Small Holder Farmers-Training Needs Assessment for the Project for Agricultural Development and Economic Empowerment (PADEE)

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Preface

This report on small holder training needs assessment for the Project for Agricultural Development and Economic Empowerment (PADEE) in Liberia was prepared for All We Can/Y-Care International Seed grant by Newton U. Toe, ERDI Research Consultant. Research for this study was managed and led and report drafted by Aaron S. Garziah, ERDI MEL-Officer. Quantitative data analysis was carried out by Newton U. Toe, ERDI Research Consultant. The data collection and entry team comprised Allen Kollie, Jean B. Murray, Albertha Saybay, Jerry Teakpue, Jamesetta N. Sonkarlay, Marron K. Flomo and Yvonne B. Youhn.

Special thanks must go to the many farmers and their families who generously gave their time to take part in the survey. The views expressed in this report are those of the author and do not necessarily reflect the views of All We Can/Y-Care International.

Contents

1 Executive summary

This study assesses the small holder farmers training-needs formed as part of the Seed Grant Project for Agricultural Development and Economic Empowerment (PADEE) in Nimba and Bong Counties. The study explores farmers' training needs in land and non-land based income generating activities and reviews the members' preferred training methods and timings. To understand the training needs of Small Holder Farmers, the study used quantitative research methods to capture their current knowledge (based on a self-assessment) and the importance they place on different agricultural practices, and to understand what the best and most efficient tools are for transmitting agricultural knowledge. A total of 100 SHF members were randomly selected from the 200 Small Holder Farmers in 4 districts in the two counties, reflecting the geographical distribution of the groups across the two counties. A total of 100 farmers were interviewed (5 respondents per selected community). The findings reveal that the highest ranking training needs are in vegetable production (70%) and crop production (54%), followed to a lesser extent by cash crop (24%) and livestock (19%) while fruit growing, fisheries and food processing were the lowest ranked between 1% to 3% training needs as perceived by respondents. More specifically, training on controlling pests and diseases (58%) is the 2nd most significant challenge faced by farmers in addition to provision of materials-input seeds and fertilizers and lack of capital to boost agricultural activities in these counties. In both counties 59 percent of respondents mentioned lack of planting material and inputs seeds and fertilizers and 58 percent said lack of capital and credit are the major agriculture problem faced. This may reflect the cultural and social importance that growing rice still has and may also indicate a need to show farmers the potential increase in income from crop diversification, using new technologies and better water management, particularly given the environmental challenges they now face. 19 percent of respondents mentioned the need of training need in livestock. Few respondents showed interest in training on raising cows, which may reflect the declining importance of cows for power (due to modernization) and as a savings mechanism (due to the spread of other saving mechanisms). Chickens and pigs, which are usually raised and sold by women, and which can be an important source of income for women, were ranked as very important, indicating an area where more emphasis can be placed to help empower women economically. In fisheries, participants expressed a need for training in disease prevention and control as well as fish feeding and constructing fish ponds. Little importance was expressed in increasing knowledge on marketing, perhaps as the volume they produce/catch is small and the income obtained from selling fish is insignificant. Better market information regarding demand and prices may encourage more farmers to catch and raise fish. In other areas, the findings show that respondents require training and support in forming and managing self-help groups, financial literacy and management, and small business development. Training in handicrafts was identified as the least important. While over two thirds of respondents expressed a need for training in gender, they perceived their knowledge of gender to be relatively high. Fellow farmers were found to be a key source of information on farming, in addition to government extension services. 50 percent of respondents did not receive any agricultural advice whereas 35 percent received extension advice from other farmers, 12 percent received agriculture extension advice from NGO. Only 3 percent of respondents received agriculture advice from buyers. 95 percent of extension advice received

met farmers' expectation. There were 80 percent of farmers who received extension advice follow-up of which 35 percent came from other farmers.

73 percent of respondents prefer agriculture extension advice via workshops, 45 percent prefer via on-far demonstrations, 25 percent prefer Farmer field school, and 16 percent prefer individual farms visits. Presentations during community meeting and written materials are the least with 10 percent and 4 percent respectively.

Furthermore, farmers prefer to receive training immediately before the rainy season between January and May early morning before 9 a.m. with 57 percent respondents, balanced against both gender. Training may therefore be best conducted early in the rainy season so that farmers can immediately put their learning into practice as 52 percent of farmers prefer training to happen between January- May.

The two most common difficulties faced in accessing agricultural extension services, as noted by respondents are limited knowledge about training opportunities with more than half (54%) of the respondents citing this, followed by low literacy levels (35%). Distance to training facilities and not being invited for training are among the most common challenge faced by farmers. Respondents expressed limited knowledge about training opportunities as a main difficulty. Other challenges include inadequate training staff, child care responsibilities and child care responsibilities and busy schedules which sit at 8 percent respectively. Both men and women generally face the same difficulties in accessing agricultural extension services. The main exception is with regard to child care responsibilities, which constrains a third of women.

Farmers require practical training that demands the least reading and writing as possible. Training materials should therefore involve pictures and limited text. Information about dates and places of training should be provided well in advance so that farmers have the opportunity to plan and organize to attend. Extension work should have a system to obtain feedback from farmers and a quick process to respond to that feedback to make sure that farmers are comfortable and satisfied with the type of training they receive and the quality of the training. Finally, training logistics should ensure that they are carried out when farmers are available and that provisions for child care are considered.

This study concludes with the following recommendations:

- Training on pest and disease management should be prioritized across all sectors, particularly in light of changes in climate, which may contribute to different manifestations of pests and diseases. Training on fertilizer use should be prioritized, in particular for rice cultivation. In the area of livestock, training is required for both women and men in small livestock rearing.

- Farmers would benefit from exposure to new technologies and practices that are being tested/used by other farmers with similar physical conditions. This can include farmers in other districts or counties.

- Agricultural extension services and training for farmers should emphasize practical training and observation rather than theoretical training. The use of graphical material with limited text is also

highly recommended. Furthermore, reflection sessions in follow up to initial practical training could help to ensure that new learning is properly absorbed by farmers.

- Farmers are keen to learn from each other, but they require tools to do so. Farmer to farmer training should therefore be facilitated to ensure there is a proper exchange of accurate information.

- Training would be more appropriate if delivered to farmers late in the dry season or early in the rainy season so they can immediately put their new knowledge into practice. Training times and frequency should also be adjusted so that farmers receive training for an average of one or two hours once a week, immediately before lunch.

- Agricultural extension services could be strengthened by obtaining feedback from farmers using different methods and responding to that feedback to ensure that the services are tailored to the needs of farmers and that farmers are comfortable and satisfied with the type and quality of training they receive.

- Regular field surveys to assess and monitor changes in the agricultural training needs of farmers is recommended.

- Making sure childcare facilities are available during trainings would help to ensure higher participation from women. Lessons could be learned from experiences in other agricultural training sites where village elder women cared for children whilst women attended training.

- Conduct an evaluation of farmers' knowledge in key areas before designing new training materials and modules to match their level of knowledge to their self-assessment and ascribed importance to each topic. Such an evaluation would aid further prioritization of extension services and training.

- The analysis showed vegetable production ranked highest of importance to farmer needs with 66% followed by crop production which ranked second highest with 57% followed by cash crop and livestock production. Hence, training needs should focus more in these fields.

2 Introduction

Agriculture is a key sector in Liberia's economy and provides an important source of food and income to around 1.5 million rural households, most of which are located in rural areas. Subsistence is the dominant agricultural management system in Liberia, with most agricultural activities being carried out to produce food for household consumption and in some cases to sell at local markets or to neighboring Countries. Production activities focus on the crop production, cash crop, vegetable production, livestock and fisheries, with rice still the main crop grown by the overwhelming majority of smallholder farmers. Diversification into other food crops, vegetables and fruits has been limited. Some farmers—mostly women—grow small quantities of vegetables and fruits, mainly for self-consumption, with small surpluses being sold in local markets.

