Working Paper

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Summary

Many extension services choose farmers to work with them in implementing their programs. Those farmers selected to lead farmer-to-farmer extension are often called by different names but in this study, we use the term "lead farmer" as a generic term even though different names sometimes imply different roles. Farmer-to-farmer extension programs date back at least to the 1950s and are common throughout the tropics. The objective of this study is to assess the experiences of 30 organizations in Kenya implementing the approach, highlighting selection of lead farmers, gender issues and motivations to become and remain lead farmers. Sampling was done using the snowball method, in which extension managers using farmer-to-farmer extension were interviewed and respondents directed interviewers to other potential respondents.

The sample included 16 international non-profit organizations, 7 governmental services, 6 national non-profit organizations and one farmer organization. Main reasons for adopting the lead farmer approach were because it is user-friendly and easy to implement (33 percent of respondents), it increases an organization's ability to cover a large area (30 percent), and its perceived sustainability (27 percent). The most common names for lead farmers were farmer trainers, contact farmers and community facilitators.

Lead farmers tended to be slightly younger and slightly better educated than other farmers but of the same wealth level. About 20 percent held other leadership positions in the community. In 27 of the 30 organizations, lead farmers were assigned to work with farmer groups while in the other three cases, they served entire villages or groups of villages. Lead farmers worked with a median of three groups composed of 50 farmers. Most organizations required lead farmers to maintain records (87 percent) and in turn monitored lead farmers' activities (77 percent).

Six organizations (20 percent) paid lead farmers a salary or a periodic allowance, 16 (53 percent did not pay salaries or allowances but did reimburse some expenses, and 8 (27 percent) did not give their lead farmers any form of payment or reimbursement. However, 57 percent of organizations reported that lead farmers had opportunities to earn income through providing training (paid for by trainees or organizations sponsoring them) or selling other products such as seed, seedlings, or chicks or services such as baling hay or making silage. Some organizations (43 percent) had contests or gave recognition or awards for the best lead farmers.

In most cases, both the organization and the community (i.e., farmer groups, cooperatives or local administration) were involved in choosing the lead farmers. In many cases, the communities appeared to have had a lead role with the organization influencing selection criteria and the final selection. Some respondents claimed that allowing the organizations to choose helped increase local ownership and accountability. Selection criteria varied considerably and included availability, accessibility, trainability, acceptability and ability to communicate. Literacy, passion and expertise were also important.

Another important finding was that many, and perhaps most, lead farmers had served as lead farmers for other projects in the past and were currently lead farmers for more than one organization. Many communities appeared to have a cadre of lead farmers that they rotate into and out of projects as they start and end. Even after projects ended, trainers were still recognized as trainers by their producer organizations and communities and felt motivated and even obligated to continue training.

Concerning gender, we assessed whether lead farmers can help increase the proportion of women providing extension services. The mean proportion of women in extension field staff positions in the 30 organizations was 33 percent while the mean proportion of women lead farmers was 43 percent. Organizations were able to achieve a 30 percent higher proportion of women among lead farmers than among their extension staff, thus empowering more women and also reaching more women, assuming that women reach women more effectively than do men.

The main motivations to become a lead farmer are early access to technology (rated as important by 67 percent of respondents) and altruism (43 percent) with social benefits, job benefits and income from associated activities of lesser importance (17 percent to 30 percent). After having served as a lead farmer for some time, income from associated activities emerged as the most important motivation (50 percent), followed by job benefits, altruism, early access and social benefits (23 percent to 33 percent). Respondents appeared to be accurate in assessing farmer trainers' motivations as the results were consistent with those of a study done on motivations as perceived by the trainers themselves.

The findings show that a variety of motivations are important for lead farmers and that motivations differ among farmers. Extension providers can make their volunteer farmer trainer programs more effective and sustainable through understanding which motivations are most important to their trainers and providing low-cost incentives for keeping them motivated. For those trainers interested in altruism and social benefits, means of recognition (certificates, T-shirts and public recognition from local leaders) are important. Training, literature and visits with researchers and innovative farmers are important for those interested in early access to information. For those interested in earning income from associated services, helping link farmer trainers to clients interested in buying their services is important.

Finally, those involved in managing farmer-to-farmer extension programs can gain much from learning from one another. Extension projects and initiatives should explicitly support lead farmer programs. Research designed to assess the influence of various practices (e.g., training, incentives, and linkages with extension services) on the performance of farmer trainers can help inform extension managers and policymakers on which practices best suit their particular circumstances.

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

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List of abbreviations & acronyms

CGIAR	Consultative Group on International Agricultural Research
CRP	CGIAR Research Program
IFPRI	International Food Policy Research Institute
LF	Lead Farmer
MEAS	Modernizing Extension and Advisory Services
NGO	Non-Governmental Organization
NPO	Non-Profit Organization
NRM	Natural Resource Management
PIM	Policies, Institutions, and Markets
USAID	United States Agency for International Development

Introduction

Many extension services choose farmers to work with them in implementing their programs. Those farmers selected to lead farmer-to-farmer extension are often called lead, model or master farmers, or farmer promoters or trainers. They are chosen according to their agricultural expertise and/or networking skills and previous training experience. Farmer-to-farmer extension is defined here as "the provision of training by farmers to farmers, often through the creation of a structure of farmer promoters and farmer trainers*"* (Scarborough et al., 1997). In this study, we use the term "lead farmer" as a generic term for farmers involved in farmer-to-farmer extension, though we recognize that different labels sometimes have implications for the exact roles and tasks of the farmers involved.

Farmer-to-farmer extension programs date back at least to the 1950s, when the approach was used by the International Institute of Rural Reconstruction in the Philippines (Selener et al., 1997). Currently such programs are quite common. For example, in Malawi, a survey of 37 extension services found that 78 percent used some form of farmer-to-farmer extension (Masangano and Mthinda 2012). The Malawi Ministry of Agriculture alone works with more than 12,000 lead farmers. Surprisingly, as pervasive as these programs are, little has been done to describe them, assess their effectiveness or distill lessons on successful implementation. Though there are a number of case studies of farmer-to-farmer extension programs operating in particular places (e.g., Hellin and Dixon 2008; Amudavi et al 2009; Lukuyu et al 2012), the only document available comparing approaches used by various organizations is by Selener et al. (1997), which draws on examples from Latin America.

This study is part of a multi-country investigation aimed at filling this gap in the literature by assessing the farmer-to-farmer extension approach as used by 80 organizations providing extension services in Kenya, Malawi and Cameroon. The study reported on in this paper assesses the experiences of 30 organizations in Kenya. Specific objectives of the study are to:

1. Assess how organizations select, train, monitor and motivate lead farmers.
2. Determine the organizations' perceptions of the effectiveness of the farmer-to-farmer extension approach, its challenges and its benefits, and how they have modified their approach over time.

Three key research questions guided the inquiry. First, how were lead farmers selected? Second, do lead farmers help organizations address gender imbalance -- that is, the low proportion of women serving in extension and the low proportion of women reached? Third, in the absence of salary, what motivates lead farmers to volunteer and continue to serve in this capacity?

In this report, we first discuss the methods used, characteristics of sampled organizations and their current use of the approach. Next we examine characteristics of lead farmers, their roles and responsibilities, how they are supported, and their compensation and motivation. Finally, we assess challenges and benefits and draw conclusions on the use of the farmer-to-farmer approach.

Methods

A semi-structured survey of extension program managers was used to assess 30 extension services' experiences with farmer-to-farmer extension in Kenya. The sample included extension program managers from government, international and national non-profit organizations (NPOs, also often referred to as non-governmental organizations [NGOs]), farmer organizations and private sector companies. Sampling was done using the snowball sampling approach, in which respondents directed interviewers to other potential respondents that they knew were using farmer-to-farmer extension approaches (Goodman, 1961). Among the organizations interviewed were 16 from Nyanza, nine from Rift Valley and five from Western Provinces, respectively. A semi-structured questionnaire was used in interviews with extension program managers about their organization's experiences in using farmer-to-farmer extension approaches. The survey covered selection methods, terms of reference, motivation and incentives, training, numbers and density, dropout rates and lessons learned.

Results and discussion

Characteristics of the sample organizations studied

Results in Table 1 show the types of organizations that were interviewed. More than half (53 percent) of the organizations interviewed were international NPOs.

Table 1. Types of organizations interviewed.

