The Study on Upper West Integrated Agricultural Development
in the Republic of Ghana

Final Report

Appendix H

Sociological Features of the PDA Communities

Appendix H Sociological Features of the PDA Communities

H.1 Survey Conducted

This survey was conducted in the 9 communities where the PDAs are being implemented. The focuses of the survey were on the sociological situation of the communities, how it relates to their agricultural production and how the agricultural technologies are transferred among the community people.

The survey spanned a whole day in each community. Data was collected through semi-structured discussions with key persons (e.g. assembly persons, opinion leaders, teachers, AEAs), a cross-session of each community (including chief, land lord, elders, and other community), family and household heads, women, youth and focus group. Stratified sampling was used in selecting family/household heads, women and the youth for discussion in order to reflect the ethnicity, clans and religious diversity of the communities. All discussions were carried out in the native language of each community so as to encourage the full participation of community people. During analysis of the data, triangulation was employed to cross examine the facts by comparing responses during the community meeting with views of key persons and family/household heads, women and the youth.

The methodology chosen was considered suitable for the purpose of the survey, however, it was without shortcomings. The most pronounced of which was the social effect it brought about. In some communities, they do not feel free to discuss certain aspects of their culture with an outsider. This occasionally led to the distortion of certain facts about their culture.

H.2 Social Structures

H.2.1 Family Structure and Leadership

Kinship characteristics of the PDA communities are very similar. The patrilineal extended family forms the basis of the social structure of the communities. Extended families in the communities are commonly characterized by at least four generations of the father line. It typically comprises of grandparents, parents/uncles, children, grand and great grand children and occasionally some distant family relatives. Generally, families live together in large compound houses, although a few subfamilies live separately in smaller housing units usually at close proximity to the family compounds. Beside the close blood bonds that link family members, shared ownership of family properties such as land and animals inherited from passed generations is another factor that keeps family members close together. Each Family is linked with a lineage, and various lineages form the clan(s) that makeup the community. With the exception of 3 communities in Nadowli District and Nyani in the Jirapa District, which are composed of single clan, each of the rest of the communities consists of two or more clans.

Extended families in the communities are solely headed by males. The oldest male related to all other family members as a father or an uncle usually heads the family. The extended family head (Yidandor) holds family property on behalf of the rest of the family. The family head however is not necessarily the most influential person in terms of decision-making in many families. It is usually the case

that family decisions are dominated by the educated and well-to-do members of the family regardless of their place of residence.

H.2.2 Organisation of Families for Production and Consumption

Although some extended families in the communities produce and eat together as single household, the others have the primary/nuclear families (parents, children and grand children) that makeup the extended family separated into different households. In the later case, each nuclear family produces and feeds its members exclusively, although some important decisions are still referred to the extended family head. The subfamily type is slightly more common compared with the extended family households in the communities, and is particularly dominant in the communities in Nadowli district and Kogri in Jirapa district. Also, the extended family type household is gradually diminishing in the communities as a result of formal education and temporary out migration of community members to cities, which have created an increasing desire by some family members for personal wealth accumulation. A few subfamily households are female headed usually due to the absence or indisposition of the male head.

H.2.3 Inheritance

Traditionally, all the PDA communities but Puffien and Tome-Kokodour inherit patrilineally. The oldest brother or son usually inherits a deceased family member. Puffien and Tome-Kokodour however are traditionally matrilineal in inheritance. This means that sons of sisters inherit the property of their uncles. Levirate is also practices in the communities.

H.2.4 Religion and Believes

Three religions are commonly practiced in the communities, Christianity, Islam and traditional worship. Religious heterogeneity is high in Kogri, Naawuie and Tabiesi compared with the other communities where the people are predominantly Catholic. Although a greater proportion of the people affiliate to either Christianity or Islam, an overwhelming majority of them still believe or practice their ancestral worship. The faith of the people in their ancestral practices is also manifest in the irresistible adherence to taboos and totems of their communities. In spite of this heterogeneous religious composition, there is peaceful co-existence among the people in the communities. Generally, superstition still plays an important role in the interpretation of causality in the communities. For instance, most households associate a recurrent poor yield with a punishment from their ancestors or a curse casted on them by their enemies.

H.2.5 Gender

Most people in the communities are conscious about their social responsibilities. Traditionally husbands shoulder the responsibility as bread winners of the household whiles their wives are suppose to be submissive and bear the responsibility of child care and household chores. Women in the community are both autonomous and subordinate to men. Generally, women enjoy some autonomy in taking decisions concerning gender related economic activities such as agro-processing (including ground oil and shea butter processing) and pitoh brewing. Most women in the villages do not depend on their husbands for capital to start these activities.

Women in the community work jointly with their husbands on the household farm. There is little rigidity in terms of sexual division of labour in agriculture. Women in the communities in the Nadowli district, Naawuie and Kogri are permitted by their husbands to cultivate their own fields either than the family farm. This is however not the case in the rest of the communities. It is the general opinion of women in the PDA communities that they do not adequately participate in decision-making both at the family and community levels.

Although there are recognizable disparities in status and wealth in the communities, there appear to be no apparent social classes in the villages. This might be a result of the fact that all community members usually have access to farmland for cultivation.

H.2.6 Land ownership and Tenure

Land ownership is on lineage basis in most of the communities. Families have alodial rights to land they inherited from their lineage. There are no documentations that entitle families to their lands. Boundaries of family lands are identified through physical features as valleys, rocks, hills, and are common knowledge to other community members. The Land Lords (Tindaanas) of the communities serve as the spiritual custodian of the land on behalf of the communities. This is however not the case in Naawuie and Tome-Kokodour, where the landlords are as well the sole owners of the community land.

H.3 Leaders and Leadership

There are two institutionalized leadership structures in the PDA communities; traditional and modern (decentralized local governance) leaderships. In addition to these structures are individuals who play influential informal leadership roles of varying magnitudes in their communities for various reasons.

H.3.1 Traditional Leadership and Leaders

Traditional leadership refers to the customary leadership of the communities. The basic composition of traditional leadership in the communities is a landlord (Tindaana/Tottina) at the top, followed by a chief (Naa/Koru) and at the base is the lineage/clan head (Yidandor). However, the composition varies slightly including women's leaders (Mangazia), youth leaders and other portfolios depending on the communities as indicated in the lat. The traditional leadership authorities are the custodians of ancestral and community land, culture, customary laws and oral history of their communities. They are responsible for the maintenance of law and order including presiding over and settling disputes in their communities.

Generally, traditional leadership in the communities starts at the lineage level. Lineage heads serve as the leaders of their lineages as well as the representatives of the lineage at the chief's palace (elders of the chief). They take responsibility for all issues relating to their lineages and only refer to the chief or the landlord when they are beyond their authority.

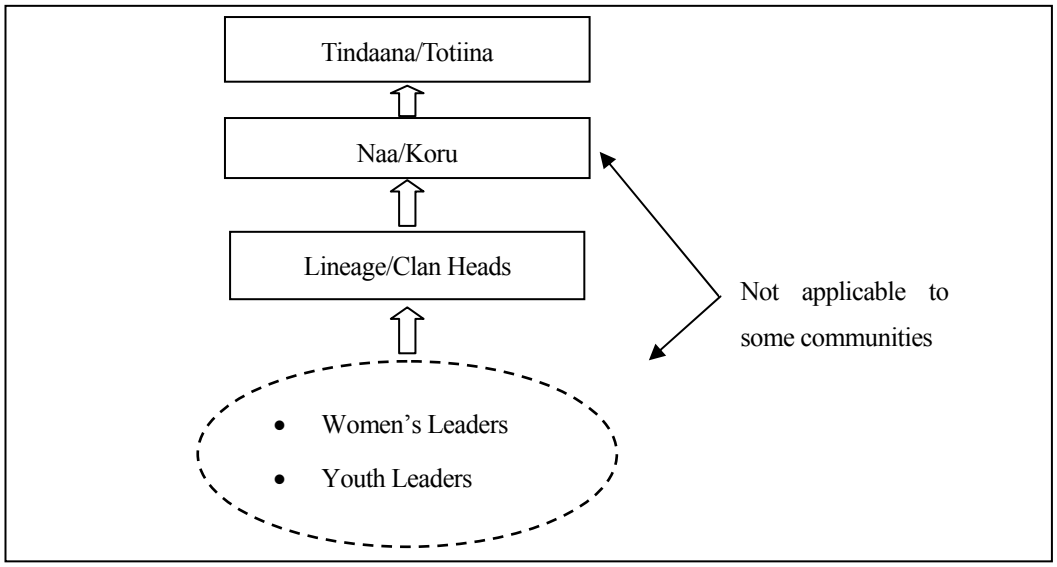

Figure H.3.1 Structure of Traditional Leadership in the PDA Communities

Historically, the PDA communities were 'chiefles', they are part of the so called acephalous people (people without centralized community leaders) of pre-colonial Ghana. The chieftaincy institution in the communities is the architect of the British colonialist indirect rule system. Nevertheless, each of the PDA communities presently has an installed chief with the exception of Zakpee, which falls under the chiefs of two neighboring communities (Tolibri and Kunyukuong). The Chiefs derive their authority from the national constitution and act as the leaders of their communities in various capacities. Generally, they wield a lot of authority and are highly regarded by their subjects. In most cases, they overshadow the landlords who were the traditional leaders of the communities. The chief preside over decision making in their communities and sometimes the initiators of development activities in their respective communities. They usually work together with the landlords, and lineage and sometimes sectional heads who act as their counselors.

The Traditional rulers of the PDA communities are the landlords. Before the institutionalization of chieftaincy in the communities, they were solely responsible for their subjects. Today, the role of the landlords in most of the communities is that of a spiritual custodian of the land, with the exception of Naawuie and Tome-Kokodour where the landlords are also the sole owners of the land. Landlords in some of the communities also work with elders usually selected from each lineage.

In addition to the 3 core traditional leaders are youth and women leaders in some communities. The chiefs and elders in an attempt to involve more segments of the community in decision-making and to make information dissemination easier, instituted leadership roles for women and the youth. These people usually serve as the representatives of their colleagues in the chief's palace, medium of communication by the chief and elders as well as rallying points for deliberating the concern of women and the youth.

On the whole, the communities are well coherent with regards to traditional leadership. There seem to be common understanding and respect for the roles of various traditional leaders both amongst themselves and with community members.

H.3.2 Modern leadership

Modern leadership in the communities refers to the formal and decentralized local government substructures. The local government system in Ghana legally established sub-district structures (area councils and unit committees) to serve as a link between the district assembly and communities as shown in Figure H.3.2. A community may have one or more unit committees, a number of which form an electoral area depending on their population.

A unit committee is made up of 5 elected and 5 nominated members. They are tasked with the responsibility of mobilizing their community for self-help development and also serve as the base for district level decision-making. Electoral areas are zoned into area/town councils, which serve as a link between the community and the district assembly. Each electoral area elects an assembly member to represent the area in the area/town council and the district assembly. Unit committee and assembly members are usually elected during local government election every four years.

Each of the PDA communities has one unit committee, except Daffiama, Tabiesi and Puffien, which have two unit committees each. Also, Daffiama forms an electoral area on its own whiles the rest of the communities share electoral areas hence, assembly members with neighbouring communities. Although unit committees in many of the PDA communities seem functional with their chairpersons playing prominent roles in community mobilization, the same cannot be said about Nyani, Tome-Kokoduor and Zapkee. Assembly members on the other hand, work closely with traditional leaders in the communities except in Nyani, Puffien and Zapkee where the opinions of community members suggest that their assembly members have neglected them.

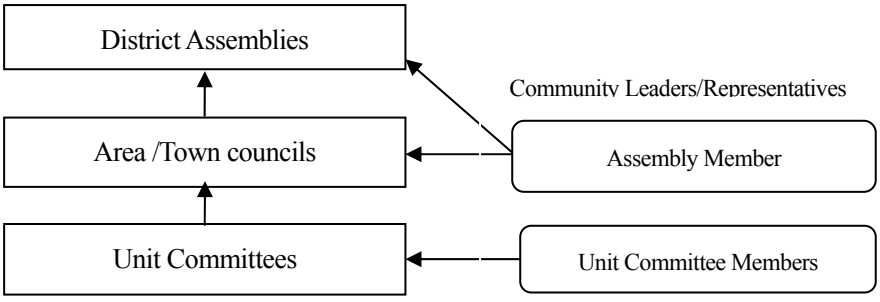

Figure H.3.2 The Structure of Modern Government in the PDA Communities

Generally, in the PDA communities with functional modern leaderships, assembly and unit committee members enjoy a large share of authority and trust from the traditional leaders without any hindrance. Decision-making in the communities is usually jointly undertaken by the traditional authorities and the modern leadership of the communities.

H.3.3 Opinion Leadership

A third form of leadership in the communities is opinion leaders. These are individuals who informally lead either the whole or some segments of their communities as a result of the influence they exert on other community members. Opinion leaders in the communities are commonly religious leaders, former assembly members, group leaders and other community members regarded as trust worthy persons. Their opinions on issues usually influence the decisions of other community members, hence, are rallying points for mobilizing their communities. Opinion leaders in most of the PDA communities are usually recognized by the chiefs and elders and are involved in decision-making.

H.3.4 Role of Community Leaders in the Transfer of Agricultural Technologies

Agriculture is the main livelihood of people in the PDA communities. Generally, farming in the understanding of the people surpasses the mere science of the production of crops and animals. It forms an essential aspect of their social and cultural lives. Primary agricultural knowledge in the communities is usually passed from parents to children informally. Based on this knowledge, households develop different strategies and technologies for agricultural production considering their available resources, social and cultural circumstances and past experiences. Consequently, the transfer of agriculture technologies must take the social order (especially leadership) of the communities into account.

The concern of all community leaders in general is especially important in extending agricultural technologies to the PDA communities. The significance of various leaders however varies from one community to the other as can be seen in Appendix G. On the whole, traditional and opinion leaders seem to be most important with regards to the transfer of agricultural technologies in the communities as shown by the perceptions of community members in the table below.

Table H.3.1 Perception of Community Members on the Usefulness of Various Community Leaders in the Transfer of Agricultural Technologies

Leadership Type	Household Heads	Women	Youth
Traditional	+++	++	+++
Modern	+	-	+
Opinion Leaders	+++	+++	+++

- poor + fair ++ good +++ very good

In the first place, traditional leaders are regarded by the people as fathers of the community by virtue of their detailed knowledge of the local environment thus, are in the best position to communicate new ideas more effectively to their people and to mobilize them for development activities. Also, traditional and opinion leaders occupy life-long roles and have gained the trust of their communities not only as possessors of customary and religious knowledge but also as persons considered to be well-informed and

the spokespersons for their communities. Thus, their perception of new agricultural technology may influence the adoption decision of other community members because they wield a significant amount of influence on the mind-sets of households.

In most of the PDA communities, strong cultural traditions continue to guide attitudes and practices regarding land ownership and use. For example, in most of the communities, the landlords and lineage heads have control over community lands, both for practical and spiritual purposes, and they have authority for decision-making and the imposition of sanctions on abominable acts regarding land use. As a result, it is necessary to transfer agricultural technologies through them in order to avoid any resistance from households due to fear for sanctions.

In addition, traditional and opinion leaders have established themselves as very important rallying points for local self mobilization and information dissemination in communities or within their groups. Refusal to involve them may therefore lead to difficulties in mobilizing the people and the dissemination of information.

In the PDA communities with functional modern leaderships, assembly and unit committee members take the lead role in obtaining external resources for the development of their communities. Their involvement in the transfer of technologies will therefore be essential as they serve as the link between their communities and the district assembly, and can help mobilize further external supports to sustain the utilization of new technology in their communities.