Non-land based income both near farms and in other locations is gaining increasing importance for rural households. The most important source of off-farm income for households in Liberia is

remittances from family members who migrate to the cities, and to other countries, such as Guinea, Ghana, Serra Leone and Ivory Coast to work in agriculture and other areas. Non-land based income at the farm/village level, such as food processing and running a small shop, is still limited but is increasing in importance. As Liberia goes through an inevitable rural transition, this form of income will become more important.

To achieve best production in agricultural activities, smallholder farmers can benefit from tailored training as part of agricultural extension. Extension enables farmers to take up new innovations, to improve their production and income, and to protect the environment. In Liberia, great diversity exists in farmers' access to extension services, as well as the quality of services provided. Furthermore, methods used to deliver extension services and the topics selected are not always adequate to the need. Understanding the training needs of farmers enables extension providers to better tailor extension services to effectively reach and benefit more farmers.

This study assesses the training needs of members of Improved Smallholder Framers (SHF) formed as part of the Project for Agricultural Development and Economic Empowerment (PADEE), which aims to increase the agricultural productivity and economic empowerment of poor people in targeted areas in Bong and Nimba Counties. The study explores training needs in both land and non-land based income generating activities and reviews the members' preferred training methods and the most effective means of meeting and measuring their achievement. The report contains recommendations on the topics in which farmers express a need for training and the method of delivery necessary to reach them. The findings will be used by ERDI and its partners to develop effective training packages for SHF members and an associated Quality Indicator System.

To understand the training needs, this study uses a mix of internationally recognized quantitative research method to capture the current knowledge (competence) of SHF members (based on a self-assessment) and the importance they place on different agricultural practices, and to understand what the best and most efficient tools are for transmitting agricultural knowledge.

3 Methodology

3.1 Location, survey instrument and data collection

The research was conducted in two counties in Liberia where the PADEE project will operates, namely in Bong and Nimba Counties, in collaboration with village/town chiefs and commune extension workers (CEWs). The study population comprised farmers from (SHF) groups who will receive training from ERDI, those who are in the pipeline to receive training as part of the PADEE project. The research used a quantitative method, with 49% female and 51% male SHF members.

For the survey, data were collected through interviews with farmers, at selected communities/towns in the two counties (e.g. Suakoko, Palala or Tonglewin, Sokopa etc.), based on a structured questionnaire. The questionnaire was implemented with 5 farmers from a selected community, with one or more assigned enumerators. All participants were small-scale farmers earning their income mainly from agricultural activities. Farmers gave oral consent to participate

in the study after they heard a brief explanation of the study's objectives. Survey respondents were assured of the confidentiality of their responses, as well as the voluntary nature of the interviews.

A total of 100 SHFs (five per community) were randomly selected from the 200 SHFs in 4 districts in the two counties, reflecting the geographical distribution of the groups across the two counties. From each SHF group per community, a simple random sampling technique was used to select 5 members from each community to participate in the survey, giving a total of 100 respondents. A cross-sectional sample of this size is representative of the total population of all the SHF members and allows conclusions to be drawn about the entire population of SHF members.

Table 1. Distribution of community under study

County	No. of SHFs	No. of SHFs selected	Names of communities
Bong-Pantakpaai	70	35	Baila, Palala, Tomato Camp, Jarmue, jinpleta, Forkollie and Gbaota
Bong-Suakoko	10	5	Suakoko Town
Nimba-Bain-Garr	90	45	Zuluyee, Tondin, Dinkamon, Tonglewin, Plediayee, Tonwin, Dormah Town, Nengbein and Wlehla
Nimba-Meinpea-Mahn	30	15	Sokopa, Kpein and Tunudin
Total	200	100	

The questionnaire was developed based on published literature on training needs assessments as well as previous experience in the field from both the survey team and project lead, ERDI. Farmers were requested to self-assess their personal knowledge (competence) on different areas of agricultural training needs and to rate the importance of the training need. The level of current knowledge was measured on a five point scale ranging from none to very high. Respondents' assessment of the importance of the training areas was measured on a three point scale with response options ranging from not important to very important. Respondents were required to place a 'tick' in the relevant response category. Besides closed questions, additional space for other answers or comments was also included (See questionnaire in the Annex).

The major training needs components identified for the study were crop production, vegetable production, fruit growing, livestock and fisheries. Specific training needs items were included under each training needs component. The questionnaire also collected demographic information and information relating to farming characteristics of respondents, including sex, age, education, household size, marital status, farming experience, size of agricultural land, number of agricultural plots, land ownership, agricultural activities and annual farm income (see Appendix 1). Frequencies and percentages were used to analyze these characteristics and assess differences in training needs between sub-samples of SHF members. In addition, respondents were asked about the main providers and frequency of agricultural extension advice and their preferred method and times to receive extension services.

Before the survey, the questionnaire was tested with 10 farmers from two communities (Gowee and Gbuyee). The questionnaire was then modified according to the findings and feedback from the respondents and enumerators after the testing.

3.2 Data analysis

Data were analyzed quantitatively using STATA version 16. Descriptive statistics (frequencies, means and standard deviations) were used to analyze the data. Training needs were assessed using STATA with cross tabulations for assessing training needs in agricultural education and extension.

1. Assuming the response rate would be less than 100 percent, the sample size was increased accordingly to obtain 100 completed questionnaires which is half of the targeted size of the SHFs group members.

2. The competencies with the highest scores were those with the highest need and priority for training.

An analysis was done to explore differences in self-assessment (knowledge) and importance of each of the areas explored in this study, looking at different characteristics of the respondents, such as age, sex, education, size of land, location, proportion of income coming from agriculture and others. Only the areas where the most important and significant differences were found are described in this report. Full analysis is available upon request for further consultation.

3.3 Limitations

The main methodological limitation of this study relates to the sampling of SHF members, which was conducted based on the database of SHF groups obtained from ERDI. Given that not all membership data was updated in the group lists, survey teams found that some pre-selected members were no longer part of the groups and therefore had to be substituted on the day to survey sufficient members per community. In such cases, members that were replaced were randomly selected to take part in the survey by agricultural extension workers and ERDI project staff in the counties. Meanwhile, qualitative data collection (Focus Group Discussion) was not done due to budget limit and men-power. Furthermore, after the pilot testing it was necessary to reduce the length and content of the questionnaire in accordance with the capacity of farmers. This affected the amount of information that could be collected. However, neither of these limitations affected the overall quality of data collected.

4 Training needs and agricultural extension

To achieve best production in agricultural activities, smallholder farmers can benefit from tailored training. Farmers are often unfamiliar with modern agricultural practices or new technologies, the use of which can lead to significant productivity gains compared to existing local methods. Appropriate training programs can play a critical role in bridging this gap, providing farmers with the new skills and technical knowledge necessary to implement improved methods and to make informed decisions about the best options to suit their needs.

Effective training of any kind requires comprehensive knowledge of the training needs of the target group. In many cases, the training needs of farmers are identified by organizations or individuals, often at the national level, without taking into account the specific needs and preferences of farmers themselves. This often leads to a mismatch between training programs and methods and the specific requirements of farmers in terms of skills, knowledge and interest. A training needs assessment identifies the "gap" between current performance and the performance required, and explores the causes and reasons for the gap and methods for closing or eliminating it. A needs assessment that takes into account the views of farmers is essential to ensure that the design and development of training curricula meets the needs of those it aims to serve.

As Sajeev et al. (2012) note, farmer training is education that usually takes places outside formal learning institutions and is geared towards adult learning and changing behaviors. It therefore requires an approach that takes the route of 'situations', rather than 'subjects'. Unlike conventional education in which the student is required to adjust him or herself to an established curriculum, the curriculum in adult education is built around the students' needs and interests (Sajeev et al., 2012). This emphasizes the importance of getting it right, ensuring that both the subject matter and approach are suitable and relevant to farmers.