Type of organization	Freq.	Percent
Government	7	23
International NPO	16	53
National NPO	6	20
Farmer organization	1	3
Total	30	100

About 43 percent of the organizations interviewed were established recently (2000s), and 30 percent in the 1980s (Fig. 1).

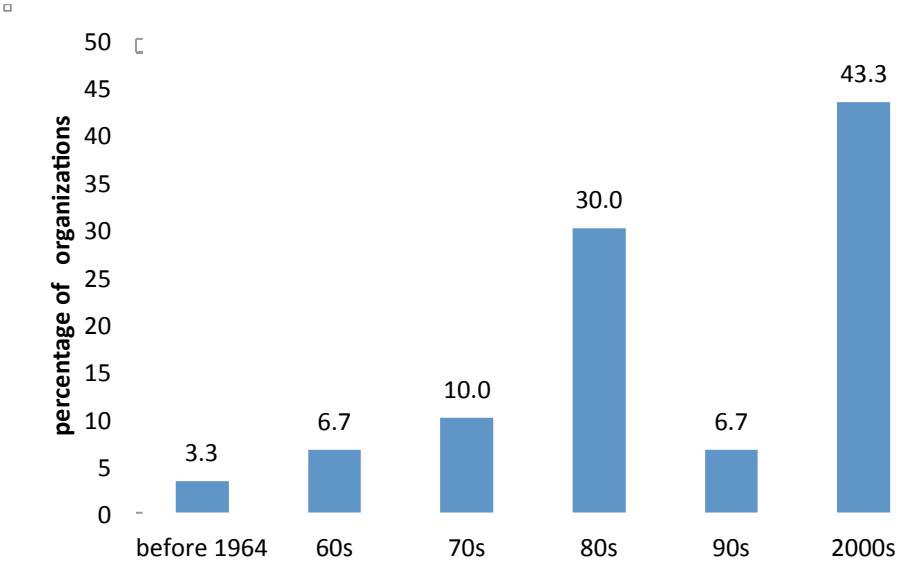

Fig. 1. Year of establishment of organizations interviewed.

The organizations' work locations varied considerably. Many of the organizations covered one county or one province (Fig. 2). Even though some of the organizations covered the whole country, respondents were often able to talk only about the farmer-to-farmer extension program within their own area of work. Hence the areas referred to in Fig. 2 refer to the areas that the respondents were familiar with and not the entire area served by the organization.

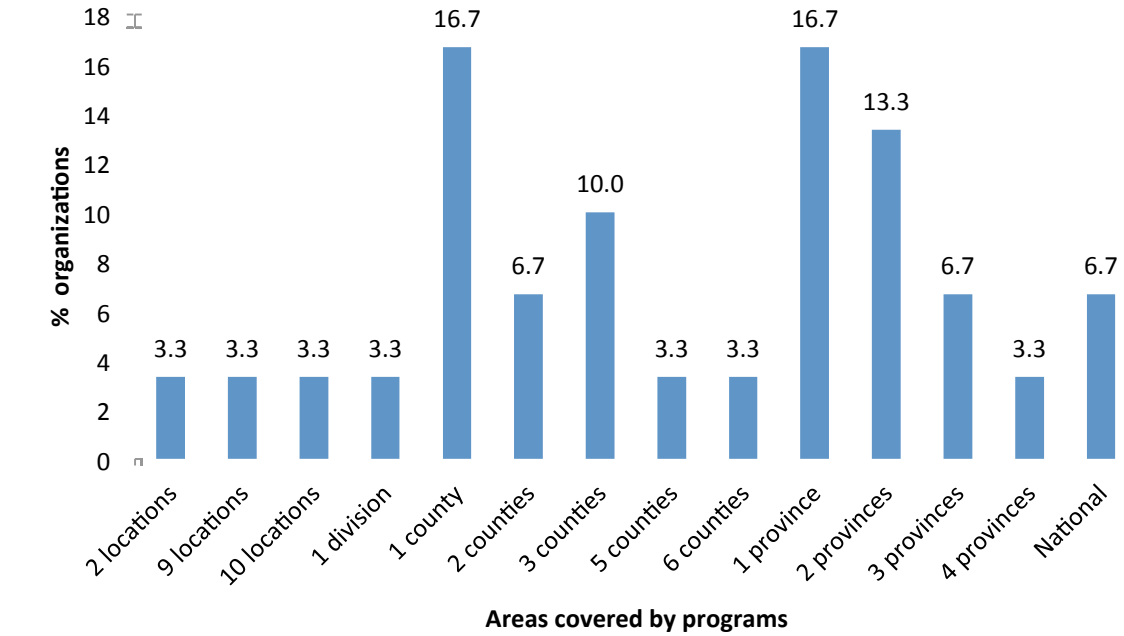

Fig. 2. Organizations' work areas (administrative areas in Kenya are counties, divisions and locations).

The main areas of technical focus of the organizations (Table 2) were food security, crop production, natural resource management and livestock production. A sizeable number also focused on health. Other areas included savings, hygiene, sanitation, education and governance.

Table 2. Main area of technical focus by the organizations.

Areas of technical focus	Number of organizations	Percent
Food security, livelihoods & human nutrition	9	30
Crop production	9	30
Livestock	7	23
NRM, conservation agriculture	7	23
Health	6	20
Sustainable livelihoods	6	20
Marketing	4	13
Culture of saving	2	7
Hygiene and sanitation	2	7
Economic empowerment	2	7
Education	1	3
Provision of safe water	1	3
Women policies	1	3
Governance	1	3

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

Half of the organizations targeted smallholder farmers. Some (17 percent) worked with all farmers (Table 3). Others targeted specific groups such as youth or farmers growing a particular crop.

Table 3. Groups targeted by the organization.

Specific target/client group(s)	Number of organizations	Percent
Smallholder farmers	15	50
All farmers	5	17
Youth groups	4	13
Rural community	3	10
Vulnerable communities	3	10
Children	2	7
Marginalized group	1	3
Sugarcane famers	1	3
Not poorest but where there is great potential	1	3
NGO	1	3
Dairy farmers	1	3
Association members	1	3
HIV&AIDS	1	3

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

The majority of organizations or parts of organizations that respondents were able to report on (66 percent) employed fewer than five field agents.

The field staffs of 40 percent of the organizations were at least half women (Table 4). The mean percentage of women among field staff members was 33 percent; the median was 36 percent. Representatives of many organizations stated that women field staff members were needed to reach women farmers. The government requirement of employing at least 30 percent women was also given as a reason. Even so, 21 percent of the organizations had no women staff members. A reason given for the absence of women was that there were some activities that were difficult for women to handle.

Table 4. Characteristics of field staff.

Number of field staff members		
Field staff members	Numbers	Percent
1 to 2 field staffs	10	33
3 to 5	10	33
6 to 10	5	17
Above 10	5	17
Total	30	100
Proportion of women among the field staff members		
No women	6	21
1 to 24%	0	0
24 to 49%	11	38
50% women	10	34
Above 50% women	2	7
No response	1	
Total	30	100
Education level		
Diploma	7	27
B.S.	14	54
Certificate	4	15
Secondary	1	4
No response	4	-
Total	30	100

The main means of transportation for field staff members in most organizations was motorcycle (60 percent) followed by car (30 percent) (Table 5). Motorcycles were used most because they can access places with poor roads or no roads, they are less expensive, and they use less fuel than cars. Communication was mostly by cell phones and emails. Cell phones were important communication links between field staff members and the lead farmers or farmer groups; emails were an important means of communication between the field staff members and the organization they work for. Use of cell phones was preferred because most farmers possessed phones and the communication was instant. Information communicated through cell phones was, for example, meeting times, whether a lead farmer held a training, etc.

Table 5. Main means of transport and communication by field staff members.

Type of transport		
	Number of organizations	**Percent**
Bicycle	2	7
Motorcycle	18	60
Car	9	30
Public transport	1	3
Type of communication		
Cell phones (from office)	16	53
Email	16	53
Letters/notes	2	7
Airtime (for personal cell phones)	14	47

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

Extension approaches other than farmer-to-farmer that organizations most frequently mentioned were field days (53 percent), demonstrations (30 percent) and exchange visits (23 percent) (Table 6).

Table 6. Other extension approaches used by the organizations.