However, community leaders must not be dealt-with without caution. They are form part of their societies and have their own biases. It is therefore better to deal with all accepted and active community leaders in order to reduce such biases. Also it is advisable to work through leaders jointly with the rest of the community but not exclusively for the sake of accountability.

H.4 Other Key Factors to Consider in Extending Agricultural Technologies

Agricultural knowledge in the communities is largely tacit. It is usually accumulated through long periods of practice and becomes an integral part of the lives of households. Households modify their techniques through observation and interaction with colleague farmers both inside and outside of their communities. Apart from such indigenous knowledge, households also receive agricultural information, as well as adopt new production techniques from external agents such as MOFA and NGOs. Each of the PDA communities has had her own share of a myriad of new agricultural technologies such as new or improved varieties/breeds of crops/animals, of planting and of improving soil fertility mainly introduced by MOFA through their AEAs but also some NGOs.

Technology transfer to farmers in the PDA communities has a huge potential of improving upon the livelihoods of the people, since majority of them continue to depend on marginal soils and harsh weather conditions for farming. The challenge however is how to package and deliver these technologies to

the benefit of the people. Generally, development of agricultural technologies for community requires their full participation throughout the process. It should ideally be a joint community and external agent problem solving process. The following issues should be taken into consideration during this process:

H.4.1 Importance of Indigenous Knowledge and Methods for the Development of New Technologies

It must be understood that the vast majority of households in the PDA communities largely depend on farming. They have been producing with their indigenous production methods for many years, and have fair expectations of the outcomes of their production activities. Since households in the study area have little options for income generation, they have no margins for failure in farming. Risk averse households therefore prefer to continue with their old methods of production, which give them fairly predictable results than risk the practice of what they do not know. In order to avoid this, the utilization and adaptation of the indigenous knowledge and methods of local people should form the basis for the development of new agricultural technologies for the communities.

H.4.2 Important Factors to be Appropriate Technologies

The appropriate agricultural technologies for households in the PDA communities should be simple, cost-effective and adaptive to local conditions. This includes the local availability or easy access to raw materials. For example, unavailability and difficulty of access to seed of certain exotic vegetables has discouraged many gardeners in the communities from cultivating these vegetables though they assess them to be highly profitable.

H.4.3 Various Decision Factors for Production

The objectives and inspirations of households should be well integrated into the planning process of the technologies to be transferred to them. Their objectives and aspirations for producing certain crops and animals are usually driven from their socio-cultural lives. For instance, in most of the communities, interaction with households revealed that millet is cultivated not merely as a food crop but also for the performance of certain cultural rights. Farmers are therefore likely to resist any technology that might hinder the cultivation/rearing of such crops/animals. Introduction of new technologies must therefore take such aspirations and objectives into account at all times.

Also, it should not be assumed by external agents that yield is the only motivation for households to adopt agricultural technologies. Although many farmers mentioned high yield as their prime motivation for adopting new agricultural technologies, low yields turn out not to be the major cause of their withdrawal from the use of the technology. Some of the major causes of the relapse of farmer adoption decisions in the area include ease of practice/work of the technology, acceptability as food, availability of market, cultural (including religion) acceptability and adaptability to local conditions. For example, the introduction of a high yielding variety of sorghum popularly known amongst farmers in the study area as global 2000 was not much successful largely due to lack of market for the variety and the rejection of TZ prepared from the

variety. Also, many households in Nadowli district stopped cultivating soybeans after ADRA withdrew its support due to marketing problems. There were also cases of personal attempts by individual farmers to rear some foreign breeds of livestock which failed due to non adaptability to local conditions. It is therefore essential to address such issues before introducing new technologies in communities.

It is equally important to understand the situation of individual farmers in each community before introducing any new technologies to them. Similarly, the dynamics of each group should be understood before dealing with it in this regard. Since generalizations are based on non weighted averages of the behavior of individuals in the community, a significant amount of the extremes of individual behavior are usually left out. The adverse effect of over generalization is quite evident in the communities. Most of the new technologies introduced without careful acknowledgement of the differences in the abilities of individual households to handle the change process end up benefiting only a few community members. Many households for instance in most of the communities, withdrew from the cultivation of some improved varieties of beans (cowpea) simply because they could not handle the extra management practices such as pest control involved in its cultivation.

H.4.4 Issues Necessary to Pay Attention When Introducing New Technologies to Communities

After the identification of appropriate technologies, transferring them to households is a major issue. However, if households were involved in the development or adaptation of the technologies, a good basis has already been made for the transfer of the technologies. The following factors should be considered in introducing new technologies to the communities:

(1) Taboos and Believes

It is essential to have a grip of the sociological structure, and cultural orientation of each of the communities including the educational levels of household heads before planning the implementation of any technology. Although many of the sociological features of the PDA communities are similar, some important variations exist. In some of the communities their taboos and believes are directly link with their farming activities. In Zapkee for instance, sorghum, millet and beans can only be harvested after the community performs a ritual for the commencement of the harvest season. For this reason, farmers who cultivate early maturing varieties of these crops suffer some loses since they have to wait for the ritual to be performed before harvesting. The implementation or actual transfer of the technology should therefore include every aspect of the technology in clear terms in order to prevent any drawbacks in the process.

(2) Terminology Index in Native Language

Again, since many new technologies are quite knowledge-intensive and also come along with new cultural practices, it is important to create a "terminology index" in which the key terms involved in the practice of the new technology are translated into the native languages of the communities. This is especially important if an entirely new technology is to be introduced. It is essential to do this before introducing the technology as majority of household heads are illiterate. In most of the PDA communities,

farmers find it difficult to communicate the particular problems they face in adopting certain technologies. This sometimes causes extension staff to provide a range of ambiguous suggestions to simple problems especially if they are consulted off field.

(3) Regular Follow-ups

Regular follow-ups and joint reviews of agricultural technologies transferred to farmers are highly important in order to ensure sustained adoption. Interaction with households revealed that they do not have any time left during the rainy season for being able to assess the causes of failure when using a new agricultural technology. Instead, they blame any failure on the technologies itself. Also, superstition still plays a major role in the understanding of causality in the communities. Households sometimes simply see failure as a curse. If information exchange between household and extension agents is not regular in the first few years of the introduction of a technology, it is possible that households do not continue appropriate technologies for apparently no reason.

H.5 Description of Each Community

(1) Puffien

Brief Overview

Variable	Composition/Attributes	Remarks
Major Ethnic Group(s)	Dagaaba	
Clans	Dakyiele, Bekuane, Zandale, Kpanyane, Bewuole and Kusiele	
Settlement Sections	Naadebgang, Boogang, Tanzuu, Degbonteng, Baagang	
Land Ownership	By families	
Major Religion(s)	Traditional worship and Christianity	Majorly Catholic
Inheritance	Traditionally matrilineal	Not commonly practiced in the community at present
Information Entry Points	Chief	
Other Sources of External Information	Radio, Mobile Telecommunication TV	

Leadership and Leaders

Leadership Type	Leaders	Functions	Remarks
Traditional	Chief	General leader of the community	
	Tindaana	Spiritual custodian of the land	
	Sectional Heads	Leaders of their respective sections	Also as chief's elders
	Mangazia (women's Leader)	Represents women	
Modern (Decentralized local Governance)	Assembly Member	Represents community in area council and district assembly	
	Unit Committee	Community mobilization	Functional
Opinion Leaders	Amatus Kuunsore		
	Tantuo Maalung		
	Dery Kuuntaakyen		
	Kuun-igua		

Generally, there is cooperation amongst various leadership structures as well as leaders of the community. They recognize and respect each other's roles.

Perception of Respondents on Effectiveness of Various Leaders in Community Mobilization

Leadership Type	Household Heads	Women	Youth
Chief	+++	+++	+++
Tindaana	+	+	+
Assembly Member	-	-	+
Unit Committee	++	+	++
Opinion Leaders	+	+	++

- poor + fair ++ good ++++ very good

The community is chief led in terms of community mobilization.

Experience with Agricultural Extension

Sources of Agricultural Information and Technologies

Group	Sources				
	MOFA (AEA)	NGOs	Farmers	Radio	TV
Household Heads	✓	✓	✓	✓	
Women	✓	✓	✓		
Youth	✓		✓	✓	✓

Farmers Ranking of Sources of Agricultural Technologies and Reasons for Sustained Adoption

Group	Sources					Reason(s) for Adoption
	AEA	NGOs	Farmers	Radio	TV	
Household Heads	++	+	+++	++		Yield; ease of work; market
Women	+	+	+++			Yield; market
Youth	++		+++	+	++	Yield; ease of work; market

+ fair ++ good ++++ very good

Family Structure

The patrilineal extended family is the dominant family structure in Puffien. Families live together in large compound houses. The oldest male family member serves as the head of the family (Yidandou). The composition of sampled households indicate that majority of households are subfamilies of the extended family.

(2) Tome-Kokodour

Brief Overview

Variable	Composition/Attributes	Remarks
Major Ethnic Group(s)	Dagaaba	
Clans	Dikyiele, Kpanyanme (bimbile), Nakyiele/Nabegle and Bewuole	
Land Ownership	Owned by the land lords (Tindaanas)	Land of the community belongs to Tome-Zindangem
Major Religion(s)	Traditional worship and Christianity	Majorly Catholic
Inheritance	Traditionally matrilineal	Not commonly practiced in the community at present
Information Entry Points	Representative of the Chief, community secretary	
Other Sources of External Information	Radio, Mobile Telecommunication	

Leadership and Leaders

Leadership Type	Leaders	Functions	Remarks
Traditional	Chief	General leader of the community	Lives outside the village
	Chief's Representative	Acts on behalf of the chief	
	Elders	Selected from each clan	
	Tindaana	Owners of the land	Native of Tome-Zindangegm
	Clan heads	Spiritual heads of clans	
	Community Secretary	Spokes person of the community	
	Mangazia (women's leader)	Responsible for mobilizing women	
Modern (Decentralized local Governance)	Assembly Member	Representative of the Electoral Area in the district assembly and area council	Shared with other communities
	Unit Committee	Responsible for mobilizing the community	Not functional
Opinion Leaders	Romanous Kobkuu		
	Adriano Begyine		

Generally, there is cooperation amongst various leadership structures as well as leaders of the community. They recognize and respect each other's roles.

Perception of Respondents on Effectiveness of Various Leaders in Community Mobilization

Leadership Type	Household Heads	Women	Youth
Chief	++	++	++
Tindaana	+	+	+
Assembly Member	-	-	+
Unit Committee	-	-	-
Opinion Leaders	+++	++	+++

- poor + fair ++ good ++++ very good

The community is opinion leader and chief led in terms of community mobilization.

Experience with Agricultural Extension

Sources of Agricultural Information and Technologies

Group	Sources			
	MOFA (AEA)	NGOs	Farmers	Radio
Household Heads	✓	✓	✓	✓
Women	✓	✓	✓	
Youth	✓		✓	

Farmers Ranking of Sources of Agricultural Technologies and Reasons for Sustained Adoption

Group	Sources				Reason(s) for Adoption
	AEA	NGOs	Farmers	Radio	
Household Heads	+++	+	+++	++	Yield; ease of work; market
Women	+	+	+++		Yield;
Youth	++		+++		Yield; ease of work; market

+ fair ++ good ++++ very good

Family Structure

The patriarchal extended family is the dominant family structure in Tome-kokodour. Families generally live together in large compound houses. The oldest male family member serves as the head of the family (Yidandou). Families produce and consume together as large households.

(3) Zapkee

Brief Overview

Variable		**Remarks**
Major Ethnic Group(s)	Dagaaba	
Clans	Kpenyane, Bekuane, Metuor	
Settlement Sections	Tampuo, Baagaun, Munyipele, Zimuopir	
Land Ownership	By families	
Major Religion(s)	Traditional worship and Christianity	
Inheritance	Patrilineal	Levirate is practiced
Information Entry Points	Head Men	
Other Sources of External Information	Radio, Mobile Telecommunication	

Leadership and Leaders

Leadership Type	**Leaders**	**Function**	**Remarks**
Traditional	Chiefs	General leader of the community	Chiefs of 2 neighboring communities (Tolibri and Kunyukuon) lead the community
	Head men	Representatives of the chiefs	1 head man for baagaun and 1 for the rest of the communities
	Elders	Support the head men	Selected from each clan
	Tindaana	Spiritual owner of the land	
Modern (Decentralized local Governance)	Assembly Member	Represents the electoral area in the area council and the district assembly	Shared with other communities
	Unit Committee		Not functional
Opinion Leaders	Kuunpira Ninyuora		
	Maayele		
	Butir Yewre		

Generally, there is cooperation amongst various leadership structures as well as leaders of the community. They recognize and respect each other's roles.

Perception of Respondents on Effectiveness of Various Leaders in Community Mobilization

Leadership Type	Household Heads	Women	Youth
Chiefs	++	-	-
Head men	+++	++	++
Tindaana	++	++	+
Assembly Member	-	-	-
Unit Committee	-	-	-
Opinion Leaders	++	+	+++

- poor + fair ++ good ++++ very good

Modern leadership is very week in the community. Community is led traditional and opinion leaders in term of community mobilization.

Experience with Agricultural Extension

Sources of Agricultural Information and Technologies

Group	Sources			
	MOFA (AEA)	NGOs	Farmers	Radio
Household Heads	✓	✓	✓	✓
Women			✓	
Youth	✓		✓	✓

Farmers Ranking of Sources of Agricultural Technologies and Reasons for Sustained Adoption

Group	Sources				Reason(s) for Adoption
	AEA	NGOs	Farmers	Radio	
Household Heads	++		+++		Yield; ease of work; market
Women		+	+++		Yield;
Youth	++		+++		Yield; ease of work; market

+ fair ++ good ++++ very good

Family Structure

The patriarchal extended family is the dominant family structure in Zapkee. It is characterized by about four generations of close paternal blood relatives. The oldest male family member serves as the head of the family (Yidandou). Families produce and consume together as large households.

(4) Naawuie

Brief Overview

Variable	Composition/Attributes	Remarks
Major Ethnic Group(s)	Sissala and Dagaaba	
Clans	Navee; Kusiele; Bekuane; Bewuole	
Settlement Sections	Nawie Kyiena; Zinkonuo; Gyanwoe	
Land Ownership	Land is solely owned by the royal family	The land lord takes care of the land on behalf of the family
Major Religion(s)	Traditional worship Christianity and Islam	Catholics
Inheritance	Patrilineal	Levirate is practiced
Information Entry Points	Chief, Assembly member	
Other Sources of External Information	Radio, Mobile Telecommunication	

Leadership and Leaders

Leadership Type	Leaders	Functions	Remarks
Traditional	Nawie Koru (chief)	General leader of the community	A Sissala
	Totiina (land lord)	Owner of the land.	A Sissala
	Elders	Selected from each clan	
	Head of Zinkonuo	Leader of the largest Dagaaba section	
	Mangazias (women's leaders)	Two (one for each ethnic group)	
	V D C	Community mobilization	Constituted by chief and elders
Modern (Decentralized local Governance)	Assembly Member	Represents the community in the district assembly	Shared with two other communities
	Unit Committee		Functional
Opinion Leaders	Malam Amadu	Moslem leader	
	Catechist	Leader of Catholics	
	Uonkuobe Fulgemcio Pamphilous Nakyele		Recognized but not exclusively among the Dagaaba
	Balero Awere		Recognized especially among the Sissala

Generally, there is cooperation amongst various leadership structures as well as leaders of the community. They recognize and respect each other's roles.

Perception of Respondents on the Effectiveness of Various Leaders in Community Mobilization

Leadership Type	Household Heads	Women	Youth
Nawie Koru	+++	++	++
Tindaana	+	+	-
Mangazias	-	+++	-
Assembly Member	-	-	+
Unit Committee/VDC	+	-	-
Opinion Leaders	++	+	++

- poor + fair ++ good ++++ very good

Naawuie is chief dominated in terms of community mobilization.