In most cases, the training of farmers forms part of agricultural extension, which can be defined as the provision of need and demand-based agricultural knowledge and skills to rural men, women and young people in a non-formal and participatory manner to help improve their quality of life (Qamar, 2005). Agricultural extension generally consists of three basic tasks: disseminating useful and practical information relating to agriculture and home economics, supporting farmers to practically apply that knowledge to analyze their problems, and assisting farmers to use the technical knowledge to better solve their farming constraints (Zakaria, 2010).

In Liberia, the agricultural extension system is generally weak and offers limited services of varying quality to farmers. There are few national government extension officers in the whole country to serve more than 1.5 million rural households (Census, 2008). This means there is roughly one extension officer for every 2,000 households compared to 180 farming households in Liberia. Given that agricultural services provided by government are minimal, the availability of services for smallholder farmers is predominantly attributed to assistance from donors and NGOs. However, coordination of services is limited, particularly at the sub-national level, often resulting in duplication of services and inefficient use of resources.

4.1 Extension approaches

According to Swanson and Rajalahti (2010) there are four major paradigms of agricultural extension— technology transfer, advisory services, non-formal education, and facilitation extension. Technology transfer is a top-down model of extension that primarily delivers research recommendations to farmers using persuasive methods to tell them which varieties and production practices they should use to increase their agricultural productivity. The main goal is to increase food production, which will ultimately lead to reduced food costs. The second model, advisory services, refers to the advice provided to farmers about which practice or technology to use to solve an identified problem or production constraint. It assumes that public extension programs have reliable and validated information about the effectiveness of specific inputs or practices,

which they will share with interested farmers. Input supply firms also commonly use persuasive advisory techniques to recommend inputs to farmers, which often serves to increase profits made from product sales (Swanson and Rajalahti, 2010).

Thirdly, non-formal education refers to informal training provided to rural farmers who do not have access to formal vocational or technical training programs. This approach is common, but is now shifting towards farmer training on how to use certain management skills and/or technical knowledge to increase production efficiency or to use management practices like integrated pest management, as taught through Farmer Field Schools. Finally, facilitation extension is a participatory approach that focuses on getting farmers with shared interests to work together to achieve individual and common goals. In this case, extension workers provide knowledge and facilitate the teaching-learning process among different types of farmers, first identifying needs and interests and then connecting farmers with sources of expertise (such as credit operators, 'model' farmers in other communities, researchers and private-sector technicians) to address them. Both non-formal education and facilitation extension often support farmers with common interests to organize into groups (e.g. producer groups or self-help groups) to help them diversify or intensify their farming systems (Swanson and Rajalahti, 2010).

Agricultural extension in Liberia is mainly based on a top-down technology transfer approach, with a focus on increasing agricultural production with little attention to improving farmers' incomes. There is no systematic collection of data on farmers extension needs and preferences to ensure extension services are tailored to farmers' needs, and there is little research on the effectiveness of different training approaches and methods that have been used. Often, the selected topics do not respond to the immediate and urgent needs of the farmers or are incompatible with the situation and financial means of an 'ordinary' farmer. The last systematically recorded information came from an agro-ecological system assessment (AEA) implemented by the AusAID-funded Cambodia-Australia Agricultural Extension Project in 2007. Since then the Department of Agricultural Extension largely assesses farmers' extension needs through observation and informal discussions with farmers. AEAs are now only conducted on an ad hoc basis when a new project begins to get a baseline or to re-assess farmers' needs (Santoyo Rio, forthcoming). However, as this report asserts, farmers demand more participatory methods of learning, and given their lack of knowledge or exposure to new technologies, it follows that the last two learning approaches described above, namely Farmer Field Schools and facilitation extension, are most suited to the current needs of Liberian farmers. (The Farmer Field School is a group-based learning process, during which farmers carry out experiential learning activities that help them understand the ecology of their rice fields. These activities involve simple experiments, regular field observations and group analysis. The knowledge gained from these activities enables participants to make their own locally specific decisions about crop management practices. This approach represents a radical departure from earlier agricultural extension programs, in which farmers were expected to adopt generalized recommendations that had been formulated by specialists from outside the community).

4.2 Extension methods

Methods to deliver agricultural extension can be categorized into three groups, namely individual extension, group extension and mass media. While the method used will depend on various factors such as the local tenure system, land management practices, community organization and available resources, a combination of these methods is deemed to be most effective (Anandajayasekeram et al., 2008). Individual methods of extension allow the training to be tailored to the exact needs of the farmer and include farm and home visits, result demonstrations, telephone calls and informal contacts. This approach is effective in supporting the farmers' individual learning process and, when undertaken through home visits, allows other members of the household to benefit from the information and advice. As Oakley and Garforth (1985) note, individual meetings are likely the most important part of extension and are invaluable for building confidence between the farmer and agent. However, as Anandajayasekeram et al. (2008) point out, this method is expensive in terms of time and transport, allows only a few farmers to be visited and leads to only a small area being covered. There is also a danger that over-emphasis on individual farmers can result in too much focus on progressive farmers to the detriment of poorer farmers (Oakley and Garforth, 1985). This is a method more likely to be used by private sector extension providers or models such as the Farm Business Advisors implemented by Lors Thmey. Due to its time and resource consuming nature, this method will not likely be used with poorer farmers, as it requires high and quick returns on investment in order to be sustainable. Furthermore, this methods works under the assumption that the knowledge and practices gained by more progressive farmers will eventually be learned by other farmers through farmer to farmer learning.

Group methods, such as demonstrations, group meetings, farmer tours and farmer field days, consist of training for farmers with common interests, constraints and/or needs. This method recognizes the individual's inclination to respond to the pressure and opinions of groups and to consider other farmer's views before deciding on what changes, if any, to make (Zakaria, 2010). Group methods are advantageous in that they reach a larger number of farmers in a shorter time and thus reduce the costs associated with individual methods. They also allow for connections to be built between farmers and provide an opportunity for farmers to exchange information on farming and other issues. In addition, the group method takes into account the fact that some issues need collective action, such as community agreement on the protection of crops from theft and animals. However, Oakley and Garforth (1985) point out that forming, structuring and developing groups of farmers is a complex process that requires time and thought on behalf of the extension agent to the fact that farmers will constitute a group, function as a group and display characteristics associated with groups. This may be a particular challenge in the case of Cambodia where trust and the willingness to work in groups is minimal (Oversen et al, 1996; Santoyo Rio, 2012). Nevertheless, this method seems the most adequate for use by public extension services and other similar large scale projects like PADEE in Liberia.

The final method, mass media, allows information and advice to reach a large number of people in a cost effective way. Such methods include television, radio, leaflets, posters, and other printed materials. Extension through mass media is an important tool to support the work of extension agents on the ground by reinforcing messages and providing alternative sources of advice. It allows information to spread quickly—whether about new innovations and technologies or warnings

about pest and disease outbreaks—, experiences to be shared between individuals and communities, and questions relevant to a large number of farmers to be answered (Oakley and Garforth, 1985). Nevertheless, there are several limitations of the mass extension method, including the limited amount of information that can be distributed at a given time, difficulties in measuring the impact, and the inability of some methods to reach the target groups e.g. those living in remote rural areas with no access to television or illiterate farmers (Anandajayasekeram et al., 2008). Liberia's public extension system from MOA sometimes uses mass media to reach farmers, but it has a limited impact given a number of constraints, such as poor understanding of farmers' needs, limited capacity to develop interesting and useful materials and programs, and limited budget allocated to mass media activities. Nevertheless, mass media can be a cost effective way to reach a large number of farmers if used correctly.

