

HIV/AIDS another Shock to Rural Households' Food Security; a Challenge to Agricultural Extension Workers' Competencies.

The Case for Lira District Production Department, Uganda

A Research project, Submitted to Larenstein University of Applied Sciences in Partial Fulfillment for the Degree of Master of Management of Development, Specialization, Rural Development and HIV/AIDS

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ACRONYMS

AIDS	Acquired Immune Deficiency Syndrome
FAO	Food and Agricultural Organizations
FEG	Food Economy Group
FAO-ILO-IUF	Food and Agriculture Organization- International Labour Organization -International Union of Food
FAO-IP	Food and Agricultural Organizations-Integrated support to sustainable Development and food security program
GDP	Gross Domestic Product
HIV	Human Immune deficiency syndrome
MoD	Management of Development
MAAIF	Ministry of Agriculture, Animal Industry and Fisheries
NGO	Non Governmental Organization
PDC	Parish Development Committee
PMA	Plan for Modernization of Agriculture
SPSS	Statistical package for social sciences
UNAIDS	Joint United Nations Programmes on HIV/AIDS
UAC	Uganda Aids Commissioner
UNGASS	United Nations General Assembly Special Session
UNDP	United Nations Development Programme
UNAIDS/WHO	Joint United Nations Programmes on HIV/AIDS/World Health Organization
UHBS	Uganda, Household Sero-Baseline Survey

Abstract

HIV/AIDS impacts on agricultural production are another challenge to agricultural extension workers' competence level in response to the dynamic needs of the HIV/AIDS affected farming households in Lira district. This placed a demand on the knowledge, skills and attitude of the agricultural extension worker to respond to the dynamic needs of the HIV/AIDS affected households.

A study was conducted in Production Department, Lira District, Uganda, 2009. A sample of 15 agricultural extension workers and 16 HIV/AIDS affected farm households were selected randomly, a total of 31 people were interviewed. Competence level of agricultural extension workers was determined on basic knowledge on HIV, myths on HIV/AIDS; knowledge on HIV/AIDS impacts on agricultural production, knowledge on changes in farming practices, knowledge on factors affecting the HIV/AIDS affected household level of participation; while skills competence level was determined on problem-solving skill of the agricultural extension workers, and attitude was determined on serving the clients, field work: and trainings provided to the HIV/AIDS affected households. Data was analyzed quantitatively using statistical package for social sciences (SPSS), and a bit of qualitative analysis was also applied. Frequency and percentages in tables and figures were used for showing data.

The findings revealed that, the agricultural extension workers were able to acknowledge the reality of AIDS impact on agricultural production, act from their strengths to respond to HIV/AIDS impacts in order to attain their objective and potentials. Most of the respondents had knowledge on the modes of transmission and myths on HIV/AIDS; loss of labour was recognized as the greatest impact on agricultural production, which led to reduced land under cultivation, and shift from cash crop to more of food crop production. Due to high labour loss, this resulted in HIV/AIDS affected households low level of participation in agricultural activities.

Compared with the professional competencies such as: knowledge on organizational goals, needs identification, training skills, communication, leadership, planning, monitoring and evaluation; agricultural extension workers needed in the pre-HIV/AIDS era: there is need to balance their technical competencies with more competencies such as: counseling, networking, group management, gender analysis, basic nutrition and knowledge on animal traction. These are the competencies I feel the agricultural extension workers' level need to be built on. In general, participants in the study had difficulties in identifying the new competencies required, in relation to the changes they faced in their working environment. The study concludes with recommendations for competence development of agricultural extension workers who have to deal with the consequences of the HIV/AIDS pandemic in rural areas.

CHAPTER ONE

Introduction and background information

This thesis described the results of a study on the level of competencies for agricultural extension workers in meeting the dynamic needs of HIV/AIDS affected households. It is as part of the professional master. The study was conducted in Uganda, Adek Okwok Sub County, among agricultural extension workers and HIV/AIDS affected households in Lira Districts.

The document is built up as follows. In chapter one, introduction inclusive, the situation is described that lead to proposing this study, its objective and research questions that the study is trying to answer. The introduction mentioned briefly on the impacts of HIV/AIDS at global, regional, and country level; agricultural extension system in Uganda, its mandate in relation to HIV/AIDS, impact of HIV/AIDS on agricultural production, and how agricultural sector had been responding. In chapter 2 important concepts and related literatures to the subject was reviewed. In chapter 3, methodology used in the study was described. In chapter 4, Findings and discussion is presented, and finally the paper ended by giving conclusion and recommendations for actions.

1.1 Introduction

The AIDS epidemic is a global crisis now recognized as the greatest challenge to development programmes in most of the developing countries. The epidemic has deprived households and national economies of a critical human resource base, thereby reversing the social and economic gains achieved over the past years (UNAIDS, 2008). According to UNAIDS report (2008), 22 million people in sub-Saharan Africa are infected with HIV. The HIV/AIDS prevalence rate in the region for persons in the age group of 15-49 years is estimated at 5 percent above the global 0.8 percent.

Like many other countries in sub-Saharan Africa, Uganda has been affected by HIV and AIDS epidemic for almost twenty years now (UAC, 2008). The HIV prevalence rate in Uganda is estimated to be 6.7 percent (UNGASS/ UNAIDS 2008). Findings from longitudinal studies by Medical Research Council in Southern Uganda reflects rising HIV & AIDS incidence rates in rural setting with women at 7 percent and men at 5 percent (UNGASS, 2008). There is a growing recognition of HIV/AIDS as a potential threat to development efforts in the country. A report by Ministry of Agriculture, Animal Industry and Fisheries (MAAIF, 2004), Uganda reflect that the epidemic impact manifests on agricultural production; and yet Agriculture contributes to about 40 percent gross domestic product of the country (FAO, 2006).

Agriculture in Uganda is the most important sector. Between 70-80 percent people in Uganda depend on agriculture for their livelihoods, and 70 percent of agriculture workers are women (FAO-ILO-IUF, 2005). Subsistence agriculture remains an important livelihood component for the majority of farm households Ballantyne (2005); but HIV/AIDS is posing serious threat to the farming house holds composition through altering their needs (UNAIDS/WHO, 2008, DAC, 2008). A driving force in the development of agriculture is labour. Labour is also the resource most heavily affected by HIV/AIDS.

The HIV/AIDS epidemic has contributed to change in household composition, distraction of farm household from production activities, change in farming practices, disrupting agricultural extension workers' operations, and combined loss of labour, income and assets (MAAIF 2003, FAO, 2003, FAO, 2006, NAADS 2004). This is likely to increase food, and livelihood insecurity (MAAIF, 2004, FAO-ILO-IUF, 2005, FAO, 2006). Agricultural extension is one of the ways to prevent and reduce the negative and harmful effects caused by the HIV/AIDS pandemic in rural areas (Baylies, 2002, MAAIF, 2003). It is very clear that HIV/AIDS is an agricultural concern as well; and

yet agricultural extension workers may not be able to recognize the impact of HIV/AIDS on agricultural production. In a recent study in east Africa (Ethiopia, Kenya, Tanzania and Uganda) and Zambia by Brinkman et al (2007), FAO, IP, (2004) on competencies required by rural development professionals, found that agricultural extension workers have limited knowledge, skills and attitude to respond to HIV/AIDS epidemic.

1.2 Agricultural extension systems in Uganda

This section discussed briefly the history of extension systems in Uganda, the mandate of agricultural extension in relation to HIV and the response to HIV and AIDS in the Agricultural sector, Uganda. This is to give the reader a brief background of extension system and how HIV/AIDS impacted on agricultural production.

The Government of Uganda's strategy for poverty eradication is based on the transformation of the economy through private investment, industrialization and export led growth. The agricultural sector presents a great opportunity for poverty eradication because it employs over 80 percent of the labour force. The sector has grown steadily (over 4 percent per annum) over the last decade (MAAIF 2000). The agricultural sector still remains challenged by the ever increasing demand for food, declining agricultural productivity, ever increasing competition on the international market, natural resource degradation and other shocks such as HIV/AIDS (MAAIF 2000). The pressure has given rise to calls for changes in the traditional public extension systems so that it is able to cope with the dynamic demands of farming households in agriculture (Rivera *et al*, 2000). The agricultural extension system in Uganda has gone through many reforms but for this study, the researcher will explain the plan for modernization of agriculture (PMA) and National Agricultural Advisory Services (NAADS) which is the current extension system in Uganda.

1.2.1 National Agricultural Advisory Services (NAADS)

Major reforms of agricultural extension are planned under National agricultural advisory services (NAADS). These include further decentralization of extension responsibilities, from the district to the sub-county level; contracting extension services from a range of providers; involving farmers in programme planning, evaluation, and decisions about extension providers; establishing cost sharing between national and local governments and farmers; and the creation of more effective operational links between farmers, markets, extension workers, and agricultural researchers

1.2.2 Plan for modernization of Agriculture (PMA)

In the year 2000, the Government of Uganda launched the Plan for Modernization of Agriculture, a strategy that aims at transforming subsistence farmers into commercial farmers. Based on the poverty focus and the need to transform agriculture, the vision of the PMA encompasses both the farmer and the sector. The PMA vision is "*poverty eradication through a profitable, competitive, sustainable and dynamic agricultural and agri-industrial sector*".

The analysis underlying the PMA suggests that the low productivity observed in Ugandan agriculture is attributed to poorly functioning farmer-extension linkages and the consequent failure of the research and extension systems to respond to real needs of the farmers (MAAIF 2000). One way to achieve all the above is with specific regard to extension is NAADS which is; "Decentralized, farmer owned and private sector serviced extension system contributing to the realization of the agricultural sector objectives." The vision is expected to materialize through pursuit of a mission that will lead to: "Increased farmer access to information, knowledge and technology through effective, efficient, sustainable and decentralized extension with increasing private sector involvement in line with government policy"

Farmer empowerment is paramount to the success of the programme because it enables farmers to gain access and control the structures and process that transform their natural assets into incomes. It is assumed that when organized in groups, farmers will act collectively in the planning, procurement of extension services, setting quality standards and in monitoring and evaluation of development processes. The factor pertinent to the conceptualization of agricultural advisory services is that; limited access to services underlies the perpetuation of poverty. Therefore, interventions to address poverty through improving delivery of agricultural services must ensure that members of vulnerable groups; for whom subsistence agriculture tend to be a main source of livelihood, are empowered to participate and benefit. Considering that women play an important role in agriculture development and yet constitute a huge number of those that are vulnerable, the NAADS programme is guided by national policy that encourages gender and HIV mainstreaming. This is why, for agricultural extension worker to be able to mainstream HIV/AIDS in his program, the extension worker has to acknowledge and analyze how HIV/AIDS impacts on agricultural production in order to respond. NAADS provides services through frontline extension workers at Sub County level under performance-based contracts and this is the present agricultural system in Uganda.

Local governments in accordance with the Local Governments Act 1997 are charged with the responsibility of implementing NAADS activities in respective districts and sub counties. Local governments are charged with local administration and regulatory aspects and support requirements for NAADS. Agricultural extension in Uganda has evolved over time through transformation into unsustainable service for several reasons. There was no policy on agricultural extension until the establishment of NAADS, the transformation of extension relied upon expert advice than local and the dependence on donor funding. The policy and mechanisms to empower the farmer to demand pay and control extension services are in place.

1.2.3 The mandate of agricultural extension in relation to HIV

The mandate of agricultural extension services, being it public or private, is rural human resources development with an aim to increase food production through the introduction of improved agricultural technology (MAAIF 2000, UNAIDS, 2003). The very survival of these human resources, both within the extension organization and among the clientele, however, is currently at risk due to the HIV/AIDS threat. HIV/AIDS is posing a major threat to agricultural extension workers while delivering their services; by destructing the farming activities of the farmers' households due to HIV/AIDS related illness. The most meaningful role the extension services can play is in strengthening the prevention of further spread of HIV infections by educating men and women farmers on the subject, and by demonstrating the relationship between the epidemic and food security.

1.2.4 Impacts of HIV/AIDS on Agriculture production in Uganda

HIV/AIDS epidemic in Uganda started on the shore of lake Victoria in Rakai District (located in South Western part of the country), the initial epicenter of the illness. There after the HIV spread quickly in major urban areas and along highways. By 1986, HIV had reached all districts in the country, resulting to what is classified as the generalized epidemic. Like in other countries of Sub – Saharan Africa, unprotected sex with an infected person was and is still the most common mode of transmission of the virus (84 percent), although mother to child transmission has become an important route as evidenced by the number of children with AIDS at the end of 2002 (UAC, 2003).

HIV/AIDS is the major cause of death among individual aged 15 – 50 years (MAAIF, 2003). It is estimated that, in the twenty years of the epidemic, about two million people were infected by the epidemic in the country of which one million have died (UNAIDS, 2006). UNAIDS (2008) estimated about 1million people in Uganda are living with HIV. Results from 2004 Uganda Household Sero-Baseline Survey (UHSBS) indicated that HIV/AIDS prevalence rate of men is 5 percent lower than of women with 7 percent of Uganda adults infected with HIV. Worst of all, the prevalence rate in rural areas is increasing while in urban areas is reducing (Ministry of Health

and ORC Macro, 2006). AIDS is responsible for up to 12 percent of annual deaths in the country and has surpassed malaria and other conditions as a leading cause of death among the 15 – 45 year age groups (UNGASS, 2008). A number of studies in Uganda have shown that HIV/AIDS has an adverse impact on agriculture (NAADS, 2004). The impacts of the scourge on human resources in the sector, on the farming communities and productivity of the sector at large, can not be over emphasized (MAAIF, 2003, MAAIF, 2004).

A farming household's first response is to adopt downshifting measure, changes to the number and ranges of crops grown. Observed choices have been to sacrifice cash crops for food crops and leafy crops and fruits for starchy root crops (Tony Barnett & Alan Whiteside, 2006). A practical example is where coffee farmers in Uganda in 1980s reduce their work in coffee plantation that require much labour for pruning and marketing, first in favor of their staple banana, then eventually cut down on the banana and vegetables and concentrated on easily cultivated, easily stored starch cassava (Karuhanga, 2008). This is a classic survival change in cropping system where high value and nutritious crops are progressively substituted for poor value and less nutritious root crops. And yet household adults who are infected die before they can pass indigenous farming knowledge, a situation that has lasting effect on agricultural production. Below is a figure showing how HIV/AIDS can impact on agricultural production of the farming households.

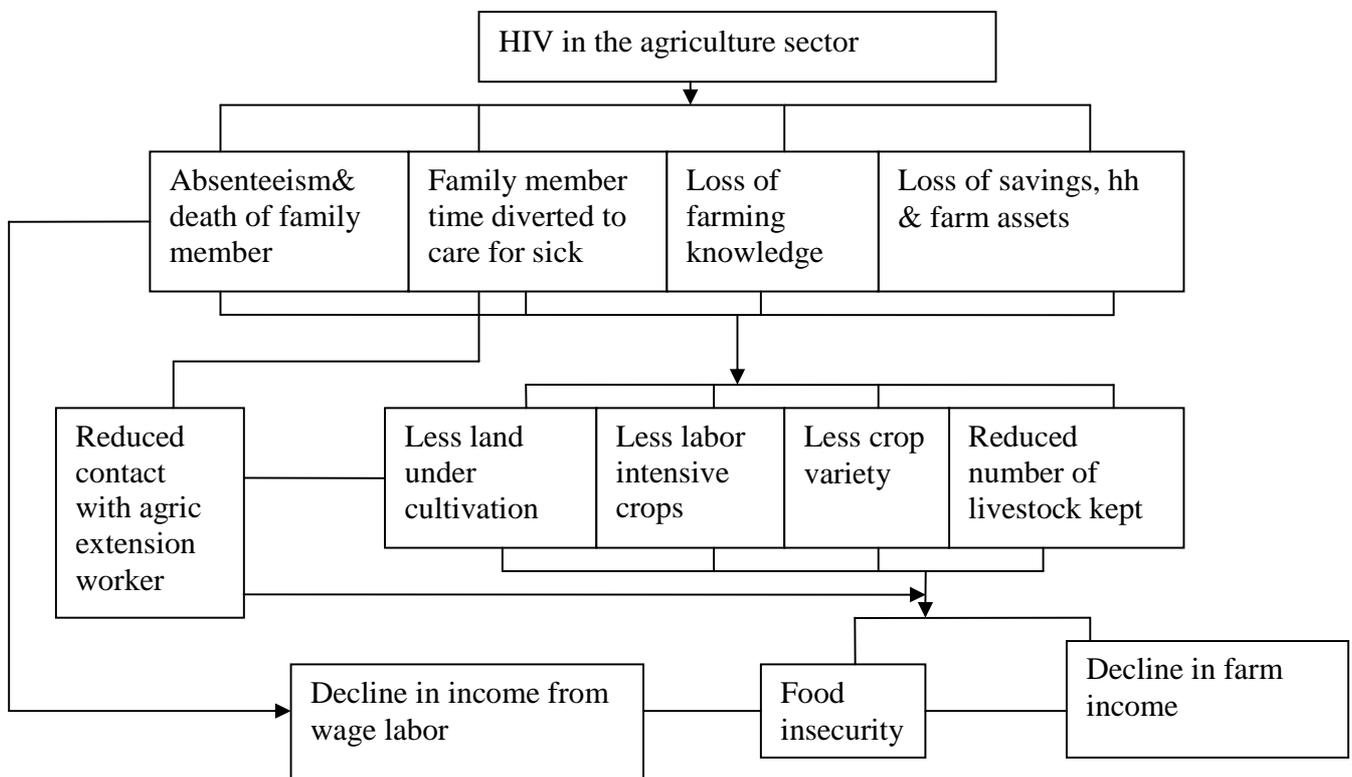


Figure 1 impact of HIV on agricultural production

Source: the author, august, 2009

1.2.5 Response to HIV and AIDS in the Agricultural Sector, Uganda

The Ministry of Agriculture, Animal Industry, and Fisheries (MAAIF), Uganda on recognizing the negative impact of HIV/AIDS on rural households' capacity to keep up sustainable production levels: developed a guideline for

mainstreaming HIV/AIDS responses in the agricultural sector (MAAIF, 2003). This was as a result of the National HIV/AIDS strategic framework. The aim of the guidelines is at ensuring that HIV/AIDS initiatives in Agriculture sector are mainstreamed in programmes of the sector at all levels; national and local Governments. The implementation will ensure that the HIV/AIDS sector initiatives are incorporated in to agricultural extension work plans, implemented and monitored to enable full sector response to HIV/AIDS pandemic. Often, these activities are seen to be external to their continued functions. Implementation of the process of mainstreaming in MAAIF started with training of District production (extension) staff country wide, Lira inclusive in 2004 to create awareness on HIV/AIDS transmission and prevention. The trainings for the Agricultural extension staff on HIV/AIDS provided the staff with the basic knowledge on HIV/AIDS, prevention, and care and this was the start for agricultural extension workers to develop competence in response to the impacts of AIDS epidemic on agricultural production.

