

FARMERS TEACHING FARMERS: CHALLENGES AND OPPORTUNITIES  
OF USING VOLUNTEER FARMERS IN TECHNOLOGY DISSEMINATION

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ABSTRACT

Public sector extension services in developing countries can no longer meet the needs of small-scale farmers. As a result, there has been an increasing emphasis on farmer-led extension in rural development. One such approach that is being used by the East Africa Dairy Development project (EADD) to disseminate livestock feed technologies to dairy farmers in Kenya and Uganda is known as the farmer trainers' approach. It is a form of farmer-to-farmer extension where volunteer farmers host demonstration plots and take centre stage in information sharing. A study was initiated to assess the perspectives of trainers and trainees on the effectiveness of the approach. Group discussions were held with farmer trainers and trainees in eight sites in Kenya and Uganda.

Factors that motivated farmers to become trainers included their desire to improve their living standards and those of others in their community, their knowledge/skills and their social status. Farmer trainers are not paid, they continue to train on a voluntary basis. The most important factors that motivate them include improved production (milk quantity and quality) and improved income from sale of seeds and services rendered such as hay baling, chuff cutter hire and silage making. The trainees are confident in the abilities of their trainers. An average of between 5 and 17 trainees are trained per month by each trainer in Uganda and Kenya, respectively. The topics/technologies disseminated include feed conservation, establishment and management of fodder shrubs, herbaceous legumes and grasses such as Rhodes

and Napier. Most topics/technologies were rated highly in terms of relevance, understanding and ease of use. The challenges which must be addressed to increase the effectiveness of the approach, while at the same time building on its strengths, include: lack of transport, training materials and high expectations from trainees.

**KEY WORDS:** SUPER DISSEMINATORS, LIVESTOCK FEED TECHNOLOGIES, FARMER TRAINEES, COSTS, MONETARY BENEFITS, SOCIAL BENEFITS, SUSTAINABILITY

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## INTRODUCTION AND OBJECTIVES

It is increasingly acknowledged that public extension services in developing countries can no longer meet the changing needs of farmers. As a result, the sector has over the last decade, been going through a transformative process from the linear model of technology transfer to the more pluralistic demand driven extension model. Despite the transformation, extension in Africa is still faced with many challenges that have been accelerated by structural adjustment reforms aimed at reduced public spending. Some of the challenges include low budgetary allocation, understaffing and low staff morale due to poor remuneration (Gautam, 2000; Kiptot *et al.*, 2006). Passivity at the community level and a tendency to treat all farmers, their contexts and needs as homogenous, are additional invisible contributions to the failure of state extension programmes (Isubikalu, 2007). It is against this background that NGOs have stepped in to fill the gap. They are advocating for participatory, demand-driven, client-oriented and farmer-led agricultural extension systems, with emphasis on targeting the poor and women. These approaches focus on farmers as the principal agents of change in their communities. The role of extension officers is also changing, from agents of technical messages to facilitators. For these new approaches to be institutionalised in the mainstream extension service they must demonstrate their superiority over old approaches,

i.e. they must be accountable to their clients and ensure sustainability – especially crucial in times of scarcity of public funds and for effectiveness in disseminating new technologies

The volunteer farmer trainers' approach is a form of farmer-to-farmer extension where farmers host demonstration plots and take centre stage in information sharing. It is envisaged that farmer-led extension is a more viable method of technology dissemination as it is based on the conviction that farmers can disseminate innovations better than extension agents because they have in-depth knowledge of local conditions, culture and practices and are known by other farmers. In addition, they live in the community, speak the same language, use expressions that suit their environment and also instil confidence in their fellow farmers (Mulanda *et al.*, 2000; Weinand 2002; Sinja *et al.*, 2004; Lenoir, 2009). At the same time, it is important to recognise that volunteer farmer trainers rely on extension staff for training and for addressing problems that they cannot handle. The farmer trainers are thus a complement to extension staff, rather than a substitute.