Experience with Agricultural Extension

Sources of Agricultural Information and Technologies

Group	Sources			
	MOFA (AEA)	NGOs	Farmers	Radio
Household Heads	✓	✓	✓	✓
Women		✓	✓	
Youth	✓		✓	✓

Farmers Ranking of Sources of Agricultural Technologies and Reasons for Sustained Adoption

Group	Sources				Reason(s) for Adoption
	AEA	NGOs	Farmers	Radio	
Household Heads	++	+	+++		Yield; ease of work; market
Women		+	+++		Yield;
Youth	++		+++		Yield; ease of work; market

+ fair ++ good ++++ very good

Family Structure

The patrilineal extended family is the dominant family structure in the community. Generally, the Sissala in the community have larger extended families in terms of the number of generations compared with the Dagaaba. This may be because the Sissala are the longest settlers. Families generally live together in large compound houses. The oldest male family member serves as the head of the family (Detina/Yidandou).

(5) Kogri

Brief Overview

Variable		**Remarks**
Major Ethnic Group(s)	Dagaaba	
Clans	Moyiri; Wavee; Gambo	
Land Ownership	By families	
Major Religion(s)	Traditional worship Christianity and Islam	Catholics are dominant
Inheritance	Patrilineal	Levirate is practiced
Information Entry Points	Chief, Assemblyman	
Other Sources of External Information	Radio, Mobile Telecommunication	

Leadership and Leaders

Leadership Type	**Leaders**	**Function**	**Remarks**
Traditional	Kogri Naa (Chief)	General leader of the community	
	Tindaana (land lord)	Spiritual custodian of the land	
	Elders	Selected from each clan	
	Mangazia (Women's leader)	Representative of women	
Modern (Decentralized local Governance)	Assembly Member	Represents the community in the area council and district assembly	Shared with other communities
	Unit Committee	Community mobilization	Functional
Opinion Leaders	Catechist	Leader of Catholics	
	Malam Amadu	Moslem leader	
	Noevuu Mwinbasuura		
	Boni	Leavers in Jirapa	

Generally, there is cooperation amongst various leadership structures as well as leaders of the community. They recognize and respect each other's roles.

Perception of Respondents on the Effectiveness of Various Leaders in Community Mobilization

Leadership Type	Household Heads	Women	Youth
Chief	+++	+++	+++
Tindaana	+	+	+
Assembly Member	+	+	+
Unit Committee	+	-	+
Opinion Leaders	+++	+++	+++

- poor + fair ++ good ++++ very good

Kogri is traditional/opinion leader led in terms of community mobilization.

Experience with Agricultural Extension

Sources of Agricultural Information and Technologies

Group	Sources			
	MOFA (AEA)	NGOs	Farmers	Radio
Household Heads	✓	✓	✓	✓
Women		✓	✓	
Youth	✓		✓	✓

Farmers Ranking of Sources of Agricultural Technologies and Reasons for Sustained Adoption

Group	Sources				Reason(s) for Adoption
	AEA	NGOs	Farmers	Radio	
Household Heads	+++	+	+++	+	Yield; ease of work; market
Women		++	+++		Yield;
Youth	++		+++	+	Yield; ease of work; market

+ fair ++ good ++++ very good

Family Structure

The patrilineal extended family is the dominant family structure in Kogri. Families generally live together in large compound houses. The oldest male family member serves as the head of the family (Yidandou). The composition of sampled households indicate that majority of households are subfamilies of the extended family.

(6) Nyani

Brief Overview

Variable		Remarks
Major Ethnic Group(s)	Dagaaba	
Clans	Bakuane	
Settlement Sections	Zaavoro, Nyandiboro, Gompari, Kpemalyiri, Kakalpari and Nyanpala.	
Land Ownership	By families	
Major Religion(s)	Traditional worship and Christianity	Majorly Catholic
Inheritance	Patrilineal	Levirate is practiced
Information Entry Points	Chief	
Other Sources of External Information	Radio, Mobile Telecommunication	

Leadership and Leaders

Leadership Type	Leaders	Functions	Remarks
Traditional	Nyani Naa (Chief) and Elders	General leader of the community	
	Tindaana (land lord)	Spiritual custodian of the land	
Modern	Assembly Member	Representative of the community in area council and district assembly	Shared with other communities
	Unit Committee	Responsible for community mobilization	Not functional
Opinion Leaders	Tinsakore Kunpkebaala		Also, an aid to the chief
	Kofi Zinvila		aid to the chief
	Noevuu Mwinbasuura		
	Clement Banungle		Leavers in Jirapa

Generally, there is cooperation amongst various leadership structures as well as leaders of the community. They recognize and respect each other's roles.

Perception of Respondents on the Effectiveness of Various Leaders in Community Mobilization

Leadership Type	Household Heads	Women	Youth
Nyani Naa	++	+++	+
Tindaana	+	+	+
Assembly Member	+	-	+
Unit Committee	-	-	-
Opinion Leaders	+++	++	+++

- poor + fair ++ good ++++ very good

Nyani is opinion leader led in terms of community mobilization.

Experience with Agricultural Extension

Sources of Agricultural Information and Technologies

Group	Sources			
	MOFA (AEA)	NGOs	Farmers	Radio
Household Heads	✓	✓	✓	✓
Women		✓	✓	
Youth	✓		✓	✓

Farmers Ranking of Sources of Agricultural Technologies and Reasons for Sustained Adoption

Group	Sources				Reason(s) for Adoption
	AEA	NGOs	Farmers	Radio	
Household Heads	+++	+	+++		Yield; ease of work; market
Women		++	+++		Yield;
Youth	++		+++		Yield; ease of work; market

+ fair ++ good ++++ very good

Family Structure

The patrilineal extended family is the dominant family structure in Nyani. Families generally live together in large compound houses. The oldest male family member serves as the head of the family (Yidandou). The composition of sampled households indicate that majority of the extended families cultivate and feed together as a household.

(7) Daffiama

Brief Overview

Variable	Composition/Attributes	Remarks
Major Ethnic Group(s)	Dagaaba	
Clans	Namaani	
Settlement Sections	Saapari, Kyakali, Mission, Na Yikore and Dankyela	
Land Ownership	By families	The land lord is spiritual owner of the land
Major Religion(s)	Traditional worship and Christianity	Major affiliation is Catholicism
Inheritance	Patrilineal	Levirate is practiced
Information Entry Points	Chief, Assembly member	
Other Sources of External Information	Radio, Mobile Telecommunication and TV	

Leadership and Leaders

Leadership Type	Leaders	Functions	Remarks
Traditional	Chief	General leader of the community	
	Tindaana (land lord)	Spiritual custodian of the land	
	Sectional Chiefs	Head their respective sections	Also as elders of the chief.
Modern (Decentralized local Governance)	Assembly Member	Represents the community in the area council and district assembly.	
	Unit Committee	Community mobilization	4 unit committees
Opinion Leaders	Catholic Priest	Leader of Catholics	
	Gaspat Kpienuma		Sectional opinion leader
	Mathew Dakurah		
	Gaspat Wolonaa		Sectional opinion leader

Generally, there is cooperation amongst various leadership structures as well as leaders of the community. They recognize and respect each other's roles.

Perception of Respondents on Effectiveness of Various Leaders in Community Mobilization

Leadership Type	Household Heads	Women	Youth
Chief	+++	+++	+++
Tindaana	+	+	+
Assembly Member	++	++	+++
Unit Committee	+	-	-
Opinion Leaders	+	+	+++

- poor + fair ++ good ++++ very good

Daffiama is Chief and assembly member led in terms of community mobilization.

Experience with Agricultural Extension

Sources of Agricultural Information and Technologies

Group	Sources				
	MOFA (AEA)	NGOs	Farmers	Radio	TV
Household Heads	✓	✓	✓	✓	✓
Women	✓	✓	✓		
Youth	✓		✓	✓	✓

Farmers Ranking of Sources of Agricultural Technologies and Reasons for Sustained Adoption

Group	Sources					Reason(s) for Adoption
	AEA	NGOs	Farmers	Radio	TV	
Household Heads	++	+	+++	++	+	Yield; ease of work; market
Women	+	+	+++			Yield; market
Youth	++		+++	+	++	Yield; ease of work; market

+ fair ++ good ++++ very good

Family Structure

The patrilineal extended family is the dominant family structure in Daffiama. Most families live in separate small housing units based on subfamilies but close to each other. The oldest male family member serves as the head of the family (Yidandou). The composition of sampled households indicate that majority of households are subfamilies of the extended family.

(8) Tabiesi

Brief Overview

Variable	Composition/Attributes	Remarks
Major Ethnic Group(s)	Dagaaba	
Clans	Monyala	
Settlement Sections	Wulidanhi Yiri; Bonaa Yiri; Bile Yiri; Pebe Yiri; Gonduolo Yiri and Diwaa.	
Land Ownership	By families	The land lord is the spiritual owner of the land
Major Religion(s)	Traditional worship, Islam and Christianity	
Inheritance	Patrilineal	Levirate is practiced
Information Entry Points	Chief, Assembly member, Moslem leader	
Other Sources of External Information	Radio, Mobile Telecommunication	

Leadership and Leaders

Leadership Type	Leaders	Function	Remarks
Traditional	Chief	General leader of the community	
	Tindaana (Land lord)	Spiritual custodian of the land	
	Wiedaana	Spiritual custodian of farms	Role diminishing due to religion
	Sectional Heads	Lead their respective sections	
Modern (Decentralized local Governance)	Assembly Member	Represents Electoral Area in the Area Council and District Assembly	Shared with other communities
	Unit Committee	Community mobilization	2 unit committees
Opinion Leaders	Mr. Bayor		Retard teacher
	Mumeen Adaari		Extension volunteer

Generally, there is cooperation amongst various leadership structures as well as leaders of the community. They recognize and respect each other's roles.

Perception of Respondents on Effectiveness of Various Leaders in Community Mobilization

Leadership Type	Household Heads	Women	Youth
Chief	++	++	++
Tindaana	+	-	-
Assembly Member	++	++	+++
Unit Committee	++	+	++
Opinion Leaders	+++	+++	++

- poor + fair ++ good ++++ very good

Tabiesi is led by opinion and modern leadership in terms of community mobilization.

Experience with Agricultural Extension

Sources of Agricultural Information and Technologies

Group	Sources			
	MOFA (AEA)	NGOs	Farmers	Radio
Household Heads	✓	✓	✓	✓
Women	✓	✓	✓	
Youth	✓		✓	✓

Farmers Ranking of Sources of Agricultural Technologies and Reasons for Sustained Adoption

Group	Sources				Reason(s) for Adoption
	AEA	NGOs	Farmers	Radio	
Household Heads	++	+	+++	++	Yield; ease of work; market
Women	+	+	+++		Yield; market
Youth	++		++	+	Yield; ease of work; market

+ fair ++ good ++++ very good

Family Structure

The patrilineal extended family is the dominant family structure in Tabiesi. Families generally live together in large compound houses. The oldest male family member serves as the head of the family (Yidandou). The composition of sampled households indicate that majority of households are subfamilies of the extended family.

(9) Nanvilli

Brief Overview

Variable	Composition/Attributes	Remarks
Major Ethnic Group(s)	Dagaaba	
Clans	Ekor	
Settlement Sections	Naa Yiri and Dapiani	
Land Ownership	By families	Land lord is the spiritual owner of the land
Major Religion(s)	Traditional worship and Christianity	Catholicism is the major affiliation
Inheritance	Patrilineal	Levirate is practiced
Information Entry Points	Chief, Assembly member, NGO representatives, the Catholic church	
Other Sources of External Information	Radio, Mobile Telecommunication	

Leadership and Leaders

Leadership Type	Leaders	Functions	Remarks
Traditional	Chief	General leader of the community	
	Tindaana (land lord)	Spiritual custodian of the land	
	Elders	Selected from each clan	
	Samaari (Youth Leader)	Representative of the youth	
	Mangazia (women's leader)	Representative of the youth	
Modern (Decentralized local Governance)	Assembly Member	Represents the Electoral Area in the area council and district assembly	Shared with other communities
	Unit Committee	Responsible for mobilizing the community	Functional
Opinion Leaders	Catechist	Leader of Catholics	
	Yaw Gorah		
	Banabas Zienaa	Leavers in Jirapa	

Generally, there is cooperation amongst various leadership structures as well as leaders of the community. They recognize and respect each other's roles.

Perception of Respondents on Effectiveness of Various Leaders in Community Mobilization

Leadership Type	Household Heads	Women	Youth
Chief	++	++	++
Tindaana	+	+	-
Samaari	++	+	+++
Assembly Member	++	+	++
Unit Committee	-	-	-
Opinion Leaders	+++	++	++

- poor + fair ++ good ++++ very good

Nanvilli has no forefront leader in terms of community mobilization. Community members regard most leaders as active in mobilizing the community for self-help.

Experience with Agricultural Extension

Sources of Agricultural Information and Technologies

Group	Sources			
	MOFA (AEA)	NGOs	Farmers	Radio
Household Heads	✓	✓	✓	✓
Women		✓	✓	
Youth	✓		✓	

Farmers Ranking of Sources of Agricultural Technologies and Reasons for Sustained Adoption

Group	Sources				Reason(s) for Adoption
	AEA	NGOs	Farmers	Radio	
Household Heads	++	+	+++	+	Yield; ease of work; market
Women		+	+++		Yield; market
Youth	++		+++		Yield; ease of work; market

+ fair ++ good ++++ very good

Family Structure

The patrilineal extended family is the dominant family structure in Nanvilli. Families live together in large compound houses. The oldest male family member serves as the head of the family (Yidandou). The composition of sampled households indicate that majority of households are subfamilies of the extended family.

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Appendix I

Babile Pig Breeding Station

Appendix I Babile Pig Breeding Station

The Babile Pig Breeding Station was originally built in 1943 for the development of various types of livestock. It started a pig breeding program in 1995, and since then it has been functioning as the center for the development and dissemination of the Ashanti Black Pigs (ABPs) as an indigenous breed. The Station covers the whole country as it is the only center of MOFA to pursue this mandate in Ghana. Under the given mandate, the major activities of the Station are as follows:

- To develop the ABPs as an indigenous breed
- To make available breeding stock to participating breeders
- To provide technical advice to these breeders

The number of the staff of the Station as of July 2009 is 9 with the positions as shown below.

Table I.1 Number of Staff at Babile Pig Breeding Station

Position	Number
Farm Manager/Assistant Director	1
Senior Production Officer	1
Assistant Chief Technical Officer	1
Senior Technical Officer	1
Assistant Chief Technical Assistant	1
Senior Technical Assistant	1
Herdsman	1
Heavy Duty Driver	1
Night Watchman	1
Total	9

The pig stock of the Station from 2007 to present is shown in Table I.3. The assets of the Station, besides the pigs and their feeds, are listed below.

Table I.2 Assets of the Station

Item	No.
1. Atleon Nissan Truck	1
2. Nissan Pick-up	1
3. Toyota Dyna	1
4. Tractor	1

According to Table I.4, the Station sold about 110 pigs as annual average in the last 7 years, and generated the annual revenue of about GHS 2,000. The Station mainly sold the pigs to local NGOs and individuals for breeding purpose, and to local restaurants, meat processors, and the universities such as the

Animal Science Department of UDS (Tamale), KNUST (Kumasi) for fattening or meat purpose. The Station sells the pigs by weight at GHS 2.0/kg in 2008 and 2009, and GHS 1.5/kg in 2007. According to the Station, the weight of 20 to 25 kg, which a pig could gain in 8 to 10 months after the birth, is the most cost effective timing for the Station to sell for breeding, and 30 kg or more for meat.