1.3 Problem Definition

Agricultural extension workers are to constantly provide agricultural information and communication support to farmers; through offering advice, helping farmers analyze problems and identify opportunities, share information, support development of farmer groups, and facilitating collective action in order to raise food production. But there are disruptions in the activities of the farming households and agricultural extension workers' programs caused by illness or deaths due to HIV/AIDS. This may reduce access by HIV/AIDS affected households to agricultural extension service provision; and yet, agricultural extension workers may not be able to recognize the different farming households' needs. Nguthi, (2007), reported that, less access by HIV/AIDS affected households to agricultural extension services increases the vulnerability of the households. The HIV/AIDS challenges do not only affect farming households but also has implication for Lira district production department in meeting its mandate of food availability.

1.4 Research Objective

To identify the level of competence of agricultural extension workers in meeting the dynamic needs of HIV/AIDS affected households and develop recommendations for responses to the pandemic.

1.5 Research Questions

To reach the above stated objective, the following research questions have been formulated to guide the research in assessing competence level of the agricultural extension workers to respond to HIV/AIDS epidemic.

1.5.1 Main research question #1

What competencies do the agricultural extension workers have in meeting the dynamic needs of the different household categories affected by HIV/AIDS?

1.5.2 Sub-question#1

1.1 What are HIV/AIDS impacts on male and female headed households?

1.2 What knowledge does the agricultural extension worker have on HIV/AIDS impacts in order to respond to the dynamic needs of the clientele?

1.3 What skills does the agricultural extension worker have to respond to HIV/AIDS impacts on female and male headed affected household?

1.4 What are the attitudes of the agricultural extension staff towards working with HIV/AIDS male headed and female headed affected households?

CHAPTER TWO

2.0 HIV/AIDS Competencies required by Extension Staff

These sections reviewed the literature on how the pandemic has affected the farmer households/extension clientele; and explored the competencies required of the extension staff to be able to respond to the effects of HIV/AIDS in the communities they are working in.

2.1 The changing situation for the agricultural extension worker and communities

Drastic change in the composition of clientele

The epidemic is changing the traditional composition of rural households and thus changing the clientele of agricultural extension services. This makes the agricultural extension workers not able to cope with the dynamic demands of new clientele (Semana, 1998). The category of healthy men, women and youth, ages 15-49, are the one most affected by high levels of morbidity and mortality (UNAIDS/WHO, 2008). This may have reduced the agricultural extension workers' capability to serve the clientele effectively: to determine their needs, develop and deliver agricultural training activities, create successful individual; and group accomplishments Maddy *et al*, (2002), Ganesan *et al* (2003) stated that the agricultural extension workers can not involve the community effectively in the program because the agricultural extension workers are weak in planning, needs identification, and developing extension programmes.

The household composition changes with different needs. The agricultural extension workers' feelings and perception towards clients (attitudes) may also differ. Food production decreases with as much as 40 percent in families hit by HIV/AIDS (FAO-ILO-IUF, 2005, FAO, 2006). These deepen poverty and undermine the resilience and reversibility of household coping mechanisms. Agricultural production (*output*) decreases because farm households are unable to perform/produce well, are less productive and/or died from AIDS. Ministry of Agriculture Animal Industry and Fisheries, MAAIF (2003); reported a decline in agricultural output in communal areas between 20-50 percent among households affected by AIDS in relation to households not affected by AIDS. The different HIV/AIDS affected household extension needs, may imply that the extension worker has to focus differently on this households in terms of service delivery in order to meet the varying extension needs.

This may imply that the agricultural extension worker may have the ability to understand the basic information on HIV/AIDS, recognize the impact of HIV/AIDS on agricultural production, recognize changes caused by HIV/AIDS in farming practices and the factors affecting the level of participation of the HIV/AIDS affected farming households. This referred to the Knowledge competence of the agricultural extension worker; which involves the ability of the agricultural extension worker in meeting complex demands, by drawing on and mobilizing psychosocial resources of the clientele.

Distraction of farming households from production activities

HIV/AIDS related issues is making both men and women, who should normally be busy in farming activities now forced to frequently spend considerable time on attending funerals (FAO, 2006). The disruptions, due to HIV/AIDS in the farming activities of the affected households caused by illness or deaths results in reduced access by the farming households to agricultural extension workers' service provision on capital, land use, labour and other production resources in the most profitable way in times of HIV/AIDS related issues and how to change farming system management.

For a farmer to produce in a profitable way and maintains his crops and livestock, proper agronomical practices such as planting, weeding, pests and disease control are required; but if the farming households are continuously busy or occupied with HIV/AIDS related issues; the farm household will have less contact with the agricultural extension worker. When in contact with the agricultural extension worker, the knowledge and skills gap of the farming households may increase; and the knowledge may be transferred to the young ones to continue with food production. It is estimated that the time spent consoling bereaved family, friends, neighbors and attendance at funerals results in more than 25 percent lost of productivity in critical time periods for activities such as sowing, weeding, attending to crops and livestock (SADC, 2004, FAO/IP, 2002). However, the agricultural extension workers may not be able to realize these while providing the agricultural extension services Nguthi, (2007), Tabouzis, (2003), *van den Ban et al (2000)* referred to it that the pandemic leads to abrupt gaps in knowledge transfer related to agriculture – effectively severing key linkages in the service delivery chain.

These funerals are not only attended in their own villages but also in the surrounding villages for which the farming households have to cover long walking distances. According to a survey conducted by integrated support to sustainable development and food security programme (IP) survey, (2002); showed that, with increasing numbers of dependants, growing domestic and agricultural workloads, households affected by HIV/AIDS cultivated less land. This was particularly evident in female-headed households, which cultivated a total of only 1.3 acres, compared to male-headed households cultivating 2.5 acres (FAO, 2006)

The situation does not only cause serious distraction from their normal farming operations, but also results in reduced contacts with the extension agents, less participation in technology demonstration, agricultural training activities and farms being ignored. Otherwise, if the agricultural extension worker is able to realize and trail this kind of information HIV/AIDS impacts at households level; The extension worker would be able to advise the HIV/AIDS affected households on how to use the small piece of land in a sustainable way; to produce the amount of food able to feed the household in times of HIV/AIDS related issues. Thus, the mandate of agricultural extension worker of making food available both in quantity and quality may not be met. Thus, reducing the resilience and reversibility in the coping mechanism of farming households in time of HIV/AIDS related issues, hence aggravating the problems of the HIV/AIDS affected households.

This may require the agricultural extension worker to have interests in field work, be flexible in adjusting his time, work plans and schedule. This refers to the attitude competence level of the agricultural extension workers in serving the HIV/AIDS affected households. Therefore, attitude in this study was referred to as the feelings and perception of the agricultural extension worker towards serving the clients, field work, problem solving and flexibility in adjusting the programs to meet the HIV/AIDS affected households' demands. The extension worker may have to devote his time more than before because of the different needs arising for the HIV/AIDS affected households

Deterioration of farm labour and food security

Rural households rely on family labour as a way of producing their food and earning money. AIDS infection in the household wears away the households' ability to ensure agriculture production because of direct loss of labour of farm activities and other domestic tasks. The reduction in farm labour then increases demand for casual labour as labour availability reduces (FAO, 2001). Though the labour availability reduces, the HIV and AIDS affected households may need some special skills to enable them reduce on labour shocks on the households or income generating activities; because the HIV/AIDS affected households may require some money for treating opportunistic infections, supplementing their diet and paying school fees for the orphans; but if the agricultural extension worker can not recognize that the ability of the HIV/AIDS affected households may be limited in accessing knowledge and skills due to prolonged illness; this may continuously reduce the resilient and resilience of the HIV and AIDS to the impact of AIDS

FAO, (2001), reported that the loss in the agricultural labour force through AIDS in Uganda is 14 percent. The loss in labour changes farmers' needs and priorities in crop and animal production systems (NAADS, 2004). The agricultural extension worker may not be knowledgeable on subject matter related to HIV/AIDS issues, change in farming systems, what inputs to be given to which type of household and how to reduce on the farmers' problems. This has implication for agricultural extension workers' technological skills, diagnostic/analysis skills and problem-solving skills. In relation to this study, skills referred to the ability of the extension worker in assessing farmers' problems, impacts of HIV/AIDS on farming households (technological) and problem-solving skills.

Change in farming practices

The change in household composition is changing farmers' needs and priorities in crop and livestock production. The technical practices of agricultural extension workers seem not matching with the dynamic and different demands from the variable types of clientele (NAADS 2004, FAO 2006). HIV /AIDS is hampering service delivery as agricultural extension workers may not be capable to identify the needs of differing farm house holds, plan, design training program, find solutions to the problems, to suit the needs of the HIV/AIDS affected households. Kibwika *et al* (2008) referred to it that the agricultural extension services are disconnected and not anchored in contextual constraints such as HIV/AIDS Ganesan *et al* (2003) referred to it that benefits do not reach the right type of persons. The agricultural extension staffs, who, in general, are supposed to support the applications for this support, feel lost in the absence of the new criteria needed for this new clientele (NAADS, 2004).

This has implication for the agricultural extension workers, FAO 2006 stated that, agricultural sector has to revise the content and delivery of its services, as well as the process of transferring agricultural knowledge; and yet the agricultural extension workers have only been trained in technical aspects of crop, livestock production and fisheries; and the universities too is still following the same conventional methods of training (Swanson *et al* 1996) and yet most recommendations are uniform irrespective of variability in farming situations due to improper identification of beneficiary.

Disruptions of agricultural extension workers' operation

HIV/AIDS has disrupted agricultural extension workers' operations through its impact on the agricultural extension service delivery to the farming households. When agricultural extension workers fall sick or die, rural communities loose access to extension services at a time when, due to the AIDS-crisis, they need them most (GTZ 2005). HIV/AIDS disrupts organized activities owing to frequent ill health and funerals of contact farmers and intended beneficiaries (.DFID 2003) When a farm household is sick due to AIDS- disease; the affected household needs constant supervision to be advised on proper use of the available labour possible in order to be able to produce within the minimal means possible; which may require some degree of competency of the extension worker.

2.3 Competency of the extension staff to mitigate impacts of AIDS

In Lira district, most small holder farmers (rural) people depend on agricultural extension worker for technical advice and information. The success of extension programs will be determined to a large degree by the ability of the extension worker to be competent; since the whole extension process is dependent on the transfer of new ideas and technical advice to the rural people. The same applies to productivity of Lira district production department, also depends both upon the function of its agricultural extension workers and willingness of the farming households to share and adopt the knowledge. In fact, competent agricultural extension workers ensure the success of the extension services and extension organizations as well. Although majority of agricultural extension workers transfer technical advice to the rural people, however extension is known as a human system.

Extension therefore is a human process as well in which technical information are integrated and used to help rural people achieve their potentials (Boone, 1990).

2.4 Agricultural extension workers' Competency and Extension Performance

Agricultural extension is a non-formal educational function that applies to any institution/agency that disseminates information with the intention of upgrading knowledge, skills and attitudes; of the HIV/AIDS affected households or farming households towards agricultural production (Rivera & Qamar, 2003). *Brinkman et al* (2007) reported some areas of competency as important for the extension workers to perform their job effectively such as;

- counseling, facilitation and supportive and caring communication
- networking and taking a more holistic approach to their work
- lobbying and advocacy
- knowledge of HIV and AIDS basic facts and nutrition
- dealing with changed food production and livestock systems
- applying technical knowledge
- problem solving
- Gender and HIV and AIDS mainstreaming.

Extension worker must have the knowledge, skills and attitude in the above in order to develop effective training programs for the HIV/AIDS farming households. Organizations that do not have HIV/AIDS as their main focus encounter challenges related to finding ways to deal with and adjust to the pandemic in a way that fits their core business (Mulder 2001). For the MoA, the challenge is how to improve on agricultural extension workers' knowledge, skills and attitude to the reality of HIV/AIDS. Qamar (2001) argues that the agricultural extension organizations are not expected to medically involve in the fight against AIDS: but they can play a role in preventing or at least minimizing the impacts of HIV and AIDS by educating the farming communities. Due to the nature of activities such as extension, agricultural organizations have staffs that are very familiar how rural households attain their livelihoods. They also have a lot of experience in community mobilization in working on poverty alleviation initiatives.

Competencies are concerned with the results and achievements of an organization (Mulder, 2001). In mitigating the impacts of the pandemic, extension staffs need to gain AIDS competence. According to the American Leadership Initiative for AIDS (2002), an organization gains AIDS competence when: i) It acknowledges the reality of AIDS, ii) act from its strength to respond, iii) reduces vulnerability and risks both for staff and clients iv) learn and share with others and v) attains its objective and potential. The competencies required to achieve the level of effectiveness in mitigating the negative impacts of the pandemic are:

Table 1: Competencies Required for Extension Staff in the era HIV/AIDS

Core Competence	Knowledge	Skills	Attitudes
Knowledge on organization goals	<ul style="list-style-type: none"> • On the organization stand on fight against HIV/AIDS • On HIV/AIDS effects extension work • On effect of HIV/AIDS on the clients 	<ul style="list-style-type: none"> • Can explain how HIV/AIDS is within district production department mandate and not only a health issue 	<ul style="list-style-type: none"> • Acknowledge rights of PLWHAs in accessing service from the organization
Technical capability	<ul style="list-style-type: none"> • Can relate how his technical training can 	<ul style="list-style-type: none"> • Promote appropriate 	<ul style="list-style-type: none"> • Willing to try

	<ul style="list-style-type: none"> be applied in HIV/AIDS mitigation • Can relate HIV/AIDS and food nutrition and food insecurity • Can relate how extension intervention can mitigate impact of AIDS • Basic facts on HIV/AIDS and prevention 	<ul style="list-style-type: none"> technologies in PRAs • Implement appropriate technology to mitigate impacts of AIDS 	<ul style="list-style-type: none"> new approaches to mitigate impacts of AIDS in affected households
Programming	<ul style="list-style-type: none"> • Translate HIV/AIDS issues from program document to intervention activities in annual budgeting and work plan 	<ul style="list-style-type: none"> • Plan for Interventions target improving HIV/AIDS affected households 	<ul style="list-style-type: none"> • Uses project resources effectively • Implement HIV/AIDS activities as per work plan
Professionalism	<ul style="list-style-type: none"> • Committed to continue learning on HIV/AIDS and agriculture 	<ul style="list-style-type: none"> • Work with affected household without stigmatizing them 	<ul style="list-style-type: none"> • Committed to the production department goal of improving livelihoods of households affected by HIV/AIDS
Communication	<ul style="list-style-type: none"> • Have knowledge of importance effective communication in extension 	<ul style="list-style-type: none"> • Able to communicate ideas to different stakeholders, HIV/AIDS affected persons and afflicted households 	<ul style="list-style-type: none"> • Use appropriate language when talking on HIV/AIDS • Able to listen to ideas of others and especially PLWHAs
Networking	<ul style="list-style-type: none"> • Aware of what other organizations are working on HIV/AIDS issues in the working area 	<ul style="list-style-type: none"> • Resource mobilization from other organization • Ability to work with other organization dealing with HIV/AIDS 	<ul style="list-style-type: none"> • Keeps Lira district production department objectives ahead of personal gains
Leadership	<ul style="list-style-type: none"> • Knowledge of needs of HIV/AIDS affected households 	<ul style="list-style-type: none"> • Able to represent lira district production department, in any program effectively 	<ul style="list-style-type: none"> • No fear to be associated with working within HIV/AIDS context • seizes opportunities to advance issues of PLWHAs

Source: Adapted from Mulder, M., 2001: Competence development: some background thoughts.

The competencies indicated in the table above are specific for extension officers who work in the field. They reflect the fact that the agricultural extension staffs work closely with households affected by HIV/AIDS. They need knowledge on basic facts on HIV/AIDS. This provides the agricultural extension worker with confidence

while communicating and tackling HIV/AIDS intervention especially in areas where stigma and discrimination are high. HIV/AIDS impact on the agricultural sector provides the agricultural extension worker with opportunity to combine their technical knowledge to mainstream HIV/AIDS in their extension work.