The East Africa Dairy Development project (EADD) which is a collaborative venture between Heifer International, Technoserve, International Livestock Research Institute (ILRI), African Breeders Services (ABS) and the World Agroforestry Centre (ICRAF) is using the farmer trainers' approach to disseminate dairy feed

technologies. The project started in 2008, with its main objective of doubling the incomes of 179,000 dairy farmers in Kenya, Rwanda and Uganda through improved dairy production and marketing. In order to meet its targets, the project has been using volunteer farmer trainers to disseminate dairy technologies to other farmers within their communities. As of June 2011, EADD had recruited 2157 farmer trainers who are operating in Kenya, Rwanda and Uganda. Uganda has 1014 trainers while Kenya has 1054 (Kirui, 2011). The selection of farmer trainers in the EADD project is a participatory process, involving farmers, locational representatives and the management committee of the chilling plant in each project site. The farmer trainers are volunteers who are selected if they: are good communicators, are interested in the project, are active dairy farmers i.e. a member of a dairy management/interest group (DMG/DIG) and are willing to give part of his/her land for demonstration purposes (Kirui *et al.*, 2009). In addition, they should be able to interpret/translate extension/training materials for farmers. The farmer trainer should also be a permanent resident in a particular site of the EADD area, so the trainer can be relied upon to train farmers even after the project phases out. Once recruited, the trainers are given training in feed technologies by dissemination facilitators and seed for establishing demonstration plots of various feed



technologies on their farms. In addition, they are often exposed to innovative farms through educational tours so that they can learn new feed techniques, which they can in turn pass on to other farmers.

The farmer trainers' approach used by the EADD project has been operational for about three years and the effectiveness of the approach in technology dissemination is not well understood. Several past studies have assessed the effectiveness of this approach elsewhere but the findings are mixed and cannot be generalised to the farmer trainers' approach used by the EADD project. This is because of differences in the mode of operation and local circumstances. The *Kamayoyq* approach in Peru for example, has been reported to be successful, partly because the trainers receive cash for their services, or are paid in kind, or with the promise of future help from their fellow farmers (Hellin *et al.*, 2006). In Malawi, Weinand (2002) found that there was a lot of mistrust among trainees because they did not believe that the trainers were not compensated for the work they do. This may in future jeopardise the sustainability of the approach. Furthermore, farmer trainers in Malawi are as a matter of fact not different from the master farmers or contact farmers (higher social and economic status) because of the criteria used in selection. What this means is that the poor may still end up being marginalised. In Kenya, Amudavi *et al.* (2009) found

the technical efficiency of the farmer trainers' approach in the dissemination of the push-pull technology in western Kenya to be positive – the approach showing a significant multiplier effect in increasing the push-pull technology uptake among farmers. In Peru, the effectiveness of the *Kamayoyq* was measured by assessing the livelihood impact on farmers. The results were positive, i.e. an increase in financial, human and social capital (Hellin and Dixon, 2008). The implication of these findings is that every situation is different and we need to undertake a study to determine the effectiveness of the farmer trainers' approach in the EADD project. Such information would help development agencies improve the functioning of such programmes and enhance their effectiveness in technology transfer and sustainability.

A study was undertaken to get the views of farmer trainers about their motivations, the technologies disseminated, number of farmers reached, distance covered, how training sessions are organised, the venues for training sessions, costs incurred, benefits, challenges and opportunities that exist in improving the effectiveness of the approach. The farmer trainees were asked to give their views on the sources of information on feed technologies and rating of topics disseminated to them by trainers. It is expected that such information will assist development agencies to design extension programmes that are effective and sustainable.

## **MATERIALS, METHODS AND DATA SOURCES**

### **Study sites**

The survey was conducted in Kenya and Uganda. The EADD project in Uganda operates in four clusters. The clusters are Kiboga (thirteen sites), Masaka (seven sites), Masindi (six sites) and Mukono (four sites). The informal survey in Uganda was conducted in three EADD sites spread across the clusters (Table 1) namely, Tusubira Women Livestock Cooperative (Mityana) in Kiboga cluster, Mukono and Jinja in Mukono cluster. Farmer trainers were selected because they have served much longer than farmers in other clusters. There were 29 farmer trainers, 19 male and 10 female (Table 1). There were 30 trainees, of which 18 were female and 12 were male (Table 2).

The EADD project in Kenya operates in four clusters. Cluster A is in the North Valley province of Kenya and has six sites. Cluster B in the South Rift Valley province of Kenya consists of five hubs while cluster C has two sites in the North Rift region and cluster D has two sites in the central Kenya region. The informal study was conducted in five EADD sites in Kenya spread across the clusters (Table 1) Mweiga and Olkalaou (central Kenya), Kipkaren (North Rift Valley), Longisa and Cheptalal (South Rift region). Cluster A was not represented, as most of the farmer trainers were newly recruited. There were 66 trainers, 17 female and 49 male (Table 1). There were 72 trainees of which 25 were female and 47 were male (Table 2). In both cases, about one-third of farmers were women.



