informed and prepared communities/groups that they themselves would eventually be responsible for supporting their LFs. In 40 percent of the cases, organizations just withdrew gradually once they found that LFs were able to carry on their activities under the supervision of their community/group.

Motivation of lead farmers

The organizations interviewed identified various sources of motivation for farmers to become LFs. Among these motivations, more than half of the respondents mentioned early access to technology and social status as the most important motivators (Figure 24). Job benefits, income generating activities, altruism and social networking were each mentioned by between

one-third and one-half as the most important motivators. It is interesting that no one or two criteria stood out as being much more important than the others.



Note: frequencies add up to more than 25 because some organizations gave multiple responses.

Fig. 24. Factors mentioned by organizations as motivation to become a lead farmer.

When respondents were asked to rank the importance of various motivations, there was no variation in response, especially for the three first motives. Indeed, early access to technologies and social status were followed by job benefit as the most highly ranked motivations. However social networking came before income generating activity (Table 14).

LFs were considered important in their area, and their function resulted in them being given social titles. Some lead farmers, called "teacher" in their area, liked their title, which brought them distinction and respect in the community. Beyond their roles as LFs, many became contact points for other organizations working in the communities where they lived. Serving as lead farmers elevated their social standing, even if their wealth status did not improve.

Changes in social status was reported as important motivator for farmers to become and remain LFs. For instance, a lead farmer in the North-West Region of Cameroon became a counsellor in the traditional council, and being a lead farmer definitely helped him gain this position. In the same area, others became church leaders after becoming LFs.

According to respondents, though LFs mainly accepted their function to have early access to new technologies and were less attracted by the opportunity to generate income or helping other farmers, these latter factors were considered more important as motivators (Table 14). In

fact, being exposed to new technologies was a privilege at the beginning, but most projects had a limited number of new technologies to promote, so, with time, the novelty and benefit of this early exposure diminished.

For most respondents, income generating activities were not initially considered in the decision to become LFs, but with time this became a strong reason. For example, a respondent mentioned that one of the organization's LFs is now being hired by private investors and other farmers to provide advice on establishing their tree crop farms. In this way, the LF has gained a permanent income. One-fifth of farmers became trainers with the prospect of generating more income from this activity. The proportion of those who remain LFs because of this motivation nearly doubled (37 percent). In fact, access to new knowledge and other benefits such as free labour on their farms, as mentioned earlier, allowed LFs to generate more income. Some LFs also benefited by finding clients for their enterprises. For example, one of the LFs in the North-West Region of Cameroon has pigs and trains other farmers in pig rearing. His training efforts helped him to attract new customers for his piglets. Since 2007, he has increased the number of sows from two to five and sells 30 piglets every six months. His work as a lead farmer has also helped him to secure a leadership position in his organization and in the regional Pig Farmers Association.

In general, organizations noticed that many lead farmers were not well-off at the beginning of their involvement as LFs, but thanks to their improved technical capacities and more dynamic community involvement, they had become better off members of their communities.