Most methods currently used by the government to provide agricultural extension services are based on lessons provided to farmers in groups, with the aid of (limited) printed materials. Limited resources, in particular at the sub-national level, impede the use of more practice-oriented training, such as demonstrations, farmer field schools and exchange visits. It is only through donor funded projects that the Liberian government is able to provide more practice-oriented training. The government also provides agricultural extension through mass media, including television programs for farmers. However, other research (Santoyo Rio, 2012; forthcoming) suggests that farmers do not always find them useful or the timing of airings are not appropriate for farmers. For example, television programs providing agricultural information are often aired at night, when rural households are already in bed. This often coincides with the cheapest air time. Even among farmers who have received extension services, there is evidence suggesting they have gained little knowledge to improve their farming practices from airings. In a survey study, lot of farmers/respondents complained that extension services lacked experiments or field demonstrations, as they were mainly delivered in theory without field trials to demonstrate how agricultural advice works in practice. The study also found that about two-thirds of respondents thought that the extension courses they attended were difficult to understand and about half of them found that there was not enough training provided.

4.3 Inclusiveness and targeting

The technical skills required by farmers differ between communities and according to socio-economic factors such as gender and age. These factors will directly affect the types of educational and training needs of different farming groups. Female farmers, young farmers, farmers from ethnic minorities and farmers who are resource poor, among others, are all likely to have their own set of challenges that call for tailored approaches to overcome them.

Most agricultural extension programs, for example, still assume that the majority of farmers are male and therefore tailor their services in a way that better addresses the needs of male farmers. A World Bank/IFPRI study (2010) found that female extension workers were more effective than their male counterparts in reaching female farmers. A study conducted in Cambodia's Svay Rieng province also found that female farmers preferred working with female extension workers because they feel more comfortable sharing their agricultural problems with other women and because their husbands do not like them interacting with other men (Santoyo Rio and Lindström, 2012). These

examples illustrate the need for continued efforts to ensure that the requirements of female farmers are incorporated into extension services.

Who delivers training can be an important factor in how well different farming groups, such as women or resource poor farmers, are reached. The private sector is playing an increasing role in the provision of information and advice, particularly when coupled with selling inputs such as seed and fertilizer. This generally targets more well-off farmers who have the purchasing capacity to buy these products. As Swanson (1997) notes, the government has an important role to play in research and technology transfer because, if left largely to the private sector, the primary beneficiaries will be large-scale commercial farmers, leading to larger and more capital and energy intensive crop and livestock systems. In the process, he adds, this would result in further marginalization of resource poor farmers, leading to accelerated environmental degradation, deteriorating socio-economic conditions, and an increase in rural to urban migration.

In many countries including Liberia, the NGO sector is also a prominent provider of agricultural extension and tends to consciously target marginalized or hard-to-reach farmers, including illiterate, female and resource poor farmers.

5 Main findings

This section presents the main findings of the study. It provides an overview of the socio-demographic characteristics of respondents and the agricultural activities they engage in and examines their training needs across a range of agricultural practices. It then look at the different extension providers and the preferred methods of extension by respondents, as well as issues affecting the delivery of training.

5.1 Socio-demographic characteristics of respondents

Shows the personal characteristics of survey respondents. There were 51 percent males and 49 percent females respondents, which tends to mirror the gender composition of the SHF members. The age distribution of respondents was somewhat evenly spread over the various age groups, with slightly higher representation found in the 30 to 39 categories comprising 39 percent of the sample while 40 to 49 and 50 above categories constitute 27 percent and 26 percent of the sample respectively.

Most respondents stated they have no formal education (26%), have not completed primary school (18%) or have completed primary school (18%). Few respondents reported having completed secondary or tertiary education. These findings suggest that many farmers in the target communities are illiterate or have low literacy levels, which will impact on their ability to access different types of training and information. This is important to consider when developing extension materials for farmers.

Table 2. Distribution of respondents according to selected personal characteristics

Characteristics	Frequency	Percent
Sex		
Male	51	51%
Female	49	49%
Age (years)		
Less than 30	8	8%

30-39	39	39%
40-49	27	27%
Above 50	26	26%
Education		
No formal education	26	26%
Not finished primary school	18	18%
Completed primary school	18	18%
Completed secondary school	14	14%
Completed high school	15	15%
Higher than high school	9	9%
Household members		
1	0	0
2	0	0
3	4	4%
4	6	6%
5	12	12%
6 or more	78	78%
Marital Status		
Married	30	30%
Divorced	1	1%
Separated	1	1%
Widowed	2	2%
Single/Never Married	7	7%
Cohabiting	59	59%

78% of the respondents have 6 or more household members while 12% of respondents have at least 5 household members as seen above.

86% of the respondents interviewed are household head and male respondents make the largest in this category of farmers:

Table 3: Household head across gender

Household Head	**Gender**		**N=100**	**Percentage**
	Male M=51	Female F=49		
Yes	48	38	86	86%
No	3	11	14	14%
Total	51	49	100	100%

This further implies that majority of the farmers in this survey are responsible for the economic decision making of the family, hence agriculture plays a major role in the family income generating activities. Therefore a decision for a major turnout for any agricultural training would be strongly influenced by farmers themselves who are major economic decision makers in their households.

Although 71percent of agriculture activities are done for the purpose of selling while 29 percent (Table 4) are done for consumption, it can be seen that less income are generated from these agricultural activities dues to the numerous challenges farmers faced. The proportion of income coming from other off-farm sources remains limited. This has also been confirmed by other recent

studies and reflects a trend occurring in Liberia and other countries in the South Sahara region. As these economies develop, households diversify their income and are less needful on agriculture. While this is perhaps positive, it also means that farmers whose total household income is less reliant on agriculture may be less likely to invest time and money in training and technology.

Table 4: Purpose of agriculture activities

Agriculture Purpose			
Gender	Own Consumption	Selling	Consumption and Selling
Male	14	43	57
Female	15	28	43
Total	29	71	100
Percentage	29%	71%	100%

The above table shows almost half of the male in this study use agriculture as a major income generating activity.

Table 5. Distribution of respondents according to selected farming characteristics

Characteristics	**Frequency**	**Percent**
Farming experience (years)		
Less than 3	17	17%
3 to 5	13	13%
More than 5	70	70%
Size of agricultural land (Acre)		
No Land	0	0%
Less than half	11	11%
0.5 to 1	0	0%
1 t0 2	35	35%
2 to 3	15	15%
3 to 4	16	16%
More than 4	22	22%
Number of plots		
1	11	11%
2	21	21%
3	31	31%
4	9	9%
5 or more	28	28%
Land ownership status		
Own all	57	57%
Lease all	31	31%
Part own/part lease	21	21%
Percentage of yearly income from agricultural activities		
Less than 25 percent	63	63%
25 to 50 percent	26	26%
50 to 75 percent	6	6%
More than 75 percent	1	1%

The majority of respondents (70%) have been farming for more than five years. 22 percent of both male and female own more than 4 acres of land in this survey. More than two thirds of respondents have between 1 to 2 acres of agricultural land, with few (between 10 to 12 per cent) having more than half acre of land. In terms of ownership status, 57 per cent of respondents own their agricultural land, while 31 per cent part own and part lease it (Table 5 above). This suggests that a large proportion of IGRF members are smallholders but own their land, thus they will be likely to invest in training and technology if other conditions are right.

The survey revealed no significant differences in the percentage of annual income gained from agricultural activities across both gender by SHF members. 63 percent of respondents obtain less than 25 percent of their income from agriculture, 26 percent obtain between 25 and 50 percent, 6 percent acquire between to 51 percent, and 75 percent gain from agriculture. However, the difference in income generation between male and female is not significant as both seem earn similarly less than 25 percent of their income from agriculture. The income the income generated from agriculture activities, the more it seems to have major role in male-headed households as the study shows a 4 point difference between male and female for income between 25 to 51 percent and 51 and 75 percent from agriculture production.