Although the Station is not required to be financially self sustainable or engaged in business, it is requested by MOFA Headquarters to achieve the annual targets of 228 heads for production and 200 heads for sales in 2009. If successful, the revenue of GHS 9,809.2 is expected.

Table I.3 Pig Stock of the Station

Class	2007				2008				2009 (by July)				Stock as of July 2009
	Stock at Beginning	Birth	Death	Sold	Stock at Beginning	Birth	Death	Sold	Stock at Beginning	Birth	Death	Sold	
Boars	6		0	2	5		1	1	3				6
Young Boars	29		6	68	42		3	12	15			5	16
Weaner Boars	58		10		1		2		21		3	18	19
Piglet Boars	22	40	12		9	13			0	42			14
Sows	16		4	5	16			2	14				20
Gilts	73		6	71	41		6	7	28			10	12
Weaner Gilts	32		4		2		2		22		2	18	32
Piglet Gilts	17	22	4		5	17			0	54	1		23
Total	253	62	46	146	121	30	14	22	103	96	6	51	142

(note: There have been some give-away pigs every year which are not included in the table.)

Table I.4 Record of Pig Sales

Year	No of Pigs Sold	Male/Female Sold (No)		Purpose of Sales (No)		Total Sales Amount (GHS)
		Male	Female	Breeding	Others (fattening, meat, etc.)	
2002	145	80	65	138	7	1,146.4
2003	127	75	52	85	42	1,730.3
2004	88	43	45	53	35	1,700.45
2005	83	43	40	13	70	1,320.00
2006	153	72	81	120	33	3,156.75
2007	146	70	76	95	31	4,188.70
2008	22	13	9	12	10	676.20
Total	764	396	368	516	228	13,918.80

(Note: The sharp drop of sales in 2008 was due to the case of poisoning crime.)

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Appendix J

Outcomes of the Workshop

– Monitoring and Evaluation

Appendix J Outcomes of the Workshops – Monitoring and Evaluation

J.1 Monitoring Workshop

Monitoring workshops were held at the district level (in Nadowli on 23 September 2009, in Jirapa-Lambussie on 24 September 2009 and in Lawra on 25 September 2009) with the responsible DAOs, AEAs, representatives of the PDA beneficiaries and the Study Team. The objectives of the workshops were to present the progress, observed impacts and changes of the PDAs by the stakeholders and discuss the expected achievements, issues to be solved, dreams and necessary actions. The outcomes of the workshops are attached below.

J.1.1 Lawra District

DAOs & AEAs (Lawra)

	Changes & Impacts	Expectation	Remedies /Improvements
Integrated Farming	- Preparation of compost improved - Compost preferred to fertilizers - Compost plots are better than chemical fertilizer and farmer practice. - Farmers learnt line or row planting in all the communities - No impact on crops due to insufficient compost and late application of compost in Puffien and T-K.	- Increase in yield - Enhanced soil - Dissemination of compost preparation to more farmers	- Regularize monitoring - Intensify training of more farmers on compost preparation / application - Timely preparation of compost
Pig Rearing	- Constructed piggery - Feed formulation (gained new knowledge) - Improved management	- Better diet for the pigs - Reduced cost of feeding - Better and faster growth rate - Better market price - Improved management practice - Increase in size - Adequate manure for crops(droppings) - Increase in pig rearing / breeding in the communities	- Regularize monitoring - Encourage more farmers to participate
Agro-Forestry	- Gained knowledge in transplanting - Good plant take-off - 99% survival rate	- Termite attack is minimized - Mango fruits available - Increase in income of farmers - Better livelihood	- Security fencing / fire belts - Regular Monitoring - Encourage more farmers to grow mango trees - Encourage regular watering during dry season.

Beneficiaries (Lawra)

	Progress & Impacts	Expectation (by Feb.2010)	Expectation (beyond Feb.2010)
Integrated Farming	- Compost is easier to obtain than fertilizer - Effectiveness of compost with bull dung to sorghum is better than fertilizer - Growth/yield of sorghum and cowpea is better with compost - The demo plot has higher plant population compared to the farmers' practice, hence better yield. - Crops with compost grow better than inorganic fertilizer crops - Acquired knowledge on compost making and application	- Apply compost and get good yield (cowpea and sorghum)	- Make more compost to apply it to 2 acres
Agro – forestry	- Mangoes are growing - 110 mango trees were supplied and all transplanted	- Fencing and watering will be problem	- Sell fruits to increase income
Small Ruminants	- Small ruminants delivered late - Animal houses were reduced due to insufficient materials - The animals supplied were inadequate, they were not in good health - The animals are not improved breeds	- Get manure from small ruminants - Make more manure to use for dry season gardening	- Sell the offspring to increase income
Dry Season Gardening	- Trained on nursery practices and seeds were nursed.	- Learn about vegetable nursery - Sell vegetables - Construct concrete rings for the wells	- Expand the size of garden to sell more
Pig Rearing	- The pigs grow faster than the farmers' own practice - The droppings can be used to fertilize crops - 2/3 of the baby pigs died	- Sell offspring(piglets)	- Need feed and regular vaccination - Sell the piglets to buy grains - Maintain good sanitation condition, vaccination, feeding

J.1.2 Jirapa-Lambussie Districts

DAOs & AEAs (Jirapa-Lambussie)

	Changes & Impacts	Challenges	Remedies	Dreams
Pig Rearing	- Fast growth rate of the pigs - Appropriate feeding - Better housing - Better sanitation - Good monitoring of stock - Observing community members (non-beneficiaries) are interested in taking part. - Proving the quality of meat of black pigs - Droppings can be used as FYM - Generate income for the beneficiaries			
Compost	- Farmers know that compost increase yield - Farmers observe effect of drought on compost field is less. - Material for compost is readily available - Developed other innovation on compost - Developed skills in compost making	- Size of demo plot was too small - Farmers interested in the PDA reduced as the demo plot was too small - Site of the demo farms were inconvenient	- Increase compost size and plot size, as long as materials are available - Choose the demo site that is accessible by others.	- Use of compost will reduce the use of chemical fertilizer - Compost use will increase as other community members are also interested in using it. - Food security will be enhanced
Rabbit Rearing	- Non-beneficiaries are interested in it. - The number of rabbit is increasing very fast.		- Maintain hygiene and sanitation of hatches - Enhance health care management of rabbits - Increase monitoring visits	- More community members to benefit from the activities - Increase protein intake of the beneficiaries - Create employment in the communities - Household income increase
Agro-Forestry (Mango)	- Survival rate 100% - Fencing 70%			- Serve as wind breaker - Increases income - Serve as food supplement - Reduce deforestation

Beneficiaries (Jirapa-Lambussie)

	Changes & Impacts	Expectation (by Feb.2010)	Expectation (beyond Feb.2010)
Pig Rearing	- Pigs are fatten well - Housing is better so, easier to take care of pigs - Pigs are healthier - Pigs grow faster and fatter than the others		-Increase income from the sales of the pigs
Integrated Farming	-Yield of cowpea and Kapaala is better with compost - Able to adopt row(ridge) planting	-Sell seeds of cowpea/sorghum for the next beneficiaries -Sell cowpea / sorghum to increase income	-Use the new knowledge obtained to increase yields - Increase the area to get more production -People will buy seeds from the PDA beneficiaries -Use the knowledge obtained to plant earlier with compost to increase production
Rabbit Rearing	-Rabbits grow faster than other farmers -Housing for rabbit is better	-Sell rabbits to raise income	-Increase more stocks of rabbits and raise income
Agro-Forestry (Mango)			-Sell mangoes to increase income and eat some to be healthy

J.1.3 Nadowli District

DAOs & AEAs (Nadowli)

	Impacts & Changes Observed	Dreams and Actions to be Taken
DAFFIAMA Groundnut Processing	- Unity among group members by working together - Income for women - Acquired skills and knowledge in oil extraction	1. Establish a soap processing plant in Tabiesi → Action: raise capital through partnerships, savings and loan facilities
Vegetable Production	- Knowledge and skills acquired in nursing vegetables (planting in rows)	2. Produce vegetables for export from the district → Action: Get permanent irrigation schemes, storage facilities, transport facilities, and access to markets.
Paddy Rice Production	- Farmers acquired knowledge and skills in rice production in planting in rows and fertilizers application	
TABIESI Shea Soap Making	- Income generation through value addition - Acquired new skills and technology in soap making - Improved living standards - Social cohesion	3. Establish a livestock processing plant for adding value to pork, Guinea fowls, and other pig products in the district. → Action: Improve on feeding, health and housing of animal, get financial and technical assistance from institutions, prevent disease outbreaks through vet staff
Guinea fowl and rabbit rearing	- Acquired new skills in rearing - Improved housing for the animals	
Vegetable Production	- Acquire knowledge and skills in compost making and other vegetable cultivation products	
NANVILLE Pig Rearing	- Acquired knowledge on feed formulation, housing and the feeding regimes for pigs	
Guinea Fowl Rearing	- Learnt new skills on feed quality for guinea fowls	
Dry Season Gardening	- Acquired new skills in compost making and nursery practices	

Beneficiaries (Nadowli)

	Changes & Impacts	Expectation for the Future	Challenges & Actions
Soap Making	- Made us open bank accounts - Made us save money that was meant for soap - Raised standard of living	- Improved marketing system through advertisement -Buy processing machines - To extend assistance to other groups in soap making	- Lack of funds to procure a processing machine → saving of weekly dues and profits from sales of soap
Groundnut Processing	- Feed children with processed products - Made us to know that processing is more profitable than selling of raw material - Made to open bank account - Skill improvement - Nutritional value of groundnut improved health of the people, especially children - Improved their feeding styles	-They want to have certificate that will enable them to sell the produce to institutions. - Improved marketing system through advertisement - Acquisition of a processing machine	- High cost of raw material for groundnut processing →Purchase of g-nut seed / grain should be early (October)
Pig Breeding	- Improved housing - Droppings of pigs a very rich source of manure for crops - Skills in pig production acquired - Introduced a very good breed of pigs	-Pig rearing will improve income level - Extend assistance to more people within community	- Inadequate vet staff to treat sick animals →Community Livestock Workers can be given refresher training to assist vet officers
Rabbit Rearing	- Increased economic value of rabbit - A new source of protein - No need to burn bush to hunt (look for) rabbits	- Extend skills learned to other farmers - Increase their income level - Ready source of protein	- Inadequate vet staff to treat sick animals →Community Livestock Workers can be given refresher training to assist vet officers
Guinea Fowl Rearing	- Because of housing, no more stealing of eggs - Improved breed introduced - The Guinea fowl provided attract higher price - Improved breeds changes local stock of Guinea fowls - The manure is good for crops	-Increase family income through sale of improved larger breed. - Helps cultural purposes -Improves family income	- Inadequate vet staff to treat sick animals →Community Livestock Workers can be given refresher training to assist vet officers
Dry Season Gardening	- Consumption of fresh vegetables by families	- Improved family income - Arrangement for market at harvest	- Lack of good market for vegetables at harvest →Increase production

	Changes & Impacts	Expectation for the Future	Challenges & Actions
		- Use of compost manure for vegetable production instead of fertilizers - Permanent and strong fence -Establishment of permanent source of water - Reduced migration of the youth to the south -Gardening helps young people to stay within the village	to attract buyers from far places (like Accra)
Paddy Rice Production	- Modern techniques of rice production learnt	-Empowered to produce rice in larger acreage - Very short duration and high yielding variety is produced	

TWO ACTIVITIES WITH THE HIGHEST POTENTIAL			
	Goal	Next Step	
Pig Production	Large scale production with value addition aspect in pig production	Feeding and vaccination of the breeding stock	
Soap Making	Establish a soap processing plant	Encourage saving and sourcing for loans from banks and other financial institutions.	

J.2 Evaluation Workshop

Evaluation workshops were held at the district level (in Lawra on 25 January 2010, in Jirapa-Lambussie on 26 January 2010 and in Nadowli on 27 January 2010) with the responsible DAOs, AEAs, representatives of the PDA beneficiaries and the Study Team. The objectives of the workshops were to present the achievements of each PDA activity by the stakeholders and discuss the expectation on further achievements in near future and the suggested improvements for realizing the expected achievements. The outcomes of the workshop are attached below.

J.2.1 Lawra District

DAOs & AEAs (Lawra)

	Achievements	Expectation in near future	Suggested Improvement		
			Technical Issues	Organizational (MOFA)	Community
PUFFIEN					
Small Ruminant	- Farmers now see small ruminant production as a business - Improved rapport with AEAs - Disease identification by farmers - Better access to extension services - Improved knowledge of housing and feeding - Manure gathering	- Increase in farmyard manure - Increase in income of farmers - More farmers taking up small ruminant rearing as a business		- Increase education on new technologies (general) - Organize more refresher courses for AEAs & DAOs	- Raise farmers adaptation to improved technologies (general)
Mangoes	- Greater interest in mango production - Introduction of improved variety of mangoes - Improved knowledge of mango transplanting	- Provide jobs - Improved food security situation - Increased number of mango fruits for consumption and marketing - Increased number of beneficiary farmers			
ZAKPEE					
Pig Rearing	- Pig rearing is picking up as a business - Improved knowledge in breeding stock selection - Greater interest in	- Provide jobs for many farmers - Increased number of beneficiary farmers - Increase in	- Improve housing structure - Provision of reliable source of water	- Intensify education on management - Better breed selection	- Intensify management of animals

	pig production - Improvement in general husbandry practices - Improved housing - Improved breeding practices (time of mating) - Improved knowledge in feed formulation	farmers' household income and standard of living			
Bee Keeping	- Improved knowledge in apiary location - Bee keeping as a business - Improved knowledge in bee keeping	- Farmers' health improved after consumption of honey - Reduction of bush fires - Increase in household income and standard of living of farmers			- Timely setting of beehives - Site selection
TOME-KOKODUOR					
Vegetables	- Use of improved variety of vegetable seeds - Improved knowledge in pest identification and disease symptoms - Increased production of vegetables - Safe use of appropriate agro-chemicals - Improved knowledge in vegetable production - Farmers now have access to AEAs - Farmers now see it as a business	- Increased yield of vegetables - Improved diet of farmers - Increased number of beneficiaries - Increase in farmers' household income and standard of living	- Provision of reliable source of water		
ALL COMMUNITIES					
Compost	- More farmers using compost - Farmers appreciate the effect of compost on crops - Improved knowledge in compost making and application	- Improved structure and fertility of soil - Increase in yield by using compost - Increase in preparation and use of compost	- Raise concrete pits instead of earth pits		- Storage of crop residue for compost making

Beneficiaries (Lawra)

	Achievement	Expectation in near future	Suggested Improvement		
			Technical Issues	Organizational (MOFA)	Community
PUFFIEN					
Goat and Sheep	- 1 sheep delivered a lamb (female) - 11/15 goats and 8/15 sheep survived, local ones died - Manure from animals dropping - Better care of animals	- Replacement of those died - Income from sale of animals to pay children's school fees	- Improved breed of sheep and goats	- Medication - Availability of drug and services should be known by MOFA	
Mangoes	-65/110 survived	- Early fruits and income from sale of fruits			- Replacement of mango seedlings that died - Proper care of seedlings by the community
Compost	- Manure from farming (crop production) - Higher yield of farm products - Good farming practices	- Train other farmers on how to make compost	- Means of transport to carry manure to the farm (wheel barrow/ head pans) - Quality of materials should be checked before buying		
ZAKPEE					
Compost	- Learned how to make compost - Higher yield of farm products (soya bean, groundnuts, rice and cowpea)	- Early planting this year because of low rain patterns (need to prepare compost earlier)			
Pigs (Group)	- 3 pigs forrowed and one piglet are still surviving (5 of them) - Importance of close breeding for having faster production	- Bad mother pigs should be changed - Serve as a future source for other farmers to buy pigs	- Design of pig style should be changed to have pigs exercise outside	- How to prevent mother pigs from crashing piglets	
Pigs (Household)	- 1 is still pregnant - Manure farming	- Bad mother pigs should be changed			