Extension methods	Number of organizations using	Percent
Field days	16	53
Demonstrations	9	30
Exchange visits	7	23
Training of farmers	4	13
Group method (groups/clubs)	3	10
Mass media	3	10
Individual method	2	7
Farmer field schools	2	7
Model farm	2	7
Mobile phone messages	1	3
Chiefs' meetings	1	3
Community leaders	1	3
Service provider approach	1	3
Farmer workshops	1	3
Stakeholder meetings	1	3
Extension pamphlets	1	3

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

The principal sources of the technical information used in the organizations' extension work were research organizations, including universities (57 percent), own staff (47 percent) and government extension workers (40 percent) (Table 7). The Internet as a source of technical information was cited by nearly a quarter of the organization representatives interviewed.

Table 7. Sources of technical information used in extension.

Source of technical information	No. of organizations	Percent
Research organizations and universities	17	57
Own staff	14	47
Government extension workers	12	40
Other organizations	8	27
Internet	7	23
Total	30	100

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

The main point of contact for field staff members at the community level was found to be the lead farmer (48 percent), with some organizations stating that groups, with or without lead farmers, were their field staff's principal point of contact (Table 8). For these latter organizations, the reason given for using groups as the main point of contact was that they did not want to elevate one farmer above the others. One pointed out that if they gave responsibility to a single farmer, he or she might take advantage of the others. In such cases where the group was the contact, the lead farmers' main responsibilities were to report farmers' needs or to organize group meetings and training sessions.

Table 8. Main point of contact for the field staff.

Point of contact	**Number of organizations**	**Percent**
Lead farmer	14	48
Lead farmer and group	6	21
Groups	5	17
Group chairman	2	7
The convenor	1	3
Community	1	3
No response	1	3
Total	30	100

Most organizations (63 percent) worked primarily with mixed-gender groups. Some (33 percent) worked about equally with mixed- and single-gender groups, and only one worked solely with single-gender groups. In most cases, single-gender groups were women's groups.

All of the organizations said that they were working with the government extension service. The majority (70 percent) of the organizations involved government extension agents in training events. In three cases, government extension staff members provided the organization with training materials. Two organizations trained government field staff members, and two others provided assistance to farmer groups that the government extension staff linked them to.

Some organizations working with government extension staff members paid them a lunch allowance and provided transport to the training sites. The lunch fee for most organizations

was 500 Kenya shillings (about $US 6). The organizations emphasized that government staff members were included as a means of enhancing the sustainability of their efforts because government extension services were seen as more permanent than NGO services. They noted that their approach provided an opportunity for farmers to work actively with government extension staff for a common goal and improved networking (Box 1).

Box 1. A non-profit organization's experience in working with the Ministry of Agriculture in implementing a lead farmer program.

One non-profit organization visited had only a small budget and very few staff members but professed to be doing well in reaching its goals. Interviewees stated that they were using extension structures that were already in place, to which they fit their lead farmer approach. In partnership with government extension staff members, they asked targeted communities to identify people to be trained as lead farmers, and the organization arranged with the government extension service to train them. The government extension staff members were not paid by the organization because an arrangement had been made with the ministry to have the program integrated in its staff's work plan. In instances where extension workers were entitled to additional payment – e.g., lunch allowances when going to the field -- that had to come from the government. The organization planned its activities with the government extension staff and claimed that the program belonged to farmers and the government extension service. The organization intervened when specific challenges come up. For example, when lead farmers dropped out, the organization arranged to provide training to fill the open positions.

Current use of lead farmer approach

The majority of organizations started using the farmer-to-farmer extension approach fairly recently, with over half of the organizations adopting the approach between 2006 and 2010 (Fig. 3). Many other extension approaches were cited as having been used previously but they had been abandoned because they were not effective, were too costly, had observed communication barriers or were not financially sustainable.

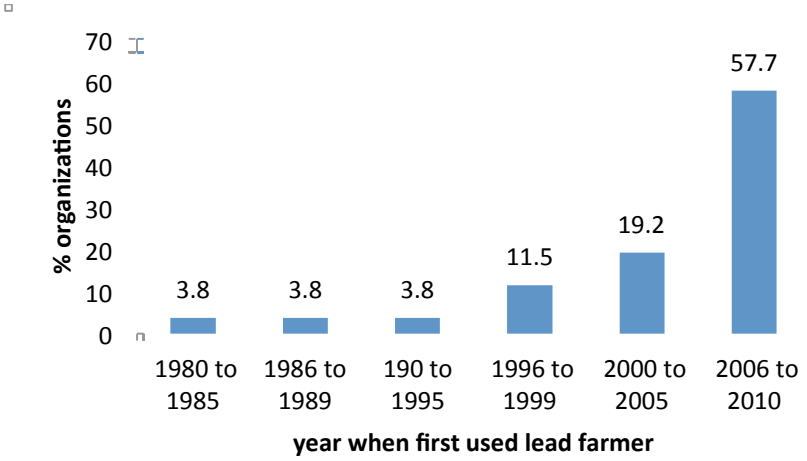

Fig. 3. Year of first use of farmer-to-farmer extension.

Table 9 shows where the organizations learned about use of the farmer-to-farmer approach. Many of the organizations had learned about the approach from partners (43 percent). Others, however, said that they came up with the approach by themselves (23 percent). Some respondents said that they found the approach being used by the organization when they joined and did not know where the approach came from.

Table 9. Where organizations learned about farmer-to-farmer extension.

Where	Freq.	Percent of organizations
Partners (other organizations)	13	43
Organization itself	7	23
Ministry of Agriculture	3	10
Used in other countries	4	14
Don't know	3	14
Total	30	100

The reasons given by many organizations for adopting the farmer-to-farmer approach were that it is user-friendly and easy to implement (33 percent), it increases an organization's ability to cover a larger area than would otherwise be possible (30 percent) and its perceived sustainability (27 percent) -- that is, lead farmers can continue teaching others after the project ends (Table 10). Several of the organizations made it clear that they did not have the capacity to cover their target area, and that was the reason they adopted the lead farmer approach (17 percent). They said that they had either insufficient numbers of staff numbers or insufficient resources to support their field activities -- e.g., finances to reach as many farmers as intended (see Box 1).

Table 10. Reasons for adopting the farmer-to-farmer extension approach.

Reason	Freq.	Percentage of organizations
User-friendly/easy to implement	10	33
Increased coverage	9	30
Sustainability	8	27
Staff members are few	5	17
Effective	4	13
Increased effectiveness in management and productivity	1	3
There was a big need for dissemination	1	3
Cost-effective	1	3
Others using it have succeeded	1	3

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

Organizations used many names to refer to lead farmers (Table 11). Among the 30 organizations, 15 names were used. “Farmer trainers” (27 percent) and “contact farmers” (17 percent) were the most common. Many of the names were unique, reflecting what the lead farmer does. For example, if a lead farmer was referred to as a resource person, it meant that he or she provided information resources concerning the technologies that were being promoted.

Table 11. Terms used for lead farmers.

Terms used for lead farmer	Number of organizations	Percent
Famer trainer	8	27
Contact farmer	5	17
Community facilitator	2	7
Lead farmer	1	3
Model farmer	1	3
Community resource person	1	3
Community health worker	1	3
Peer farmer	1	3
Local capacity builder	1	3
Nursery operator	1	3
Agriculture resource person	1	3
Master farmer	1	3
Resource person	1	3
Community resource person	1	3
Private service providers (apprentice)	1	3
Community village facilitator	1	3
Trainer	1	3
Aqua shop entrepreneur	1	3
Total	30	100

Almost 41 percent of the organizations had 40-60 percent women among their lead farmers (Table 12). The mean percentage of women lead farmers per organization was 43 percent, and the median was 47 percent. The organizations stated that most of the group members they worked with were women, so it was necessary to have women as lead farmers so that the group members could be approached easily. Some organizations said that recruiting women lead farmers was a requirement to ensure gender balance. Some organizations also said that they wanted to have more women as lead farmers, but they were not able to recruit more because the work of a lead farmer was perceived as either too taxing for women and they would not have enough time to commit to the task, or the women did not have the basic education needed. In seven of the 27 organizations reporting, less than 25 percent of the lead farmers were women.

Table 12. Proportion of women among the lead farmers.

	Number of organizations	Percent
Above 80% to 100%	1	4
Above 60% to 80%	3	11
Above 40% to 60%	11	41
Above 20% to 40%	7	26
10% to 20 %	5	18
No response	3	--
Total	30	100

N=30

The main role of field staff members in working with lead farmers was to train them (63 percent of organizations) (Table 13). Field staff members were also responsible for following up with lead farmers – e.g., answering their questions, monitoring their performance or getting feedback on farmers' needs. The majority of organizations (83 percent) provided field staff members with written guidelines on working with lead farmers. Field staff members were often responsible for designing the extension activities, making changes in the approach and collecting rudimentary statistics to monitor the progress. Staff members sometimes covered very large areas. For example, in one organization, one field staff person was managing lead farmers in three provinces.