## Methods

Group discussions with 5–20 farmer trainers and trainees were held in each of the eight sites to get

their perception on the farmer trainers' approach in technology dissemination. Topics discussed with farmer trainers were: length of time served,

distance covered, mode of transport used, number of farmers trained, technologies disseminated, challenges faced and opportunities to improve the farmer trainers approach. The farmer trainees evaluated their trainers in terms of their attributes, technologies disseminated and the number of adopters of various technologies. The total sums of scores and rankings were used to analyse data.

## RESULTS AND DISCUSSION PART I: FARMER TRAINERS' PERSPECTIVES

### Length of time farmer trainers have served

The period farmer trainers have served was an important determinant in assessing their performance in terms of the number of trainees trained and number of adopters of various technologies. One third of farmer trainers (32%) in Kenya have served 11–20 months while in Uganda 58% have served as trainers for between 16 and 20 months (Table 3).

### Average distance covered by farmer trainers

Average distance covered was based on average of the shortest and furthest distances. On average 37% of farmer trainers in Kenya cover an average of 3–5 km per day followed by 17% who cover 5–10 km. Further analysis revealed that 16% of farmer trainers in Kenya covered an average of 20 km per day (Table 4). They indicated that this makes them fatigued. In Uganda, 46% of the respondents cover an average distance of

**TABLE 1: STUDY SITES AND NUMBER OF FARMER TRAINERS WHO PARTICIPATED**

| Country      | Name of site   | Number of farmer trainers |           |            |
|--------------|----------------|---------------------------|-----------|------------|
|              |                | Male                      | Female    | Total      |
| Kenya        | Kieni (Mweiga) | 18                        | 5         | 23         |
|              | Olkalou        | 10                        | 3         | 13         |
|              | Kipkaren       | 8                         | 1         | 9          |
|              | Cheptalal      | 8                         | 2         | 10         |
|              | Longisa        | 5                         | 6         | 11         |
| Uganda       | Jinja          | 11                        | 6         | 17         |
|              | Mukono         | 1                         | 2         | 9          |
|              | Mityana        | 7                         | 10        | 29         |
| <b>Total</b> |                | <b>68</b>                 | <b>35</b> | <b>121</b> |

**TABLE 2: STUDY SITES AND NUMBER OF FARMER TRAINEES WHO PARTICIPATED**

| Country      | Name of site   | Number of farmer trainers |           |            |
|--------------|----------------|---------------------------|-----------|------------|
|              |                | Male                      | Female    | Total      |
| Kenya        | Kieni (Mweiga) | 7                         | 4         | 11         |
|              | Olkalou        | 10                        | 3         | 13         |
|              | Kipkaren       | 9                         | 4         | 13         |
|              | Cheptalal      | 16                        | 11        | 27         |
|              | Longisa        | 5                         | 3         | 8          |
| Uganda       | Jinja          | 5                         | 10        | 15         |
|              | Mukono         | 3                         | 5         | 8          |
|              | Mityana        | 4                         | 3         | 7          |
| <b>Total</b> |                | <b>59</b>                 | <b>43</b> | <b>102</b> |



**TABLE 3: LENGTH OF TIME FARMER TRAINERS HAVE SERVED**

| Length of time (months) | Number of farmer trainers |                  |
|-------------------------|---------------------------|------------------|
|                         | Kenya<br>(n=58)           | Uganda<br>(n=29) |
| <5                      | 12                        | 0                |
| 5–10                    | 13                        | 0                |
| 11–15                   | 11                        | 11               |
| 16–20                   | 19                        | 17               |
| >20                     | 3                         | 1                |

**TABLE 4: AVERAGE DISTANCE COVERED BY FARMER TRAINERS**

| Distance covered (km) | Number of farmer trainers |                  |
|-----------------------|---------------------------|------------------|
|                       | Kenya<br>(n=62)           | Uganda<br>(n=28) |
| <3                    | 9                         | 9                |
| 3–5                   | 23                        | 0                |
| 6–10                  | 11                        | 13               |
| 11–15                 | 9                         | 2                |
| 16–20                 | 10                        | 1                |
| Over 21               | 0                         | 3                |

6–10km, followed by 32% who cover an average of 1–5 km per day.