As staff working with farm households, the agricultural extension staff needs to have a clear understanding of other organizations working on HIV/AIDS related interventions in their area of work so as to share experiences. The Ministry of Agriculture has traditionally been involved in poverty alleviation initiative work. The extension staffs' attitude should create trust and confidence in their clients when dealing with HIV/AIDS, and uphold the organization objectives while dealing with stakeholders. The staff should be able to work in a field where a multisectoral approach is the norm. With the right knowledge, skills and attitude, extension staff will be able to; deliver extension services to meet the mandate of Lira district production department of food production and availability.

In conclusion of the literature reviewed; the researcher found that, Brinkman et al (2007), referred to knowledge as counseling, having basic facts on HIV/AIDS, networking and taking more holistic approach, while skills was referred to as problem solving skills, analytical skills (gender and HIV/AIDS mainstreaming), technological skills (dealing with changed food production and livestock), communication skills, facilitation skills, and attitude was referred to as attitude in serving the clients: Brinkman et al then referred that agricultural extension workers have limited knowledge, skills and attitude to respond to HIV/AIDS.

Genansan et al, (2003), referred to knowledge as planning, needs identification and developing extension programs; and he referred that agricultural extension workers can not involve the community effectively in programs because they are weak in planning, needs identification and developing extension programs.

FAO, (2006), referred to skills as technological skills e.g. pests and diseases identification, training skills (packaging information to suit specific category). MAAIF, (2003), referred to knowledge as identifying the needs of the HIV/AIDS affected household. Mulder, 2001 referred to knowledge as understanding organization goals, basic facts on HIV/AIDS, program planning, networking and needs identification, while skills was referred to as the ability to communicate ideas to different stakeholders, including HIV/AIDS affected persons, Implement appropriate technology to mitigate impacts of AIDS; and attitude was referred to as serving the clients (implement HIV/AIDS activities as per work plan), field work (committed to the production department goal of improving livelihoods of households affected by HIV/AIDS): and, Semana, (1998) referred to knowledge as determining and developing the needs of the HIV/AIDS affected households, while skills was referred as training agricultural activities and attitude was serving the clients; Semana (1998), reported that change in clientele has reduced agricultural extension workers' capability in applying them.

You may realize that the literatures reviewed from different authors in this study are related in one way or the other. All the authors reviewed; mentioned the need for needs identification knowledge, this could be that for a HIV/AIDS affected households or a community to accept and own a program, the needs should come from them, meaning, it should be identified participatorily, or could be for a program to be effective on the ground, the interest should come from the community. On the other part, Brinkman et al and Mulder went further that the agricultural extension workers need to have knowledge in counseling, basic facts on HIV/AIDS, networking, and program planning and understanding organizational goals. This could be due to the different target groups used in the study and how deep they required of the stud, or else could be, the target groups used in the study of the other authors were not able to mention other knowledge needs because they may have not found it as important or must have just forgotten.

In relation to skills required, all the authors reviewed in the study mentioned skills in relation to training, problem solving skills, technological skills, communication skills, facilitation skills; this could have been that, although previously, non-HIV/AIDS era, these skills were required too, but, could be the skills are required most to be put in practice in order to achieve the objective. Only Semana (1998) did not mention the skills. This could be that by

the time Semana conducted the research, the respondents had not seen the importance of the mentioned skills or his study was not centered on skills so much while Brinkman et al and Mulder mentioned more of related skills. This could be that the target groups of the study were able to identify the skills required in the era of HIV/AIDS. In relation to attitude, the authors referred to attitude as agricultural extension workers' attitude towards serving clients, field work and finding solutions to the problems. This could be that with the change in clientele at the farming households, the authors wanted to know how the agricultural extension workers can adjust their time to suit the various needs of the HIV/AIDS affected households.

The researcher will use the view of *Brinkman et al (2007)* in combination with *Ganesan et al (2003)* to identify the level of competencies of agricultural extension workers in meeting the dynamic needs of HIV/AIDS affected households and develop recommendations for responses to the pandemic because the findings of the authors were related in terms of knowledge, skills and attitude. Both authors mentioned counseling knowledge, needs identification, networking, basic knowledge on HIV/AIDS, technological skills, communication skills, facilitation skills, program planning, problem solving, attitude towards serving the clients, field work and finding solutions. From these two authors, the researcher will be able to identify the competence level of the agricultural extension workers This could have been that the target group for the study had a common feelings as to what knowledge, skills and attitude they should possess in the era of HIV AND AIDS or else the respondents were experienced in working with the HIV/AIDS affected households in relation to agriculture and were able to identify the competence gaps.

CHAPTER THREE

Research Methodologies

This chapter described briefly how the researcher planned to conduct the research, study area, selection of respondents, and methodology used in order to realize the objective stated above. The research was of desk study and field work; data was collected through semi-structured questionnaire study as described below to get a general overview of the study as described below as;

3.1 Planning

The researcher wrote a research proposal from Larenstein University while making consultation with the lecturer, supervisor and fellow students, so as to correct and improve on the proposal. The researcher traveled back to her country for data collection; and reported to the District Agricultural Officer, Lira District. One day pre-visit to the research sub-county was done to meet the sub-county leaders plus the agricultural extension staff in charge the sub county so as to discuss and agree on the planned activity. Appointment with the agricultural extension workers and HIV/AIDS affected households' was then made. The planning helped the researcher in having continuous check of the planned activities within the time set.

At community level, the researcher introduced the objective of the study to the local leaders who then helped the researcher in the selection of the respondent for interviews; this reduced over expectation from both the respondents and community which may have come out. The selected respondents were again informed about the objective of the study and their consent solicited to participate in the study.

3.2 Study area

The study was conducted among the agricultural extension workers of Lira district production department and HIV/AIDS affected households in northern part of Uganda (east Africa), Adek-Okwok Sub County, Lira district, located 300 kilometers away from the capital city Kampala. The inhabitant of Lira district is Lango ethnic group who mostly depend on subsistence farming to earn a living. In order to reduce costs, this study area was selected and was the sub county where the researcher worked.

3.3 Target population

The target population of this study previously was 18 agricultural extension workers who were the key informants from Lira district production department for this study and currently based in the field; and 16 HIV/AIDS affected households. This was an assumption by the researcher that there are 18 agricultural extension workers; but the actual numbers of the extension workers were 15; and are the ones who gave the researcher the information. The researcher also got information from 16 HIV/AIDS affected households, a semi- structured interview was administered individually by the researcher to the key informants and the respondents. This provided the participants with confidence in providing information in a free atmosphere. In order to find the sampling frame, the researcher considered the number of the agricultural extension workers currently employed in Lira district and the sub county with HIV/AIDS farmer groups. In total, 31 people were interviewed by the researcher, 15 key informants and 16 respondents.

The researcher got information from HIV/AIDS affected households only to find out whether the HIV/AIDS affected households are also aware on the impacts of HIV/AIDS on farming households; and to advice the researcher on which area of knowledge and skills they feel is important for the agricultural extension worker in serving HIV/AIDS affected farmer households as stated by the agricultural extension workers; and other

authors as reviewed in the study. This was to get the HIV/AIDS affected households opinion and integrate with the agricultural extension workers' opinion, then give recommendation to the study.

The research question at household level was basically to cross check information given by the agricultural extension worker; whether the agricultural extension worker and the HIV/AIDS affected households have the same understanding, and feelings on the impacts of HIV/AIDS on farming households; or the HIV/AIDS affected households are shy of mentioning information on agricultural extension workers; or agricultural extension workers are over exaggerating the information in the study; and merge, add or integrate the information.. Concerning advice given to reduce the impact of HIV/AIDS on agricultural production, the researcher did not assess whether the advice given to HIV/AIDS affected households was the same or different with the one of the non-HIV/AIDS affected households. This was just because, the non-HIV/AIDS affected households were not part of the study.

3.4 Selection of respondents

This study was purposive in that, only agricultural extension workers who provide extension services to the farming community and the HIV/AIDS affected farming households were identified. These households are identified on the basis that; I) they are part of the clientele served by the agricultural extension workers; and ii) the HIV prevalence rate of the district was 8.3 percent (DAC, 2008). The assumption was that; I) the farm households are part of the HIV/AIDS affected households, II) the agricultural extension workers had limited competence level in response to various needs of the HIV/AIDS affected households. The 20 years civil war in northern region displaced the farm households thus exposing them to various risk while securing more livelihood options.

The fifteen (15) agricultural extension workers were from the sub counties of Adek-okwok, Aloji, Apala, Amugo, Abako, Amach, Baar, Ogur, Omoro, Aromo, Okwang, Olilim, and Lira sub-county respectively. Each agricultural extension worker in a respective sub county, serve an estimated four thousand (4,000) farming house holds. A summary of the respondent put in the table below;

3.5 Desk study

This was done to review available data, identify data-gaps, and understand general overview of the research issue. The literature was got from Ministry of Agriculture report, Uganda, Lira district report on HIV/AIDS, report from committee on HIV/AIDS, Lira district, AIDS information center, websites from internet. All these information were in relation competence level of agricultural extension workers in response to the dynamic needs of HIV/AIDS affected farming households.

Table 2: Summary of identified respondents

Category	Type of response	Number
Agricultural extension workers	Key informants	15
HIV/AIDS affected households	Respondents (06 male & 10 female) headed hhs, respectively	16
Total		31

3.6 Survey

Semi-structured questionnaire was administered to 15 agricultural extension workers and 16 HIV/AIDS affected households to explore the level of knowledge, skills and attitude of the agricultural extension worker in response to the varying needs of HIV/AIDS affected households; caused by HIV/AIDS impacts on agricultural production. Two (2) semi-structured questionnaire were administered in a day. Based on the identified knowledge, skills, and attitude, the researcher will then give recommendation to Lira district production department based on the analysis of the findings.

3.7 Observation

Other information was recorded in the field through observing activities, the reaction, and stigma people still holds when discussing issues related to HIV/AIDS. This gave the researcher more information on behavior and emotions of the person interviewed. The observation made the researcher to probe other question which the respondent may have not given clear answer about it.

3.8 Data analysis

Data collected from semi-structured questionnaire from agricultural extension workers and HIV/AIDS affected households of Lira district; was analyzed quantitatively but some bit of qualitative analysis has been done too. The collected data was coded in the computer and analyzed using statistical computer package for social sciences (SPSS). Transcription was done after each day of the interview. Though there was no use of any recording devise, the opinions of the key informants and respondents were reconstructed and some are used in the results and discussion sections. Data was collected on the knowledge, skills, and attitude the agricultural extension worker have on HIV/AIDS related issues in order to respond to the dynamic needs of the clientele.

While at household level, data was collected on the impacts of HIV/AIDS on agricultural production, factors affecting the level of participation, trainings provided and methods used in providing extension services. Based on this identification of the knowledge, skills and attitude, the researcher then gave suggestions on what areas the capacity of the agricultural extension workers need to be built in order to respond to HIV and AIDS more effectively in their area of work. Data at household level was used as supportive information in comparison with the information given by the agricultural extension worker.

3.9 Limitation of the Study

There were not many limitation apart from the financial constraints and the period given for the data collection, especially report writing for this thesis was short, it did not cater for 6 days (to and from Netherlands) involved in travels; we needed something like two months.

3.10 Ethical considerations

HIV and AIDS is a sensitive issue at both individual and household level which needs to be handled with care. Therefore, one need to handle some important ethical factors when dealing with HIV/AIDS affected households so as not to breach the research ethics in data collection. The researcher asked for consent of the respondent; she briefed both the respondent and local leaders about the objective of the study. The study got information from HIV/AIDS affected and proxy indicator like chronically ill households was used.

3.11 Risks

The researcher ensured that as much as possible, all data used in the study should come from the respondent's own experience and no response from other sources will be recorded. A name of a respondent was "only" to be included if the respondent is asked and he/she has consented, confidentiality was a key consideration in this study.

CHAPTER FOUR

4. Results and Discussion

This section presented findings from the survey with discussions. It is presented as follows: brief highlight on background characteristic of agricultural extension workers and HIV/AIDS affected households interviewed, knowledge on mode of transmission of HIV/AIDS, and myths on HIV/AIDS, knowledge on impacts of HIV/AIDS, knowledge on changes in farming practices, factors affecting the level of participation, knowledge on how HIV/AIDS impacts differently on men and women, and problem solving skills (response to the impact of HIV/AIDS on agricultural production), attitude of extension worker in serving the clients, competencies identified as important and needed by the agricultural extension workers, and competencies identified by the HIV/AIDS affected households as important for agricultural extension workers in their work.

4.1 Background Characteristics

Figure 2 below showed Agricultural extension workers' male to female ratio in production department of Lira district. This helped the study to ascertain the number of female extension workers serving the farmers. The chart revealed that, of the 15 agricultural extension workers of Lira district, only 2 were female extension workers (13.3) percent compared to 13 male agricultural extension workers (86.67) percent. Further more, in table 3; out 16 HIV/AIDS affected household interviewed, 10 were female HIV/AIDS affected household (62.5 percent) while only 6 were male HIV/AIDS affected households (37.5) percent.

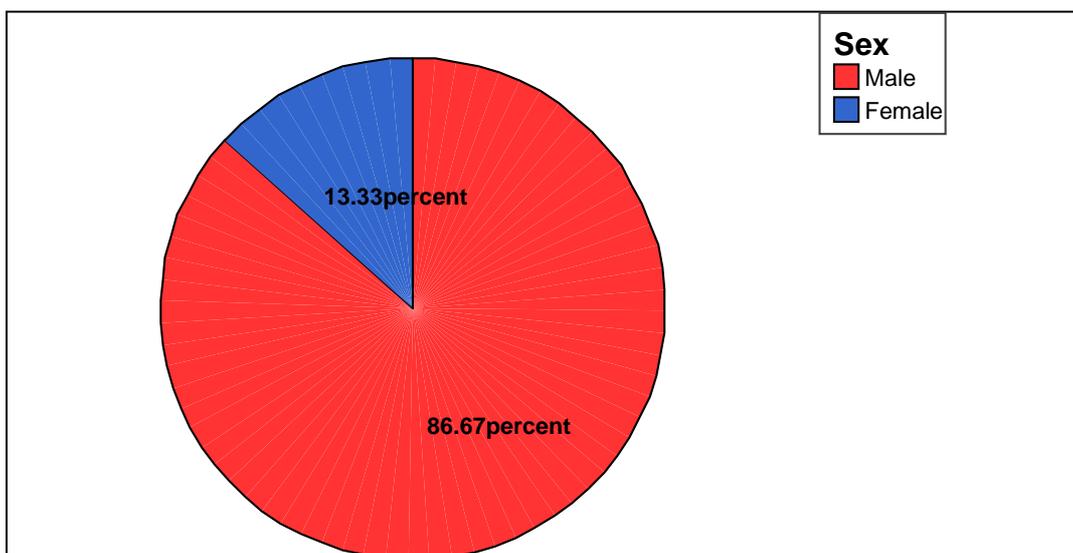


Figure 2: Sex of key informants

(Source: Primary Data, 2009)

This indicated that the number of female in agricultural production is more than the number of male in agricultural production. FAO, 2003, reported that 70 percent of women are employed in agricultural production and yet women farmers have less extension services than men; especially where male-female contact is culturally restricted; e.g., Muslim society. Extension is often provided by men, as revealed in figure 2 to men farmers on the erroneous assumption that the message will trickle "across" to women. This excluded a

significant proportion of farmers-the women- from access to extension information, and services. The messages ignored the unique workload, responsibilities and constraints of women especially the HIV/AIDS affected household. Infact, agricultural knowledge is transferred inefficiently or not at all from husbands to wife, (Choki, 2003).

4.1 1 Background characteristics of agricultural extension worker

Table 3 below showed the background characteristics of agricultural extension workers who were the key informants. In this study, a total of 15 agricultural extension workers as in figure above were reached and interviewed. 66.7 percent were specialized in crop husbandry and 33.3 percent were specialized in animal husbandry. Pertaining to the educational background of the respondents, majority (86.7 percent) were found to be having Diploma while 13.3 percent were degree holders. The researcher went further to ascertain if the respondents had done trainings in relation to HIV/AIDS and agricultural production besides their professional qualifications; it was found out that about 60 percent had taken some trainings on HIV/AIDS in relation to agriculture while 40 percent had not done any other training. Of the total respondents 60 percent had taken more than 15 years in services, 13 percent hand spent between ten to fifteen years while 26 percent had spent less than 10 years in service.

Table 3: showing background characteristics of agricultural extension workers

Area of specialization	Frequency	Percentage
Crop husbandry	10	66.7
Animal husbandry	5	33.3
Educational level		
Diploma	13	86.7
Degree	2	13.3
Any other training taken		
No training provided	6	40.0
Training provided	9	60.0
Years in service		
Between 5-10 years	4	26.7
Between 10-15years	2	13.3
Between 15 and Above	9	60.0

(Source: Primary Data, 2009)

This study suggested that such staff with 10-15 years in service may be more acquainted with the cultural norms of the areas, and hence would appropriately disseminate HIV messages without upsetting the locals. But, on the other end, 60 percent of the agricultural extension staff who had served for over 15 years and above; may be tired of extension service and approaching retirement age, and in most cases may be less interested in capacity building due to old age, low level of absorbing capacity of new knowledge; and yet HIV/AIDS era, may require continuous learning for one to be able to respond to the dynamic needs of the HIV/AIDS affected households. This implied that the age and years of service in extension may have impact on the level of understanding, attitude, and incorporating HIV/AIDS issue in agricultural extension activities.