Table 14. Ranking of motivations to *become* and *remain* lead farmers

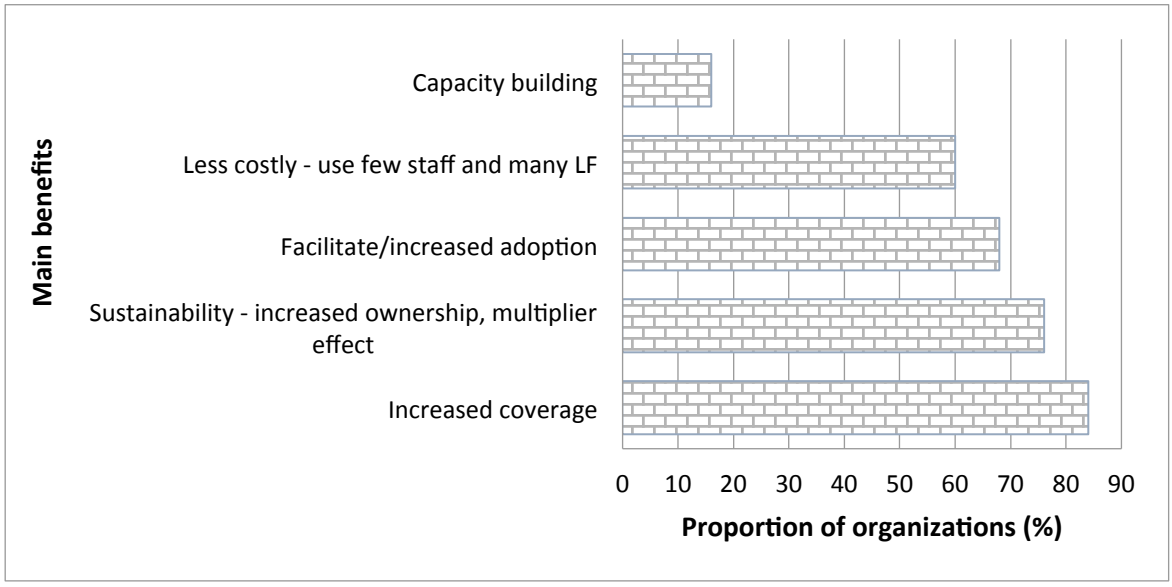
Motive	N	Mean rank*	Std. Error	Std. Dev.
Motivation to become lead farmer				
Altruism	23	3.52	0.41	1.95
Social network	23	3.43	0.31	1.47
Social status	22	3.09	0.35	1.63
Early access to technology	24	3.04	0.34	1.65
Job benefits	21	3.29	0.32	1.45
Income generation	19	3.47	0.41	1.81
Motivation to remain lead farmer				
Altruism	23	3.17	0.39	1.87
Social network	23	3.70	0.28	1.33
Social status	22	2.91	0.35	1.63
Early access to technology	24	3.46	0.29	1.41
Job benefits	20	3.20	0.38	1.70
Income generation	19	3.16	0.46	2.01

*Low means indicate high ranks

A majority of organizations interviewed (88 percent) used religious or moral leverage to persuade farmers to become or remain LFs. One-third used religious faith, and 56 percent focused on the moral norms in groups, sharing, for instance, success stories of people who had helped their community. Most respondents (70 percent) also discussed with communities the main benefits of using the F2F approach to help people, most often in the presence of LFs or candidates, thereby establishing the social expectation of appropriate LF behaviour.