Furthermore, both male and female seems to have equal years of farming experience with no statistical significance in farming years across gender. In addition, the findings show that there are farmers who have spent a significant year in agriculture activities yet lack major training in agriculture production that could enhance their productivity. Affirmatively, these farmers themselves not being a complete novice to farming are teachable and could easily adapt to recent innovations used in the agricultural industries but such training need to focus more on demonstration as they are vastly used to the traditional way of farming over the last five years.

5.2 Agricultural activities

Farmers were asked to indicate the agricultural activities they engage in and the main purpose of these activities i.e. for self-consumption, for selling or for both. Participants were then asked about the main problems they face with regard to their agricultural activities.

Many farmers (76%) grow vegetables, 71percent are involved into crop production, 44 percent are involved into cash crop production with 13 percent involved into livestock while 3 percent are involved into food processing and fruit growing respectively.

Table 6. Engagement of surveyed farmers in agricultural activities and the main purpose of their agricultural activities

Current Agriculture Activity						
Gender	Percentage					
	Crop Production	Vegetable Production	Cash Crop	Livestock	Food Processing	Fruit Growing
Male	45%	50%	59%	69%	33%	67%
Female	55%	50%	41%	31%	67%	33%
Total	100%	100%	100%	100%	100%	100%

Food processing is done largely by female as compared to male. However, 55 percent of female are heavily involved into crop production as compare to their male counterparts at 45 percent. Both male and females are similarly involved into vegetable production Cash crop production is largely done by male as compare to female.

The main problems farmers face in carrying out their agricultural activities are lack of planting materials-inputs seeds and fertilizers, lack of capital and credit, pests and diseases, high cost of input seeds, lack of tools and equipment, poor soils and low prices (see Table 7). Although the proportion of farmers that express these concerns vary between counties, these constraints tend to be the most important in all counties. Interestingly, poor or insufficient training, which is one of the main reasons why farmers do not know how to deal with pests and diseases, for example, is only considered a problem by around 10 percent of farmers. This suggests that farmers have little understanding of the potential benefits of good quality training. It may also indicate that farmers have limited hope of receiving adequate extension advice or training. During data collections and further probing, the few farmers that had received agricultural training or advice before, consistently claimed that it failed to address their particular needs.

Table 7. Main problems faced by farmers related to agricultural activities, by District

Agricultural Problem	District									
	PantaKpaai		Suakoko		Bain-Garr		Meinpea-Mahn		Total	
	#	%	#	%	#	%	#	%	#	%
Lack of capital and credit	16	28%	2	3%	30	52%	10	17%	58	16%
Lack of planting materials and inputs (e.g. seeds, fertilizer)	19	32%	5	8%	22	37%	13	22%	59	16%
Lack of markets/information about markets (don't know where to sell)	0	0%	0	0%	5	71%	2	29%	7	2%
Low prices	3	19%	0	0%	9	56%	4	25%	16	4%
High cost of inputs (e.g. fertilizers, seeds)	13	28%	4	9%	21	45%	9	19%	47	13%
Poor or insufficient training	5	45%	0	0%	0	0%	6	55%	11	3%
Lack of tools and equipment	8	20%	2	5%	24	60%	6	15%	40	11%
Pests and diseases	25	43%	4	7%	19	33%	10	17%	58	16%
Poor soil	7	39%	2	11%	8	44%	1	6%	18	5%
Labour	5	36%	0	0%	8	57%	1	7%	14	4%
Changes in weather	5	33%	2	13%	5	33%	3	20%	15	4%
Floods	0	0%	0	0%	9	90%	1	10%	10	3%
Limited experience in farming	2	50%	0	0%	2	50%	0	0%	4	1%
Limited knowledge of how to use fertilizers	3	75%	0	0%	0	0%	1	25%	4	1%
Lack of land for expansion	2	100%	0	0%	0	0%	0	0%	2	1%

5.3 Training needs

The needs assessment revealed numerous topics in agricultural production which farmers expressed a need for training. Respondents were asked to self-select, from a pre-designed list, all areas in which they require training and were then asked to indicate their perceived current knowledge and the importance of the area for them. The training needs were then ranked according to participant responses and are presented in the tables below. The tables also show the training needs of the respondents in the form of weighted scores, which were also ranked within each discipline. The highest rankings are considered the most important training needs of the farmers.

The highest ranking training needs as stated by farmers is training in vegetable production (70%) followed by crop production, 54 percent, cash crop which falls at 24 percent and livestock at 19percent.

Table 8. Main area for Agriculture extension help

What are the main areas of extension you need help to improve your agricultural activities?	Percentage
Vegetable production	70%
Crop production (e.g. rice, maize, pepper, cassava)	54%
Cash Crop (ex: Rubber, Cocoa, Sugar Cane)	24%
Livestock	19%
Fruit growing	3%
Food processing	1%
Fisheries	3%

The analysis reveals that women and men have similar interest in all agricultural activities and as well have same knowledge in all current agriculture activities. Below we present the respondent's current knowledge in agriculture as well as the rate of importance these activities play in the respondent's economic lives:

Table 9: Current Knowledge of agriculture activity

Knowledge	Current knowledge in activity: %						
	Crop Production	Vegetable Production	Fruit growing	Livestock	Fisheries	Food Processing	Cash Crop (ex: Rubber, Cocoa, Sugar Cane)
None	2 (4%)	2 (3%)		2 (11%)	3 (100%)		2 (8%)
Low	36 (67%)	51 (73%)	3 (100%)	12 (63%)		1 (100%)	14 (58%)
Medium	16 (30%)	17 (24%)		5 (26%)			8 (33%)

Farmers from the two counties in which the two most common agriculture productions (crop production and vegetable production) are carried out have limited knowledge in these area of production with 67 percent having low knowledge in crop production, 73 percent having low knowledge in vegetable production. To further explore how important these activities are to farmers, more than half ranked crop production as very important and vegetable production ranked second highest in term of importance. Furthermore, livestock is among the list of activities farmer cited that is of importance as seen below:

Table 10: Agriculture activity importance

Knowledge	How important is activity: %						
	Crop Production	Vegetable Production	Fruit growing	Livestock	Fisheries	Food Processing	Cash Crop (ex: Rubber, Cocoa, Sugar Cane)
Not Important	0 (0%)	0 (0%)	1 (50%)	0 (0%)			0%
Important	23 (43%)	46 (66%)	2 (100%)	7 (37%)			10 (42%)
Very Important	31 (57%)	24 (34%)	0 (0%)	12 (63%)	3 (100%)	1 (100%)	14 (58%)

As can be seen in the following sub-sections below, the single most important training need according to farmers is control of pests and diseases. This may be because they perceive pests and diseases as the single most important issue that affects profitability of agricultural activities or the most cost-effective way to increase productivity (i.e. potential investments in irrigation or technology are much more expensive). However, farmers may also focus on pests and diseases as the main challenge to agricultural production as its effect on crops is clearly visible. Farmers may lack awareness of other potential issues that can positively or negatively impact agricultural production. This is important because fear of crop loss through pests and diseases may be a major deterrent to investment as farmers tend to invest what they calculate they can lose without falling (further) into poverty.

5.4 Extension providers and methods

According to survey results, 50 percent of respondents do not receive extension advice, 35 percent of respondents indicated that fellow farmers were a key source of information on farming, while 12 percent obtained their information from NGO extension services (see Table 11). This suggests that farmers lack sufficient sources of information as fellow farmers may or may not be good communicators of adequate information. Furthermore, fellow farmers are rarely sources of information about innovations, unless they have obtained this information from an extension agent, an NGO or a private sector extension supplier of information. However, this is also an opportunity to engage in participatory extension methods, where the valuable knowledge and practices that farmers do have is shared with other farmers, while supporting this with new ideas and technologies.