4.1.2 Background characteristics of HIV/AIDS affected households

Table 4 showed the background characteristics of HIV/AIDS affected households where 37.5 percent were male and 62.5 percent were female. The additional information got from HIV/AIDS affected households on the level of education attained by household members, has an important bearing on the quality of household human capital. Survey findings showed that only 18.8 percent of the respondent attained better levels of education than their counterparts. As shown in table 4, a higher proportion (50 percent) of the HIV/AIDS affected households stopped in primary level. While 31.3 percent are illiterate. This implies that, while organizing training, the extension worker should put level of education in to consideration.

Table 4: Showing background characteristics of HIV and AIDS affected households

Sex of household	Frequency	Percentage
Male	6	37.5
Female	10	62.5
Educational level		
Illiterate	5	31.3
Primary	8	50
Secondary	3	18.8
Age of household head		
Between 26-35 years	6	37.6
Between 36-45years	6	37.6
Between 46-55years	4	25.2
Between 56 and Above	1	6.7

(Source: Primary Data 2009)

The researcher went further to ascertain the age of the household head. 37.6 percent were found to be between the ages of 26-35 years, 37.6 percent were found to be between the ages of 36-45 years; these are active age groups for agricultural production and they are the ones again infected with HIV/AIDS, this confirmed other findings from other authors that HIV/AIDS is common in the most productive age groups. 25.2 percent were found to be between the ages of 46-55 years and 6.7percent was found to be between the ages of 56 years and above. These are age groups who are about to retire from agricultural production. This implies that the agricultural extension worker has to identify such age groups and plan for activities which suit their level.

4.2 Knowledge level

4.2.1 Interaction of agricultural extension staff in the field

Like all other community members, extension staff met in this study had been affected by the AIDS epidemic. All the extension workers met had either lost a relative, a family member or a friend. What was, however, common with all extension workers and HIV/AIDS affected households met in this study was the recognition that HIV/AIDS had unleashed great impact on agricultural production, MAAIF, 2000, confirmed the declining agricultural production. HIV/AIDS affected gender differently, and changed the farming practices. Not only HIV/AIDS had impacted on agricultural production, but had also affected the level of participation of HIV/AIDS

farming households and performance of agricultural extension workers. The section discussed the findings on knowledge, skills and attitudes.

4.2.2 Knowledge on mode of transmission of HIV

Most people in Uganda today know HIV/AIDS as life threatening sexually transmitted infection. In spite of awareness creation about the scourge, there exists a big gap between knowledge and desired behavioral change (UAC, 2002). People need to keep abreast with the emerging facts about HIV/AIDS and relevant services and programmes available, in order to effectively prevent spread and reduce the adverse effects. The researcher ascertained the knowledge level of the agricultural extension worker on the four major modes of transmission, that is; sharp piercing instrument, blood transfusions, sexual intercourse, and mother to child transmission.

Table 5: Mode of transmission of HIV (n=15)

mode of transmission	Frequency	Percentage response
Sharp piercing instrument	15	100
Blood transfusion	15	100
Unprotected sex	15	100
Mother to child	15	100

(Source: Primary Data, 2009)

The result in table 5 above revealed that, all the respondents interviewed (100 percent) were knowledgeable on the four modes of transmission on HIV/AIDS. This could have been possible because of the awareness creation on HIV/AIDS going on through media, NGOs, CBOS' and government institutions. UNDP reported that 80-90 percent Ugandan men and women are aware of HIV and AIDS. This could have been a good beginning for the agricultural extension worker in response to HIV/AIDS issues.

4.2.3 Knowledge on myths / misconception of HIV/AIDS

HIV/AIDS has very many myths surrounding it within the community. Myths like HIV/AIDS cures, herbal medicine cures HIV/AIDS, (this is very common and people still take herbal medicine in the name of curing HIV/AIDS), HIV/AIDS is for urban dwellers, and HIV/AIDS is a disease of the rich as presented in table 6. As per this research the response was almost universal where 100 percent of the respondents said HIV/AIDS does not have cure and even herbal medicine does not cure HIV/AIDS. The perception that HIV/AIDS is a disease of the rich was a common thinking among the respondents, with only 6.7 percent saying it not a disease of the rich. This mainly arose from denial stage that an HIV person may be going through in society. People do not want to hear what others say about their sexual conduct and worst still do not want to be associated with HIV/AIDS (MAAIF, 2005)

Table 6: Myths on HIV/AIDS (n=15)

Myth about HIV/AIDS	Frequency (False)	Percentage response
HIV/AIDS has cure	15	100
Herbal medicine cures HIV/AIDS	15	100
HIV/AIDS is for urban dwellers	15	100
HIV/AIDS is a disease of the rich	1	6.7

(Source: Primary Data 2009)

Rumors and misconceptions about HIV/AIDS create fear, false confidence, and increase vulnerability through risky behaviors. Knowledge of the extension workers on rumors and misconception will reduce vulnerability of the farming households. The study in table 6 revealed that 100 percent of the key informants had Knowledge on the myths of HIV/AIDS. The study re-affirms the assumption that 80-90 percent of Ugandan men and women are aware of HIV and AIDS (MAAIF, 2005, UNDP, n.d.). This could have been that more facts and correct information were given or presented about HIV/AIDS, or else, the people giving the information used effective communication skills which made people to under the myths and misconceptions on HIV/AIDS. If rumors and misconceptions about HIV/AIDS were not dispelled, this would negatively affect management of HIV/AIDS, prevention and mitigation interventions.

4.2.4 Knowledge on HIV/AIDS impacts on agricultural production

HIV/AIDS is another shock on agricultural production, the impacts of HIV/AIDS on agricultural production are recognized at least by both the agricultural extension workers and the HIV/AIDS affected households. One of the main impacts of HIV/AIDS on agriculture is its impact on food security (FAO, 2006). For example, the survey, conducted by the Zimbabwe Farmers' Union, found that agricultural output declined by nearly 50 per cent in the households affected by AIDS (Kwaramba, 1997, FAO, 2004).

Those production losses could have resulted from a number of factors: including reduced land under cultivation, the loss of labour which may lead to declines in crop variety and to changes in cropping systems, particularly a change from more labour-intensive systems to less labour intensive systems. Change from keeping cattle to small ruminants may become less intensive, weeding and pruning may be curtailed. A shift away from labour intensive crops may result in a less varied and less nutritious diet (Karuhanga, 2008) Loss of knowledge about traditional farming methods and loss of assets will occur as members of rural households are struck by the disease and are not able to pass on their know-how to sub-sequent generations.

This has the implication for agricultural extension worker because of variable demands which may be placed by the HIV/AIDS affected households; and to understand the impacts of HIV/AIDS on agricultural production and use them in planning and implementing extension programs and services (Fong and Furuto, 2001). Similarly *Olsen, et al* (2006) defined competency as the ability to work effectively across cultures. For individuals, it is an approach to learning, communicating and working respectfully with people different from themselves through creating the practices and policies that will make services more accessible to diverse populations and that provide for appropriate and effective services in cross-cultural situations

Table 7: knowledge of agricultural extension workers and HIV/AIDS affected households interviewed on HIV/AIDS impacts on agricultural production

impacts on agricultural production	Extension workers n=15		HIV/AIDS affected Hhs, n=16	
	Frequency	Percentage	Frequency	Percentage
Reduced land under cultivation	7	46.7	6	37.4
Loss of labour	15	100	12	80
Increased workload on household members	10	66.7	11	73.3
Reduced farm management knowledge and skills	6	40	7	46.7
Sale of agricultural assets	3	20	13	81.2
Reduction in the number of crops grown	7	46.7	8	53.3
Change in the type of livestock kept	12	80	13	81.2

(Source: Primary Data, 2009)

In table 7 above, the survey revealed that both the agricultural extension worker and the HIV/AIDS affected households are knowledgeable on the impacts of HIV/AIDS on agricultural production with labour factor as being the highest rated impact with 100 percent and 80 percent respectively as shown in table 7. This could have been the fact that farming and agricultural production at household level consist of series of complex activities and tasks, which include ploughing, sowing, weeding, looking for water and pastures for animals all the year round; on top of performing housework that now includes caring for those suffering from AIDS. All these activities, detection of labour loss is very easy because is directly seen. Rural households rely on family labour as a way of producing their food and earning money. AIDS infection in households wears away households' ability to ensure good agriculture production because of direct loss of labour of farm activities and domestic tasks. This could have also been due to change in the way labour is divided among households' members and also the way the household members use their time.

Referring to table 7 above, there are differences in percentage response of the agricultural extension worker and HIV/AIDS affected households. Most of the percentage response of the HIV/AIDS affected household e.g. change in the type of livestock kept, change in the number of crops grown, and sale of agricultural assets are higher than the agricultural extension worker's response. This could be because the HIV/AIDS affected households feels the direct impact in the household, so they are able to mention while the extension worker had to ask in order to get the information.

The findings on the impacts of HIV/AIDS on agricultural production correspond with a study conducted by FAO, (2003) which reported that agriculture absorbs the biggest proportion of the workforce, and constitutes the single most source of people's livelihood being threatened by HIV/AIDS. But deviated from findings by *Ali et al* (2009) Nguthi, (2007), and FAO, (2003), which reported that the extension workers are not equipped with knowledge and skills to deal with HIV/AIDS and thus, the issues of HIV/AIDS were being regarded as health matters, but not agricultural. This would mean that agricultural extension workers will have to take extra time and strategies in an approach to the problem.

4.2.5 Knowledge on changes in farming practices due to HIV/AIDS

HIV/AIDS has caused shifts of production from cash crops to food crops in AIDS-affected households. The change has resulted in lower household incomes and lack of funds to buy non-food essentials or non-labour inputs necessary to maintain agricultural yields (FAO, 2006) 73.3 and 62.5 percent of the respondents respectively as shown in table 8 observed changes on reduced cash crops production like cotton to producing food crops like maize, cassava, sweet potatoes and beans. Maize used to be one of the food crops but the respondents reported that due to HIV/AIDS, the farming households now produces maize as cash crops because of the ready market. Implying that, the agricultural extension worker should be able to understand what HIV/AIDS affected households considers being a cash crop in this era.

In the field of animal husbandry, changes in livestock management were observed. In table 8, 33.3 and 18.8 percent of the respondents reported that animals received less care, time for taking animals to graze has changed and number for hours animals spent grazing is reduced. 26.6 percent observed replacements of cattle with small ruminants e.g. poultry, goats and piggery, 26.7 percent observed increased cultivation of mixed cropping; farming households tend to plant more than one crop in one field to reduce on labour demand per crop.

Table 8: knowledge on changes in farming practices due to HIV/AIDS observed by agricultural extension workers and HIV/AIDS affected households

Changes in farming practices	Agricultural ext workers n=15		HIV/AIDS affected households n=16	
	Frequency	Percentage	Frequency	Percentage
Reduced cash crop production	11	73.3	10	62.5
Cultivation practices	11	73.3	5	31.5
Cattle replaced by small ruminants	04	26.7	5	31.5
Intercropping/mixed cropping	04	26.7	6	37.5
Livestock management (reduced hrs in feeding)	05	33.3	3	18.8

(Source: Primary Data, 2009)

The survey revealed that, both extension workers and HIV/AIDS affected households were able to acknowledge changes in farming practices as result of HIV/AIDS impact. This could have been due to the fact that HIV/AIDS reduces the earnings of farmers, agricultural production declines and restructures households. In most cases, there is increase in female headed households, orphans headed households and grand parent headed household because men when the wife dies, they tend to remarry faster but women, rarely remarry. These may require special agricultural interventions and technology changes to enable them continue being productive. Cultivation shifts from cash crops to subsistence crops and from labour-intensive to labour-extensive but often also less nutritious crops. Of the total respondents, 73.3 percent observed changes in reduced cash crop production where production of cotton changed with the production of crops like maize, cassava, sweet potatoes and beans. This could have been due to low-input crops which do not require much labour in their production.

This change in cropping pattern is unlikely to reverse itself given the heavy investments required in terms of labour, cash, and time-all of which are in short supplies in households affected by HIV/AIDS. This result correspond with the findings of FAO, (2000) in Bukoba District, Tanzania; where the intensely managed banana/coffee/bean farming system has been replaced by a labour-extensive, low-input cassava/sweet potato farming system. This implies that, the HIV/AIDS affected farming households are responding to labour shortage by producing crops which requires less labour input; meaning, the agricultural extension worker has to be in position to identify such labour saving technologies to train the HIV/AIDS affected household on.

In contrast to the widespread view that households experiencing prime-age mortality, coped with the reduction in family size, by switching to labor-saving crops such as roots and tubers, the results showed positive. The death of adult in the household results in a 62.5 percent decline in area under cash crop production was easily recognized by HIV/AIDS affected households (FAO, 2003). Both respondents were able to recognize changes in the land under cultivation; this could be because of easy seeing of the quantity of acreage under production. The findings still indicated that HIV/AIDS affected households are more labor-constrained. While changes in livestock management was almost not recognized, 33.3 percent of agricultural extension workers reported to have recognized while 18.8 percent of HIV/AIDS affected households recognized too. This could be due to negligence of not considering how long an animal should take grazing, the implication for agricultural extension worker is to understand these differences and respond to the problem.

This study findings correspond with data from the survey by (IP, 2003) demonstrated that affected households had reduced the area under cultivation for all crops, whereas non-affected households were able to increase the cultivation of maize. It revealed that the knowledge competency of the agricultural extension workers can enable them to think of an intervention in response to the above

4.2.6 Knowledge on the type of HIV/AIDS affected households existing in the community

In recent years, the links between HIV/AIDS, food security and livelihoods have been the subject of much research and many direct interventions. The impacts of HIV/AIDS on livelihoods are multiple and diverse (FEG, 2003.): it can reduce the ability of sick household members to work; increase the demands on remaining household members' time to care for the ill; increase the burden of healthcare costs; and lead to problems with the inheritance assets by the bereaved. There are different ways in which the household economy can be affected by HIV/AIDS For example, the broad category of 'HIV/AIDS-affected' can include families with someone who is chronically ill, families who have recently lost an income-earner, or families who have taken in an orphaned child. The nature of the 'shock' resulting from HIV/AIDS may differ significantly in each case, and so the agricultural extension worker should be in position of not over-aggregating information by placing all HIV/AIDS-affected families in a single category. The extension workers should be in position of differentiating the household types existing in the community; so that when planning interventions, integrates activities which suit each houses hold type.

Table 9: Knowledge on the type of HIV/AIDS affected households existing in the community identified by extension workers (n=15)

Category of HIV/AIDS households	Frequency	Percentage
Female headed households with PLWHA	5	33.3
Male headed households with PLWHA	5	33.3
Elderly headed households	5	33.3
Child headed households	6	40
Male headed household	4	26.7
Female headed household	5	33.3
Infected households with both partners sick	3	20

(Source: Primary Data 2009)

Participants were asked to identify the type of household types which exists in the community, 40 percent of the agricultural extension workers identified child headed households while 20percent identified infected households with both partners sick. Child headed household were identified easily, it could be due to the fact that, that type of household is a unique type and most people tend be concerned about them. Often rural and agricultural development programmes which promote modernization do not target vulnerable groups as these do not seem to have resources and motivation to invest in farming for profit. It is important for the extension worker to be sensitive when working with HIV/AIDS affected households because these households are already disadvantaged by their problems and the fact that HIV/AIDS is still considered shameful in some communities. The study revealed that, the agricultural extension workers are able to identify and target the existing different types of households in the community, plan and work with them.

The following households were also identified; male and female headed households, elderly headed households, male and female households with people leaving with HIV/AIDS. The challenge remains if the agricultural extension workers identify their needs and plan in relation to their needs. The study affirms the report by FEG; an NGO which said that, the broad category of 'HIV/AIDS-affected' households can include families with someone who is chronically ill, families who have recently lost an income-earner, or families who have taken in an orphaned child. The implication is for the agricultural extension worker to identify which intervention suits which household category.

4.2.7 Knowledge on factors affecting participation level of HIV/AIDS affected household in agricultural activities organized by extension workers

Participation is essential for sustainable development, and all activities must address the needs, priorities and capacities of communities, households and individual household members. Participants were asked on what factors do affect their level of participation in any development programs. The participants reported as: 80 percent of agricultural extension workers reported that attending to sick ones who are chronically ill, impacts on the level of participation while only 6.3 percent of the HIV/AIDS affected households agreed with that. 80 percent of the HIV/AIDS affected households reported that, being physically weak impacts on their participation. What differed was that, the agricultural extension workers were unable to recognize that bad timing of the meeting and not informing the group members could also impact on participation level in activities as shown in table 10; while 50 and 6.3 percent of HIV/AIDS affected households were able to recognize it. This implied that the extension workers are to involve the HIV/AIDS affected households in planning so that their varying interests are met.