Table 13. Role of field staff members in working with lead farmers.

Approach	Number of organizations	Percent
Capacity building of lead farmers	19	63
Follow-up with lead farmers	6	20
Giving feedback to organization	4	13
Link between farmers and partners	3	10
Coordinate activities	2	7
Develop market relationships with traders	2	7
Mobilize farmers	2	7
Work with LF in general extension	1	3
Identify key areas of need	1	3
Identify pests and diseases	1	3
Design possible and appropriate intervention	1	3

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

Lead farmer selection

Processes for selecting lead farmers can be grouped into three categories: those in which the community and the lead organization together choose (47 percent), those in which the community chooses (43 percent) and those in which the lead organization chooses (7 percent) (Table 14).

Where the community and the organization chose together, the process was often one where the organization provided or discussed criteria with community members at a meeting. Community members were then given the task of proposing candidates to the field staff, which then selected the lead farmers from among those proposed. In other cases, the organization proposed names and the community made the final choice.

In cases where the community selected lead farmers, they were usually provided with criteria or discussed them first with the organization. In a few cases, chairpersons of groups provided names. Some of these organizations said that they preferred leaving the choice to the community because they did not want to be responsible for paying or monitoring the lead farmers. Others noted that leaving the choice to the community would help ensure that the community or groups, not the organization, felt “ownership” of the lead farmers

Where the lead organization selected lead farmers, its field staff members identified the lead farmers by themselves on the basis of their knowledge of the farmers they worked with, or through a process of advertisement and interviews. It was observed that organizations that paid a salary or some allowance to lead farmers selected the lead farmers themselves and closely monitored their performance. They also tended to use higher education levels as a selection criterion.

Table 14. Mode of selecting lead farmers.

Mode of selection	Number of organizations	Percent
Community identifies the lead farmer alone	13	43
Community and organization select lead farmer together	14	47
Organization selects lead farmer alone	2	7
Organization took lead farmers working with another organization	1	3
Total	30	100

A wide range of criteria were used to select lead farmers (Table 15). For many of the organizations (43 percent), availability and accessibility were important criteria, followed by trainability, good behaviour and an ability to communicate effectively (27 percent each). Farmers who might meet all other criteria but were not available to do the work were avoided. The organizations indicated that if they were not careful, they would end up with lead farmers who had no time for the other farmers, even after they had conducted training. In such cases, time and resources would be wasted on them.

Table 15. Criteria used to choose lead farmers.

Criteria for selecting LFs	Freq.	Percent
Available and farmers can reach him/her	13	43
Trainable/teachable	8	27
Good behaviour, acceptable and trustworthy	8	27
Able to communicate	8	27
Hardworking/role model	7	23
Able to read and write	6	20
Passionate about agriculture	6	20
Expertise in the technology	6	20
Resident in the area	5	17
Must be a farmer	4	13
Must be willing to work without pay	3	10
Completion of secondary school	2	7
Has land	2	7
Known to local administration	2	7
Speaks English and Kiswahili	1	3
Able to mobilize community members	1	3
Must have a role in group	1	3
Must be a group member	1	3
Education minimum of diploma in agriculture or animal production	1	3
Able to get a shop in a certain location	1	3

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

Characterizing lead farmers

Data on the personal characteristics of the lead farmers showed that they were somewhat different from other community members. Sixty percent of the organizations said that the education level of lead farmers was generally higher than that of the group members (Table 16), with the largest proportion (72 percent) saying that lead farmers had at least some secondary education. Some organizations said that they preferred having educated lead farmers because they could read training materials and communicate their main points to their peers. According to the organizations, lead farmers were also observed to be mostly younger than the farmers with whom they worked. On the other hand, most of the lead organizations (62 percent) reported that lead farmers had the same wealth level as other farmers in their groups.

One-fifth of the lead farmers held leadership positions in their communities, such as subchiefs or village elders. Some organizations indicated that they preferred that lead farmers not have other leadership roles because they might become too busy with other duties. Others feared that having administrative duties or being involved in local politics might prevent them from freely interacting with farmers.

Table 16. Comparison of lead farmers with other group members.

	Number of organizations	**Percent**
Education compared with other group members		
Higher	15	60
Same	10	40
No response	5	--
	30	100
Education level of most lead farmers		
Post-secondary diploma or certificate	2	9
Completed secondary school	2	9
Some secondary school education	12	54
Completed primary school	4	18
Mixed/primary- secondary	2	9
No response	8	-
Total	30	100
Age of lead farmer compared with other farmers		
Younger	12	60
Same	7	35
Older	1	5
No response	10	--
Total	30	100

Table 16. Comparison of lead farmers with other group members (cont'd).

Wealth level compared with other farmers		
Higher	9	35
Same	16	62
Lower	1	4
No response	4	--
Total	30	100

Fig. 4 (below) shows that most (80 percent) organizations knew that some of their lead farmers had been lead farmers for another organization. Three-quarters of organizations reported that over 20 percent of their lead farmers had previous experience as lead farmers. Some organizations stated that they preferred choosing people who had been lead farmers before because it meant that they had experience training others. Fig. 4 also shows that 63 percent of respondents knew that some of their lead farmers were currently lead farmers for other organizations. About 55 percent of organizations reported that over 20 percent of their lead farmers were also lead farmers for other organizations. One organization reported that it engaged some lead farmers through another organization working in the area. That organization did not mind if the farmers worked for both. In another case, a village development committee nominated the current lead farmers in one project to become lead farmers in another new project. The committee had a cadre of lead farmers that it would rotate into and out of projects as old projects ended and new ones came up.

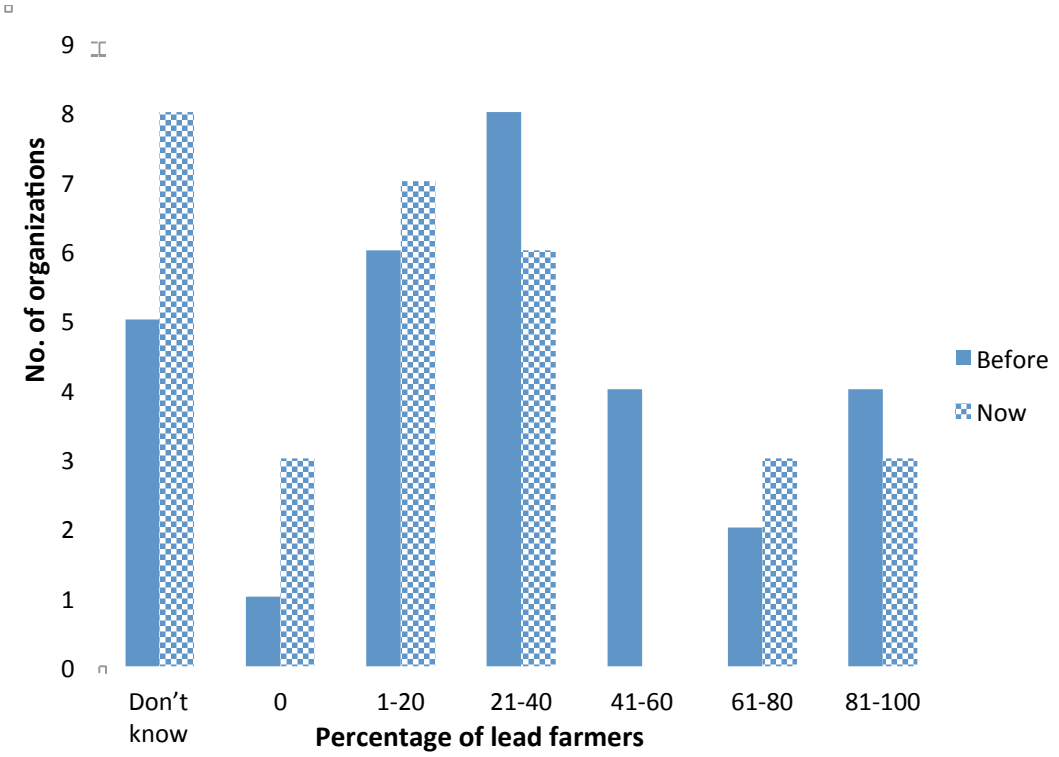

Fig. 4. Proportion of lead farmers working for another organization before or currently.