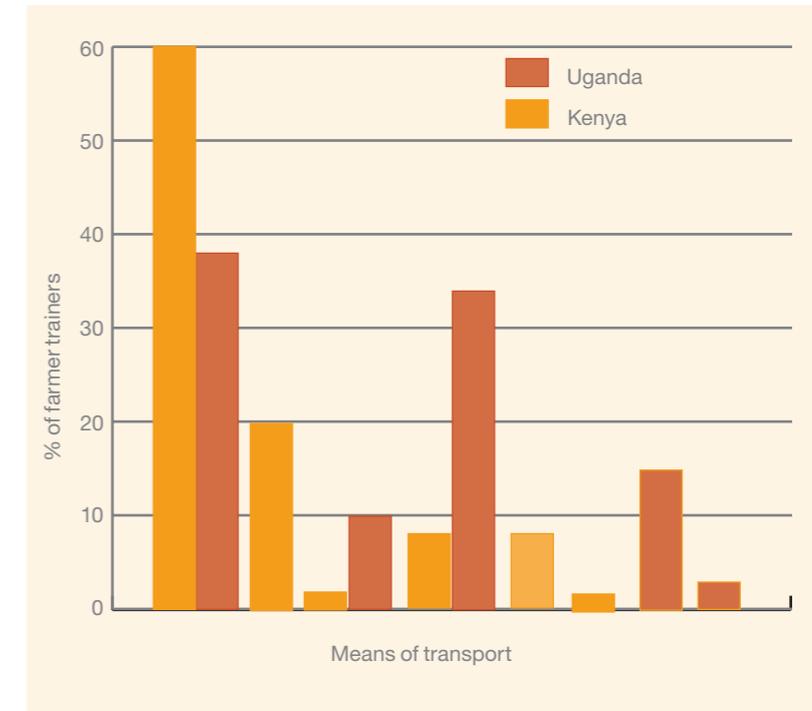
#### Mode of transport used by farmer trainers

The majority of farmer trainers in Kenya (60%) walked to reach their training sites and 8% used their own bicycles (Figure 1). In Uganda, 38% walked and 34% used their own bicycles; others

used public transport (motorcycles and bicycles known as *boda boda*, and occasionally buses).

#### Number of farmer trainees trained by farmer trainers

In both Kenya and Uganda, most farmer trainers have trained less than 100 farmers on average. There are however exceptional cases of ‘super



**FIGURE 1: PERCENTAGE OF FARMER TRAINERS USING DIFFERENT MODES OF TRANSPORT**

disseminators’ who have trained over 500 farmers in less than two years (Table 5). The average length of time served by farmer trainers in Uganda was about 16 months and the mean number and median of trainees trained per month is 5. In Kenya, the average length of tenure was about 12 months and the mean number trained per month was about 17 farmers, with a median of 8.

#### How farmer trainers mobilise farmers for training

They do so through:

- local leaders: village elders, chiefs;



- C/P local council;
- announcements in schools, churches and mosques;
- house-to-house visits;
- social functions such as burial ceremonies, weddings, introduction ceremonies, graduation, immunisation gatherings, drinking gatherings;
- telephone calls, local radio, letters;
- posters displayed at trading centres;
- announcements during group meetings;
- field days.

### Motivation for farmer trainers

Motivation is the emotional driver that makes a person take part in an activity. Farmer trainers were asked to discuss the factors that motivated them to become voluntary trainers.

The reasons given were a desire to:

- improve dairy production;
- improve livestock productivity;
- bring farmers together;
- improve social status;
- get a leadership position;

- improve local society/uplift standards of self and others;
- help others benefit from the use of new technologies;
- be a role model for youth;
- create awareness of dairy farming to other members of the community;
- be the first to acquire a new technology;
- get an opportunity for exposure / travel (exchange visits);
- improve milk production in the area;
- increase their social network.

### Technology dissemination by farmer trainers

Technologies that were disseminated by over 30% of farmer trainers in Kenya were: Rhodes grass, Napier grass, lucerne, sorghum, desmodium and silage making. In Uganda, Napier grass, calliandra, giant setaria, lablab and mucuna have been disseminated by over 30% of the farmer trainers (Table 6).