Benefits and challenges of the lead farmer approach

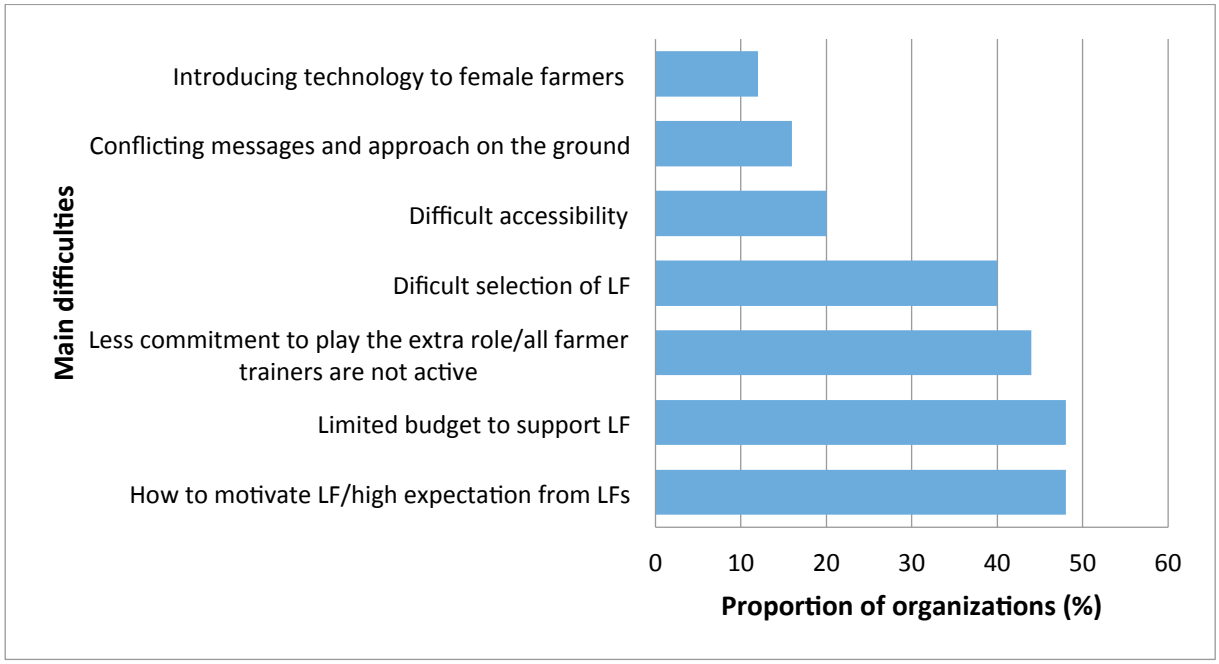
The organizations identified many benefits of using the F2F extension approach (Figure 25), and there was very close agreement among the organizations interviewed on those benefits. The ability to increase coverage, perceived improved sustainability of project-based extension efforts, increased adoption rates and reduced costs, were mentioned by the majority of organizations.



Note: percentages add up to more than 100 because some organizations gave multiple responses.

Fig. 25. Main benefits mentioned by organizations working with the F2F approach.

Financial limitations were mentioned by more than one-third of the organizations as an important operational challenge that the F2F approach helped them to address (Figure 26). In using the approach, however, the selection of LFs was cited as a problem. In one village, for example, a serious conflict occurred between a field staff member and one of the group members, who insisted that he should be selected as a lead farmer, while the staff member had identified someone else. A lot of negotiation was needed to agree on an objective selection process. Another difficulty cited by organizations was in encouraging LFs to commit the necessary time to their roles. As noted in the discussion of motivations above, a significant portion of LFs are interested in gaining personal benefits. In addition, one respondent stated that some LFs wanted to receive financial compensation. Such requests could not always be met.



Note: percentages add up to more than 100 because some organizations gave multiple responses.

Fig. 26. Main difficulties faced by organizations working with the F2F approach.

No respondent mentioned gender as an obstacle to disseminating new technologies. On the contrary, some organizations, such as those promoting organic fertilizers for soil conservation, said, "Though everybody is concerned, in many areas, we find it easier to work with women." Among their challenges, however, two organizations mentioned the difficulty that a few LFs had in adopting and promoting innovations; one was the advanced age of the LFs, while another was the conflicting messages in the field. One respondent explained that some LFs were often seen as competitors by some government extension workers, who often tried to discredit what a lead farmer said even if he said the same thing as the extension workers in different words. In addition, organizations were not promoting the same innovations, and many were not aware of what other organizations were doing in the same area, and one would often prohibit its LF from working with individual farmers while another allowed that. To solve these problems, the approaches should be harmonised and explained to all stakeholders.

In response to the challenges encountered, approximately one-third (32 percent) of the organizations interviewed reported that they had modified their F2F extension approach. Among the reasons given, all respondents mentioned the need to improve the sustainability of their field efforts, reduce the workloads for FS and LFs, and improve the efficiency of the F2F approach (for instance, in doing capacity need appraisals to better orient LFs' training). As one respondent noted, "We now use mobile phones to contact our LFs instead of letters as in the past." Another one said, "In the past, we trusted our LFs blindly. But today, we evaluate and pay them according to their results." Yet another said, "Until 2008, we were not giving

transport fees to LFs. Since then, we compensate for transport but in return ask them to write reports on their activities."