Lead farmer roles and responsibilities

Training other farmers, monitoring and mobilizing farmers for meetings were cited by most organizations as the main roles served by their lead farmers (Table 17). Identifying farmers' problems and bottlenecks and serving as a link between the community and extension staff members were other important tasks mentioned by some organizations.

Table 17. Roles of lead farmers.

Main responsibilities of lead farmers	Number of organizations	Percent
Train other farmers	12	40
Monitor/supervise project activities	10	33
Mobilize communities for meetings, demonstrations	11	37
Identify bottlenecks	5	17
Serve as link between community and extension worker	4	13
Prepare report for project officer	4	13
Assist in marketing	3	10
Recruit groups	1	3
Identify primary farm manager	1	3
Prepare reports for village development committee	1	3
Sensitize the community about the organization's work	1	3

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

In 27 of the 30 organizations (90 percent) interviewed, lead farmers worked with farmer groups. In the other three cases, lead farmers served a village or group of villages.

The ratio between lead farmers and the farmers they served varied greatly (Table 18). In 14 of the organizations (47 percent), the number of farmers was 20 or fewer per lead farmer. In most of these cases, the lead farmers served members of a single farmer group to which they belonged. In four organizations (13 percent), farmers served 21 to 50 farmers, and in the remaining 12 (40 percent), lead farmers served 51 to 4,000 farmers. In some of these organizations, lead farmers were serving many groups that were composed of relatively few members, such as a project in which a lead farmer served 25 groups averaging 23 members. In another case, a lead farmer served one group composed of 100 members. In still another case, a lead farmer was assigned to help all 1,000 farmers in a village.

Table 18. Number of farmers per lead farmer.

Number of farmers per lead farmer	Number of organizations	Percent of organizations
1-10	6	20
11-20	8	27
21-50	4	13
51-100	4	13
101-200	2	7
201-500	3	10
501-4,000	3	10
Total	30	100

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

The median size of groups was 25 (standard deviation, 9), and lead farmers worked with a median of three groups and 50 farmers (Table 19). Averages were somewhat higher, reflecting the fact that a few lead farmers worked with many groups and many farmers.

For half of the organizations, the reported frequency of meetings between lead farmer and group members was once or twice a week (Table 20). Weekly group meetings were most common. About 38 percent met once or twice per month. To attend meetings, lead farmers travelled mainly by foot (40 percent) or used public transport (27 percent), with the lead farmer paying for transport in nearly half the cases (14). In seven cases, the organization paid for lead farmers' transportation, and in four cases, the group being visited paid. The latter is particularly interesting because it demonstrates that, in some instances, farmers were willing to co-finance the lead farmers' expenses.

Table 19. Number of groups per lead farmer.

Number of groups per lead farmer	**Freq.**	**Percent**
1	12	40
3-5	7	23
6-10	4	13
Greater than 10	4	13
No response (those working at location or village level)	3	10
Total	30	100

Table 20. Frequency of lead farmer meetings with farmers, type of transport used and who paid for lead farmers' transport.

Frequency of LF meetings with farmers		
Frequency	**No. of organizations**	**Percent**
3 times per week	1	3
Once or twice a week	15	52
Once a month	6	21
Twice a month	5	17
Depends on season (not regularized)	2	7
No response	1	
Total	30	100
Type of transport of lead farmer		
	Frequency	**Percent**
Foot	12	40
Public transport	8	27
Bicycles (%)	6	20
Own transportation	3	10
Motor bike	2	7
Total	30	100

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

Most organizations required lead farmers to maintain records (87 percent) and in turn monitored lead farmers' activities (77 percent). Lead farmers kept records mainly about the number of trainings and farmer attendance, or number of farmers reached (67 percent) meetings. Depending on the organization, lead farmers also kept a diverse range of other records (Table 21).

Table 21. Types of records kept by lead farmers.

Types of records kept by LFs	Number of organizations keeping record	Percent
Trainings done and number of farmers reached	20	67
Monitoring other farmers	7	23
Farming activities and dates	5	17
Farm production	4	13
Sales records	3	10
Minutes of meetings	3	10
Challenges	2	7
Certificates	1	3
Savings and loan records	2	7
Immunizations	1	3
Finances	1	3
Inventory	1	3
Livestock births	1	3
None	4	13
Total	30	100

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

Aspects that organizations monitored to gauge lead farmer performance included the number of training sessions organized (37 percent) and rates of adoption of technologies disseminated by the lead farmers (20 percent) (Table 22). Field staff members also used other means of monitoring lead farmer performance that were unique to each organization depending on its needs.

Table 22. Aspects that organizations monitored to assess lead farmers' performance.

Aspects monitored to assess LFs	Number of organizations	Percent
Number of trainings, meetings, attendance and dates	11	37
Technology adoption rates	6	20
Evaluate whether lead farmers learned what they were taught	5	10
Volume of produce sold	4	13
Production and yields	3	10
Challenges lead farmers faced	2	7
Records kept by LFs	2	7
Other	7	7
Total	30	100

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

It was observed (Table 23) that a majority of the organizations (60 percent) had replaced at least one of their lead farmers, primarily because of underperformance (23 percent) or inappropriate behaviour (13 percent). The need to replace lead farmers is not unexpected but does represent a loss of investment, and it can be detrimental to field programming, especially if training replacements takes a long time or training is offered infrequently (Box 2).

Box 2. Challenges faced when lead farmers drop out and organizations' coping strategies.

Three examples illustrate how organizations sought to reduce the number of lead farmers dropping out. One organization was supporting lead farmers to become aqua shop entrepreneurs and service farmers with fishponds. It was very expensive to set up an aqua shop, and the expenses involved in training lead farmers were also considerable. The organization incurred great losses when an entrepreneur pulled out. It decided to have more stringent rules that would make it harder for lead farmers to leave.

A second organization dealing with passion fruits stated that lead farmers who were nursery operators did not drop out because the farmer invests a lot in the nursery, though the organization provides 30 per cent of the costs. Lead farmers also made big profits from selling the seedlings, which they would not choose to forego. They were also motivated to continue training because after they trained the farmers, the farmers had to buy seedlings from them. They would also follow up with the farmers to ensure that their fruits were doing well so that other farmers could adopt the crop and come for more seedlings. In summary, because the enterprise was so profitable, the dropout rate was very low.

In a third example, an organization promoting dairy recruited lead farmers and like most organizations, did not pay them allowances or salaries. Another organization promoting dairy in nearby areas started paying their lead farmers for training farmers. The lead farmers working for the organization that didn't pay salaries dropped out, complaining that they shouldn't work for free when their colleagues were being paid. This organization was helpless in dealing with the situation until two years later, when the organization paying lead farmers ran out of funds and stopped paying them. The first organization was then able to recruit volunteer farmer trainers again. The examples illustrate that lead farmers drop out for reasons related to both the structure of incentives within the organization as well as circumstances outside the organization. Though an organization has some control over the former, it cannot control the latter.

Table 23. Reasons that organizations gave for having replaced a lead farmer.

Reason for replacement	Number of organizations	Percent
Underperformance	7	23
Poor behaviour	4	13
Non-submission of reports	3	10
Misuse of equipment	2	7
Working for another organization	1	3
Lead farmer too busy with own activities	1	3
Lead farmer always absent	1	3
LF favoured some farmers over others	1	3
Other social issues	1	3
Has never replaced lead farmer	12	40
Total	30	100

Percentages add up to over 100 because some respondents gave multiple responses.

Most organizations (83 percent) reported soliciting and receiving feedback from farmer groups on the performance of their lead farmers (Table 24). They reported three primary feedback mechanisms: direct communication from the group to the organization (30 percent), feedback during meetings with farmers (23 percent) and reports from the group to field staff members (20 percent). Several organizations used other methods of soliciting feedback from farmers targeted by their field programs.

Table 24. Soliciting feedback from farmers.

Feedback method	No. of organizations	Percent
Report to office directly	9	30
Report during meetings	7	23
Reports to field officer	6	20
Report to ministry	1	3
Random checks on famers	1	3
Field officers visit famers	1	3
No response	5	17
Total	30	100

Support to lead farmers

Initial training offered to lead farmers was mostly in the form of a locally held induction training (37 percent), a residential training away from home (23 percent) or on-the-job training (Table 25).