Table 11: Agriculture advice services

Agriculture Extension Advice: Who are the main providers of agricultural extension advice that you receive?	Percentage
No One	50%
Other Farmers	35%
NGO	12%
Buyer	3%

Table 12. Main providers and frequency of agricultural extension advice received by respondents

Extension provider	#	%	At least once a month		Once every 2-3 months		Once every 6 months		Once a year		Less than once a year		Advice met needs		Received follow-up	
			#	%	#	%	#	%	#	%	#	%	#	%	#	%
Government extension services	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Research station (CARI)	1	1%	0	0	0	0	1	100%	0	0	0	0	1	100%	1	100%
Private sector extension services	6	6%	2	33%	2	33%	1	16%	1	16%	0	0	3	50%	5	83%
NGO	12	12%	5	41%	2	16%	2	16%	3	25%	0	0	12	100%	10	83%
Other farmers	35	35%	17	49%	7	20%	5	20%	6	17%	0	0	33	94%	29	88%
Input suppliers	3	3%	0	0	2	0	0	0	1	33%	0	0	2	66%	2	66%
Buyers	8	8%	3	37%	3	37%	2	25%	0	0	0	0	6	75%	7	87%

At least 65 percent of the farmers have received some form of advice or training (including advice from other farmers) in crop production, vegetable production, livestock and fisheries. 78 percent of the agriculture extension advice met farmer's expectations.

The needs assessment also identified the preferred formats for agricultural training events. Asked to select the three preferred methods, which were ranked according to their responses. As shown in Table 13, on-farm demonstrations are the most popular method for receiving extension, followed by farmer field schools (which include demonstrations) and workshops.

The findings on the preferred method indicate that farmers prefer more practical training methods to enhance their learning experience, which was also expressed by participants in probing for more clarities.

Table 13. Preferred method of agricultural extension services by respondents

Method	Male		Female		Total
	#	%	#	%	%
On-farm demonstrations	25	55%	20	45%	100%
Farmers field school	8	32%	17	68%	100%
Workshops	35	47%	38	53%	100%
Individual farm visit	8	50%	8	50%	100%
Written materials	4	100%	0	0%	100%

Presentations during community meetings	5	50%	5	50%	100%

In the survey, farmers stated that they prefer to receive training in the dry season (January to May) and either early in the morning or early in the afternoon (see Table 14). While there were no differences between male and female farmers' preferences regarding time of year, some differences emerged with regard to time of day. Half of all female participants expressed a preference for training in the early afternoon compared to 37 percent of males. Furthermore, fewer women prefer late morning, which tends to coincide with their household responsibilities, in particular lunch preparations.

This presents a clear challenge, as farmers also expressed they wanted more practical training rather than theoretical training (see Table 13), which can only happen during the wet season. Training may therefore be best conducted early in the rainy season so that farmers can immediately implement the learning and experiments.

In probing for more clarities this issue was explored in details. Farmers stated they would like to have training just before the rainy season (in April or May) and would prefer to have training just after lunch time (between 12 p.m. and 2 p.m.) and for no more than two hours, preferably only one hour per week (Table 14)

Table 14. Preferred time for respondents to receive extension services

Season	Total		Early morning		Late morning		Early afternoon		Late afternoon	
	#	%	#	%	#	%	#	%	#	%
Dry Season (Jan-May)	52	52%	40	77%	8	15%	1	2%	3	5%
Wet Season (Jun-Oct)	37	37%	22	59%	10	27%	5	13%	0	0%
Harvest Season (Nov-Dec)	11	11%	7	63%	3	27%	1	9%	0	0%

5.5 Issues affecting delivery of training

The delivery of extension services to farmers has several unique challenges both on the supply side and demand side. Those on the demand side, specifically with regard to access, were explored in this study and are captured in Table 17. The two most common difficulties faced in accessing agricultural extension services, as noted by respondents, are low literacy levels (20 %) and limited time to participate (31%), 15 percent of respondents have not been invited for training while 15% complained of training location distance. Other challenges include inadequate training staff, child care responsibilities and not time to participate/too busy.

Men and women generally face the same difficulties in accessing agricultural extension services. However, more women expressed concerns of not being invited for extension training opportunities than man with childcare having a major impact on women which is captured with a difference of 25% as compared to men. All participants surveyed either has a land or is leasing a land for agriculture activities. Interestingly, distance to training facilities appears to affect access to extension services more for female than male farmers.

Table 15. Difficulties faced in accessing agricultural extension services

Rank	Difficulty	#	Male %	Female %	Total %
1	Limit knowledge about training opportunities	54	57%	43%	100%
2	Low literacy level	35	40%	60%	100%
3	Not invited	25	24%	76%	100%
4	Distance to training facilities	24	46%	54%	100%
5	Inadequate training staff	17	59%	41%	100%
6	No time to participate/too busy	8	50%	50%	100%
7	Child care responsibilities	8	37%	63%	100%

These findings clearly indicate some potential courses of action. Farmers require practical training that demands the least reading and writing as possible. Materials should therefore involve **pictures** and limited **texts**. Information about dates and places of training should be provided well in advance so that farmers have the opportunity to plan and organize to attend. Extension work should have a system to obtain feedback from farmers and a quick process to respond to that feedback to make sure that farmers are comfortable and satisfied with the type of training they are receiving and the quality and skills of the training. Finally, training logistics should ensure that they are carried out when farmers are available (see Table 15) and that provisions for child care are considered.

6 Conclusion and recommendations

The findings reveal that the training needs of farmers in the two counties under study are generally high, suggesting a need for increased extension services and training in most topics. The study also found that farmers tend to attribute most of their agricultural problems to a limited number of issues, such as pests and diseases. Meanwhile, they self-assess their knowledge in most areas as fairly low and the importance of most topics as high. There may be several reasons for these patterns of responses. Firstly, many farmers had never received training before ERDI' SHFs training project, or the training they received was of very low quality (as expressed during data collections), hence the strong belief in the need for more training. Secondly, farmers may have scored their own knowledge in most topics as low and the importance as high under the assumption that this will lead to more (free) training. In probing for details, most farmers stated they would not pay for training even if this was of superior quality and could lead to proven positive results. As a result, this participatory training needs assessment could be strengthened by a complementary

assessment of farmers' skills based on theoretical or practical tests, which could be conducted in a simple and participatory manner.

The study also showed that farmers are unaware of a number of issues that can have a positive contribution on their agricultural productivity and income (they do not know what they do not know), such as better marketing skills, using new technology or developing the capacity to process some of the crops they produce. Therefore, it is highly recommended that farmers are exposed to new ideas through participatory methods. This can be done by linking them to other farmers that have adopted new technologies or practices to facilitate interaction. Demonstrations are also an option, although farmers are sometimes reluctant to adopt successful practices when they have been done with significant support from a project.

Farmers showed different levels of competence (knowledge) and different needs for future training across the agricultural practices. Particular training needs for specific agricultural practices were revealed using the Small Holder Training-Needs Assessment Modules, with the most significant training need identified in management of pests and diseases. This was identified as the highest need across several areas—crop production, vegetable production, fruit growing and livestock—and correlates with the main agricultural difficulties farmers face. Controlling pests and diseases was followed closely in several areas by buying and selecting inputs and fertilizer use.

The analysis shows limited variations in training needs according to age, sex, level of education, size of available agricultural land, number of family members, location, income from agricultural activities, or level of poverty. However, a number of adaptations can be made to make extension services more interesting and suitable for particular SHF group. For instance, farmers in the counties require more training in crops, vegetables, cash crop and livestock than in other agricultural activities.

Farmers overwhelmingly prefer participatory learning methods over theoretical lessons. They also request training that better suits their timing and location needs, as well as their particular demands at home, such as child care.

Lastly, when asked what additional information respondents would like to share with the research team, 99 percent cited the need for training to improve agriculture production.