A quarter of the organizations surveyed wanted to obtain results more quickly. Some organizations reported changing their use of the approach to reach more farmers with their limited resources. Other changes were reported, such as improving the methodology used and the content of LF training, and increasing the involvement of communities in the selection of LFs. One respondent mentioned that, in the past, their field staff selected all LFs, but today, it was the community/group that chooses the LFs. According to respondents, all these changes were made to improve the effectiveness of the approach. For instance, an organization reported: "In the past, LFs were training other farmers free of charge. But today, groups who request training pay. In any case, LFs are more professional and the approach is more structured nowadays." Another respondent stated that, to better empower its LFs, the organization is now using video materials in addition to the printed manuals.

On average, organizations scored the effectiveness of the F2F extension approach, as compared with other extension methods, as 7.5 over 10. Although one local NGO scored it at 4 and another at 5, two respondents (one international and one local NGO) scored it at 10. The low standard deviation confirms the high concentration of values around the average. Indeed, the majority of organizations in Cameroon (60 percent) scored F2F at 8 out of 10.

After the completion of the interviews, respondents were given the opportunity to provide final comments. Five responded. Among them, three insisted on the necessity and the importance of investing in building capacities of LFs because they are the main actors of the F2F approach. Two other organizations characterized F2F extension as a field where LFs develop their minds and receive recognition from their communities. In those instances, farmers share their discoveries with LFs so that they can enrich their extension messages with new experiences. However, it was also mentioned that the use of the approach should be standardized – there is very little synergy between organizations using F2F extension because they are implementing it differently. In addition, lobbying should be done so that government extension services contribute to the promotion of F2F extension. Indeed, some LFs were not recognized by government extension workers because the government agents were not informed about the LFs' duties.

When they were asked to name other organizations using the F2F approach in their neighbourhood, many respondents were not aware that their sister organizations were using the same approach.

DISCUSSION

In this section, we focus on three issues: the use of F2F by different types of organizations, gender issues, and selection, support and follow-up of lead farmers.

Use of F2F extension

In Cameroon, local non-profit organizations were the most prominent users of the F2F approach (60 percent). The main reasons given by organizations for adopting F2F extension were reaching more farmers, greater efficiency in outreach efforts achieved through farmers talking to other farmers, and a perception of increased sustainability. Local non-profit organizations usually have less financial resources for use by their field staff in dissemination of new technologies and thus are more sensitive to the increased reach and efficiency gained through using non-paid LFs. Interestingly, building farmers' capacity was not considered very important by the organizations surveyed, even though increased local capacities would seem highly relevant, if not essential, in increasing post-project sustainability. The F2F approach has become increasingly popular in Cameroon over the past 10 years. The organizations using the approach, however, tend to cover a narrow geographical base (one or two districts), with the highest concentration recorded in the North-West Region, where 41 percent of the institutions indicated that they use LFs in their extension strategies. The limited geographic coverage of these organizations appears to be related to their small size. The concentration in the North-West Region, can be explained by the fact that this region is predominantly agricultural with a corresponding large number of non-profit organizations. Compared with other regions, the North-West Region also has a relatively high rural population density and rather well-organized farmer groups, suggesting that there is a link between the use of the F2F approach and the relative density of farmers and ease in using the approach in contexts where farmers are already organized.

In Cameroon, government extension services do not use the F2F approach. All of the organizations interviewed, however, said they collaborated with government extension workers on a regular basis, and some stated that this was part of their strategy to increase sustainability of their efforts. Organizations also mentioned conflicts between LFs and government extension workers in some cases, stemming from jealousy or misunderstanding about the roles of the various actors. The reports of conflict suggest that the level of formal collaboration between government services and the organizations using the F2F approach could be improved to the benefit of all involved, as illustrated in the following calculation. The ratio of 10 LFs per field staff member for most organizations (62.5 percent) seems very low, compared with 300 to 1,500 farmers reached by an extension worker in the public sector (CTA, 2011). However, this comparison gives a false impression, as it does not take into account the multiplier effect of the F2F extension model. Indeed, the present study shows that, on average, one lead farmer trains approximately 128 farmers (78.3 percent through groups or communities, and the remaining individually). So, indirectly a staff member reaches about 917 farmers. The ability to link the outreach power of organizations using the F2F model with

the enduring presence of government-supported extension efforts would seem to serve both entities well.