### Farmer trainers' costs and benefits

The costs incurred by trainers as they undertook dissemination activities included time they spend training, transport costs (some used motorcycles or public transport) snacks and lunch costs and air-time cost (call credit) for their cell phones (Table 7). Most of the benefits cannot be measured and may be more important for the trainers than the monetary ones. Non-monetary benefits received by farmer trainers are: improved social status/fame/popularity, which

**TABLE 5: PERCENTAGE OF OF FARMER TRAINEES TRAINED BY TRAINERS**

| No. of trainees trained | % of respondents |              |
|-------------------------|------------------|--------------|
|                         | (n=29) Uganda    | (n=36) Kenya |
| <10                     | 0                | 14           |
| 10–20                   | 3                | 11           |
| 21–30                   | 7                | 6            |
| 31–40                   | 10               | 8            |
| 41–50                   | 14               | 11           |
| 51–60                   | 10               | 8            |
| 61–70                   | 14               | 0            |
| 71–80                   | 7                | 3            |
| 81–90                   | 3                | 3            |
| 91–100                  | 3                | 8            |
| 101–150                 | 24               | 6            |
| 151–200                 | 3                | 6            |
| 201–500                 | 0                | 17           |
| 501–1000                | 0                | 0            |
| >1000                   | 0                | 6            |



**TABLE 6: TECHNOLOGIES DISSEMINATED BY FARMER TRAINERS**

| Technology                 | % of farmer trainers |               |
|----------------------------|----------------------|---------------|
|                            | Kenya (n=54)         | Uganda (n=22) |
| Rhodes grass               | 37.0                 | –             |
| Napier grass               | 61.0                 | 64            |
| Oats                       | 18.5                 | –             |
| Nandi setaria              | 5.50                 | –             |
| Lucerne                    | 30.0                 | 9             |
| Columbus grass             | 14.8                 | –             |
| Sorghum                    | 35.0                 | –             |
| Tree lucerne               | 5.50                 | –             |
| Calliandra                 | 33.3                 | 68            |
| Sesbania sesban            | 18.5                 | 18            |
| Desmodium                  | 30.0                 | –             |
| Mulberry                   | 11.1                 | –             |
| Sweet potato vines         | 28.0                 | 5             |
| Silage making              | 53.7                 | 23            |
| Haymaking                  | 27.7                 | 18            |
| Crop residues              | 24.0                 | –             |
| Sudan grass                | 20.3                 | –             |
| Giant setaria              | 5.5                  | 32            |
| Guetamala grass            | 5.5                  | 5             |
| Edible cana                | 5.5                  | –             |
| Feed rationing/formulation | 16.7                 | 9             |
| Tree nursery establishment | 5.5                  | 5             |
| Banana pseudo stems        | 20.3                 | –             |
| Kikuyu grass               | 22.2                 | –             |
| Pasture improvement        | 22.2                 | 14            |
| Mineral supplementation    | 22.2                 | 5             |
| Lablab                     | –                    | 36            |
| Mucuna                     | –                    | 36            |
| Sirato                     | –                    | 5             |
| Centrosema                 | –                    | 18            |

could be a springboard to bigger opportunities such as gaining a political seat at the local county level. Other benefits included more social networks i.e. harnessing of both horizontal and vertical social capital was used to access resources at different levels, improve knowledge and satisfaction levels, kept them busy, gave them exposure and more self-confidence. Financial benefits included the sale of seeds, charging for services rendered such as silage/haymaking, chuff cutter hire, registration of cows, ear-tagging, dehorning and deworming.

#### **Farmer trainer drop-outs and reasons**

Although most trainers interviewed indicated that there were some trainers who had dropped out, they were not sure of the numbers who had. The reasons given why some farmers left the scheme were varied. Some considered it:

- a waste of their time / no salary / no transport provided;
- discouraging because of a fluctuation in milk prices;
- discouraging as farmer trainees who adopt technologies can outdo the farmer trainers;
- not a suitable position as they are not good at being role models;
- difficult as it creates family conflict – female trainers – on decision-making about the use of land for demonstration;
- expensive as expenses (i.e. lunches, transport) are not reimbursed;
- has too many responsibilities.