Table 25. Initial training offered to lead farmers.

Type of initial training	No. of organizations	Percent
Induction course in area	11	37
Residential	7	23
On-the-job	4	13
Other	3	10
No training	1	3
No responses	4	173
Total	30	100

One-third of the organizations held initial trainings for five days (33 percent) with seven (23 percent) organizations offering less training and six (20 percent) offering more. For the remaining 24 percent of organizations, the length of initial training varied or there was no response. Organizations explained that the technologies they were promoting were not complicated and long training sessions were not required. There was, however, one organization dealing with rice that trained lead farmers in a farmer field school, covering the entire life cycle of the rice crop. The lead farmers were then qualified to transfer the information to fellow farmers, where they learned together by doing.

Table 26 shows that technical skills that lead farmers were taught were very diverse. Crop production, livestock keeping and record keeping were the most frequently mentioned topics (20 percent each). Fourteen of the organizations (47 percent) also taught extension and communication skills during the initial training.

Table 26. Technical skills taught in initial training of lead farmers.

Technical skills	No. of organizations	Percent
Record keeping	5	17
Crop production	6	20
Depends on activity	3	10
Livestock keeping	6	20
Sustainable agriculture	2	7
Tree growing	1	3
Business management	4	13
Conflict management	1	3
Aquaculture	1	3
Varies according to activity	3	10
Total	30	100

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

Many organizations (46 percent) provided additional training for the lead farmers after they had served for some time. This training was mostly on-the-job training (40 percent).

Table 27 shows that most of the organizations gave extension materials to lead farmers. Eighty-seven percent provided information leaflets and brochures. Other extension materials provided by organizations included manuals (63 percent), posters (57 percent) and flip charts (53 percent). Most organizations (63 percent) also gave lead farmers seeds and other materials to establish demonstrations. A majority of the organizations (57 percent) also gave lead farmers field notebooks and other materials.

Table 27. Materials given to lead farmers.

Materials	Freq.	Percent
Extension materials given to LFs		
Leaflets/brochures	26	87
Booklets	1	3
Flip charts	16	53
Posters	17	57
Manuals	19	63
No response	4	13
Equipment/demonstration materials		
Seed	19	63
Notebooks, pens	17	57
T-shirts	12	40
Fertilizers	12	40
Backpacks	7	23
Protective clothing such as gumboots	4	13
Practice materials	1	3
Folders	1	3
No response	4	13

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

Compensating and motivating lead farmers

Six organizations (20 percent) paid lead farmers a salary or a periodic allowance, although the amounts were usually well below the market rate for trainers or the government minimum wage (Table 28). Some of these lead farmers had fairly specialized functions (e.g., coordinating savings and loans or dairy advisor); others' functions were general, such as crops extension. Sixteen of the organizations (53 percent) did not pay salaries or allowances but did reimburse some expenses – for example, when lead farmers attended meetings or were asked to come to program offices. Eight organizations (27 percent) did not give their lead farmers any form of payment or reimbursement for their actual expenses.

Table 28. Compensation given to lead farmers by organizations.

Compensation	Freq.	Percent
LF given salary or periodic allowance	6	20
No salary or allowances but some expenses reimbursed	16	53
No salary, per diems or expenses reimbursed	8	27
Total	30	100

We hypothesized that organizations providing compensation also invested more in their staff members and gave them greater responsibilities. To test this hypothesis, we categorized organizations into three investment/responsibility categories – high, medium and low – according to whether the following are done:

1. Organization monitors (1=yes, 0=no)
2. LFs keep records (1=yes, 0=no)
3. LFs ever removed (1=yes, 0=no)
4. LF initial training is five or more days (yes=1, fewer=0)
5. Organization provides further training (1=yes, 0=no)

An index was created by summing the five scores above, thus giving equal weight to each of them. A score of 4 or 5=high, 3=medium, and 1 or 2=low. Thirteen were found to fit into the high investment/responsibility category, 10 fit into the medium one, and seven were scored low. The data, summarized in Table 29, show some association between compensation and responsibility/investment – 13 of the 30 institutions have the same scores for compensation as for responsibility/investment. None of the six organizations with a high score on compensation had a low score on investment/responsibility. But three of the eight organizations with low scores on compensation had high scores on investment/responsibility. Evidently, these three were able to motivate their farmer trainers without paying them to perform. In two of the three cases, organizations reported that farmers were able to earn income from selling products or services associated with their extension activities (Box 3)

Table 29. Association between compensation paid to lead farmers and the degree of responsibility and investment organizations made in them.

	Level of compensation			
Level of investment/ responsibility	**High**	**Medium**	**Low**	**Total**
High	4	6	3	13
Medium	2	6	2	10
Low	0	4	3	7
Total	6	16	8	30

Box 3. Lead farmer income-earning opportunities.

Only six organizations paid their lead farmers a salary or periodic allowance. But lead farmers had opportunities to earn income through providing training or selling other products and services. Four such options are described below:

1. **Organizations pay lead farmers to provide training**. Some organizations stated that they sometimes paid lead farmers to train farmer groups -- for example, when they were organizing trainings in new areas. As an example, one organization stated that it paid lead farmers 150 Kenya shillings (about $US 1.80) per training per group. Lunch was generally provided by the group being trained.

2. Organizations arrange for trainees to pay lead farmers. In these cases, the trainees gave lead farmers cash or a portion of the products that they produced as compensation for training. For example, in one livestock project, farmers gave the lead farmer a portion of their milk (1 cup per farmer per training) or a number of their chicks. One organization reported that groups paid their lead farmers for training them even if they were members of the same group. One group paid 10 and another 20 Kenya shillings (about $US 0.12 to $US 0.24) to their lead farmers per farmer per training. The bigger the group, the less each farmer paid. The fees were deemed acceptable by trainees, and when added together for all members in a group, it provided enough motivation for the lead farmer to keep training. It was observed that some organizations supported the training costs for a period when groups were new but then insisted that the farmers pay the lead farmer for further trainings.

3. Lead farmer makes own arrangements to be paid by farmers. Only three examples were found of lead farmers who were able to make their own arrangements for earning money from training other farmers. The cases were dairy farmers who had received considerable support from a project in both training and links to other organizations. The lead farmers charge farmers 100 to 150 KSh (about $1.20 to $US 1.80) for visiting their farms and receive visits from farmer groups that contact them on their own as well as ones brought to their farms by other organizations.

4. Lead farmers sell products and services associated with their role as lead farmer. In these cases, as a result of the training they received, lead farmers sold seeds, seedlings or chicks. In one organization promoting dairy goats, the lead farmer kept a buck and earned some income by charging a fee for servicing other farmers' female goats. In each of these cases, the more work the lead farmer did training farmers on growing a certain crop or tree or managing dairy goats, the more money the lead farmer could earn from selling seeds, seedlings or the breeding services of his or her buck. As in the case of the aqua shopkeeper mentioned in Box 2, the volunteer work that lead farmers were doing in training others was helping to increase demand for the products and services they were selling. This helps ensure sustainability of a volunteer lead farmer program and promotes the uptake of practices that they are promoting. Several of the organizations interviewed were aware of this and were helping their lead farmers to start or improve enterprises that complemented their lead farmer roles.

As a way of motivating lead farmers, many organizations (43 percent) had contests or gave recognition or awards for the best lead farmers. Five of the organizations gave certificates and two gave trophies as a form of recognition; three gave financial or material awards. Another group gave a sheep to the best lead farmer. One organization stated that the best lead farmer was recognized by directing clients to his or her farm to buy seeds and seedlings and also arranging visits to his farm by dignitaries.

Most organizations (57 percent) reported that some of their farmer trainers had income-generating opportunity associated with their role (Box 3). Training other farmers for pay was cited by 40 percent, and 20 percent mentioned the sale of other products and services.

The organizations ranked the various motivations to become a lead farmer (Table 30). Early access to technology ranked highest, being ranked first or second in importance by 67 percent of organizations. Given that lead farmers are also farmers, getting technologies early meant more opportunities to increase productivity and income. Altruism was second, at 43 percent. Altruism is rooted in community and religious values. Most organizations (85 percent) discussed altruism with lead farmer candidates as a benefit of the position, and one-third emphasized the religious values of helping others.