Gender

All organizations interviewed stated that gender is an important consideration in their work. Being gender-sensitive had different meanings, however. For example, some organizations mentioned that they work with everybody but attempt to ensure a balance between men and women in all their activities. Other organizations stated their preference of targeting women with specific activities, although few worked exclusively with women. Still others had adopted a strategy of using women LFs to train other women.

Overall, 28 percent of the FS working with LFs were female, despite the high variability among organizations. One-third of the organizations had no women among their field staff. The proportion of women among FS found in this study is higher than that found by Sulaiman and Kristin (2012), who reported that the percentage of women working in agricultural advisory services was 15 percent worldwide and only 11 percent in Africa. Small, locally based organizations have an advantage in recruiting female field staff members. Not only can organizations achieve a high ratio of female to male staff members by hiring even a few women staff members, but the terms of employment – pay, support and ability to work near their residential communities – can be more attractive than working with the government, which may require that women relocate to remote rural areas far from their homes and families.

This study does not allow conclusions to be drawn about whether F2F extension is more gender-sensitive or successful in reaching women farmers than other methods. But the results show that F2F programs were able to achieve higher rates of women involvement (30.4 percent) than were found among extension staff (28.1 percent, $P(t) = 0$, level of significance = 95 percent). However, the high variability in the number of women extension staff members and LFs across organizations using the F2F approach suggests that perhaps an organization's mission, type of activities, etc., may be more important factors explaining the extent to which female farmers are being reached, than any inherent feature of the extension approach per se.

Selection, support, training and follow-up of lead farmers

From an organizational perspective, selection of LFs is a major challenge because it largely affects the success of using a F2F extension strategy. In this study, the main criteria used by organizations to select LFs include a hard worker, a role model and good behaviour. However, all these are very subtle and subjective. More objective criteria such as the ability to read and write and education level were considered less important. The fact that the most important criteria are highly subjective makes selection of effective LFs difficult for external organizations, which explains why many of them involved communities, village heads and farmer groups in the selection of LFs and the assessment of their performance. The

involvement of groups being served by the LFs not only increases the effectiveness of the approach, but also enhances the sense of ownership and accountability of the LF to the group.

Training and follow-up of LFs and packaging of technical messages were found to be the primary responsibility of FS in all organizations interviewed. On average, an organization had between four and five field staff members involved in F2F, each interacting with approximately 17 lead farmers. Nevertheless, the number of LFs that each FS worked with was very variable, ranging from 1 to 100, reflecting the high variability in level of support that organizations provided to their LFs.

Lead farmers were used in Cameroon as the entry point for many organizations using the F2F approach. This was similar to the strategy implemented in the F2F approach in other countries like Ghana (Hird-Younger and Simpson 2013). In half of the cases, LFs were given an initial training of about a week on technical aspects, communication and facilitation skills. For most organizations, however, on-the-job training of their LFs in combination with refresher courses were even more important for strengthening their capacities. In one-third of the cases, further training of LFs was based on their identified needs and was used specifically in cases where LFs were judged to be underperforming. It must be noted, however, that extension skills and basics of monitoring and evaluation, important skills for a frontline extension worker, were not frequently included in the training curricula of lead farmers. Though the lack of training on extension skills may seem a shortcoming in the preparation of LFs, there may be also a positive element in this omission – that LFs do not assume the behaviour or attitude of trained extension agents and thus set themselves apart from the communities in which they work. That may lead to reduced effectiveness in farmer-to-farmer communication.