**TABLE 7: FARMER TRAINERS' COSTS AND BENEFITS**

| Costs   | Benefits  |
|---|---|
| Snacks/drinks for trainees  | Learning experience   |
| Transport   | A springboard to leadership positions   |
| Training materials  | Reduced dependency on trainer   |
| Air-time (call credit)  | Improved social status  |
| Time  | Fame/popularity   |
| Unauthorised picking of seeds and propagation material from their farms | Availability of feed for own animals  |
| Opportunity for family labour   | Increases interaction with many people  |
| Lunch   | Improvement in home management  |
| Maintenance of bicycles   | Self-motivation to improve production   |
| Change of family daily schedule to accommodate farmers                  | Exposure, get new technologies<br>Sale of seeds and seedlings, Napier grass   |
| Vehicle repairs   | Charge for services rendered (silage/haymaking, chuff cutter, A.I., de-worming, dehorning, registration of cows, ear-tagging) |
| Trampling of crops during farmer visits                                 | Self-satisfaction   |
|   | Improved food security  |
|   | Competition enhances performance  |
|   | Acquire new knowledge   |
|   | Exposure during visits  |
|   | Kept busy throughout making them younger  |
|   | Gives them an opportunity for self-evaluation during exchange visits  |
|   | Gain self-confidence, courage and experience on how to handle many people   |

### Challenges faced by farmer trainers

Farmer trainers face many challenges when undertaking their extension activities. The most frequently mentioned challenge by trainers across the two countries was transport costs.

Most of them travelled long distances and had to use public transport or hire a motorbike and in such cases they had to pay their own expenses. Another major challenge was a lack of training materials. This made their training work very

difficult. Lack of exposure and limited technical knowledge were major challenges faced by trainers. Although they received local training, most still lacked adequate knowledge and many felt embarrassed when trainees challenged them and they were not able to provide adequate answers. Many trainers also complained about lack of certification. Other challenges mentioned were farmers not being punctual for training sessions, thereby wasting farmer trainers' time, poor attendance, high expectations from trainees, resistance to change among farmers and lack of incentives.

### Opportunities to improve the effectiveness of the trainers' approach

Every challenge was discussed and various suggestions for improvement were proposed by farmer trainers. Some of the opportunities to improve the effectiveness of the trainers' approach suggested were: provision of training materials, cell phone credit (most farmer trainers have cell phones) and certification. On the issue of poor attendance, the trainers agreed that all training sessions should be held in the afternoons. They also agreed to refrain from conducting training during the political campaign period. Families affected by HIV/AIDS needed to be provided with counselling and members of the community should be given training and sensitisation so that they did not stigmatise people living with HIV/AIDS



and learned how to live and work with families and individuals affected by it. To ease transportation, the trainers suggested that if funds allowed, bicycles could be provided to them.

## PART II: FARMER TRAINEES' PERSPECTIVES

### Sources of information on livestock feed technologies

Farmer trainees cited various sources of information

on dairy feed technologies (Table 8). The five most important sources of information on dairy feed technologies for farmers in Kenya were: EADD farmer trainers, radio, exchange visits, stockists/agrovets and neighbours. In Uganda, most important sources of information were: EADD farmer trainers, exchange visits, extension workers, farmers' dairy management groups and agricultural shows.

### Topics taught by farmer trainers and rating by farmer trainees

Farmer trainees in Kenya and Uganda were asked to list and rate the topics on livestock feed resources that they were taught by farmer trainers. The rating of each topic was done in terms of its depth, relevance, understanding and ease of use. The rating was on a three-point scale, high (H), medium (M), and low (L). Most topics in Uganda were rated highly in terms of depth, except for the case of silage making and herbaceous legumes such as mucuna and lablab. Trainees in Jinja and Mityana were of the opinion that the training on silage making was not covered adequately. As for relevance, most topics were considered relevant (except for silage and hay in Mukono). Farmers in Mukono indicated that they have a relatively short dry period so they do not see the need to conserve fodder, while others indicated that they usually do not have surpluses due to small land holdings. Most topics (except the use of fodder shrubs) which were taught were understood by most