	Achievement	Expectation in near future	Suggested Improvement		
			Technical Issues	Organizational (MOFA)	Community
		- When pigs multiply, give some to other farmers to also rear			
Bee keeping	- Faster colonization of bees (2/3)	- High yield to harvest			

TOME-KOKODUOR

Vegetables	- Improvement of new varieties (okura, tomato, cabbage, eggplant, onion)	- Higher yield and income	- Enough water supply system - More improved varieties (lettuce, carrot, pepper, melon)	- Pests and diseases control - Provision of protection clothes	- Crop diversification - Have the will to improve their lives
Goat and Sheep	- Learned how to take care of animals - Improved female/male died (8/9 goats and 7/9 sheep survived)	- Same improved breed of animals (male/female)			
Mangoes	- Better tree planting system (103/110 survived)	- Early fruits and income from sale of fruits -Shad for future			

J.2.2 Jirapa-Lambussie Districts

Beneficiaries, DAOs & AEAs (Jirapa-Lambussie)

	Achievements	Expectations in near future	Suggested Improvement		
			Technical Issues	Organizational (MOFA)	Communities
NYANI					
Pigs	- Fast growth of pigs - Knowledge in feed formulation - Pigs look healthy	- Increase in production to serve the communities	- Improve availability of feed ingredients	- Prompt response by AEAs to complaints - Improve mobility of AEAs (general)	- Improve response to calls (general) - Respond actively to cost-sharing (general) - Disseminate/ transfer of knowledge on piggery management to household members
Rabbits	- Rabbit increased from 3 to 4 (1 died and got 2 offspring) - Hutch extended by beneficiaries	- Whole community served with increased number of rabbits	- Increase medication for rabbits - Improve housing of rabbits (more sunlight)	- Upgrade knowledge in husbandry practices	- Improve feeding - Improve sanitation in rabbitary
Mangoes	- Increased knowledge in mango planting	- Increased income from sale of mango		- Disease and pest control - Training on diseases and pests identification	
KOGRI					
Pigs	- Knowledge in feed formulation - 3 pigs given and 1 is pregnant	- Income from sale of pigs			
Bee Keeping	- New technology learned - 1 of 3 hives got colonized	- Income from sale of honey - Expansion of apiary		- Refresher training on harvesting and processing	- Relocation of uncolonized beehives
Post Harvest	- Improved method of threshing grains of provided seeds - Reduction in quantity of foreign materials - Purchasing new	- Increased number of tarpaulins by hiring them out - Tarpaulins will save time in threshing			- Increase the number of tarpaulins by hiring them out

	tarpaulins for group members by getting income from hiring out tarpaulins to other farmers				
NAAWUIE					
Pigs	- Knowledge in feed production - Produced 3 sacks of feed according to the instruction of Babile - Other 5 farmers expressed interests in pig breeding	- Sell piglets to interested farmers			
Bee Keeping	- All 3 hives colonized - Used local pots to increase the number of hives - Knowledge in site selection - Knowledge in use of appropriate materials	- Income from sale of bee products - Source of employment for the aged			
Post Harvest	- Tarpaulins helped to avoid the produce from being soaked				

J.2.3 Nadowli District

DAOs & AEAs (Nadowli)

	Achievements	Expectations in near future	Suggested Improvement		
			Technical Issues	Organizational (MOFA)	Communities
DAFFIAMA					
Rice	- Frequent visits and interaction between AEAs and farmers (more than twice a week) - Improved techniques in rice production (row planting, fertilizer application) - 4 times yield of previous year (2 →8 bags/acre)	- More farmers adopt new technologies of rice production - Reduction in poverty situation of farmers - Improved yields of rice - Improve food security situation in Daffiama			- Training on nursery management
Vegetables	- Adoption of appropriate plant spacing in vegetable production - Increased household income of farmers - Access to improved varieties of vegetables	- Adoption of dry season vegetable production by youth - Reduction in malnutrition from vegetable consumption - Reduced levels of migration to urban areas			
Groundnut Oil Production	- Increase in farmers' household income - Increase in oil production - Teamwork and unity - Improved technology in groundnut oil extraction	- Increase in the number of groundnut processing groups - Acquisition of improved processing equipment by groups - Increase in groundnut oil extraction - Assured market for groundnut farmers			
NANVILLI					
Vegetables	- Community members now appreciate the	- Increase in the production of other vegetables		-Veterinary extension staff	

	Achievements	Expectations in near future	Suggested Improvement		
			Technical Issues	Organizational (MOFA)	Communities
	benefits of vegetable production				
Compost Making	- Reduction in the burning of agric crop residues - Farmers learned how to utilize agric by-products by incorporating them back to the soil - Farmers learned and adopted technology of compost making	- Improvement in soil fertility - More farmers engaged in compost making and usage			
Pig Rearing	- Better husbandry practices learnt and adopted by farmers - Improved housing for pigs - Farmers learned and adopted pig feed formulation	- Increase in income of farmers - More farmers acquiring knowledge in feed formulation - More farmers going into pig production - Improved intake of protein			
Guinea Fowl Rearing	- Introduction of improved breeds in the communities - Improved housing facilities for guinea fowls				- Confinement of animals
TABIESI					
Vegetables			- Reliable source of water - Supply of fencing materials for gardeners		
Shea Soap			- Shea butter extraction equipment		- Renegotiation on charges of use of shea processing equipments

Beneficiaries (Nadowli)

	Achievements	Expectations in near future	Suggested Improvement		
			Technical Issues	Organizational (MOFA)	Communities
DAFFIAMA					
Groundnut Processing	- 16 bags of seeds received, 9 processed - GHS180 realized from processing one bag of seed (GHS60 profit)	- To be able to buy a grinding mill - To cover more women in community		- Linkage of oil producers to market source	- Linkage of oil producers to market source
Paddy Rice Production	- Supplied seed and fertilizers for 1/4 acre - Got 2 bags from the area of 1/4 acre - New skills in rice production acquired	- Expand area of rice production - Increased income			
Gardening	- Received garden tools and seeds of okura, tomato, cabbage and pepper - Realized GHS30 from sale of tomatoes		- Provision of reliable source of water for irrigation - Access to fencing materials	- Accessibility to improved vegetable seeds - Link group to credit source to purchase fencing materials	
NANVILLI					
Pig Rearing	- 9 received, 5 females all pregnant - Learned improved husbandry practices - Now have a very good improved breed of pigs	- Have many pigs to sell and give to fellow farmers in community - Increased income		- Increase access to veterinary services - Enhance access to veterinary drugs	
Guinea Fowls	- 30 received, 21 died, 9 remains	- Surviving stocks multiply and improve local stocks - Supply other farmers in community	- Refresher training on guinea fowl rearing	- Increase access to veterinary services - Enhance access to veterinary drugs	
TABIESI					
Rabbits	- 25 received, 5 died, 76 remains (56 new born) - More farmers expressed interests in rabbit rearing	- Increase in income		- Increase access to veterinary services - Enhance access to veterinary drugs	- Adhere to technical advice from MOFA technicians - Improve

					feeding of rabbits
Guinea Fowls	- 50 received, 25 died, 25 remains	- Surviving stocks multiply to supply more beneficiaries - Increase in income			
Shea Soap	- Able to break even from processing a bag of sheanuts into soap - 138 bags received, 64 processed	- Cover more women in community - Increase in income		- Link group to financial sources	- Improve group savings to buy grinding mill
Gardening	- Gardens now have fences with wire - Now owns a watering machine - Increased yields of tomatoes and onions - Income from sale of produce (GHS650)	- Cover more gardeners in community - More fencing materials to be purchased by group			

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Final Report

Appendix K

PDA Implementation:

Designs, Results and Conclusions from the Pilot Trials, Other Suggestion and Lessons Obtained during the Implementation

Appendix K PDA Implementation: Designs, Results and Conclusions from the Pilot Trials, Other Suggestions and Lessons Obtained during the Implementation

K.1 Contents of the Pilot Trials

The Pilot Development Activities (PDAs) have been carried out with the following objectives:

(1) To introduce and demonstrate the improved agricultural technologies proposed by the Study Team for further discussion on their effectiveness,

(2) To prepare the Instruction Manuals for Agricultural Technologies and Tools, and

(3) To support beneficiary farmers' activities through the improved agricultural technologies.

The principles for the technologies to be proposed are to: i) be applied with low inputs, and ii) utilize local resources effectively.

K.2 Materials and Methods

The material and methods of the PDAs are as follows:

(1) Comparison between newly introduced methods and traditional methods

The following plots were set for verifying the effectiveness of the newly introduced technologies in comparison with the traditional methods.

Plot A: Traditional methods

Plot B and C: Introduced methods

(2) Features of the introduced technologies

The PDAs were carried out by focusing on the following technical aspects.

1) Effective use of self provided fertilizer like compost
2) Efficient feeding for animal rearing
3) Efficient crop management contributing to raising yields

The improved technologies introduced for the trials and their results are shown from the next page.

K.2.1 Compost Making and Application to Cereal Crops

(a) Cowpea and Sorghum, and

(b-1) Groundnut

(Puffien, Zakpee, Naawuie, Kogri, Nyani,)

	Plot A	Plot B
Compost making		
Collecting materials	February	
Excavation of compost pit	March Two holes 1m^3 in size excavated in the ground. In Nyani compost is piled up on the ground surrounded by a wooden frame .	
Piling	Plant residue and animal dung are layered alternately in the hole	
Watering	Sufficiently done	
Turning over	Turning the compost by moving it into the other hole	
Maturation	By May	
Planting Cowpea, Groundnut & Sorghum		
Sowing time	June	
Harvesting time	October	
Variety	Songotra, Chinese, Dorado	
Area of plots	1a	1a
Sowing amount	Cowpea: 2.5 kg/10a, Groundnut: 4.5 kg/10a, Sorghum: 5.0 kg/10a	
Planting density	Cowpea: 60×20cm, Groundnut: 40×20cm, Sorghum: 70×20cm	
Planting system	Single cropping	
Sowing	Hill seeding (2 to 3 seeds/hill)	
Compost application	Application of the prepared compost in the amount of 2t/10a uniformly all over the field. (20 head pans/100m^2	Nil
Intertillage	Intertillage is done if weeds disturb the plant growth	Nil
Control of disease and insect	Insecticide sprayed for prevention at early stage, providing 2 to 3 different types of chemical insecticides, depending on symptoms.	Nil
Harvest	From October	From October

Data to be collected

(1) Yield per unit from randomly selected area of 1m^2 for each plot

(b-2) Soybean (Zakpee)

	Plot A	Plot B	Plot C
Sowing time	June		
Harvesting time	October		
Variety	Jengumatra		
Area of plots	1.0a (10m×10m)	1.2a (10m×6m) ×2	1.0a (10m×10m)
Sowing amount	2.5 kg/10a		
Planting density	75 cm between rows × 10 cm between plants		
Planting system	Single cropping		
Sowing	Hill seeding (2 to 3 seeds/hill)		
Compost application	Application of the prepared compost in the amount of 2t/10a uniformly all over the field. (20 head	Application of NPK 15:15:15 in the amount of 16.7 kg/10a and 333 kg/10a (N2.5 kg/10a & 5.0	Nil

	pans/100m^2	kg/10a) all over the plot.	
Intertillage	Intertillage is done if weeds disturb the plant growth	Intertillage is done if weeds disturb the plant growth	Nil
Control of disease and insect	Insecticide sprayed for prevention at early stage, providing 2 to 3 different types of chemical insecticides, depending on symptoms.	Insecticide sprayed for prevention at early stage, providing 2 to 3 different types of chemical insecticides, depending on symptoms.	Nil
Harvest	From October	From October	From October

Data to be collected

(1) Yield per unit from randomly selected area of 1 m^2 for each plot

(c) Upland Rice (Zakpee)

	Plot A	Plot B	Plot C
Sowing time	June		
Harvesting time	November		
Variety	Wap		
Area of plots	1.05a (15m×7m)	1.05a (15m×7m)	1.05a (15m×7m)
Sowing amount	8 kg/10a		
Planting density	50 cm between rows		
Planting system	Single cropping		
Sowing	Drilling		
Compost application	Application of the prepared compost in the amount of 2 t/10a uniformly all over the field. (20 head pans/100m^2	Application of NPK 15:15:15 in the amount of 16.7 kg/10a (N2.5 kg/10a) all over the plot.	Nil
Intertillage	Intertillage is done if weeds disturb the plant growth	Intertillage is done if weeds disturb the plant growth	Nil
Control of disease and insect	Insecticide sprayed for prevention at early stage, providing 2 to 3 different types of chemical insecticides, depending on symptoms.	Insecticide sprayed for prevention at early stage, providing 2 to 3 different types of chemical insecticides, depending on symptoms.	Nil
Harvest	From October	From October	From October

Data to be collected

(1) Yield per unit from randomly selected area of 1m^2 for each plot

K.2.2 Lowland Rice (Daffiama)

	Plot A	Plot B
Sowing time	June	
Harvesting time	October	
Variety	Digan	
Area of plots	2a	2a
Sowing amount	8 kg/10a	8 kg/10a
Planting density	50×20cm	25×20cm
Planting system	Single cropping	
Sowing	5 to 10 seeds per hill	
Fertilizer application	Application of NPK 15:15:15 in the amount of 13.3k g/10a (N2.0 kg/10a) all	

	over the plot.	
Intertillage	Intertillage is done if weeds disturb the plant growth	
Control of disease and insect	Nil	Nil
Harvest	From October	From October

Data to be collected

(1) Yield per unit from randomly selected area of $1m^2$ for each plot

K.2.3 Okra (Tabiesi)

	Plot A (Control)	Plot B, C, D (Varied N level)
Sowing time	Dismember	
Harvesting time	From February	
Variety	Asontem	
Area of plots	2.04a (17×12m) for total 4 treatments including plot A for control with 2 replications 0.255a (6m×4.25m) for each plot	
Sowing amount	More than 600 seeds (3 seeds for each spot)	
Planting density	1.0 m furrow× 0.3 m intrarow spacing	
Planting system	2 rows, staggered row planting	
No. of plants	50 plants	50 plants for each plot X 3 = 150 plants
Sowing	Direct sowing (3 seeds for each spot)	
Fertilizer application	Nil	Application of NPK 15:15:15 around the plants in the three plots. 70% of the following dose is to be used as basal application and the balance will be applied as top dressing in accordance with plant growth. Plot B: NPK15:15:15 (N7.5kg/10a) 50kg/10a Plot C: NPK15:15:15 (N5.0kg/10a) 33kg/10a Plot D:NPK15:15:15 (N2.5kg/10a) 16.7 kg/10a
Intertillage	Nil	Intertillage is done if weeds disturb the plant growth
Control of disease and insect	Nil	Insecticide sprayed for prevention at nursery stage, providing 2 to 3 different types of chemical insecticides.
Harvest	From August	From September. Fruits will be harvested as they mature. Normally, 7 days after flowering is the right time to harvest.