About 76 percent of the organizations do not pay their LFs a salary and yet the LFs continue to work. One can thus conclude, as did Lukuyu et al. (2012), that farmer trainers do not require financial rewards to be effective trainers; non-financial and indirect financial rewards suffice. However, one may still ask what motivates LFs to take up the position and continue working? According to the organizations interviewed, most of these farmers decide to become LFs because of the early access to new technologies and the social status that comes with the position. Furthermore, the majority of organizations allow LFs to earn income through job-related activities (selling seeds/plants, production from demonstration farms, etc.). The study showed that LFs' motivations change over time. For example, early access to new technologies, the major motivation to become a LF, loses importance with time, and opportunities to generate income become increasingly important in the decision to remain a lead farmer. These findings have important implications for the design of effective F2F extension programs; they indicate that different support mechanisms are needed for different LFs and at different stages in the career of a LF.

CONCLUSION

Farmer-to-farmer extension (F2F) approach is used by several organizations in southern Cameroon, but overall the approach is rather recent and its use is not yet widespread. Most of the organizations involved started using the approach within the past five to 10 years. Working with an average of five field staff members (of which two are women), these organizations also use various complementary methods to disseminate innovations to farmers.

In order to provide farmers with more effective technical support which comprises information, access to technologies, as well as improvement of access to farm inputs, organizations use LFs as principal entry points for field staff (FS). Most often, these LFs, working as volunteers, finally substitute for extension staff members in their training and follow-up functions. Each FS worked with many LFs who are generally selected on the basis of criteria set in agreement with communities and FS. LFs in turn train up to hundreds of farmers, providing organizations with a significant multiplier effect. Thus, many organizations put more emphasis on F2F approach, which they judged to be the most effective method.

Farmers were mainly motivated to become LFs for early access to technology and enhancement of their social status, although over time, the ability to earn additional income emerged as an important factor in remaining a lead farmer. Organizations assessed the F2F approach as being very beneficial because farmers find it easier to learn and try new techniques already practised by their peers. The approach also allowed organizations to broaden their coverage at an affordable cost. Overall, organizations have highly rated the effectiveness of the F2F approach.

Nonetheless, financial limitations to implementing the F2F extension remain a challenge, along with the selection of motivated and committed LFs. Few organizations provided their FS with written guidelines on how to work with LFs in using the F2F approach. As a result, LFs who were requested to keep records don’t always do it.

Organizations modified their use of the F2F approach over time to improve the effectiveness of the method in meeting their various needs. To increase the sustainability of extension services offered through the F2F approach, most organizations plan an exit strategy that consists mainly of building the capacity of their lead farmers, although capacity development was not one of their stated initial objectives and there is no official guideline for this activity.

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ANNEX

List of organizations interviewed (one respondent was left out because they preferred to remain anonymous).

Name	**Location (Region)**
ADD	Centre
AJESH	South-West
ANCO	North-West
BERUDA	North-West
CERUT	South-West
CIEFAD	West
CIMAR	Littoral
CIPCRE	West
ERUDEF	South-West
FONJAK	South-West
Gic PRO AGRO	West
HPI	North-West
INADES Formation	Centre
KUGWE ARC	North-West
MIFACIG	North-West
NOWEFOR	North-West
PLANOPAC-Ouest	West
Planet Survey	Centre
RARC	North-West
SAILD	Centre
SIRDEP	North-West
SNV	North-West
SOCADYC	Centre
UCOPADCAM-BINUM	West

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The World Agroforestry Centre is an autonomous, non-profit research organization whose vision is a rural transformation in the developing world as smallholder households increase their use of trees in agricultural landscapes to improve food security, nutrition, income, health, shelter, social cohesion, energy resources and environmental sustainability. The Centre generates science-based knowledge about the diverse roles that trees play in agricultural landscapes, and uses its research to advance policies and practices, and their implementation that benefit the poor and the environment. It aims to ensure that all this is achieved by enhancing the quality of its science work, increasing operational efficiency, building and maintaining strong partnerships, accelerating the use and impact of its research, and promoting greater cohesion, interdependence and alignment within the organization.

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