6.1 Based on the findings of the study, the following recommendations are suggested:

- Training on pest and disease management should be prioritized across all sectors, particularly in light of changes in climate, which may contribute to different manifestations of pests and diseases. Training on fertilizer use should be prioritized, in particular for rice cultivation. In the area of livestock, training is required for both women and men in small livestock rearing.

- Farmers would benefit from exposure to new technologies and practices that are being tested/used by other farmers with similar physical conditions. This can include farmers in other districts or Counties as farmers are willing to travel to meet other farmers with similar characteristics.

• Agricultural extension services and training for farmers should emphasize practical training and observation rather than theoretical training. The use of graphical material with limited text is also highly recommended. Furthermore, reflection sessions in follow up to initial practical training could help to ensure that new learning is properly absorbed by farmers.

- Farmers are keen to learn from each other, but they require tools to do so. Farmer to farmer training should therefore be facilitated to ensure there is a proper exchange of accurate information.
- Training would be more appropriate if delivered to farmers late in the dry season or early in the wet season so they can immediately put their new knowledge into practice. Training times and frequency should also be adjusted so that farmers receive training for an average of one or two hours once a week, immediately after lunch.

• Agricultural extension services could be strengthened by obtaining feedback from farmers using different methods and responding to that feedback to ensure that the services are tailored to the needs of farmers and that farmers are comfortable and satisfied with the type and quality of training they receive.

• Regular field surveys to assess and monitor changes in the agricultural training needs of farmers is recommended.

• Making sure child care facilities are available during trainings would help to ensure higher participation from women. Lessons could be learned from experiences in Gbadin Camp #3 where village elder women cared for children whilst women attended training.

• Conduct mid-term and endline evaluations of farmers' knowledge in key areas in order to match their level of knowledge to their self-assessment and ascribed importance to each topic. Such an evaluation would aid further prioritization of extension services and training.

• Eighty-eight percent of the interviews were conducted in English, seven percent in Mano and five percent in Kpelleh. This signifies that simple English as well as local language is important tool of communication for training of local farmers.

7 Appendices

7.1 Appendix 1:

Questionnaire Small Holder Farmers Training-Needs Assessment

Questionnaire for farmers

ERDI' Training needs assessment

1.1 Questionnaire

ERDI' Training needs assessment

Questionnaire for local farmers in Bong and Nimba Counties

Informed Consent:

The following consent is to be read by the Enumerator to the selected survey participant

I would like to briefly introduce myself, explain the purpose of this survey and provide some information about the survey. .

My name is (enumerator's Name) and we are conducting this survey in Bong and Nimba Counties.

I am part of a team from the Efficient Research and Development Institute (ERDI for short) that is responsible to conduct interviews on the Project for Agricultural Development and Economic Empowerment (PADEE) needs assessment training for local farmers in Nimba and Bong. The assessment aims to better understand the topics that farmers need most for training in order to help them improve their agricultural-related income generating activities and the methods of training that farmers prefer.

The information collected through this research will be used to develop training packages to address the knowledge gaps and challenges faced by farmers in order to help farmers improve their livelihoods.

You have been chosen randomly to participate in this survey. The answers that you provide will be kept confidential. We will ask for your name and contact information just in case we want to contact you in future. However, your name and phone number will not be shared with anyone outside the research and will not be used for any analysis purposes. . Your participation in the survey is voluntary and you are free to stop the survey at any time or skip any questions you do not want to answer.

This survey is divided into five sections. The first section asks about your basic information, including age, education, and years of farming experience. The second section asks about the agricultural activities that you are engaged in and the main problems that you face in these activities. The third section looks at your experiences with agricultural extension and the methods of extension that you prefer. The fourth section asks in detail about the areas in which you would like to receive training. And the final section provides a space for you to include any additional information that you would like to share with us about your training needs.

I will go through the survey with you step by step to help you complete it. All the questions are multiple choice, which means there are several answers provided and you need to select the one that is relevant to you. Here is an example [*give example*]. Sometimes you will be asked to select only one, but sometimes you will be asked to select several. We will tell you this at the beginning of each question.

Some questions also provide a space for you to add another option if there is anything else that applies to you. Here is an example [*give example*]. If you have any doubts or questions during the survey, please ask me and I will be happy to help. If you have any questions about the right to take part in this survey, please feel free to contact Madam Jocee M. Tuazama of the ERDI on +231 775186802 or send an email to: erdi.liberia@gmail.com.

The survey will take about 45-60 minutes. We really appreciate your time, and we thank you in advance for your valuable contribution to our study.

Do you have any questions before we start?

Do you agree to take part in the survey?

Yes or No

Introduction to the survey

1. BASIC INFORMATION

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
County	1.1. Enumerator, please select the *County* of the survey.	Single response	1. Bong 2. Nimba	County specific	None
District	1.2. Enumerator, please select the *District* of the survey.	Single response	1. Bain-Garr 2. Meinpea-Mahn 3. PantaKpaai 4. Suakoko	District specific	None
Community	1.3. Enumerator, please select the *Community* of the survey.	Single response	1. Tonglewin 2. Nengbein 3. Dormah Town 4. Wlehla 5. Pleydinyee 6. Tonwin 7. Sokopa 8. Tunudin 9. Kpein 10. Diakamon 11. Tondin 12. Zuluyee 13. Palala 14. Tomato Camp 15. Jarmue 16. Baila 17. Jinpleta 18. Forkollie 19. Gbaota 20. Suakoko	Community specific	

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
enum	1.4. Enumerator, please enter *your name*	Single response	1. Aaron Garziah 2. Allen Kollie 3. Bestina Tokpah 4. Jamesetta Sonkarlay 5. Jean Murray 6. Jerry Teakpue 7. Alberta Saybay 8. Gary Dolosie 9. Marron Flomo	All	None
Enu_id	1.4a. Please enter your assigned ID	Number	Integer	None	Enumerator name
A2	1.5. Enumerator, please type your mobile phone number.	Number	Integer	All	Ten digit code
Respondentname	1.6. Enumerator, please enter the ID number of the respondent.	Number	Integer	All	None
gender	1.7. Enumerator, please select the gender of the respondent.	Single response	1. Male 2. Female	All	None
Fname	1.7a. What is your full name? FOR ENUMERATOR: Separate first and last name with a space.	Text			
Nname	1.7b. Do you have a nickname?	Single response	1. Yes 2. No		
Nickname	1.7c. What is your nickname?	Text		if yes to 1.7b	

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
Fullname_confirm	1.7d. Your fullname is ${fullname}?	Single response	1. Yes 2. No		value must be yes.
Primaryphone	1.7e. What is your primary phone number?	Text			
Secondphone	1.7f. What is your secondary phone number	Text			
Hh_head	1.7g. Are you the head of your household? FOR ENUMERATOR: A household head is the person who makes major economic decision for the household including major purchases.	Single response	1. Yes 2. No		
Status_marital	1.7i. Are you married? FOR ENUMERATOR: A person who is cohabiting means they are living with his/her partner but are not married.	Single response	1. Married 2. Divorced 3. Separated 4. Widowed 5. Single/Never married 6. Cohabitating		
Age_group	1.8 What age group do you belong to? Hint: ENUMERATOR: Probe the respondent's year of birth and calculate the current age before selecting the corresponding age	Single response	1. Under 30 2. 30 to 39 3. 40 to 49 4. 50 above	All	None