Data to be collected

(1) Yield of fruits from several plants selected at random in each plot

K.2.4 Tomato (Daffiama)

	Plot A	Plot B	Plot C
Sowing time	Early September		
Transplanting time	Early October		
Harvesting time	From December		
Variety	Rio Grande (determinate type)		

Area of plots	0.5a	0.5a	0.5a
Sowing amount	ca. 20 cc		
Area of nursery	1 m×4 m		
Planting density	1.6 m furrow× 0.5 m intrarow spacing		
Planting system	2 rows, staggered row planting		
No. of plants	62 plants	62 plants	62 plants
Nursery	Nursery is heaped up 10 to 20 cm high, and the top is shaded thinly with palm leaves to avoid evaporation; the top is removed immediately after germination to prevent elongation of seedlings.		
Nursery soil	Use of top soil mixes with NPK compound fertilizer in the amount of 10 g/10L.		
Sowing	Drilling		
Nursing	Watering once a day		
Fertilizer application	Application of NPK 15:15:15 (K_2O 4kg/10a) around the plants		
Transplanting	Interrow space cut by knife to stimulate new root growth 3 days before transplanting. Watered substantially before uprooting; uprooted from the bottom of the root.		
Pruning and training	Primary stem and the first lateral shoot growing from under the first flower is trained as the secondary stem at the primary stage only. All other lateral shoots growing from below the lateral shoot trained are pinched off.	Nil	Nil
Top dressing	Fertilizer is applied around the plants in the amount of NPK 4 kg/10a at maximum, if necessary	Fertilizer is applied around the plants in the amount of NPK 4 kg/10a at maximum, if necessary	Nil
Intertillage	Intertillage is done if weeds disturb the plant growth		
Control of disease and insect	Insecticide sprayed for prevention at nursery stage, providing 2 to 3 different types of chemical insecticides, depending on symptoms.		
Harvest	From January	From January	From January

Data to be collected

(1) Yield of fruits from several plants selected at random in each plot

K.2.5 Green Pepper (Nanvilli)

	Applied technologies
Sowing time	Early September
Transplanting time	Early October
Harvesting time	From December
Variety	California Wonder
Area of plots	0.5a
Sowing amount	ca. 20 cc
Area of nursery	1 m×4 m
Planting density	1.6 m furrow× 0.5 m intrarow spacing
Planting system	2 rows, staggered row planting
No. of plants	62 plants
Nursery	Nursery is heaped up 10 to 20 cm high, and the top is shaded thinly with palm leaves to avoid evaporation; the top is and removed immediately after germination to prevent elongation of seedlings.
Nursery soil	Use of top soil mixes with NPK compound fertilizer in the amount of 10 g/10L.

Sowing	Drilling
Nursing	Watering once a day
Fertilizer application	Application of NPK 15:15:15 (K_2O 4 kg/10a) around the plants
Transplanting	Interrow space cut by knife to stimulate new root growth 3 days before transplanting. Watered substantially before uprooting, and uprooted from the bottom of the root.
Pruning and training	Primary stem and two or three of the vigorous secondary stems are trained at the primary stage only. All other lateral shoots growing from below the lateral shoot trained are pinched off.
Top dressing	Fertilizer is applied around the plants in the amount of NPK 4 kg/10a at maximum if necessary
Intertillage	Intertillage is done if weeds disturb the plant growth
Control of disease and insect	Insecticide sprayed for prevention at nursery stage, providing 2 to 3 different types of chemical insecticides, depending on symptoms.
Harvest	From December

Data to be collected

(1) Yield of fruits from several plants selected at random in each plot

K.2.6 Cabbage (Tome-Kokoduor)

	Plot A	**Plot B**
Sowing time	Early October	
Transplanting time	Mid November	
Harvesting time	January to February	
Variety	F1 Oxylus	
Area of plots	0.5a	0.5a
Sowing amount	ca. 20 cc	
Area of nursery	1 m×4 m	
Planting density	40× 30 cm	30× 30 cm
Planting system	2 rows, staggered row planting	
No. of plants	100 plants	100 plants
Nursery	Nursery is heaped up 10 to 20 cm high, and the top is shaded thinly with palm leaves to avoid evaporation; the top is removed immediately after germination to prevent elongation of seedlings.	
Pricking out	Seedlings are pricked out from the nursery and pre-planted properly in the density of 30 cm by 30 cm before transplanting to the permanent field to keep adequate spacing by stage	Nil
Nursery soil	Use of top soil mixes with NPK compound fertilizer in the amount of 10 g/10L.	
Sowing	Drilling	
Nursing	Watering once a day	
Fertilizer application	Application of NPK 15:15:15 (K_2O 4 kg/10a) around the plants	
Transplanting	Interrow space cut by knife to stimulate new root growth 3 days before transplanting. Watered substantially before uprooting and uprooted from the bottom of the root.	
Top dressing	Fertilizer is applied along the planting row on the bed in the amount of NPK 4 kg/10a at maximum if necessary	
Intertillage	Intertillage is done if weeds disturb the plant growth	
Control of disease and insect	Insecticide sprayed for prevention at nursery stage, providing 2 to 3 different types of chemical insecticides, depending on symptoms.	
Harvest	From January to February	

Data to be collected

(1) Yield of fruits from several plants selected at random in each plot

K.2.7 Melon (Tabiesi)

	Improved technologies
Sowing time	Early December
Transplanting time	Late December
Harvesting time	From February
Variety	Prince melon, Bonus 2
Area of plots	4a
Sowing amount	300 seeds
Area of nursery	1m×3m
Planting density	1.8 m furrow× 1.2 m intrarow spacing
Planting system	1 row planting
No. of plants	222 plants
Nursery	Plug seedlings raised in plastic cups or leaves of palm or banana. Alternatively, soil block seedlings raised in wooden boxes. Top is shaded with palm leaves.
Nursery soil	Use of top soil mixes with NPK compound fertilizer in the amount of 10 g/10 L.
Sowing	1 seed is sown for each pot depending on germination ratio
Nursing	Watering once a day
Field preparation	The field is plowed and prepared with assistance of men
Fertilizer application	Application of NPK 15:15:15 (N5 kg/10a) around the plants in both plots. After transplanting, liquid fertilizer treated by dissolving the same fertilizer in water is applied if necessary.
Transplanting	Hardening of seedlings 5 days before transplanting by reducing watering and removal of shading structure. Seedlings are transplanted with complete soil block taken out from the pots.
Pruning of plants	Primary vine is pinched off leaving 6 leaves, and 4 of the vigorous secondary vines are selected and grown in the same direction. Tertiary vines are pinched off up to the fruit set node and then all the vines are left as they grow after fruit set
Watering	Watering once a day
Fruit thinning	First female flowers on each vine are removed and set fruits after 10th node on each vine.
Weeding	Weeds removed 3 times in the planting period
Top dressing	Fertilizer is applied around the plants in the amount of NPK 6 kg/10a at maximum, if necessary
Intertillage	Intertillage is done if weeds disturb the plant growth
Control of disease and insect	Insecticide sprayed for prevention at nursery stage, providing 2 to 3 different types of chemical insecticides.
Harvest	Starting from August. Harvesting 40 to 45 days after flowering or 10 to 14 days after disappearance of stripe on the fruit surface. Optimum time for harvesting determined by fruit size and knocking sound.

Data to be collected

(1) Yield of fruits per unit from randomly selected areas in each plot

K.2.8 Pig (Zakpee, Kogri, Nyani, Nanvilli)

	Proposed rearing technology
Purchasing piglets	March
Age of piglet	6 weeks after weaning
No. of piglets for supply	4 piglets for each farmer; 3 farmers
Rearing period	6 months after birth
Variety	Ashanti Black
Wt. of piglet released	7 kg

Area of pigpen	1 m × 2 m for each cell
Roofing	Roofless
Feeding	Compound feed for 120 days that was prepared by Babile is supplied to the beneficiaries. Farmers must provide feed by themselves after it is consumed. Feeding 0.5 kg/day on average for 6 months to 90 kg in total consumption. Starting with less feeding, gradually increasing as pig grows fatter
Watering	As much as needed
Maturing	Ready for sale after 6 months old and weighing 30 kg
Disease prevention	Nil

Data to be collected

(1) Weight gained after 6months

(2) Feed efficiency

Calendar (Farming Schedule)

Communities	Crop	2009										2010	
		Mar	Apr.	May	Jun.	Jul.	Aug	Sep.	Oct.	Nov.	Dec.	Jan.	Feb.
Puffien Tome -Kokoduor Zakpee Naawuie Kogri Nyani,	Cowpea Sorghum				S			H					
Zakpee	Upland rice				S					H			
Zakpee	Soybean					S				H			
Daffiama	Lowland rice				S				H				
Tabiesi	Okra										S	H	
Daffiama Tome -Kokoduor	Tomato							S	T			H	
Nanvilli	Pepper Eggplant							S	T			H	
Nanvilli Tome -Kokoduor	Cabbage							S	T			H	
Tabiesi	Melon										S T		H
Zakpee Naawuie Kogri Nyani Nanvilli	Pig												

S: Sowing, T: Transplanting, H:Harvesting

K.3 Results and Discussion

K.3.1 Compost Making and Applying to Cereal Crops

(a) Cowpea and Sorghum (Puffien, Zakpee, Naawuie, Kogri, Nyani,)

Tabulated results from the trial regarding cowpea are shown in Fig. 1. The values of the yield indicated are the average of 4 communities, including Puffien, Zakpee, Kogri and Naawie. Fig.2 shows the average yield of sorghum resulted from Puffien, Kogri and Naawie. The yields of both crops from Kogri are indicated separately due to their extremely high value, but they are included in the total means in the figures. The following points are however observed from the results.

- The yields of cowpea and sorghum produced from the PDA trials were much higher than the average yield in the whole of Ghana, which are 860 kg/ha and 740 kg/ha respectively.
- Effects of compost on the yield were clearly observed to be of a significant level. The yield of cowpea from the plot with compost application reached 1633.0 kg/ha, while the other plot without compost application yielded only 1043.7 kg/ha. The yield of sorghum was also accelerated by the application of compost. The yield of sorghum from the plot with compost application was 3942.5 kg/ha, as compared with 1855.0 kg/ha from the plot without compost application.
- This tendency could be observed not only from the average of the 4 communities but also from each community, which showed the same tendency.
- Increase rates of the yield of cowpea and sorghum by compost application were 56.5% and 112.5% respectively compared with those from non-compost plots.
- As all of these results indicate, significant levels of difference in yields occurred between the compost and non-compost treatments.

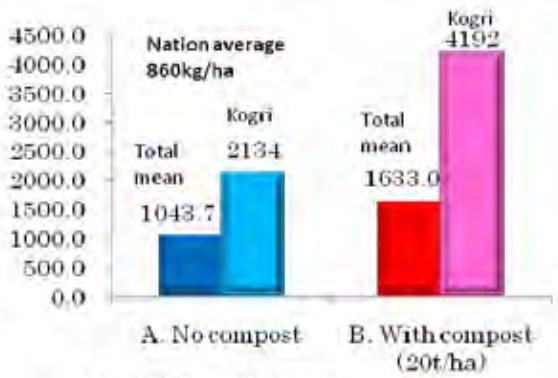

Fig. 1. Yield of Cowpea (kg/ha)

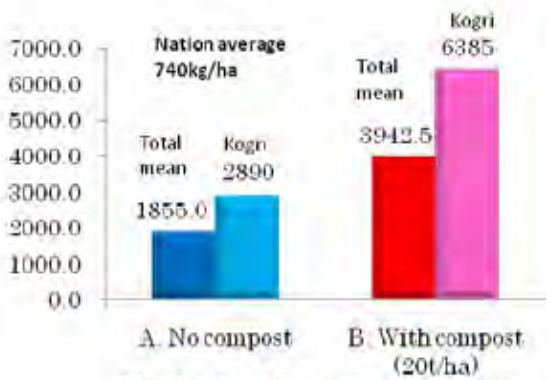

Fig. 2. Yield of Sorghum (kg/ha)

(b) Groundnut and Soybean (Zakpee)

The results are shown in Fig.3 and 4. The experiments were carried out only in Zakpee for groundnut and soybean. In addition to the treatment with compost application, the effects of compound fertilizer 15-15-15 were also tested only for soybeans. The following points however can be derived from the results.

- The yield of groundnut produced in the PDA site was extremely low as compared with the average yield of groundnut in the whole country, which is 880 kg/ha. The yield of soybeans was

also very low compared to the world standard yield, which is almost 2 t/ha on average.

- Effects of compost on the yield were clearly observed to be of significant level similar to the yield for cowpea and sorghum, despite the low level of yield compared with the standard level of yield. The yield of groundnut from the plot with compost application was 606 kg/ha, while the other plot without compost application yielded only 294 kg/ha.
- The same tendency could also be observed for the soybean yield, but compound fertilizer accelerated more yield than compost. The soybean yields from the plots with compost and compound fertilizer at applications of 166 kg/ha (25 kg/ha on N base) and 333 kg/ha (50 kg/ha on N base) were 344 kg/ha, 437 kg/ha and 529 kg/ha respectively compared with 260 kg/ha from the control plot.
- Increase rates of the yield of groundnut and soybeans by compost application were 106.1% and 32.3% respectively compared with the yield the from non-compost plot. Compound fertilizer contributed more to increasing the rate of soybean yield. The plots with applications of 166 kg/ha and 333 kg/ha were increased by 68.1% and 103.5% respectively.
- As all the results indicate, significant levels of difference occurred between the treatments with compost application and those without the application. The effect of chemical compound fertilizer could be also clearly observed for the yield of soybeans, and chemical compound fertilizer was shown to contribute more to the increase of the yield than compost.

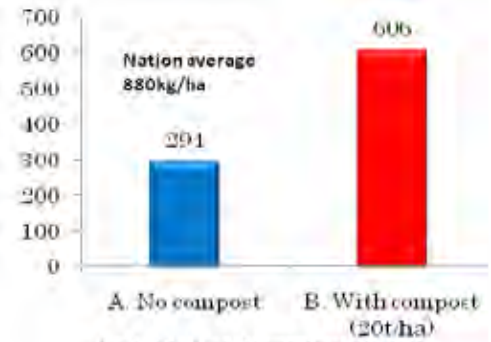

Fig.3. Yield of Groundnut (kg/ha)

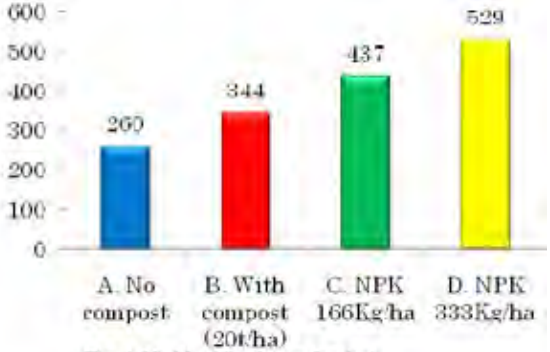

Fig.4. Yield of Soybean (kg/ha)

(c) Upland rice (Zakpee)

Fig. 5 shows the effects of compost and compound fertilizer 15-15-15. This particular experiment was conducted only in the soybean experimental plot in Zakpee. From the results, the following points were observed.

- The yield of upland rice produced in the PDA site was extremely low. Even the highest yield, 975 kg/ha, which was produced in plot C with the application of compound fertilizer, was far below the compensation point of 2 t/ha in general for upland rice production.
- Such low yields were caused by the severe drought occurring at the initial stage after germination. Slow and incomplete vegetative growth seriously affected panicle formation, especially in the control plot, in which production was nil due to the incompletion of panicle formation. The plants in the other plots also barely developed panicle formation under the drought conditions. Such

poor performance was also due to the low fertility of the soil, as shown in Table 1, which shows the results of soil analysis in terms of PH, N-NO_3 and K_2O.

- Despite the low yields for all the treatments, the effects of compost and compound fertilizer were clearly observed in the yield. Especially compound fertilizer was verified to contribute to a greater acceleration in the yield. The grain yield with husks from the plots with compost and compound fertilizer were 525 kg/ha and 975 kg/ha respectively.
- Increase rates by application of compost and compound fertilizer cannot be indicated due to the zero yield in the control plot used for comparison as the standard.