The remaining four motivations -- job benefits, income generation, social networks and social status -- were ranked among the top two by between 17 percent and 30 percent. Job benefits included salaries, travel for meetings, allowances and the materials that lead farmers were given, such as clothes, agricultural inputs and equipment. Income generation involved earning income from providing training or selling other products and services associated with being a farmer trainer, such as selling seeds or seedlings. Social networking helped lead farmers to establish connections with other organizations, local leaders, government extension, etc. Organizations pointed out that such connections could help them to access information or technology or even in a few cases to get employment. Social status was also an important motivation -- some lead farmers were called “Mwalimu” (“teacher” in Swahili), and being a lead farmer helped farmers gain renown in their communities and to be elected into civic positions, such as county representative.

Table 30. Importance of the motivations to become a lead farmer
(1= most important and 6=least important).

Ranks	1		2		3		4		5		6		Mean rank*	st. dev.
Motivations	n	%	n	%	n	%	n	%	n	%	n	%		
Altruism	7	23	6	20	3	10	7	23	2	7	3	10	3	1.7
Social networking	3	10	3	10	10	30	6	20	4	13	3	10	3.5	1.4
Social status	2	7	3	10	3	10	7	23	8	27	1	4	3.8	1.4
Early access to technology	13	43	7	23	5	17	3	10	1	3	1	3	2.2	1.4
Job benefits	3	10	6	20	3	10	1	3			4	13	3.1	1.9
Income generation	3	10	5	17	6	20	3	12.5	6	20	1	3	3.3	1.5

N=30, *A higher rank is indicated by a lower number.

The preceding analysis examined organizations' perceptions of motivations for becoming a lead farmer. Table 31 shows perceptions of motivations for remaining a lead farmer. Table 32 compares the main motivations -- that is, the ones ranked first or second -- before becoming and when remaining a lead farmer. Income generation had the biggest increase, from 27 percent to 50 percent as lead farmers learned that they could earn income from training or selling other products and services, as described in Box 3. The other five criteria all scored between 23 percent and 33 percent. The motivation with the biggest reduction was early access to technology, which declined from 67 percent for becoming a lead farmer to 33 percent for remaining a lead farmer. Organizations reported that this reduction was logical because many of them introduced farmers to new technologies only, or mostly, at the beginning of a project. Social status and social networking increased somewhat as a motivation, while job benefits stayed about the same, and altruism declined in importance.

Table 31. Importance of the motivations to remain a lead farmer
(1= most important and 6=least important).

Ranks	1		2		3		4		5		6		Mean rank*	St. dev.
Motivations	n	%	N	%	n	%	n	%	n	%	n	%		
Altruism	7	23	2	7	4	13	4	13	3	10	5	18	3.4	2.0
Social networking	3	10	5	17	6	20	4	13			4	18	3.7	1.8
Social status	1	3	6	20	6	20	4	13	5	17	2	87	3.5	1.4
Early access to technology	4	13	5	17	7	23	3	10	4	13	0	0	2.2	1.4
Job benefits	7	23	3	10	0	0	1	3	2	7	3	10	2.8	2.1
Income generation	7	23	8	27	6	20	3	12	1	4	0	0	2.3	1.1

N=30. *A higher rank is indicated by a lower number.

Tables 30 and 31 also show the mean ranks of the motivations to become and remain lead farmers in the far right columns. The rankings are similar to those results shown in Table 32. The tables also show the standard deviations of the mean ranks. It is not surprising that motivations vary most for job benefits and altruism. Job benefits vary considerably because some organizations offer their trainers salaries and allowances, while others do not, as shown in Table 28, so it is understandable that ranking of this motivation also varies. Altruism as a motivation varies because some farmers place much value on helping others while others are much more interested in improving their own farms and well-being.

Table 32. Importance of the motivations to become and remain a lead farmer: proportions of respondents ranking criteria first or second in importance.

	Proportion ranked first or second in importance	
	Before becoming a lead farmer	Three years after becoming a lead farmer
Altruism	43	30
Social networking	20	27
Social status	17	23
Early access to technology	67	30
Job benefits	30	33
Income generation	27	50
Total	100	100

Total percentage adds up to over 100 because some respondents gave multiple responses.

Benefits and challenges of lead farmer approach

Results in Table 33 show the perceived benefits of using the lead farmer approach as stated by the organizations interviewed. Improved interaction with farmers and more effective communication between farmers (57 percent) and sustainability/increased farmer ownership (43 percent) were scored higher than any other benefits. Being less costly than hiring additional extension agents and increased coverage were the next two most commonly cited benefits of the lead farmer approach.

Table 33. Benefits of the farmer-to-farmer extension approach.

Benefits	No. of organizations	Percent
Improved interaction with farmers/mutual understanding	17	57
Sustainability and increased farmer ownership	13	43
Increased coverage	8	27
Less costly/use fewer staff members and many lead farmers	8	27
Feedback from farmers facilitated	4	13
Has a direct link to target group	3	10
Creating employment	3	10
Facilitates increased adoption	2	7
Helps us meet our objectives	2	7
Other	4	13

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

Observations in Table 34 show that, of the extension approaches that the organization had experience with, the lead farmer approach was deemed to be the most effective method of extension by the highest percentage (35 percent) of organizations. The findings are somewhat biased because only organizations using the approach were selected for interview, and organizations that may have tried the approach and rejected it were not included in the sample. Moreover, because the approach was the main subject of the survey, respondents may also have biased their response in favor of the farmer-to-farmer approach. A large proportion of organizations (80 percent) gave the lead farmer approach a score of 7 or 8 on a scale of 1 (ineffective) to 10 (effective) (Table 35). Only three organizations gave it a score of 6, and none scored it lower than that.

Table 34. Effectiveness of lead farmer approach compared with other approaches.

Most effective extension approach	No. of organizations	Percent
Lead farmer	9	35
Demonstrations	4	15
Group method (groups/clubs)	3	12
Exchange visits or tours	2	8
Farmer field schools	2	8
Field days	2	8
Other	3	13
No response	4	15
Total	26	100

Table 35. Organizations' score of the effectiveness of the lead farmer approach.

Scale (1=least and 10=most effective)	Freq.	Percent
10	2	7
9	2	7
8	11	37
7	12	40
6	3	10
Total	30	100

Difficulties in using the lead farmer approach

The most frequently cited difficulty in using the lead farmer approach (Table 36) was that lead farmers had high expectations, particularly in terms of financial and material benefits (27 percent). Several organizations commented that, despite the fact that they told the farmer trainers from the start that they would not receive financial compensation for their efforts, farmers still expected compensation and made repeated requests. A second and related challenge was that organizations had limited budgets to support the approach (23 percent). Several others noted problems with LFs' motivations: that some were not committed to serve (10 percent), that they dropped out (10 percent), or that they sometimes were not active (7 percent).

Table 36. Difficulties in using farmer-to-farmer extension approach.

Major difficulties of using LF approach	No. of organizations	Percent
High expectations from LF	8	27
Limited budget to support LF	7	23
Low commitment to play the extra role	3	10
Requires time	3	10
LFs drop out after being trained	3	10
Can miscommunicate	3	10
Not all trained are active	2	7
Not able to make demands on LFs because they are volunteers	2	7
Can promote unhealthy competition between farmers	1	3
Problem from local administration	1	3
Coordination challenges	1	3
Language barrier	1	3
No time for them to work on their own farm	1	3
Accessibility problem/transport	1	3
Some farmers better than LFs	1	3
Some LFs exploit farmers	1	3

Table 36. Difficulties in using farmer-to-farmer extension approach (continued).

Farmers come late for meetings	1	3
Education can be a barrier	1	3
Group can disintegrate	1	3
Women are side-lined because many of the lead farmers are men and are more easily accessed by men than women farmers. Women are not available to be lead farmers.	1	3

N=30. Percentages sum to greater than 100 because some respondents gave multiple responses.

Most organizations (75 percent) had made changes in their use of the lead farmer approach since they started to use it (Table 37). Most of the changes reported and the reasons for making them are unique to the organization, reflecting the diversity of programmatic needs and experiences. Two organizations reduced the number of their field staff members because the lead farmers were able to do much of the work previously done by the field staff members. Two organizations sought to recruit more women lead farmers so as to empower women and also to reach more women farmers. Two organizations also sought to integrate the farmer-to-farmer extension approach with other extension approaches, such as having lead farmers host demonstrations and participate in field days and exchange visits. Two also reported increasing the amount of communication with lead farmers through cell phones, including both calls and short message services.

Another organization determined that it needed to give some motivation to the lead farmers because it had not been paying them in any way. It started paying farmers a small, occasional allowance. Others had stopped paying farmers and, as mentioned in Box 3, were arranging for farmers who received training to pay the lead farmers directly.