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
	group on your choice list.				
Highest_edu	1.9 What is the highest level of education you have completed?	Single response	1. No formal education 2. Not finished primary school 3. Completed primary school (grade 6) 4. Completed secondary school (grade 9) 5. Completed high school (grade 12) 6. Higher than high school	All	None
Hh_num	1.10 How many people currently live in your household? Hint: A household consists of people who live together under the same roof, eat from the same cooking pot and have one adult as the head.	Single response	1. 1 2. 2 3. 3 4. 4 5. 5 6. 6 or more	All	None
Years_farming	1.11 How many years of farming experience do you have?	Single response	1. Less than 3 years 2. 3 to 5 years 3. More than 5 years	All	None
Farmlandsize	1.12 What is the size of all your agricultural land (in acre)? (hint: 4 lots = 1 acre)	Single response	1. No land 2. Less than half acre 3. 1 to 2 acres 4. 2 to 3 acres 5. 3 to 4 acres	All	None

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
			6. More than 4 acres -888 Refused to answer		
Agri_plot_num	1.13 How many agricultural plots do you have (including any you rent)? Hint: This includes any plot of land used for farming purposes.	Single response	1. 1 2. 2 3. 3 4. 4 5. 5 or more -888 Refused t o answer	All	None
Ownlease_agri land	1.14 Do you own or lease your agricultural land?	Single response	1. Own all 2. Lease all 3. Part own and part lease -888 Refused to answer	All	None
Food_card	1.15 Does your household have food supply card from government or NGO? Hiint: A food supply card is like a card that the government or other NGO gives to enable the holder to receive a certain food ration or subsidies.	Single response	1. Yes, Food supply Card from government 2. Yes, Food Supply card from NGO 3. No -999 Don't know what that is.	All	None
agritraning	1.16 Have you received any training in agriculture from	Single response	1. Yes-Government 2. Yes-NGO 3. No	All	None

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
	the government or NGO?				
Training_loc	1.17. Where did the training happen?	Single	1. In Nimba 2. In Bong 3. Outside of Bong/Nimba -999. Don't know	if 1.16 = 1 or 2.	
Training+lemgth	1.18 How long did this training last? Just an estimate is ok if you do not remember the exact length	Number	_____ Day _____ Week _____ Month	if 1.16 = 1 or 2.	
Training_year	1.19 Which year was the training?	Single	1. 2023 2. Between 2020-2022 3. Between 2015- 2019 4. Before 2015 - 999. Don't know	if 1.16 = 1 or 2.	
Training_topics	2.0. What were some topics covered during this training?	Free text	Text	if 1.16 = 1 or 2.	None

<u>Module 2</u>: AGRICULTURAL ACTIVITIES

Please select <u>all</u> that apply to you in the following questions (Enumerator, read aloud options)

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
agriculture_act	2.1 What agricultural activities do you engage in?	Multiple Response	1. Crop Production 2. Vegetable Production 3. Fruit growing 4. Livestock 5. Fisheries 6. Food processing -777 Other (specify)	All	None
Agri_purpose	2.2 What is the main purpose of		1. Own Consumption 2. To sell	All	None

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
	these agricultural activities?		3. Own consumption and sell (repeat group based on the # of agricultural activities selected above)		
problem_agriact	2.3 What are the main problems that you face regarding your agricultural activities? (Select a maximum of <u>five</u>	Multiple Response	1. Lack of capital and credit 2. Lack of planting materials and inputs (e.g. seeds, fertilizer) 3. Lack of markets/information about markets (don't know where to sell) 4. Low prices 5. High cost of inputs (e.g. fertilizers, seeds) 6. Poor or insufficient training 7. Lack of tools and equipment 8. Pests and diseases 9. Poor soil 10. Labour 11. Changes in weather 12. Floods 13. Scarcities 14. Limited experience in farming 15. Limited knowledge of how to use fertilizers 16. Lack of land for expansion -777. Other (Specify)	All	None
yrl_income_agri	2.4 What percentage of your yearly income comes from	Single Response	1. Less than 25 per cent 2. 25 to 50 per cent 3. 51 to 75 per cent 4. More than 75 per cent	All	None

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
	agricultural activities**?** Select one (ask for most frequent income and ask for how much he/she usually save, do the percentage against it)		-888 Refused to answer -999 Don't know		

Module 3: Agriculture Extension Advice

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
agri_exten_prov	3.1 Who are the main providers of agricultural extension advice that you receive? Select all that apply	Multiple Response	1. Ministry of Agriculture 2. Agriculture Research Station (CARI) 3. Private extension services 4. NGOs 5. Other farmers 6. Inputs suppliers 7. Buyers 8. No one -777 Other (Specify)	All	None
exten_advic	3.2 How often do you receive extension advice from	Single Response	1. At least one a month 2. Once every 2-3 months	All	None

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
	each provider?	(For each provider-repeat)	3. Once every 6 months 4. Once a year 5. Less than once a year 6. Not Applicable		
Advice_meet	3.3 Did the extension advice from (answer in 3.1) meet your learning needs?	Single Response	1. Yes 2. No 0. Not Applicable	All	None
Followup_org	3.4 Did you receive any follow up from (answer in 3.1)? FOR ENUMERATOR: A follow-up could mean in-person or by phone call after the training/meeting with the respondent.	Single Response	1. Yes 2. No 0. Not Applicable	All	None
Advc_area	3.5 In what areas have you received extension advice? Please select	Multiple Response	1. Crop production (e.g. rice, maize, pepper, cassava) 2. Vegetable production 3. Fruit growing 4. Livestock	All	None

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
	all that apply		5. Fisheries 6. Agricultural technology 7. Food processing 8. Marketing 0. Not Applicable -777 Other, specify		
Deliv_extagri	**3.6** What methods of delivering agricultural extension services do you prefer? Select the three most important	Multiple Response	1. On-farm demonstrations 2. Farmer field school 3. Workshops 4. Presentations during community meetings 5. Individual farm visits 6. Written materials 7. Radio programs 8. TV programs -777 Other, Specify	All	None
Time_yr_extagri Time_dayext	3.7 What is the best time of the year for you to receive agricultural extension services? 3.7.1. What is the best time of the day for you to receive	Single Response	Time of year: 1. Dry season (Jan-May) 2. Wet season (Jun-Oct) 3. Harvest time (Nov-Dec) 4. Other, specify Time of day: 1. Early morning (before 9 am) 2. Late morning (after 9 am)	All	None

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
	agricultural extension services?		3. Early afternoon (before 4 pm) 4. Late afternoon (after 4 pm) -777. Other, Specify		
agridiff	3.8 What are the main difficulties you face in accessing agricultural extension services? Select all that apply	Multiple Response	1. Low literacy level 2. Inadequate training staff 3. Distance to training facilities 4. Limited knowledge about training opportunities 5. No time to participate/too busy 6. Child care responsibilities 7. Not invited for training 8. Don't have land title 0. No land -777. Other, specify	All	None

Module 4: TRAINING NEEDS

In this section, please select all the areas in which you need training. Then select your current skill in these areas and how important you think the training need is.

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
agri_need	**4.1** What are the main areas of extension you need help to improve your agricultural activities?	Multiple Response	1. Crop production 2. Vegetable Production 3. Fruit growing 4. Livestock 5. Fisheries 6. Food Processing -777 Other, Specify	All	None
Know_compt	**4.2** What is your Current knowledge (Competence)	Single Response (from each area of extension help needed as repeat group)	1. None 2. Low 3. Medium 4. High 5. Very high	Relevant if	None
imptarea	**4.3** How Important is the area you selected?	Single Response (from each area of extension help is needed as repeat group)	1. Not important 2. Important 3. Very important	Relevant if	None

Module 5: OTHER COMMENTS

In this final section, I will want information from you about your agricultural training needs and preferences that you would like to share with me?

A	B	C	D	E	F
Variable Name	**Question**	**Response type**	**Answer choices**	**Relevance**	**Constraint**
add_info	5.1 Is there any other information about your agricultural training needs and preferences that you would like to share with me?	Free text	Free text	All	None
language	What language was the survey conducted in?	Single response	1. English 2. Mano 3. Gio 4. Kpelleh -777 Other		

Collect gps at respondent residence

End of questionnaire

Thank you very much for taking your time to answer these questions.