Table 10: Knowledge on factors affecting level of participation HIV/AIDS affected households

Factors affecting level of participation	Agricultural ext workers n=15		HIV/AIDS affected households n=16	
	Frequency	Percentage		
Attending to sick ones	12	80	1	6.3
Physically weak	11	73.3	12	80
Workload	09	60	9	56.3
Distance from training	04	26.7	6	37.5
Training conducted not in line with their needs	01	6.7	11	73.3
Group member's attitude	01	6.7	8	53.3
Bad timing of meeting by extension worker	-	-	1	6.3
Not informed of the training	-	-	8	50

(Source: Primary Data 2009)

The study in table 10 revealed that both the agricultural extension workers and HIV/AIDS affected households had knowledge on factors affecting the level of participation of HIV/AIDS affected households; but what differed is that the agricultural extension workers acknowledges that taking care of sick ones impacted on the level of participation of the HIV/AIDS affected households most while HIV/AIDS affected households acknowledges that being physically weak impacted on their level of participation most. This could be because; the target group for the study was HIV/AIDS affected households respondent who have the disease and he/she had experience with his or her health status in relation to participation or being involved in any activity. He /she has not experienced taking care for the sick who has been chronically ill with HIV/AIDS but he/she is the one who is sick; so the person will give the information in relation to the impact on his health while the extension worker got the information. The extension worker might have not experienced that being physically weak from chronic illness can reduce your morale for activities.

Another difference was on the agricultural extension workers' not able to recognize that bad timing of meeting or not informing the person may impact on the level of participation. This could be that, the agricultural extension workers did not see it as an issue or did not experience it at one point while implementing his program or might have just forgotten to mention it. The HIV/AIDS affected household mentioned it because, they might have not been informed to attend a meeting which resulted in them missing out some important information or a meeting was organized which collided with some other program and this made them miss out the meeting organized by the extension worker.

Low level of participation in trainings, demonstration and loss of contact of the client with the agricultural extension worker impacts on agricultural production especially at the time when the crop and livestock is infected with pests or disease. This implied that the agricultural extension worker should find a way of improving the level of participation of the HIV/AIDS affected households if productivity level is to improve. This correspond with *Genasan et al, 2003*, which stated that, agricultural extension workers can not involve the community effectively in the program because the agricultural extension workers are weak in developing programs which match the interest of HIV/AIDS affected households in participation.

4.2.8 Knowledge on how HIV/AIDS impacts on gender

Development activities affect men and women differently; women are of course integral part of farming households. They produce over half the food, bear most responsibility for households' food security and contribute to household well being through their income generating activities. Yet, HIV/AIDS is impacting on these roles played by women and their productivity remains low relative to their potentials. This would imply that women's' physical and human resource capital to the level of men's would bring significant gains in agricultural production (Choksi, 2003).

Table 11: Knowledge on how HIV/AIDS impacts on gender differently (n=15)

Impacts of HIV/AIDS on men and women	Women		Men	
	Frequency	Percentage	Frequency	Percentage
Devoting most time caring for the sick	10	66.7	3	18.6
Increased workload on women than men	10	66.7	1	6.3
Reduced income	9	60	4	25
Less access to VCT services	4	26.7	5	31.5
Too much blame for bringing HIV virus in a home	4	26.7	0	0

(Source: Primary Data 29)

In table 11, the study revealed that, the agricultural extension workers recognized that HIV/AIDS impacted on women more than men. Out of the total respondents, 66.7 percent confirmed that women devoted most of their time caring for the sick while 18.6 percent of men gave their time in caring for the sick. This showed how much time women devotes in reproductive roles than productive roles. HIV/AIDS epidemic had clear gender dimensions; women and men were affected differently. These inequitable gender relations drive the pandemic, putting both men and women at risk but leaving women more vulnerable and less able to protect themselves. As Stokes (2003) put it; although gender inequality is an issue that is not specific to agricultural sector, it is so integral to the HIV/AIDS epidemic and its social and economic consequences. It should be of any agricultural oriented mitigation strategy designed to reduce the impacts of the epidemic.

On the other end, 26.7 percent of women said that too much blame is put on them because of bringing HIV/AIDS virus in a home while men were not blamed. This could be because women often are not in position to make decisions concerning their own sexuality, especially deciding when and with whom they want to have sex; or because women are not seen as having the same status in society as men. In addition to women being in disadvantaged group, powerlessness and unequal resource distribution makes it difficult for women to deal with the impacts of HIV/AIDS in a more meaningful sustainable way.

For women who are the main producers, generally shoulder the burden of caring for the sick. This diverts their energies from agricultural production and general work that would provide income. The result is household food insecurity, declining nutrition and health. Thus, the decline in women's contributions to agriculture, as a result of their own illness or that of family members, reduces agricultural productivity and household food security. This is

especially devastating given women's key role in the agricultural work force and in the production of most subsistence food crops (FAO, 2003). Implying that the agricultural extension worker should be flexible to adjust the plan and incorporate women's program.

4.2.9 Knowledge on Crop and Livestock production constraints in the last four seasons

Table 12 showed the frequency at which people with HIV/AIDS faced crop and livestock production constraints in the last four seasons. General information was gathered from the respondents by means of semi-structured interviews. About 87.5 percent of people with HIV/AIDS in Adekokwok Sub County faced financial problems. Many of the financial problems appeared to be more related to illness and poverty in general and less to HIV/AIDS specifically. Household respondents were requested to comment on the constraints of household's agricultural production in the last four seasons so as to link with possible effects of HIV/AIDS. Majority of the household respondents (87.5 percent) revealed that their respective households had experienced decreased agricultural production in the last four seasons. A number of factors, all related with HIV/AIDS explain the general constraints of agricultural production due to depletion of labour force, lacked draught power due to constraints in financial resources, loss of skills and knowledge, and income disruption; while 87.5 percent mentioned shortages of labour to be behind decreased agricultural production in their households. In almost a fifth of the sampled households, labour shortages were directly linked to HIV/AIDS related deaths

Table 12: Crop and Livestock production constraints of HIV/AIDS affected households in the last four season (n=16)

Crop and livestock production constraints in the last four season	Frequency	Percentage
Lack of financial resources	14	87.5
Labour shortage	14	87.5
Lack of draught power	8	50
Bad weather condition	5	31.5
Poor soil fertility	5	31.5
Crop pests and diseases	5	31.5
Reduced knowledge on agricultural production	1	6.7

(Source: Primary Data 2009)

Labour intensive farming systems with a low level of mechanization (use of hand hoe) and agricultural input are particularly vulnerable to AIDS. Given the fact that AIDS is concentrated among the 15 - 45 years old, who are most able bodied, then agriculture suffers most in terms of production and market for the accruing products.

The study revealed that, agricultural extension workers had the knowledge on how AIDS undermines agricultural systems, and affects the food security of rural families. Families faced declining productivity as well as loss of knowledge about indigenous farming methods and loss of assets (Focus, 2001). Labour loss and depletion as a result of HIV/AIDS partly may have occurred due to increased workload, coupled with structural changes in family structure. Situations where weak grandparents are increasingly assuming roles of able-bodied persons to care for the children of their late sons and daughters are common: In such households, food production declines, and the family becomes perpetually food insecure. A household case in obato mia bilo illustrates the point below.

Case 1: Food Insecurity in a female Headed Household:

Margaret, a widower aged 41 years old lives in obato mia bilo, Adek Okwok sub county in Lira district with 5 children who are orphans aged 5,7,8, years a huaband who died of AIDS. Margaret narrates, "I used to be self-reliant, hardworking,

supplemented my little income from farming with sale of pan cakes, but when my husband died, leaving me behind with children and nobody else to take them up except me, my life changed. I became frustrated, am not only a mother to these children, but a father at this advanced age 41.. I am now sick and cannot afford to dig or to do any off farm activities after an operation I underwent, coupled with the disease. It puts me in great pain, for I don't know what will happen to these children once I die as they all depend on me".

The lady had two grass thatched houses with busy compound. Together with the orphans, they cannot carry out meaningful cultivation even though the orphans are not attending school. There has been sharp reduction in food for consumption available for the family as the lady continued narrating, "even now when I am still alive, we do not have enough to eat...you can see that young one (pointing to the youngest orphan) is gloomy not because he is sick or has been punished, but because he has not eaten anything since morning". As a coping mechanism, the household feeds on one meal (supper) a day, and take some local porridge for lunch.

The above case illustrates how HIV/AIDS has changed the family structure, with a widow assuming responsibilities of "father and mother", but yet cannot meaningfully execute such roles of fending for the family. The case also points to occurrences of food insecurity among HIV/AIDS affected households and psychological trauma. When the widow is preoccupied with "what will happen" to her children after her death, it points to, among others, the need for psychosocial support, constant visit by the extension worker and deliberate programmes to help such families.

The relationship between change of family structure as a result of HIV/AIDS and reduction in agricultural production is more evident in this study as HIV/AIDS affected households, reported decreased agricultural production. Further, the affected family, and the wider community feel the impact of HIV/AIDS through reduced agricultural production. Culturally, when death occurs in most parts of Uganda, community members take off time for burial and in some instance observing the mourning period i.e., not attending to their gardens. A household case in Akia parish illustrates the point below.

One, HIV/AIDS affected household member, David Apunyo (consented), in Akia parish, reported that, before he was counseled by LICODA, an NGO dealing with HIV/AIDS farmers groups but as I talk now, the NGO is phasing out, I was frustrated, I thought I am about to die, I refused farming but after being counseled, I realized I can still remain productive despite HIV/AIDS. I found that AIDS needs you to be in close contact with people who provide services and you need to follow what is required of your health. I started growing rice in 2002, in 2006, I grew rice and got ten (10) bags of rice, I am now ten years old with HIV virus from the time of discovery, I encourage my fellow farmers who are victims to continue being productive again because of good control, you have to be testing you CD4 count level which cost 15,000 Uganda shilling (approximately, 5euros), and if you do not produce something to keep your level of income, how will you keep checking for the CD4 count?

All these illustrations points to the agricultural extension worker to know which intervention fits which household. And above all, needs identification of the HIV/AIDS affected households is required.

4.2.10 Knowledge on agricultural activities planned for the HIV and AIDS affected households

The enormous demand for HIV/AIDS affected household training can never be met through conventional extension methods. Traditionally, extension transfers knowledge from schools or external experts to farmers through training, demonstration plots and field visits. These programmes rely on face-to-face teaching and learning, tend to be propagated slowly, and are small in scale and limited in coverage. Yet the HIV/AIDS affected households have varying needs with over expectations, this implies that the agricultural extension worker may .have to be flexible in adjusting programs to suit this needs. Mean while, the current extension system in Uganda is also group approach and this has led in most cases; planning of agricultural activities to be general. Care is not taken so much on the needs of the HIV/AIDS affected households and yet, these households would prefer

knowledge on new interventions. The study wanted to find out if the kind of activities planned for the HIV/AIDS affected households are the same or differs with the non-HIV/AIDS affected households.

Table 13: Knowledge on agricultural activities planned for the HIV and AIDS affected households by the agricultural extension workers (n=15)

Planning of activities	Frequency	Percentage
Provision of improved seeds	11	73.3
Provision of agricultural implements	10	66.7
Trainings on agricultural production	6	40
Trainings on Livestock production	3	20
Promotion of beekeeping	1	6.7
Training in vegetable production	8	53.3
Training in group maintenance	1	6.7
Training in pig production	1	6.7
Training in revolving funds	1	6.7

(Source: Primary Data 2009)

The findings revealed that, 73.3 percent planned trainings on improved seeds while 6.7 percent planned on revolving funds. This could have been that, the seeds were found to be quick maturing, high yielding, pests and disease resistant and draught tolerant. These would reduce the HIV/AIDS affected households in buying more inputs since they are already constrained with income. This indicated that the agricultural extension workers had the knowledge on the activities to be planned for HIV/AIDS affected households as shown in table 13. Most of those activities mentioned are low labour input activities e.g. improved seeds, beekeeping, and vegetable production. But most commonly mentioned activities by the respondent were improved seeds with 73.3 percent, provision of agricultural implements with 66.7 percent, and training of the affected household members on proper agronomical practices with 40 percent. These correspond with FAO, (2003) survey conducted in Uganda where most activities planned were on low in put crops. One of the extension officers commented as below;

The extension approach should be revised because the work plan has to be approved by council members (politicians who oversee the implementation of Government programs). Worst of all, in agriculture, funds come with their strict guidelines and have been demarcated e.g. poverty alleviation funds (PAF), NAADS and have very technical ways of selecting a beneficiary. Unless by design or miracle, the extension method does not make an agricultural extension worker as skilled as possible enough to handle HIV/AIDS affected households effectively. (Agricultural extension-Officer, in charge, Amugo sub county).

4.2.11 Knowledge on extension methods used by the agricultural extension worker in service delivery to the HIV/AIDS affected households

The current agricultural extension system in Uganda now days are a group approach, the researcher wanted to ascertain which extension approach is used to deliver services to HIV/AIDS affected households. 68.8percent of the respondents reported to have received extension service through group approach while 31.3 percent reported to have not seen the extension worker at all. However, efforts put by the extension worker to identify those HIV/AIDS affected households; and pay them home visits so as to extend their services to them were zero. The same applied to the HIV/AIDS affected households; they did not seek for extension workers to provide them with services required. Although the extension system is group approach, the extension workers have to improvise means to reach his clients if productivity level was to improve. This has implication for the agricultural extension worker in planning his activities

Table 14: Extension methods used by the agricultural extension worker in service delivery to the HIV/AIDS affected (n=16)

Methods of extension delivery to the farming households	Frequency	Percentage
The HIV/AIDS affected households contact the extension worker them selves	0	0
Home to home visits	0	0
Farmers group approach	11	68.8
Do not see the extension worker	5	31.3

(Source: Primary Data 2009)

The study revealed that, the methods used in delivering extension services to the farming households was group approach. The HIV/AIDS affected households who are able to join the groups were benefiting from the services but those who are unable to join the group missed extension services. This was well identified in table 9 above as one of the factors affecting the level of participation. The extension worker should adjust his programs to suit both varying needs at the farming households. If the extension worker organized trainings or activities in groups, the households with chronically ill members may be unable to attend due to unavoidable circumstances like attending to sick ones, distance from training venue, and being physically weak. This reduces on the knowledge gap on agricultural production, thus impacting on agricultural productivity. This confirmed the findings of Tabouzis (2003), van den *Ban*.(2000) said that, low participation of HIV/AIDS affected households leads to abrupt gaps in knowledge transfer related to agriculture; severing key linkages in service delivery.

4.3 Skills of the Extension Worker in problem solving / finding solutions in response to the impact of HIV/AIDS on agricultural production

Skill competency of the agricultural extension worker was determined through ways in which the agricultural extension worker tried to respond, solve or find a solution to a problem (Problem-solving skill). It is determined through finding how the extension worker would respond to the impact of HIV/AIDS on agricultural production, crop and livestock constraints, and improving on the level of participation

4.3.1 Skills of the extension worker in response to the impacts of HIV/AIDS on agricultural production

Households and communities affected by HIV/AIDS pandemic often devise means of coping with the pandemic itself and associated problems. Hiring of extra labour to assist in agriculture is one of the coping strategies for affected households. This however put further pressure on the household's income, if the hired labour is paid in cash. Children have also been increasingly called upon to assist with household chores and agricultural activities in affected households. Figure 3 below show the agricultural extension workers; skills in finding solution to the impact of HIV/AIDS on agricultural production.

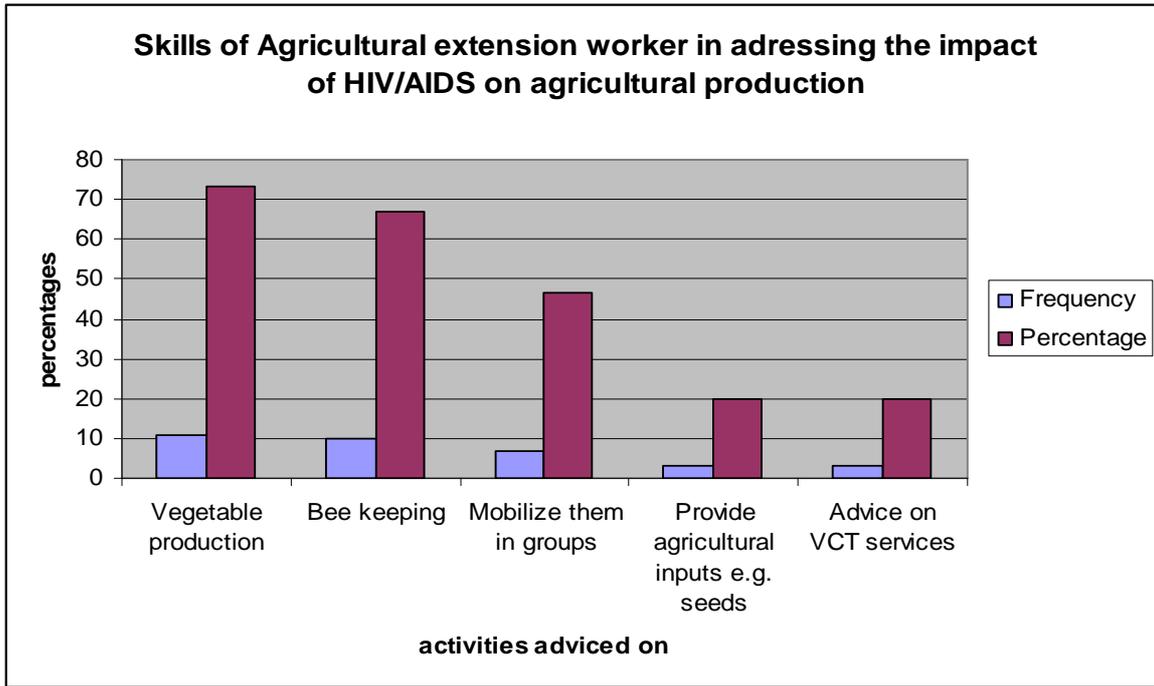


Figure 3: Skills of agricultural extension worker in response to the impact of HIV/AIDS on agricultural production

(Source: Primary Data 2009)

The study revealed that agricultural extension workers' problem-solving skill was adequate to response to the impact of HIV/AIDS on agricultural production. The study found that the skill of the agricultural extension workers in response to the impact of AIDS on HIV/AIDS affected households often contributed towards vegetable production, and bee-keeping. Of the total respondents, 71 percent have promoted vegetable production. This could be with a view to help vulnerable and affected households get access to vegetables, to ensure food and nutrition security. Vegetable gardens can be individually owned or community owned. A range of vegetables can be grown to provide the household and chronically ill people with vegetables and herbs to improve their nutrition throughout the year and can be a source of income generation. Because of their proximity to the homestead, vegetable gardens are a feasible activity for women with an added caring burden.