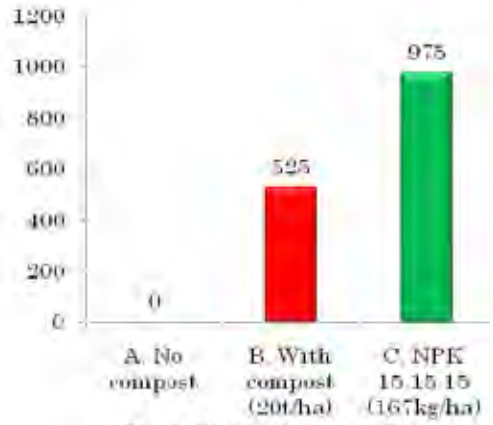

Fig.5. Yield of Upland Rice (kg/ha)

Table 1. Soil Nutrient Value

	Ph	**NO_3-N**	**K_2O**
		mg/100g	mg/100g
Zakpee rice plot	6.9	8.3	0.723

Conclusions and Recommendations Based on the Results of Compost Application

- Compost application had a significant effect on the increase of yields as compared with non-compost application. It was verified that compost could be utilized by plants as a nutrient source in the short term, even with an application just before the sowing of seeds.
- The yields of cowpea and sorghum produced in Kogri were extremely high, which is presumed to be partly because of the location of the PDA site, which was situated in a compound field rather rich in plant nutrients.
- Compost should be applied sufficiently to produce its full effect on crop yield. The application of at least 20 t/ha of compost is recommended. The most efficient way of compost preparation should be investigated in order to supply sufficient quantities of compost for cereal crops on a practical level.
- Compound fertilizer contributes more to the increase of yields than compost in soybean and upland rice production.

K.3.2 Lowland Rice (Daffiama)

The results of the trial on lowland rice conducted in Daffiama are shown in Fig. 6. This particular experiment was carried out to ascertain the adequate planting density of lowland rice in the natural paddy condition. The following points can be derived from the results.

- The yield of rice was quite satisfactory. Even in comparison with the standard level of the yield in Ghana (1,700 kg/ha), both of the treatments showed much higher yields. This might be partly because of high soil fertility, especially in nitrogen level as shown in Table 2.
- Planting density seemed to directly affect the yield. Plot B, in which rice plants were densely planted (25×20cm), yielded 4,138 kg/ha, while Plot B, which was coarsely planted (50×20cm), yielded only 2,635 kg/ha, but which is still higher than the average level in Ghana.

Conclusion

- Dense planting up to the level of 25×20cm has a positive effect on the yield, but this tendency may not be seen if the soil is unfertile, especially in terms of nitrogen level in paddy conditions.
- Further tests should be repeatedly conducted in various places before a final evaluation of the effects of planting density of rice plants on yield can be determined. Optimum density is supposed to vary according to soil fertility.

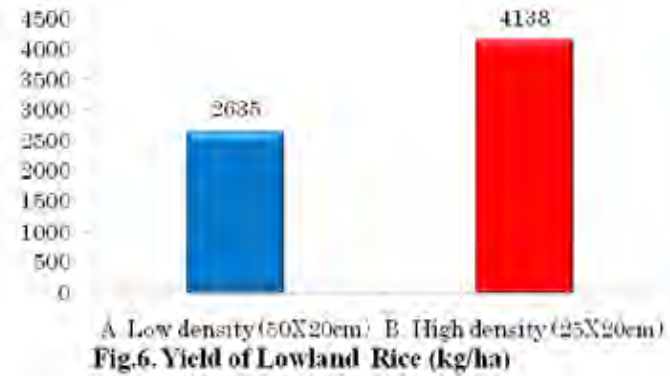

Fig.6. Yield of Lowland Rice (kg/ha)

Table 2. Soil Nutrient Value

	Ph	NO_3-N	K_2O
		mg/100g soil	mg/100g soil
Daffiama rice paddy plot	5.2	43.0	2.651

K.3.3 Okra

The trials were made but have yet to be completed.

K.3.4 Tomato (Daffiama)

Tabulated results from the trial regarding tomato production conducted in Daffiama are shown in Fig. 7. Each treatment is described in the table (4). Treatment A is pruning and top dressing; treatment B is top dressing alone; and treatment C is the control. The following points are observed from the results.

- The yield of tomatoes in the trial site was quite satisfactory. Even treatment C, which is the control plot, produced 18.5 3t/ha, which is much higher than the average yield of tomatoes in

Ghana (5.29 t/ha).

- Significant differences in the yields occurred among treatments, especially by the effect of topdressing, with treatments A and B yielding 28.80 t/ha and 25.38 t/ha respectively, higher than the yield for treatment C.
- Although slight damage caused by the disease "Alternaria" was observed during the planting period, it was serious enough to have a crucial effect on production.
- It was observed that the abortion or fruit drop rates could be reduced by pruning, which resulted in the difference of yield between treatment A and B.

Conclusion

- Effects of pruning and top dressing, particularly on growth and tomato yield, were confirmed both by the data and visual observation.
- The same trial should further be conducted for evaluation of yield before recommending the treatments as appropriate technologies to farmers.

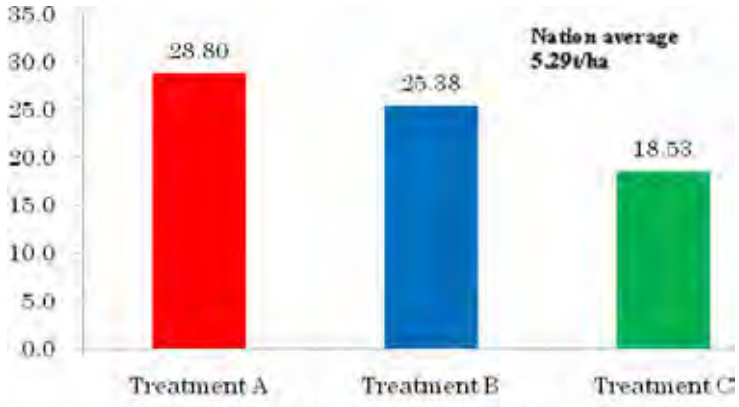

Fig.7. Yield of Tomato (t/ha)

K.3.5 Green Pepper (Nanvilli)

The result is shown Table 3. The trial on peppers was carried out only in Nanvilli. Due to severe drought and shortages of water for irrigation however, green peppers were tested just to know their potential yield in the dry season without setting any treatments in comparison. In addition, this trial was suspended on 26 January 2010 during harvesting because of an invasion of animals that almost totally damaged the test plants.

- Green pepper plants produced extremely low yield (4.36 t/ha), due to the severe drought and slow recovery after that, which caused insufficient vegetative growth and subsequent poor yield due to abortion and decreased fruit size.
- Fruit size was very small and a lot of abortion was also observed on the plants.

K.3.6 Cabbage (Tome-Kokodour)

Fig. 8 shows the results of the trial on cabbage in Tome-Kokoduor. Treatment A is pricking

out from the seeding nursery to pricking nursery, and re-transplanting from there to the permanent field to keep adequate spacing by stage. Treatment B is transplanting once directly from seeding nursery, the common practice. The following points were observed through the trial.

- Effect of pricking out on the yield could not be observed in this trial. The yield of treatment A was much lower than that of treatment B (29.0 t/ha and 79.1 t/ha respectively).
- Pricking out affected later growth of the plants as well as yield more than the merits that should occur despite keeping wider spacing in the permanent field. The pricked seedlings were observed to be still in recovery from the shock by transplanting them twice.

Conclusion

- A proper conclusion cannot be made at this point due to the occurrence of inevitable factors like drought. Further trials need to be repeatedly carried out.

Table 3. Yield of Green Pepper

Yield (t/ha)	Mean Fruit wt. (g)
4.36	30

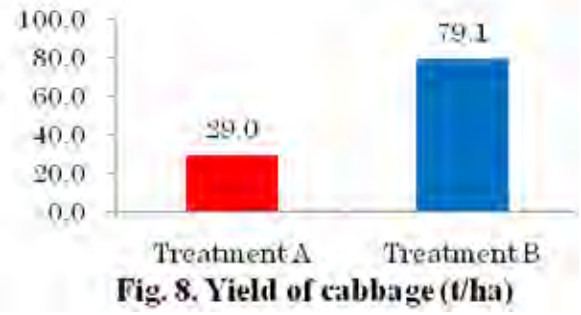

Fig. 8. Yield of cabbage (t/ha)

K.3.7 Melon (Tabiesi)

Tabulated results from the trial on melons and their sales conducted in Tabiesi are shown in Table 4 and 5. This was the first trial to introduce melons as a new crop to the local farmers. Two varieties were tested in the trial, prince melon and bonus 2, which are early maturing type with smooth skin and late maturing type with netted skin respectively. During the planting period, water in the irrigation pond was dried off and almost 5,000 liters of water were transported almost every day from another pond 2 km away from the experimental field. The following points are observed from the results.

- The number of fruits produced on the plants was moderate. It was not as satisfactory a level as obtained in the rainy season in the same trial, but not very poor.
- Harvesting of the prince melons was started on Feb. 15, 2010, and has continued even after the Japanese study team left the site on expiration of the mission. As of Feb. 20, 2010, 368 fruits have been harvested as marketable products, and 350 fruits were counted in the field as leftover for further ripening.
- The maturing of the bonus 2 melons was almost 1 week later than that of the prince melon. This is due to the different characteristic between the two varieties. Bonus two has not been harvested while the study team was on duty in Upper West Region, but 227 fruits were counted on the plants.

- During the planting period, severe drought conditions exposed the melon plants and almost 10% of the plants leached to death by wilting due to water shortage. These conditions caused a reduction in the mean number of fruits produced on each plant (2.36 fruits/plant on average for the two varieties).
- Damage by the fruit fly could be completely controlled by the application of a fladan solution on the fruit surface, mixed with detergent as sticker. Only 6 fruits have been damaged by fruit fly larva.
- As of Feb. 25, 2010, 368 fruits were shipped to Accra and sold out at ¢ 1.44 for each on average. The price was set depending on size; medium-sized fruit was sold at ¢ 1.50, and smaller ones at ¢ 1.00. Total sales as of Feb. 25, 2010 were ¢ 530.00.

Conclusion

- Local climatic conditions in Upper West Region are suitable for melon production if irrigation water is always available.
- Melon could have great potential to be a special product for Upper West Region.
- The same trial should further be conducted for evaluation of yield before recommending it as appropriate technology to farmers.

Tble 4. Yield of melon

	No. of plants	No. of fruits	No. of fruits / plant
Prince melon	300	718	2.39
Bonus 2	100	227	2.27
Total	400	945	(Average) 2.36

Table 5. Sales of melon

No. of fruits for sale	Sales (¢)	Mean price / fruit (¢)	Expected total sales (¢)
368	530.00	1.44	1,360.00

The results and conclusion for melon production based on the 2 trials in Tabiesi community are described in the main report. The following is the cost estimate for melon production obtained from the trials:

Fixed cost

Item	Quantity	Cost (GHS)	Durability (Years)	Depreciation / year
Pickaxe	2	14.00	3	4.67
Cutlass	2	9.00	3	3.00
Shovel	2	12.00	3	4.00
Head pan	2	12.00	3	4.00
Hoe	2	9.00	3	3.00
Pump 4.5HP	1	450.00	5	90.00
P-Pipe	50m	150.00	5	30.00
Suction pipe	6m	100.00	5	20.00
Tube	100m	100.00	3	33.33
Joint, Bulb, Filter,	Complete set	100.00	5	20.00
Sprinkler	4	100.00	3	33.33
Sprayer	1	26.00	3	8.67
Total		1082.00		254.00

Variable cost

Item	Quantity	Cost (GHS)
Seed	400 seeds	120.00
Fertilizer	50kg	56.00
Insecticide	2 bottles	20.00
Fungicide	2 bottles	20.00
Fuel for pump	18 gallons	90.00
Engine oil	1 gallons	8.00
Total		314.00

K.3.8 Pig (Zakpee, Nyani, Kogri, Nanvilli)

Table 4 shows the results of the trial on pigs in terms of weight gained and feed efficiency in the communities of Nyani, Zakpee, Kogri and Nanvilli. This trial was conducted under the instruction of Babile Pig Breeding Station to verify the effectiveness of intensive pig rearing by giving balanced feed in the protected structures. According to the results, the following points were observed.

- The weights of pigs at 180 days varied according to each of the PDAs sites, which was most probably due to the different feed given after the supplied feed was consumed in 120 days. This indicates that some of the beneficiaries could not constantly provide sufficient and balanced feed by themselves unless proper feed is supplied.
- The highest weight was observed in Zakpee, 40.18 kg in 180 days with 0.2232 kg in daily gain, while the lowest weight, 16.7 kg was recorded in Kogri for the same duration with 0.0943 kg in

daily gain. This might be caused by overfeeding at the initial stage in Zakpee due to mismanagement by the beneficiary.

- Feed efficiency in Zakpee was the highest (36.9%) among the PDA sites, but this value might be due to overfeeding as mentioned above. The feed efficiency in Nyani, 31.1%, is the most ideal value, and a weight of 34.97 kg is an adequate size for sale as a living pig at the age of 180 days.

Conclusion

- Pigs can be sufficiently fattened for sale in 180 days by adequate feeding at the satisfactory rate of feed efficiency if they are well-cared for in accordance with the instructions given by Babile Pig Breeding Station.
- Overfeeding contributed to the acceleration of the growth of pigs, as could be seen in Zakpee by mistake, but the feeding cost may exceed the sales profit.
- Further test should be repeatedly conducted before evaluating the feed efficiency and adequate rearing period for fattening pigs for sale.

Table 4. Weight Gained and Feed Efficiency of Pig

	Wt. at 180 days (kg)	Daily gain (kg)	Gain rate (%)	Feed efficiency (%)
Nyani	34.97	0.1943	399.6	31.1
Zakpee	40.18	0.2232	473.9	36.9
Kogri	16.97	0.0943	142.5	11.1
Nanvilli	26.73	0.1485	281.9	21.9
Mean	29.71	0.1651	324.5	25.2

K.3.9 Groundnut Oil Production

The following table shows the result of the first trial of groundnut processing into oil and kurikuri as summarized in 3.2.8 of the main text:

Income				Cost		
Date	Item		Price	Date	Item	Price
2009/3/4	Sale of Groundnuts Oil	53	79.50	2009/3/1	Groundnuts (7 bags)	840.00
	Sale of Kurikuri	35	70.00	2009/3/5	Milling of Groundnuts	57.00
2009/3/5	Sale of Groundnuts Oil	27	40.50	2009/4/11	Milling and Market Expences	25.00
	Sale of Kurikuri	23	46.00			
2009/3/12	Sale of Groundnuts Oil	42	63.00			
	Sale of Kurikuri	33	66.00			
2009/3/16	Sale of Groundnuts Oil	10	15.00			
	Sale of Kurikuri	8	16.00			
2009/3/21	Sale of Groundnuts Oil	10	15.00			
	Sale of Kurikuri	17	34.00			
2009/3/26	Sale of Groundnuts Oil	14	21.00			
	Sale of Kurikuri	11	22.00			
2009/3/27	Sale of Groundnuts Oil	7	10.50			
	Sale of Kurikuri	8	16.00			
2009/4/13	Sale of Groundnuts Oil	53	79.50			
	Sale of Kurikuri	35	70.00			
2009/4/14	Sale of Groundnuts Oil	11	16.50			
	Sale of Kurikuri	9	18.00			
2009/4/28	Sale of Groundnuts Oil	12	18.00			
	Sale of Kurikuri	9	18.00			
Total			734.50	Total		922.00
Total Profit			-187.50			

Sales Price:	Groundnuts Oil @1.5	Cost:	Groundnuts	840.00
	Kurikuri @2.0		Other Costs	82.00

K.3.10 Shea Nut Processing

The following 2 tables show the results of the first and second trials of shea nut processing into soaps as summarized in 3.2.8 of the main text:

First Trial

Date	Particular	amout	Date	Particular	Amount
28/04/2009	Sale	60.00	00/04/2009	Materials given by the study team*	1745.00
16/05/2009	Sale	227.70	16/05/2009	Palm oil	20.00
03/06/2009	Sale	140.00	14/06/2009	Ingredients	4.00
15/06/2009	Sale	62.00	16/06/2009	Unit for call	2.30
			"	Photocopies of document	1.00
			"	Transportation	30.00
			"	Photo for opening account	7.50
27/06/2009	Sale	270.00	"	Food	4.00
03/07/2009	Sale	290.00	03/07/2009	Transportation	10.00
			04/07/2009	Soda (3 bags) & Palm oil (3 gallons)	250.00
			"	Transportation	10.00
21/07/2009	Sale	24.30			
27/07/2009	Sale	43.50	27/07/2009	Ingredients	13.30
01/08/2009	Sale	89.00			
02/08/2009	Sale	110.00			
13/08/2009	Sale	240.00	13/08/2009	Soda (3.5 bags)	310.00
03/09/2009	Sale	118.00			
14/09/2009	Sale	121.00	14/09/2009	Color	1.00
			"	Palm oil	218.00
			22/09/2009	Food	9.00
			23/09/2009	Ingredients	4.30
27/09/2009	Sale	98.00	27/09/2009	Palm oil & Palm kernel oil	73.00
			27/09/2009	Food	1.00
			00/00/2009	Sheanuts (50 bags)	1500.00
TOTAL		**1893.50**	**TOTAL**		**4213.40**
TOTAL PROFIT		**-2319.90**			

Note	Sub-total	sheanuts	1500.00
The details of sales have not been recorded.		other materials	2713.40

* Details of the materials given by the study team are as follows.