**TABLE 8: OVERALL RANKING OF SOURCES OF INFORMATION ON FEED TECHNOLOGIES**

| Source   | Kenya<br>Rank | Uganda<br>Rank |
|--|---------------|----------------|
| Training of trainers (ToT)   | 6             | 8              |
| Agricultural show  | 18            | 5              |
| Field days   | 10            | 7              |
| Exchange visits  | 3             | 2              |
| Farmer trainers  | 1             | 1              |
| Magazines ( <i>Organic farmer, Dairy Mail</i> )                      | 7             | 12             |
| Radio  | 2             | 14             |
| Extension workers  | 7             | 2              |
| Stockists (Agrovet)  | 4             | –              |
| Books (fodder shrubs)  | 14            | –              |
| Brochures/manuals  | 10            | 12             |
| Ministry of Livestock  | 7             | –              |
| NGOs   | 12            | 6              |
| Breeders show  | 18            | –              |
| Farmers' groups  | 16            | –              |
| Neighbours   | 5             | –              |
| Newspapers   | 16            | –              |
| Dairy management groups  | 14            | 2              |
| Uganda National Farmer Federation                                    | –             | 8              |
| NAADS (National Agricultural Advisory Services)                      | –             | 10             |
| Sub county and district veterinary and animal production departments | –             | 11             |



trainees. In Kenya, the topics taught by farmer trainers ranged from establishment of Napier grass, Rhodes grass, and silage making to balanced feeding. On depth and understanding of content, most topics were rated highly across the five sites. However, three topics (fodder shrubs, desmodium and ration formulation) were rated as low in Olkalou. In Mweiga, topics which were rated as low were: balanced feeding, importance of feeding a cow, mineral supplementation and feed conservation. According to the trainees these topics were not covered extensively and they expressed a need for more training sessions. The relatively poor depth of content delivered and understanding by trainees in Mweiga was due to the trainer whom respondents felt had limited technical knowledge and was not confident. Most farmer trainees reported that the topics taught to them were relevant and they rated them highly across the five sites. The results on ease of use of knowledge across sites were mixed, with most topics being rated as high and a few as medium.

### Technology dissemination by farmer trainees

Farmer trainees disseminated technologies to other farmers ('second generation' farmers) within their community (Table 9). Forty per cent of farmer trainees passed on the technologies to between one and five other farmers. Six per cent passed on the technologies to between 11 and 20 farmers.

## CONCLUSIONS, RECOMMENDATIONS AND IMPLICATIONS

This study has clearly demonstrated that the farmer trainers' approach is an innovative low-cost extension approach with the potential to disseminate technologies to other farmers. However, for the approach to be more effective and sustainable, a number of challenges need to be addressed. Farmer trainers cover long distances, which may be counter-productive as they may not be able to effectively follow-up or monitor closely the performance of the technologies on farmer trainees' farms. Extension is not just about dissemination but also about

close monitoring (frequent follow-ups). It may be ineffective to have farmer trainers train very many farmers without close monitoring. Some farmer trainers undertook their activities without using training materials, which they claim greatly affected their performance as trainers.

The study has also provided some useful insights on dissemination. It is clear that there are some exceptional farmer trainers ('super disseminators'). What distinguishes them from the rest? Is it a question of personal attributes or other socio-economic factors such as wealth, social status, age, education and land size? What about the 'poor disseminators' i.e. those farmer trainers who have trained very few farmer trainees? What is it that distinguishes them from the 'super disseminators'? Filling in these gaps will enable development practitioners to target farmers with the desirable attributes (to enhance the spread of technologies). The quality of information passed on to trainers is another issue worth examining. Knowledge of trainers, trainees and second-generation trainees must be tested to determine the quality of information being disseminated.

The sustainability of the trainers' approach must also be examined. For this approach to be sustainable, farmer trainers must feel that the benefits of engaging in dissemination activities far outweigh the costs that they incur. Findings from this study have shown that major costs that farmer trainers incurred were: transport, opportunity cost

**TABLE 9: NO. OF FARMER TRAINEES WHO HAVE DISSEMINATED TECHNOLOGIES TO OTHER FARMERS**

| No. of second generation farmers trained | % of trainees (n=30) |
|--|----------------------|
| 0  | 15                   |
| 1-5                                      | 40                   |
| 6-10                                     | 23                   |
| 11-20                                    | 6                    |
| >100                                     | 3                    |



of time, air-time (call credit) and lunch expenses. Benefits received range from monetary to social benefits such as improved social status/fame/popularity, satisfaction, keeping busy, among others. Some of the social benefits may be even more important to trainers than the monetary ones. How do they value the social benefits that are not quantifiable? The monetary benefits include selling seed and charging for services (ear-tagging, cow registration, hay/silage making). Can these cover the costs they incur? A detailed study is needed to address these gaps.

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