Skills in talking to the HIV/AIDS affected households (referring for VCT services) rated lowest with only 20 percent of the participants encouraging the HIV/AIDS affected household to go for VCT services. This could be because the agricultural extension workers still feel that HIV/AIDS is a health issue, by referring the households for VCT services, they feel they could be doing health work. This implied that, though the agricultural extension workers are skilled in some areas of response to HIV/AIDS impacts, their skill capacity needs still to be built on relationship between HIV/AIDS and agriculture for them to respond more effectively.

This study correspond with a survey conducted by economic commission for Africa (2006), which reported that, Production of specific medicinal plants that have a role in treating HIV related symptoms; improving digestion and stimulating appetite are also being promoted in conjunction with the vegetable gardens. Several herbs and spices that can help PLWHA to manage symptoms include garlic, ginger, lemon, lemon grass, cloves etc (WHO and FAO, 2002). On the other end, the study deviated from the study conducted by *Brinkman et al (2007)*, FAO, (2004), who found that, agricultural extension workers have limited knowledge, skills and attitude to respond to HIV/AIDS epidemic. One of the extension officers commented as;

Although HIV/AIDS is a big problem affecting agricultural production, the assumption that NAADS has raised people from poverty level is not true. The six identified farmers per parish are selected but the money released is not enough. The selection criteria (approach) do not favor somebody with AIDS impacts on agricultural production because the agricultural extension worker has to go with the general needs of farmers in that particular sub county. And HIV/AIDS affected farmer groups are the minority e.g. in this parish, there are only 3 identified HIV/AIDS farmers groups. The HIV/AIDS farmers groups are planned for but not supported; this is so because the all thing arose right from the time of enterprise selection, so the enterprises identified by HIV/AIDS farmer groups end up being dropped [Crop husbandry Officer-in charge of Aloi sub-county]

4.3.2 Skill of the extension worker on improving the level of participation of HIV/AIDS affected households in agricultural activities organized

Demands for caretaking and the need to replace the lost labor of the PWLA can theoretically reduce the level of participation in agricultural activities organized. These do not only reduce their level of participation in agricultural activities but also reduce the HIV/AIDS affected households' level of participation both in off-farm and income-generating labor activities. Women are likely to have income-earning activities curtailed due to care-giving responsibilities; affected households may reduce off-farm labor supply in some cases, but may also hire other unskilled labor to replace lost household labor in others.

The agricultural extension workers respond to improve on the level of participation of HIV/AIDS affected households. As per the reports from participants, 60 percent reported inviting the child or the relative to participate on any activities organized, 40 percent invited the HIV/AIDS infected person to come and motivate others by talking to them and encouraging them, 6.7 percent reported training on income generating activities, 13.3 percent reported taking training venue near homesteads to reduce on the walking distance for physically weak farm households. To improve on the training needs, 6.7 percent reported identifying the needs of the HIV/AIDS affected households, and 6.7 percent put demonstration sites in the home of HIV/AIDS affected and infected households to encourage them to participate.

Table 15: Attempts by the agricultural extension workers in improving the level of participation of the HIV/AIDS affected households (n=15)

Improving on the level of participation	Frequency	Percentage
Relative or child come for training	09	60
Inviting HIV/AIDS affected person to motivate others	06	40
Training in income generating activities	01	6.7
Taking training venue near to homesteads	02	13.3
Needs identification (enterprise selection)	01	6.7
Putting a demo site in their homes	01	6.7

(Source: Primary Data 2009)

Due to high time-cost of illness, agricultural extension worker would invite either a relative or a child to attend training on behalf of the sick household member. Participants believed that these household members would transfer the knowledge to the HIV/AIDS affected households. The first response was replacing a child or a relative, this could be because of the availability of the children and by culture, children are born to help in home activities, or else, there were no other alternatives. The study revealed that the skilled competency of the agricultural extension worker in finding solutions is ok, but identifying the needs of the HIV/AIDS affected households rated 6.7 percent. This could have been because of the general participatory planning; of which the HIV/AIDS affected households are few and their voice could have been shut down by the majority, non-HIV/AIDS affected households. This corresponds with findings of *Ali et al* (2009). It indicated that skill competency of extension field staff in identifying farmers' problems is weak. Reddy and Rao (2007) reported that

professionalism relating to extension field staff can be incorporated by enhancing competency of extension workers in identifying farmers' needs and act in relation to those needs.

4.3.3 Skill on reducing crop and livestock production constraints in general

For many reasons (e.g. unreliable rainfall, financial constraints, poor soil fertility, lack of labour and the attendant reduced production, high cost of inputs, high medical and funeral costs, distress sale of assets and so forth), HIV/AIDS impacted families tend to have very few opportunities for income earning or saving. Thus, a very critical kind of mitigation intervention is to introduce ways that increase disposable income for HIV/AIDS affected households and thus implicitly reduce their vulnerability to the need to resort to risky livelihood options. Income generating activities that are suitable for HIV/AIDS affected households should be low-input, low-labour demanding, close to the homestead, and have a quick turn-over, like bee-keeping, mushroom cultivation, horticulture for the market, seed multiplication and poultry. Entrepreneurship skills training (especially business and marketing skills for women and youth) should be an integral part.

The information in figure 3 above and table 16 below looked similar but the researcher wanted to find out from participants whether the skills provided in response to the impacts of HIV/AIDS on agricultural production would be the same skills provided when experiencing the general crop and livestock production constraints (without HIV/AIDS causing the impact).

Table 16: Skills of the agricultural extension worker to reduce crop and livestock production constraints on the HIV/AIDS affected households (n=16)

Advise given by the agricultural extension worker	frequency	percentage
Training in micro finance	3	18.8
Training in labour saving technologies	3	18.8
Mush room production	5	31.5
Provision of improved seeds (maize, rice, vegetables and ipuri-pur)	1	6.3
Horticultural production	3	18.8
Bee keeping	3	18.8

(Source: Primary Data 2009)

The study in figure 3 and table 16 revealed that whether or without HIV/AIDS impacts on agriculture, the agricultural extension worker skill in response to the impacts on agricultural production due to HIV/AIDS and response to the general crop and livestock production is almost the same; though the labour saving implements such as grain threshers, rice hurlers, ramp press and so forth were not mentioned. This could be because of the price attached to these implements, or the technologies do no suit specific household category interest. The data presented showed that labour saving technologies (bee-keeping, mushroom production, provision of inputs, horticultural production and vegetable production) was commonly mentioned both in figure 3 and table 16. This could be because these labour saving technologies serve both as income generating activities as well as quick, easy maturing, draught resistant crops. This would diversify the agricultural productivity of the households.

What deviated was training in microfinance where 18.8 percent of the participants mentioned. Agricultural credit, irrespective of the source, is a necessary input within the agricultural sector. Credit is often a key element in modernizing agriculture. This came up may be because credit does not only alleviate the financial constraints faced by farmers, but also accelerates the adoption of new technology, in this case animal traction, by enabling farmers to purchase inputs. However, credit is not the only requirement for increasing agricultural output.

For agricultural production to have the success desired, complementary services such as an effective extension system must be addressed adequately. This would include the provision of short-term and smaller loans,

transferable loans (i.e. loans that allow a sick client to be replaced by another adult member), and emergency funds. Agricultural diversification plays a critical role in providing and enhancing a balanced nutritional supply among HIV and AIDS affected households. The indigenous knowledge represent locally available capacities with enormous potential for the HIV/AIDS affected households' food and livelihood security.

Mushroom production has been identified in table 16 only. As a crop, mushroom is early maturing, has ready market, good source of income, and very dependable source of proteins. This could be because mushroom cultivation is a low cost enterprise and does not need sophisticated machinery and structures to flourish. Quick-growing mushrooms which can be cultivated multiple times in a year on a wide variety of agricultural waste, including maize Stover, hay, straw, leaves and sawdust. The substrates, after the mushroom crop has been cultivated, can be used as composted manure. This corresponds with a study conducted by FAO, 2003; FAO recommended mushroom production as a low labour intensive crop, easy to produce.

In the three parishes of Adek Okwok Sub County, there were marked cash crops being grown such as maize, swampy rice and sorghum (ipuri-pur), they are easy to grow and maintain than cotton which used to be the major cash crop in Lango region as a all. The food crops doubled as crops for sale, but also among few households. Most households sold off crops mainly cereals (rice, sorghum, and maize). Both quantitative and qualitative data revealed that as a result of HIV/AIDS, crop-farming households were faced with the following:

- Loss of time
- Labour shortages
- Selling household physical assets
- Loss of knowledge and skills
- Exhaustion of funds
- Selling of livestock capital

4.4 Attitude of the agricultural extension worker while working with HIV/AIDS farm households

Agricultural extension worker is the primary source of agricultural information that smallholder farmers depend upon for production information. Agricultural extension staff attitudes toward HIV/AIDS may not be characterized by tolerance, acceptance and supportiveness as commonly assumed. In particular, AIDS stigmatization remains the single most important barrier to public action (Joy Online 2008). This is partly reflected in the fact that AIDS is rarely acknowledged as a cause of death even in a sub county that is "open" about the epidemic, such as Adek Okwok. While the degree of stigmatization may vary widely from person to person, AIDS stigma is a key constraint in confronting the epidemic: in particular, it may deeply affect group working relationships as mentioned in table 10, staff performance and morale may undermine efforts to mitigate its effects.

Attitude competency of agricultural extension worker was analyzed by asking attitude in serving the clients; field work, and being flexible as presented in table 17. The percentage responses of participants on attitude competency were 86.7 percent, who involved the female and male headed households in decision making by making them to participate and give their ideas during group meetings, 60 percent were flexible in adjusting their program. The extension workers assigned the HIV/AIDS affected households to be group leaders, this motivated the clients to become active participants in any development activities, and 60 percent involved the HIV/AIDS affected households in planning, monitoring and evaluation. This gave them sense of ownership of the program.

Table 17: Attitude of extension worker in serving the clients (n=15)

Serving HIV/AIDS households	Frequency	Percentage
Serving the clients	13	86.7
Field work	11	73.3
Flexibility	9	60

(Source: Primary Data 2009)

The study revealed that attitude of agricultural extension worker towards working with the HIV/AIDS affected household was positive. This could have been so because the agricultural extension worker have realized the importance of involving different household types in decision making; or else the extension worker has realized that being chronically ill does not mean that you are unable to perform, that could be why the HIV/AIDS farm households were put to host demonstration gardens for the group, and taken for exchange visits within the sub county to see and learn from other HIV/AIDS affected farm households; or else could be due to the varying needs of HIV/AIDS affected households.

The HIV/AIDS affected households need motivation and encouragement most by the extension worker. The study corresponds with Okullo, (2005) who reported that, with respect to satisfaction, 20 and 15 percent of respondents were partially and fully satisfied with agricultural extension workers' attitude, respectively. The issue of group attitude towards HIV/AIDS affected households appeared while conducting interview at household level. In table 10, 53.3 percent of HIV/AIDS affected household respondent said, the non HIV/AIDS affected households like blaming the HIV/AIDS affected households for turning late in a group meeting

This showed that attitudes toward HIV/AIDS affected household do not only manifest within the extension workers alone but also within the farm families, this could be coupled with low level of stigmatization still existing within the community. It implies that the extension worker while performing his duty should be conscious in working with the HIV/AIDS affected households. Although people know about the disease, the issue of stigmatization is still felt. The stigmatization attached to persons and families affected by the disease, affects the level of participation, thus reduced level of productivity, hence, increasing vulnerability of the households to engage in risky livelihoods business

4.5 Competencies identified by agricultural extension workers as important for their work

The competencies required by agricultural extension workers before as emphasized by many participants is of technical knowledge related to their field. The core competencies are defined as the basic knowledge, attitudes, skills, and behaviors that contribute to excellence in extension education programs. Wisconsin Cooperative (2002) Extension says competency is a "sufficient quantity of knowledge, skill and ability to accomplish a particular task or purpose."

This study described competencies identified by agricultural extension workers in Lira district as important for their work. Participants identified seven core competencies, with subject matter competencies being the top-rated items with 86.7 percent. Having a crop and animal husbandry background and executing programs was not ranked as highly important with 60 percent. The competency area of involving people in planning was rated with 60 percent while needs identification was rated as low as 6.7 percent, yet the farm households have complained that their needs have not been taken in to consideration.

Table 18: Competencies identified as important for their work with or without HIV/AIDS (n=15)

Competencies identified by extension workers	Frequency	Percentage
Program Planning, Implementation, and evaluation	8	53.3
Interpersonal Relations	9	60
Information and education delivery (communication skills)	7	46.7
Leadership	4	26.7
Subject Matter competencies (crop, animal fisheries)	13	86.7
Participatory planning	9	60
Needs identification	1	6.7

(Source: Primary Data 2009)

The ability to plan, implement, and evaluate a local program is the basis of all agricultural extension work. This process involves the identification of needs, the involvement of people in the planning process, and the evaluation of each program after implementation. As shown in *Table 18*, agricultural extension workers rated the program planning competencies as important competencies for agricultural extension workers, with a percentage score of 53.3, while leadership competencies was rated of lesser importance with a percentage score of 26.7. This could have been that the extension workers consider program planning as one of the important activities in providing extension services, or program planning is one of the requirements by the organization, or else as usual, in doing any work, you have to plan and program your self. Working with the community has been an important aspect of the job since extension's beginning and is still of great importance, as shown in *Table 18*.

Interpersonal relations competencies rated as important for the agents with a percentage score of 60, and communication skills, was rated slightly lower with 46.7 percent. This could have been because of the approach and the relationship the extension worker is to build with the farm household in order to acquaint your self with the community, or else, it is because the extension worker is in frequent contact with these community and stays with the community so easy socialization, the interpersonal relationship must be good. While communication rated slightly lower may be because the feel they are competent in communicating to the community in relation to their technical work.

4.6 Competencies identified by the agricultural extension workers as needed in the era of HIV/AIDS

The agricultural extension workers identified competencies needed to be a successful agricultural extension worker in the era of HIV and AIDS. All competencies were categorized into eight evaluation areas. The percentage score of each competency area was used to determine the perceived differences in importance of each competency area.

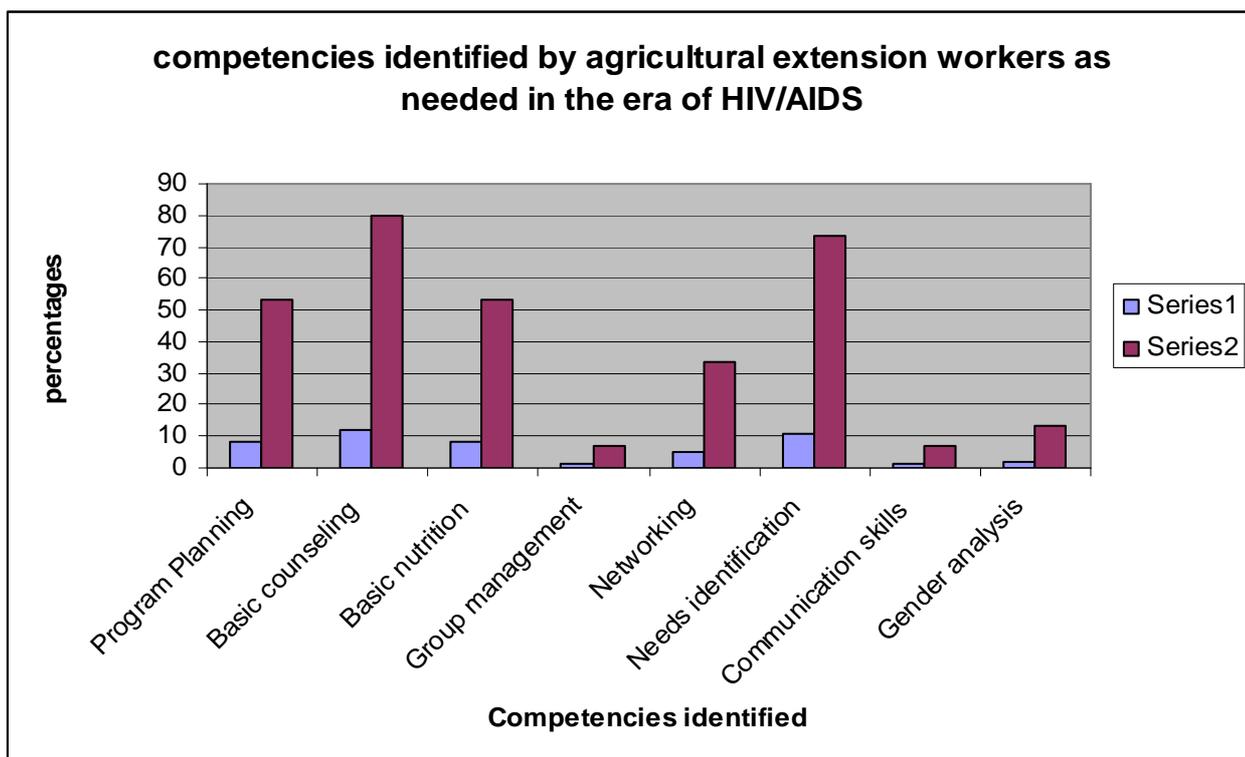


Figure 4: Competencies identified by agricultural extension workers as needed in the era of HIV/AIDS

(Source: Primary Data 2009)

Series1-Frequency

Series2-percentage

The importance of the eight competency areas was ranked using the percentages rating of all of the competencies within each area. As shown in *figure 4*, the agricultural extension workers rated the competency area, basic counseling as the most important competency area with 80 percent. The area needs identification was rated with 73.3 percent as the second most important competency area, program planning, implementation and evaluation rated at 53.3 percent, basic nutrition rated at 53.3 percent as well, networking rated at 33.3 percent, gender analysis rated at 13.3 but communication skills and group management were rated as the least important competency area for the agricultural extension workers.