Other organizations had modified their use of the approach to improve the prospects of farmer-to-farmer extension being sustained after their support was withdrawn. For example, one started using government extension for backstopping because it realized that the government staff was there to stay and farmers could continue to access them even when the organization left the area. Others identified local institutions that could provide some support to farmer trainers, such as a large milk marketing cooperative that wanted to help dairy lead farmers so as to increase the amount of milk sold to the co-op. Another organization reported that it had changed the name of its lead farmers from “trainer” to “resource person,” recognizing that the person did more for its clients than just train.

Table 37. Changes made in the lead farmer approach and the reasons for the changes.

Changes in approach	Reason for the change	
Recruited women trainers	To reach more women farmers	2
Integrated with other approaches	To be more effective	2
Reduced field staff numbers	Lead farmers handling more of the work	2
Increased use of cell phones	Improve communication with lead farmers	2
Follow-up and link with ministry	Ministry able and willing to backstop LFs and provide seed	1
Changed name from "trainer" to "resource person"	Role of LF not just training but also helping farmers access resources	1
Give motivation allowance	Better motivation for LFs	1
A few of the best lead farmers now advising project on strategy	Lead farmers have the firsthand experience with fellow farmers and may know the best way to solve their challenges	1
Stopped paying lead farmers and instead is arranging for farmers to pay them	Farmers did not appreciate the lead farmer at first. But now they have seen the benefits and can pay	1
Now have local education committee that looks into training needs of lead farmers and sources trainers	The committee can backstop lead farmers in the same way the organization has been doing	1
Arranging for farmers to pay lead farmers	Because organization is leaving soon	1

Conclusion

This study illustrates the high degree of variation in the way organizations involve farmers in farmer-to-farmer extension programs. At one extreme are organizations that involve farmers only marginally for the purposes of contacting their colleagues and organizing local meetings. At the other extreme are organizations that are training lead farmers to become professional extension staff members. In between are organizations providing some training and material support but little if any financial support or even reimbursement for expenses. The organizations varied greatly in the degree to which they trained, supported, monitored and evaluated their lead farmers. Three key areas where the results have important implications for designing and implementing farmer-to-farmer extension programs are in lead farmer selection, gender, and lead farmer compensation and motivation.

Lead farmer selection

In most cases, both the organization and the community (i.e., farmer groups, cooperatives or local administration) were involved in choosing the lead farmers. In most cases, the

communities appeared to have had a lead role with the organization influencing selection criteria and the final selection. Selection criteria varied considerably and included availability, accessibility, trainability, acceptability and ability to communicate. Literacy, passion and expertise were also important. The farmers selected were only slightly more educated and of the same wealth level as most of the farmers they were serving. This finding aligns with the findings of Bandiera and Rasul (2006), who reaffirmed that socioeconomic similarities among farmers encourage more interaction, and Feder and Savastano (2006a, b), who found that farmers learn best from peers who are of slightly higher but not too much higher social status. In sum, farmers serving as communicators of innovations come with a level of trust validity that outsiders often lack.

Another important finding was that many, and perhaps most, lead farmers had served as lead farmers for other projects in the past and were currently lead farmers for more than one organization. In many cases, communities appeared to have a cadre of lead farmers that they rotate into and out of projects as they start and end. Lukuyu et al. (2012) reported similar findings in western Kenya and found that most volunteer farmer trainers were still actively training farmers three years after a project supporting them ended. The trainers were still recognized as trainers by their producer organizations and communities and felt motivated and even obligated to continue training.

Gender

Extension services have been criticized for gender bias in two important respects (World Bank, 2009). First, the proportion of women in extension services lags behind the proportion of women working in agriculture, and second, women farmers have less access to extension services than their male counterparts. A key question is whether lead farmers can help increase the proportion of women providing extension services (that is, professionals and lead farmers) and whether they can reach more women farmers.

Concerning the first bias, the proportion of women in extension field staff positions in the 30 organizations surveyed ranged from zero (seven cases) to 100 percent (one case), with a mean of 33 percent. The proportion of women lead farmers ranged from 10 percent to 90 percent, with a mean of 43 percent. Organizations were able to achieve a 30 percent higher mean proportion of women among lead farmers than among their extension staff, thus empowering more women and perhaps also reaching more women, assuming that women reach women more effectively than do men. One organization reported that fewer than 10 percent of their hired trainers were women but more than one-third of their lead farmers were women, and that one of the benefits of the lead farmer program was that it increased women's access to information.

Whether having women lead farmers improves an organization's ability to reach more women is a question that we are not able to answer. Some organizations said that having more women lead farmers did help; others were skeptical. A skeptic noted that most of the lead farmers worked with groups that were in existence before they started their work, and whether the lead

farmer was a man or a woman would not make a difference as the same group members would be trained by either. On the other hand, a respondent noted that spouses often substitute for each other in group training activities. She thought that more women would attend a training conducted by a woman rather than a man, even if group membership was fixed. Further, farmer trainers often train many outside their groups and women trainers would train more women than would men trainers.

Compensating and motivating lead farmers

As shown in Table 29, there was not always a high correlation between the degree of investment in and responsibility given to lead farmers and the degree to which they were compensated. Those organizations paying salaries or stipends did make relatively high investments in their lead farmers and gave them considerable responsibility. But the converse was not necessarily true – in three organizations, lead farmers with relatively high degrees of responsibility and investment received no salary or reimbursements. Two of these three did benefit from income earning opportunities related to being a lead farmer. As shown in Tables 30-32, salaries and allowances (i.e., job benefits) were only one of six motivations for farmers to become lead farmers. Other motivations more important than salaries and allowances, according to the respondents, were early access to technology and altruism. Other motivations almost as important were income that one could earn from extension activities (e.g., training or selling seed) and social benefits such as improved status and networking.

Though several authors discuss lead farmers' motivations to become lead farmers (e.g., Selener et al.1997), Kiptot and Franzel (2014) were the only ones to score motivations in quantitative terms, as we do in this study. Kiptot and Franzel had lead farmers in a single dairy project score the importance of various motivations. In contrast, the scores reported in this paper were from many organizations scoring according to their perceptions of how important the motivations were for their lead farmers. The rankings of motivations in the two studies were quite similar (Table 38). In both studies, the main motivations to become a lead farmer are early access to technology (62 percent and 67 percent respectively) and altruism (42 percent and 43 percent respectively), with social benefits, job benefits and income from associated activities of lesser importance (17 percent to 30 percent). In both studies, three years after becoming a lead farmer, income from associated activities emerged as the most important motivation (50 percent and 61 percent respectively), followed by early access to technology and altruism in Kiptot and Franzel (2014) and by job benefits, altruism and early access in this study.

The key lessons here concern not so much the ranking of motivations but understanding that a variety of motivations may be important for lead farmers and that motivations differ among farmers. Extension providers can make their volunteer farmer trainer programs more effective and sustainable through understanding which motivations are most important to their trainers and providing low-cost incentives for keeping them motivated. For those trainers interested in altruism and social benefits, means of recognition (certificates, T-shirts and public recognition/appreciation from local leaders) are important. Training, literature and visits with

researchers and innovative farmers are important for those interested in early access to information. For those interested in earning income from associated services, helping link farmer trainers to clients interested in buying their services is important.

Finally, those involved in managing farmer-to-farmer extension programs can gain much from learning from one another. Research designed to assess the influence of various practices on performance, such as incentives or linkages with extension staff, can help inform extension managers and policymakers on which practices best suit their particular circumstances.

Table 38. Importance of the motivations to become and remain a lead farmer*

	To become a lead farmer		**Three years after becoming a lead farmer**	
	Percent respondents rating motivation as important			
	This study	Kiptot	This study	Kiptot
Altruism	43	42	30	49
Social networking	20		27	
Social status	17	28	23	28
Early access to technology	67	62	30	53
Job benefits	30	27	33	31
Income	27	23	50	61
Total	100	100	100	100

Percentages add up to over 100 because some respondents gave multiple responses.

* "Important" in this study means ranking the motivation first or second in importance on a Likert scale of 1 to 5 (1=low importance, 5=great importance). In the Kiptot study, "important" means ranking the motivation first in importance on a Likert scale of 1 to 3 (1=low importance, 3= great importance). In the Kiptot and Franzel study, social status and social networking were combined into a single motivation: social benefits

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