As shown in table 18 and figure 4, there is slight difference between the competencies identified as important for agricultural extension worker; with competencies identified as needed in the era of HIV/AIDS. This could be that before HIV/AIDS, the agricultural extension workers thought that farming households only needed technical knowledge on agricultural production to integrate with the indigenous knowledge in order to maintain the productivity level. That could be why table 18, only technical competencies in relation to the extension organization is mentioned. Still in table 18, needs identification rated only 6.7 percent, this could be that, before, agricultural planning was a top down approach where the ministry comes with what to be implemented and the work of the extension workers was to see it done.

While in figure 4, the competencies above were mentioned especially counseling, nutrition and needs identification; could be due to the fact that, the extension workers are experiencing some difficulties in response to the HIV/AIDS impacts on agricultural production, or else could be because planning now days is bottom up approach (participatory). This could be why most competencies in figure 4 identified are new competencies with the exception of program planning, group management, communication skills and needs identification. Nutrition is a knowledge which has been there but under the ministry of agriculture, nutrition is not being considered

much. The work has been left for health sector but it is a high time, skill on nutrition is very much needed in agricultural sector to balance up the diet of the HIV/AIDS affected households.

4.7 Competencies identified by the HIV/AIDS affected households

On getting information from agricultural extension workers, the researcher ascertained the views of the HIV/AIDS affected households on competencies the agricultural extension worker would have in the era of HIV/AIDS. This was to make comparisons of the information and supplement where necessary. Figure 5 below, presented HIV/AIDS competencies identified by HIV/AIDS affected households. At the household level, the researcher wanted to find from the respondents, the knowledge and skills required of the extension worker in extending services to the HIV/AIDS affected households and compare with the one the extension workers identified. The majority of the respondents said, always we are suppressed by the majority of non affected farm households while in enterprise selection; our needs are not taken, the extension worker should have the knowledge and skills in identifying our needs, one of the respondent commented.

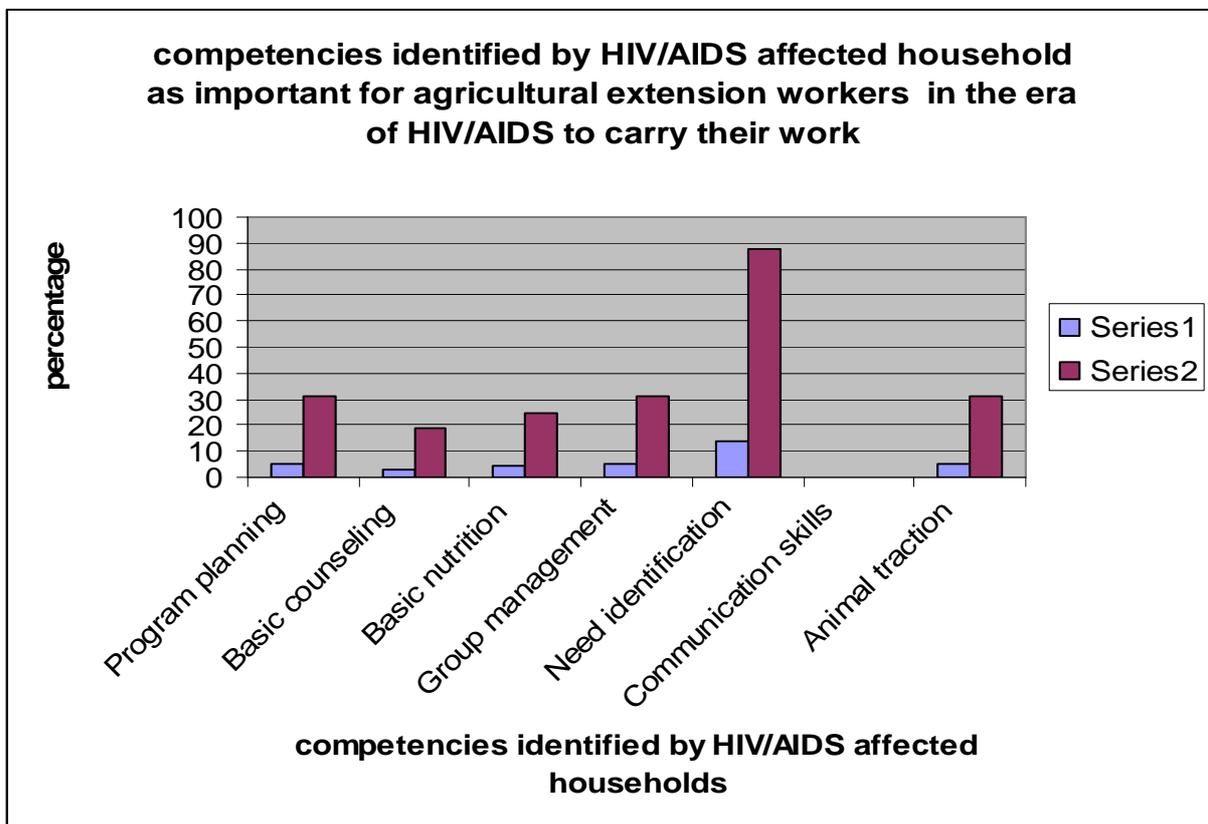


Figure 5: Competencies identified by HIV/AIDS affected household as important for agricultural extension workers

(Source: Primary Data 2009)

Series 1-Frequency

Series 2-Percentage

The result revealed that 87 percent of the HIV/AIDS affected households identified needs identification. It could be because the needs of the HIV/AIDS affected households have always been ignored or knocked out by the non-affected HIV/AIDS farmer groups during enterprise selection; or could be the community has been sensitized on the importance of bringing out their interest. This Community has been sensitized on participatory planning, and most of the programs in agricultural production begin with identifying the communities' interests. The community selects their own enterprise for the cropping season, no input or program on agricultural extension under government program will be implemented without involving the farming households in decision making. Basic counseling was least rated at 18 percent, this could be because, there are NGO's working in the field of counseling, so the HIV/AIDS affected households feel contented, or they did not know it would be a important competency for the extension worker.

The HIV/AIDS affected households have mentioned needs identification may be because they wanted to bring to the attention of the staff that the programs which were conducted in the past, were not of the interest of HIV/AIDS affected households. This implies that a special criteria for the HIV/AIDS affected households be put in place if the HIV/AIDS affected households are to benefit from the development program [see comment under table 13 by extension officer of Aloi sub county on extension approach in government institution]. Compared with the competencies identified by both agricultural extension worker and HIV/AIDS affected households in figure 4 and 5 respectively; needs identification competencies was most preferred by participants with a percentage score of 71 and 83 respectively. This implied that, although other competencies have been identified as needed by the extension worker, needs identification should be given priority while executing extension services.

HIV/AIDS affected households also stressed the needs for balance diet. The extension worker should be able to train the HIV/AIDS affected households on the local food available and how to prepare it so that we can have a proper balance diet, one farmer said. Basic nutrition rated at 25 percent, basic counseling rated at 18 percent, when asked them to explain which part of counseling is exactly required, the respondent said, we need encouragement; the extension worker should bring us near so that we are able to participate. Before, we taught we would die of AIDS, we needed petty cash, quick money but we need just close contact, love, and motivation by the extension worker while communication skill was not identified as an important competency. Participants remarked that agricultural extension workers need to be motivational, empathetic, supportive and caring enough.

In comparison of figure 4 and 5, both extension workers and HIV/AIDS affected households mentioned needs identification as an important competency in the era of HIV/AIDS. This could have been that both participants have realized the importance of involving each party in choosing enterprise of their interest, or else the extension workers mentioned needs identification because it is one of the important activities an extension worker should perform before the onset of any program; but the extension workers tend to ignore it. While communication skills has been least rated by both participants. 6.7 percent of extension workers mentioned communication skill may be because they feel approaching HIV/AIDS affected household require a tactful way of communication, or because it is one of the professional competency an extension worker should poses. Non of the HIV/AIDS affected household did mention communication skill as important, could be because they do not know that it is important, or they think the extension worker is a qualified person in his field and should be able to communicate well.

The most important competencies related to working in the context of HIV/AIDS identified by both the agricultural extension workers and HIV/AIDS affected households are discussed below:-

Program planning

The ability to plan, implement, and evaluate a local program is the basis of all agricultural extension work. This process involves the identification of needs, the involvement of people in the planning process, and the evaluation of each program after implementation. As shown in figure 4 and 5, both the extension workers and

HIV/AIDS affected households rated the program planning (needs identification) competencies as very important competencies for agricultural extension agents, with a percentage score of 83 and 71 respectively, while the agents rated communication competencies of lesser importance for extension workers with a percentage score of 6.7.

This was mentioned by participants especially the HIV/AIDS affected households that they need more knowledge on how to plan their production activities as well as their homes: so that, even if they are not there, they would have planned for the children they have left behind. *One HIV/AIDS affected household said that, where we have reached, needs proper planning in your home, this disease drains resources; without proper planning, your home will die completely.* While the extension workers said they need planning to have means of choosing importance from progress or changes and prevent mistaking means from the end, and to develop both felt needs. With The current extension system in Uganda of group approach, planning knowledge would enable agricultural extension worker to analyze situation on HIV/AIDS affected farm households, select and identify their problems according to their felt needs, determine objectives, solutions and be flexible while implementing agricultural programs.

Basic counselling skills

Counseling was mentioned most frequently by the HIV/AIDS affected households and also the agricultural extension worker. It was not clear to me, they said basic as in ability to handle their emotions; I begun thinking, could be because they always go for VCT services. The respondents identified counseling competencies as important too. As shown in figure 4 and 5, it has a percentage score of 80 and 18.8 respectively. But I asked, what exactly do you mean by counseling, the participants said, we need to be encouraged time and again so that we are brought near to agricultural extension worker. *One HIV/AIDS affected farm house hold gave an example, before I opened that I am HIV positive, I thought I would die, I wanted only petty cash money, easy money; but when an NGO called LICODA came to support HIV/AIDS farm households, I gained confidence and begun farming. We need close contact and motivation, he concluded.* This corresponded with the findings by (MAAIF, 2005, Brinkman, et al., 2007). Nutritional counseling is also important. PLHA needs to be counseled on continues foods and guided to change diet to consume foods appropriate to conditions they are faced with. This revealed that there is need for basic counseling. Agricultural extension workers are now becoming more social skills persons, reported (Brinkman, et al., 2007).

Basic nutrition

The participants identified need to get more knowledge on nutrition. Nutrition is the process of selecting food, its preparation, intake and utilization for maintenance of body function and health (MAAIF 2005). The agricultural extension workers said they need knowledge on nutrition in order to assist individuals, families, communities and HIV/AIDS affected households to grow nutritious crops that enable HIV/AIDS affected households to cope with the HIV/AIDS; and its adverse effects, so that the scourge can be eliminated, and its adverse impact mitigated. MAAIF (2005) reported that good nutrition can reduce medical bills for PLHA and improve on their health. Improved health of the affected family members enables individuals to remain strong, active and able bodied to continue being productive. This indicates the need for knowledge on nutrition for the agricultural extension workers. Basically, the participants added that, the HIV/AIDS affected households need to be trained on food management, food hygiene and preparation, locally available nutritious fruits and vegetables.

Group management

Group management is a knowledge identified by the agricultural extension workers. This came out basically because; the extension system in Uganda currently is a group approach. Participants reported that the HIV/AIDS affected households who have formed groups and registered under NAADS program, have always not been

stable, reasons being, group cohesion is weak. They know their problems but, when it comes to helping one another, they use provocative languages, this discouraged most of the group members from being in a group. Other group members take it for a joke but it stigmatizes. It revealed that, even within the HIV/AIDS affected households, stigmatization exists but it is hard to realize.

Networking

One of the new competencies reported by the agricultural extension workers is networking. According to NAADS, 2004, *Brinkman, et al., 2007*, defined networking as a process by which two or more individuals or organizations collaborate to achieve more goals. Extension workers need to coordinate and network with other partners implementing HIV/AIDS activities. The agricultural extension workers, in order to deal with the HIV/AIDS issues effectively, need to continually update their knowledge about PLHA by attending relevant HIV/AIDS educational programs, participating in all relevant HIV/AIDS deliberations and networking with all organizations (MAAIF, 2005).

Needs Identification / Training needs

As agricultural extension workers, their main job is to plan, train and advise the farming households on proper agronomical practices. However, the agricultural extension workers tend to do it as a matter of routine. They rarely stop to see what the training is doing and their training was rarely based on needs identification. In table 9, 6.7 percent of the respondents confirmed that one of the factors affecting their level of participation was that; trainings conducted was not in line with the needs of HIV/AIDS affected households. Also in table 15, only 6.7 percent of respondents mentioned needs identification competencies as important in their work. Mutimba, (2003), said, many agricultural extension workers do not know how to conduct a systematic training needs assessment and how to evaluate training; this corresponds with the findings of the study. It is in light of this study that need for building extension workers' capacity could be seen. Specific tasks to be performed by the HIV/AIDS affected households could thus be identified to be incorporated in to the extension program.

Gender analysis

The study serves to demonstrate how gender analysis is important in planning. Being gender sensitive enable participants to think through ways in which gender analysis can strengthen the work in the field, and plan systematically for this strengthening. Participants reported that the need to have knowledge on gender analysis to reveal the connections between gender relations and the development problem to be solved. For example, how HIV/AIDS affects men and women differently in relation to socio-economic problems.

It is extremely important to perceive that we live in societies that are permeated by gender differences and gender inequalities; but the dimensions of these inequalities are often so deeply embedded that they are difficult to perceive (UNDP, 2001). Gender analysis reveals these differences, and this will help the agricultural extension worker in planning gender interventions that recognize to be gender-neutral. Gender analysis of various kinds is therefore required to bring these inequalities to the surface and to the attention of people who can make a difference, so that their decisions are taken in a manner that is sensitive to and reflects the outcome of gender analysis. These points out the need as to why the agricultural extension workers need to have the knowledge on gender analysis.

Animal traction

This knowledge need on animal traction has been identified by the HIV/AIDS affected households. The participants reported that, they at times become very weak, and get defeated in land opening (first ploughing), but if they can be knowledgeable on animal traction; this would help increase on the labour force to open land,

then production will not be delayed. One of the factors of reduced level of production is late land opening and late planting which make the farm household catch up late with rain. In summary, below the researcher gave her view of what she felt on the competencies mentioned above.

4.8 Researchers' own view of the competencies needed for the agricultural extension workers in the era of HIV/AIDS

All the above competencies identified by both agricultural extension workers and HIV/AIDS affected households need to be integrated hand in hand so as to respond effectively to the needs of the affected households; and these were the competencies in my opinion as well. However; I would have liked the competencies on training and presentation skills to be included. This could be because, the HIV/AIDS affected households have different household types with varying needs, HIV/AIDS issues is sensitive and needs to be presented with care; otherwise, the facilitator may find him/her self already stigmatizing the participants.

These skills would help the agricultural extension worker in presenting technical information especially in relation to HIV/AIDS, he/she would be clearly, concisely, and persuasive, he would be able to articulate, pace and fluency, would be able to understand body language, eye contact, and gestures., help determine audience attitudes and needs, overcome nervousness, anxiety, and any distracting mannerisms, implement persuasive communication techniques, have program control and confidence, plan and develop complete, have formalized product presentations, structure presentations to gain maximum effect., use audience involvement techniques to identify and handle questions and set up an on going action plan to improve future presentations

4.9 Additional observation

Agricultural extension workers identified essentials of competencies needed but not in relation to the impact/ changes experienced in working with the HIV/AIDS affected households; with exception of program planning and group management. For example, the agricultural extension workers confirmed that labour has become a major constraint in HIV/AIDS affected households, but none of the agricultural extension workers identified the need for competence building to address the lack of labour in the farm households. Instead, the HIV/AIDS affected households identified the need for knowledge building in the area of animal traction to reduce on labour demand during land opening (first ploughing) which is a tedious activity in production cycle.

The field research has also reported new word around HIV/AIDS which I have never heard. Words like nutritional counseling, care givers and home based care facilitators. Barriers to attitude change have been found. In the HIV/AIDS affected household interview, 10 females and 6males were interviewed. When I asked why men are few, they said, men fear opening up, they fear to be laughed, and talked at; *people can gossip when open up that you are HIV/AIDS positive, they even nickname us with an NGO (LICODA) supporting us with medication and some food aid: when you come in this village, just ask that I want to see LICODA group, we will be easily identified, a HIV/AIDS affected group member reported.*

This revealed that stigmatization and attitude change within the community is still a big factor despite enough awareness training is still going on. This calls for need of building up the knowledge of the agricultural extension workers on reducing stigma within the farm household.

CHAPTER FIVE

5.1 Conclusion

This study aimed at identifying competence level of agricultural extension workers in meeting the dynamic needs of HIV/AIDS affected households in order to deal with HIV/AIDS issues related to their work with farming families. The findings revealed that, the agricultural extension workers were able to acknowledge the reality of AIDS impact on agricultural production, act from their strengths to respond to HIV/AIDS impacts in order to attain their objective and potentials: but the actual implementation of the activities still remains a question for the researcher. For much and better results in extension services, it can still be concluded that, HIV/AIDS hasten a call for a new approach in training and capacity building in agricultural production that influence the human dimension of change. Some of the HIV/AIDS-associated competencies identified are new for agricultural extension workers especially e.g. counseling, and networking; and nutrition, these need to be looked at in terms of content and training prospects, and need to be incorporated in training and building capacity of agricultural extension workers. This may require a major shift in both the content and the processes of training of agricultural extension workers.

5.2 Recommendations

Intensive and continuous orientation sessions of short duration should be organized for extension staff by HIV/AIDS specialists, and agricultural production department. This can be done twice a year, that is, at the beginning of the first quarter and at the end of the third quarter, at the end of third quarter will be basically reviewing on activities in the field, sharing experiences and suggesting way forward. At the end of the orientation, the extension staff should possess knowledge on the relationship between food security and HIV/AIDS, precautions to be taken in the handling of the HIV/AIDS farm households, ethical and privacy considerations, development of a healthy and constructive attitude towards sick persons, coping with the new clientele of extension, common fears about the epidemic which have no scientific basis, and on tactful strategies to discourage certain sexual practices embedded in culture that accelerate the spread of the HIV infection.

Awareness creation on HIV/AIDS modes of transmission, prevention and care, basic information on HIV/AIDS, some bit of training on the impacts of HIV/AIDS and how to respond to the impacts of AIDS had already been done. But more emphasis should still be emphasized on the relationship between HIV/AIDS and agriculture because, though the extension workers were able to acknowledge the reality of AIDS impacts, practically I would say, little is done on the ground. For these would not make the researcher say the extension workers are effective in handling HIV/AIDS affected farm household.

Agricultural extension workers should invite local leaders and HIV/AIDS affected households to attend meetings for planning special AIDS-focused extension programmes; this will encourage the local leader to support and own the program and continue with sensitization on HIV/AIDS.

Lira district Production department should organize special orientation sessions for leaders in order to educate them about HIV/AIDS and agriculture, and how they can help extension staff in their activities against the epidemic e.g. during enterprise selection of different HIV/AIDS household types in the community. This will be done through the help of parish development committee (PDC) who are based at parish and village level. The HIV/AIDS affected farming households will identify the enterprise for the production season at village level; the PDCs will then bring these various interests at sub county level were all the HIV/AIDS affected households will come and identify together with the help of the extension worker and local leaders the general enterprise for the production season of the year and these will be the enterprise to be implemented by the extension worker.

Lira district production department in connection with any NGO and CBO'S operating in the community in relation to HIV/AIDS should promote support for community groups (older members) to assist and train orphans in agricultural skills to compensate for the loss of knowledge through the death of parents. When parents die, they die with the indigenous knowledge and all the knowledge in farming and there is tendency of child headed family with no body to transfer agricultural knowledge to; so with support from the community groups who will act as mentors to these orphans will help retain farming knowledge of these orphans and the orphans will remain productive.

There is need for capacity building in HIV/AIDS, gender and food security linkages. This would require Lira district production department to develop extension material that addresses the needs of HIV/AIDS affected households, training material for extension staff and providing training of trainers. This will increase awareness about gender differences in agricultural production systems among extension staff; and will also increase interaction between male extension staff and women farmers.

Agricultural extension staff needs to be trained on technologies and production activities that are relevant to HIV/AIDS situation so that the agricultural extension workers are able to develop extension strategies that consider the specific needs of social groups taking on new working roles.

Training on such gaps such as; co-ordination and networking skills, effective communication for extension workers dealing with PLWHAs, knowledge on problem analysis and problem solving skills, resource mobilization, advocacy and lobbying, and monitoring and evaluation would be of importance.

More research is needed both at the professional and farm families level on as to whether the competencies identified for agricultural extension workers are what is required to enable them respond to HIV/AIDS Issues effectively while executing their work. This calls for further in-depth participatory analyses of agricultural extension workers' development activities and a wider coverage; not only in one Sub County in a district like for this study.

Above all, I am suggesting that agricultural extension workers should follow regularity and punctuality in their visits to guide the farmers especially the HIV/AIDS affected households when training is organized. These households are impatient and time conscious because of their health status, they need not to wait for long.

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Appendices

Semi-Structured Questionnaire for Agricultural Extension Workers

Questionnaire instrument for agricultural extension workers, production department, Lira District Local Government

Section A:

1. Agricultural extension workers' characteristics

Please tell the following characteristics as applies to you

Sub county	Sex: male, female	Area of specializa tion	Education level	Any training	other	Years in service

Values

1=Male, 2=Female

1=crop husbandry, 2=animal husbandry, 3=fisheries, 4=marketing

Educational level: 1=primary 2= secondary 3=tertiary 4=university

0=no training provided, 1=training provided

1=between 1-5yrs, 2=5-10yrs, 3=10-15yrs, 4=15-20yrs

Section B: Basic Knowledge on HIV

B.1 Do you understand the word HIV?

1=yes, 2= No

B.1.a If yes, what do you understand by the word HIV/AIDS?

B.2 How do you think HIV/AIDS is transmitted?

1=Blood transfusion

2=Through sexual intercourse

3=Mother to child

4=Sharp piercing instruments

Section C: Knowledge on HIV/AIDS impacts on agricultural production

C.1. Do you recognize that HIV/AIDS impacts on agriculture?
1=yes, 2=No

C.2 If yes how does HIV/AIDS affects agricultural production? Please tick

1=Mention, Not mentioned 3=Not sure

- 1=Reduced land under cultivation
- 2=Loss of labor
- 3=Increased workload on healthy hh members
- 4=Reduced farm management knowledge and skills
- 5=Loss of agricultural knowledge and skills
- 6=Sale of agricultural assets
- 7=Reduction in the number of crops grown
- 8=Reduced food security at hh
- 9=Change in the type of livestock kept
- 10=Others (Specify)

Section D: Knowledge on farming practices/systems

D.1 Do you recognize changes on farming practices?

1=Yes 2=No

D.2.If yes, what changes in farming practices have you observed related to chronic illnesses, death of hh member and keeping orphans? Tick

Changes in farming practices observed	What are you doing to address the changing practices
Reduced cash crop production	
Cultivation practices	
Soil fertility practices	
Intercropping/mixed cropping	
Livestock management (reduce hrs in feeding)	
Others (specify)	

Section e: Knowledge on participation of female and male headed HIV/AIDS affected households

C.1 Are the female and male headed HIV/AIDS affected HHS participating in agricultural activities?
1=Yes 2=No

C .2 If yes, how can chronic illness or death of a household member affect HHS participation in agricultural activities? Please tick

1= Attending to sick household member

- 2=physically weak (sick)
- 3=Workload at home
- 4= not able to meet group rules
- 5=Distance for training
- 6=Limited time due to many commitments
- 7=Training conducted not in line with his/her different needs
- 8=Frustrated
- 9= Neglected
- 10=Others, Specify

Section f: Knowledge on the type of clients in the community

F.1 How has HIV/AIDS changed the type of clients in the community where you work? Please tick

- 1=House holds with orphans
- 2=Female headed hhs with PLWHA
- 3=Male headed hhs PLWHA
- 4=Elderly headed hhs
- 5=Child headed hhs

F.2 Does HIV/AIDS affects men and women differently in relation with social/economic barriers?

- 1=yes
- 2=no

Knowledge of extension worker on how HIV/AIDS impacts on gender differently (put dimensions)	If yes, how?	MEN	WOMEN
	Devoting most of their time caring for the sick and home		
	Increased work load on women than men		
	Reduced income		
	Lack of access to VCT services		
	Too much blame on women		
	Others, specify		
	Others, (specify)		

Section G: Skills of the agricultural extension worker in an attempt to reduce the impact of HIV/AIDS agricultural production

G.1. Have you taken any action to reduce HIV/AIDS impacts on agricultural production at hh level in 1B above? (Fill in table below)

HIV/AIDS impacts	1=Yes/ 2=NO	If yes, what action? If no, why not?
1=reduced land under cultivation		

2=loss of labour		
3=increased workload on healthy hh members		
4=reduced farm management practices		
5=Loss of agricultural knowledge and skills		
6=Sale of agricultural assets . Land . implements(hoes) . livestock		
7=reduction in the number of crops grown		
8=Reduced food security at hh		
9=change in the type of livestock kept		
10=Others(specify)		

G.2 Knowledge on how HIV/AIDS affected female and male headed HHS on participation

Have you taken any action on reduced level of participation of male and female headed HIV/AIDS affected households?

1=yes 2=no

HIV/AIDS impacts	1=Yes/ 2=NO	If yes, what action? If no, why not?
1= attending to sick ones		
2=physically weak (sick)		
3=Workload at home		
4= not able to meet group rules of participation		
5=Distance for training		
6=Limited time		
7=Training conducted not in line with his/her different needs		

Section H: Extension services

H.1. Do you plan for HIV/AIDS activities in relation to agricultural production?

1=Yes 2=No

H.2 If yes, what extension services do you provide to the male and female HIV/AIDS affected hhs? Please tick

- 1=Training on crop husbandry
- 2=Training on animal husbandry
- 3=Advice on pests and disease management
- 4=Demonstration on improved crop and animal husbandry technology
- 5=Compost manure making
- 6=Sustainable agriculture/production
- 7=Mulching
- 8=conservation farming
- 9=Identification of pests and diseases
- 10=Impacts of HIV/AIDS on food security at farming hh
- 11=Income generating activities
- 12=Nutritional education
- 14=Provision of short, quick, maturing seeds

Section i: Attitude (1=positive, 2=negative, 3=weak)

i.1 What equal opportunity are you giving male and female headed HIV/AIDS affected HHs on recognizing their needs arising from HIV/AIDS? Please tick

- 1=Involving female and male headed HIV/AIDS affected hhs in decision making
- 2=Putting them to be a host demo farmer
- 3=Being a group leader
- 4=Giving priority to their enterprise which is not sub county priority
- 5= Being a priority in getting agricultural inputs on credit
- 6=planning, monitoring and evaluation
- 7=Tours of other HIV/AIDS affected hhs agricultural projects
- 8=Bring other HIV/AIDS affected hhs or persons to talk and encourage them to continue being productive

I.2. How do you adjust your program and time to suit the different needs of male and female HIV/AIDS affected HHS? (1=always, 2=sometimes, 3 =not at all)

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Section j: Areas to improve on their knowledge, and skills

J.1 Knowledge and skills to be improved on in handling HIV/AIDS farmers hhs

J.1 a. Do you think you need some knowledge and skills to be improved on?

- 1=yes,
- 2=no

If yes, what knowledge and skills do you prefer in relation to AIDS and Agriculture? Please tick

- J1a .Counseling knowledge (approach and advice)
- Jb2.Basic nutrition
- Jc3. Group management

- Jd4. Networking
- Je5. Needs assessment of HIV/AIDS affected hhs
- Jf6. Communication skills
- Jg7. Gender analysis
- Jh8. Planning on HIV/AIDS activities

Semi-Structured Questionnaire Instruments at Household Level

Table 1: Demographic Profile of the Participating Farmers

A1. Village name: _____

A2. Name of household head/Code: _____

Table 1: Demographic Profile of the Participating Farmers

A3. Is the household head the main respondent right now? 0= No, 1 = Yes

A4. Household composition and Characteristics (Fill in table below)

	Parameters	Values
a	Sex of household head	1=male, 2=female
b	Household head marital status	1=married, 2=widow (er), 3=divorced, 4=single
c	Age (years) of household head	_____ years
d	Education level of household head	1=illiterate, 2=primary, 3=secondary, 4=tertiary
e	Total Household size	

Section B: impact of HIV/AIDS on agricultural assets

B1. What major agricultural assets/implements do you have

Assets	Current Number	Number years ago (2007)	Reason for change in number of assets 1=bought more, 2=sold, 3=gift, 4=inheritance, 5=exchanged for other goods, 6=property grabbing, 7=other
a. Land			
b. Ox-plough			
b. Sprayer			
c. Hoes			
d. Other (specify)			

Section C: Impacts of HIV/AIDS on Livestock assets

C.1 Livestock assets:

Assets	Current Number	Number 3 years ago (2007)	Reason for change in number of assets 1=bought more, 2=sold, 3=gift, 4=inheritance, 5=exchanged for other goods, 6=property grabbing, 7=other
a. Cattle			
b. Goats/ Sheep			
c. Poultry (chickens, guinea fowls)			
d. Other (specify)..... 1			
e. other (specify)..... 2			

Section D: impacts of HIV/AIDS on crop production on affected hhs

D.1 what has been your major crop production and livestock constraints in the last 4 seasons **(tick appropriate responses in table below)**

Type of problem	Tick as appropriate
a. Lack of financial resources	
b. Labour shortage due to death of household member (s)	
c. Labour shortage due to illness of household member (s)	
d. Lack of draught power	
e. Distress migration of household members (for economic gain, e.g. seeking work outside)	
f. Lack of land	
g. Bad weather conditions - drought	

h. Bad weather conditions - floods	
i. Poor soil fertility	
j. Crop pests and diseases	
k. Lack of knowledge on agricultural production	
l. Other (specify) _____	

D.2. How is agricultural extension worker helping to reduce these constraints? (Tick appropriate responses in table below)

Crop/livestock production problems	Advice by the agricultural extension worker in order to respond to these problems (1=Advice given, 2=advice not given, 4=non of the above)
a. Lack of financial resources	
b. Labour shortage due to death of household member (s)	
c. Labour shortage due to illness of household member (s)	
d. Lack of draught power	
e Lack of land	
f. Bad weather conditions - drought	
g. Bad weather conditions - floods	
h. Poor soil fertility	
i. Crop pests and diseases	
j. Lack of knowledge on agricultural production	

Section E: Changes in farming practices

E.1. What changes in farming practices have you observed related to chronic illnesses, death of hh member and keeping orphans? Tick

Changes in farming practices observed 1=changes observed, 2=not observed, 3=remained same, 4=non of the above	What is the advice of agricultural extension worker to these changing practices (1=Advice given, 2=advice given but not taken, 3=advice not given, 4=non of the above)
a. Reduced cash crop production	

b. Cultivation practices	
c. Soil fertility practices	
d. Intercropping/mixed cropping	
e. Livestock management (reduce hrs in feeding)	
f. Others (specify)	

Section F: Participation and communication

F1. Which of the following agricultural extension activities do you participate in? (Tick as appropriate)

<i>Extension activities participated in</i>	<i>What Problems hindered you in participating in these activities</i>	<i>How can the level of participation be improved</i>
<i>a. Participatory needs assessment</i>	<i>Attending to sick person</i>	
<i>b. Agricultural trainings</i>	<i>Work overload</i>	
<i>c. Meetings</i>	<i>Bad timing of the meeting by the extension worker</i>	
<i>d. Participatory planning</i>	<i>Distance of meeting place from home</i>	
<i>e. Monitoring and evaluation of activities</i>	<i>Not informed</i>	
<i>f. Demonstration host farmer</i>	<i>Not interested in participation</i>	
<i>g. Group representative</i>	<i>Others (specify)</i>	
<i>h. Others(specify)</i>	<i>Others (specify)</i>	

1=mentioned 2=not mentioned

3=not sure

Section G: Extension services

G.1 What extension services do you receive from the agricultural extension worker? **Tick**

- 1=Training on crop husbandry
- 2=Training on animal husbandry
- 3=Advice on pests and disease management
- 4=Demonstration on improved crop and animal husbandry technology
- 5=Compost manure making
- 6=Sustainable agriculture/production
- 7=None of the above

G.2 How does the agricultural extension worker deliver his services to the female and male headed HIV/AIDS affected HHS? (Tick as appropriate)

Ways of delivering extension services to the farming hhs 1=yes 2=no	Problems faced by the farming hh in receiving the extension service 1=received Extension services, 2did not receive extension services, 3=non of the above	How is agricultural extension working addressing these problem
1=Contact agricultural extension worker		
2= one extension-farmer visits		
3= Farmer-Group Approach		
5= Don't see him at all		
4=Farmer Field School		
6= others (specify)		

G3: what knowledge and skills is required of agricultural extension workers in order to serve the HIV/AIDS affected HHS effectively? (Tick as appropriate)

- I. Needs identification
- II. Planning
- III. Training in agronomical practices and livestock management
- IV. Group management
- V. Basic nutrition
- VI. Counseling (encouraging the hiv/aids affected and infected hhs)

Thanks for your response.