Palm oil	50 gallongs
Caustic soda	3 bags
Hand gloves	2 boxes
Rubber sheets	60 sheets
Cawilin powder	10 bags
Plastic bowls	20 bowls
Palm kernel oil	100 gallons
Color	2 boxes
Perfume	2 gallons

Second Trial

Income			Cost		
Date	Item	Price	Date	Item	Price
01/10/2009	Round Soap x70	14	01/10/2009	Soda x1bag	60
	Key Soap x30	45		Palm oil x1 rubber	24
06/10/2009	Round Soap x412	82		Palm kernel oil x1 rubber	27
	Key Soap x21	32	10/11/2009	Sheanuts @24 x58 bags	1,392
19/10/2009	Round Soap x200	40	24/11/2009	Sheanuts @30 x20 bags	600
	Key Soap x20	30	/ /2009	Soda x1.5 bags	60
25/10/2009	Round Soap x100	20		Palm oil & Palm kernel oil	45
30/10/2009	Round Soap x225	45	28/01/2010	Iron pot	40
11/12/2009	Round Soap x 611	122			
	Key Soap x45	68			
24/12/2009	Round Soap x200	40			
	Key Soap x18	27			
30/12/2009	Round Soap x425	85			
	Key Soap x35	53			
07/01/2010	Round Soap x205	41			
	Key Soap x11	17			
17/01/2010	Round Soap x300	60			
	Key Soap x16	24			
Total		844	Total		2,248
Total Profit		-1,404			

Price:	Round Soap @0.20	Cost:	Sheanuts	1,992
	Key Soap @1.50		Other materials	256

K.4 Lessons Learnt

The following points are the lessons learnt from the PDAs. These lessons were gained from the outcomes of the PDAs and the suggestions made by DAOs, AEAs and the beneficiaries of the PDAs at the Monitoring and Evaluation Workshops in each district.

K.4.1 Technical Aspect

(Compost)

1. The effects of compost on the growth of crops have been clearly observed in Zakpee, Kogri and Tabiesi. The farmers in those communities have understood that compost can be easily prepared with available materials.
2. There is a need to have a means of transportation to collect and carry organic materials for making compost.
3. The volume of compost produced in a pit is too small to cover the farmland. It is also hard to dig a compost pit where rocks are near the ground surface. Making compost on the ground should therefore be considered. If the volume of prepared compost is small, it is recommended that the compost be applied for dry season vegetables rather than other food crops because such vegetables are grown on a smaller scale and are more remunerative.

(Crop and Vegetable Production)

4. Vegetable production in the dry season is on a small scale and the volume is too small to carry the vegetables to markets. Organizing farmers into a group to collaboratively cultivate and sell crops should be considered.
5. It was suggested by DAOs and AEAs in Nadowli that community people need more training on nursery management for paddy rice production.

(Post-harvest)

6. In the PDA related to the post harvest in Kogri, beneficiaries successfully purchased new tarpaulins with the income they obtained from renting out tarpaulins to other farmers. They are planning to purchase more in this way.

(Livestock Development)

7. In collaboration with Babile Pig Breeding Station, the improved breed, Ashanti Black pigs, have been supplied to 5 communities. All of them grew well and the beneficiaries favored their growth rates compared to local breeds. As a result of training on pig rearing and feeding, the beneficiaries have kept the piggeries in a clean state and fed the pigs properly.
8. It was suggested by DAOs and AEAs as well as beneficiaries that the housing structure for pig rearing be improved to have pigs exercise outside and that there should be preventive measures for preventing mother pigs from crushing piglets.
9. It was suggested by DAOs and AEAs that more refresher training courses on small ruminants rearing be conducted for them in Lawra.
10. It was suggested by DAOs, AEAs and beneficiaries in Jirapa-Lambussie that the availability of feed ingredients for pigs be improved.
11. It was suggested by DAOs, AEAs and beneficiaries in Jirapa-Lambussie that medication and housing for rabbits be improved and that the community people should improve the feeding of and sanitation for rabbits.
12. It was suggested by DAOs, AEAs and beneficiaries in Jirapa-Lambussie that community people should relocate the uncolonized beehives.

(Processing)

13. In the processing work for groundnut oil extraction, the roasting of groundnut takes a considerable length of time. If the beneficiaries can bear the purchasing cost, introduction of a roaster should be considered.

K.4.2 Institutional Aspect

(Division of Roles**)**

1. It was observed that the resource persons for training were not clearly defined between MOFA regional and district offices. It is preferable to have district officers and/or AEAs conduct the training on the subjects which they are capable of, as they are closer to the community people and more fluent in local languages.

(Trainer Capacity**)**

2. Most of the DAOs and AEAs are confident in conducting training on farming, compost making,

pig and rabbit rearing, management of livestock huts, agro-forestry and post-harvest, while they are not capable of providing training on grafting and processing.

(Extension)

3. In the PDAs, only limited numbers of women's groups were trained on processing. They are expected to function as extension agents and should be supported by AEAs to successfully transfer the technologies leant through the training to other members in the community.
4. In some communities there are potential leaders who could act as key extension agents. One example was found in Tabiesi, where two extension volunteers, introduced by CIDA's FARMER project, were functioning as extension agents. They assisted the community people in collectively producing compost under PDAs.

(Finance)

5. For the shea soap making trial in Tabiesi, it was suggested by DAOs and AEAs that the community people should renegotiate the charges for using the shea butter extraction equipment. Beneficiaries suggested that MOFA link the beneficiary group to financial sources and that the community people should increase their group savings so that they can buy grinding mills.
6. It was suggested by beneficiaries in Nadowli that MOFA link the farmers groups to credit sources so that they can purchase fencing materials for dry season gardening.

K.4.3 Administrative Aspect

1. DAOs and AEAs have difficulties fully carrying out their functions for the community people due to the limited supply of fuel provided to them.
2. It was suggested by DAOs, AEAs and beneficiaries in Jirapa-Lambussie that communication between MOFA staff and community people needs to be improved. It was also suggested that the mobility of AEAs should be improved.

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Appendix L

Benefit Revolving System

Appendix L Benefit Revolving System

The Study Team has introduced the Benefit Revolving System (BRS) to the PDAs as an effective way to spread the benefits of the PDAs to the community people. The concept and the way to implement the BRS are explained in Chapter 5 of the main text.

L.1 Expected Annual Sales by Beneficiaries

For the PDAs aiming to increase incomes, the Benefit Revolving Plans have been made based on the actual costs of the inputs and the estimated incomes from them. The Plans have been discussed and agreed among the beneficiaries, MOFAUWR staff and the Study Team. The table below shows the revenue generating PDAs, their components, expected annual sales from each component with the starting year, and the target years for "Full Reimbursement". "Full Reimbursement" refers to the year when the first beneficiaries accumulate enough revenue to purchase the same quantity of the same kind of inputs given by the Study Team for the second group of beneficiaries. It should be noted that all the contents of Tables L.1 and L.2 are based on the beneficiaries' calculations of harvest and sales. The fact that there are great discrepancies in calculations of sales of the same products indicates that some beneficiaries are not well aware of true market price of the commodities. However, after the actual sales, they will find out the current market price and can correct the figures. Through this exercise, the PDA beneficiaries can learn how to plan the sales of their products.

Table L.1 The PDA's Expected Annual Sales by the Beneficiaries

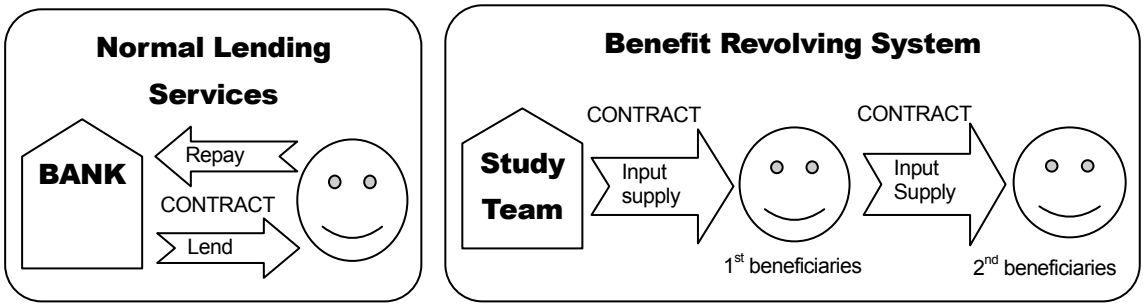
	PDA	PDA Component	Expected Annual Sales From the Component	Target Year for "Full Reimbursement*"
Puffien	PDA 1 Integrated Farming	Cow pea	(Begins in 2009) 40	2013
		Sorghum	(Begins in 2009) 112	2010
		Goat	(Begins in 2012) 200	2017
		Sheep	(Begins in 2012) 500	2014
	PDA 2 Mango Planting	Mango	(Begins in 2014) Varies	2015
Tome-Kokodour	PDA 1 Integrated Farming	Cow pea	(Begins in 2010)240	2010
		Sorghum	(Begins in 2010) 144	2010
		Goat	(Begins in 2011) 210	2013
		Sheep	(Begins in 2011) 165	2015
	PDA 2 Dry Season Gardening	Tomato	(Begins in 2010) 420	2010
		Onion	(Begins in 2010)200	2010
		Okra	(Begins in 2010) 80	2011
		Egg-plant	(Begins in 2009) 50	2011
		Cabbage	(Begins in 2010) 80	2011
Zakpee	PDA 1 Integrated Farming	Upland rice	(Begins in 2009) 40	2010
		Soya bean	(Begins in 2009)80	2010
		Groundnut	(Begins in 2009) 15.6	2014
		Cow pea	(Begins in 2009) 50	2010
		Pig	(Begins in 2010) 750	2010
	PDA 3 Pig Rearing	Pig	(Begins in 2010) 375	2015
Naawuie	PDA 1 Integrated Farming	Sorghum	(Begins in 2010) 24	2013
		Cow pea	(Begins in 2010) 144	2010
		Pig	(Begins in 2010) 192	2011
	PDA 3 Bee Keeping	Honey	(Begins in 2010) 90	2012

	PDA	PDA Component	Expected Annual Sales From the Component	Target Year for "Full Reimbursement*"
Kogri	PDA 1 Pig Rearing And Compost Making	Sorghum	(Begins in 2010) 160	2010
		Cow pea	(Begins in 2010) 160	2010
		Pig	(Begins in 2010) 288 (Except 2011)	2012
	PDA 3 Bee Keeping	Honey	(Begins in 2010) 50	2014
Nyani	PDA 1 Integrated Farming	Cow pea	(Begins in 2009) 90	2010
		Sorghum	(Begins in 2010) 30	2012
	PDA 3 Agro-forestry	Mango	(Begins in 2012) Varies	2014
	PDA 5 Rabbit and Pig Rearing	Rabbit	(Begins in 2010) 180	2010
		Pig	(Begins in 2010) 504	2010
Daffiama	PDA 1 Small Scale Irrigation For Paddy and Vegetables	Tomato	(Begins in 2010) 225	2010
		Pepper	(Begins in 2010) 420	2010
		Onion	(Begins in 2010) 1200	2010
		Okra	(Begins in 2010) 300	2010
		Cabbage	(Begins in 2010) 250	2010
		Rice	To be considered	To be considered
	PDA 2 Groundnut Processing	Processed Products	(Begins in 2010) 1540	2011
Tabiesi	PDA 1 Guinea Fowl and Rabbit Rearing	Guinea fowl	To be considered	To be considered
		Rabbit	To be considered	To be considered
	PDA 2 Dry Season Gardening With the Use of Compost	Tomato	(Begins in 2010) 114	2010
		Pepper	(Begins in 2010) 142.5	2010
		Onion	(Begins in 2010) 855	2010
		Okra	To be considered	To be considered
		Cabbage	To be considered	To be considered
Nanville	PDA 1 Guinea Fowl And Pig Rearing	Guinea Fowl	(Begins in 2011) 2940	2011
		Pig	(Begins in 2010) 200	2012
	PDA 2 Dry Season Gardening With the Use of Compost	Tomato	(Begins in 2010) 60	2011
		Pepper	(Begins in 2010) 12	2015
		Onion	(Begins in 2010) 48	2011
		Okra	(Begins in 2010) 24	2012
		Cabbage	(Begins in 2010) 200	2010

*: "Full Reimbursement" is the time when the first beneficiaries accumulate enough revenue to buy the same quantity of the same kind of inputs for the second beneficiaries.
Note: The expected annual sales and the target year for "Full Reimbursement" are all calculated by the beneficiaries, and do not reflect market information or the opinion of the Study Team for the purpose of capacity building of the beneficiaries.

L.2 Feasibility of the Benefit Revolving System

To examine the feasibility of implementing the BRS in the communities, the Study Team held discussions with the beneficiaries, the AEAs and the DAOs separately. Through the discussions, the Study Team learned that many of the AEAs and the DAOs, who are supposed to oversee the BRS, are familiar with the concept of cost sharing, and understood that the BRS has similarities with cost sharing. Moreover, the Study Team learned that many of the beneficiaries have previously used some kind of lending services, and that they are able to see the BRS as a kind of lending services. They understood that, in the BRS, what is lent to the beneficiaries is the PDAs' inputs instead of cash.



While implementing the BRS, there will be a need for the beneficiaries to keep (save) the revenue for an extended period of time safely. To confirm whether appropriate financial management is possible by the beneficiaries, the Study Team asked the beneficiaries about their experiences in financial management. After the questioning, it became clear that a few beneficiaries in most of the PDA communities have bank accounts, and that many beneficiaries have had experiences of group lending.

Through discussions among the beneficiaries, the AEAs and the DAOs, they concluded that, to keep the revenue from the PDAs, the beneficiaries shall open a group account at a nearby credit union or bank. The AEAs and the DAOs agreed to provide assistance as necessary in opening the account.

Table L.2 Details of the Beneficiaries' Projections for the PDA's Inputs and Sales Amount (1/5)

(Total Inputs & Target Year for "Full Reimbursement")

1: The figures were collected in November 2009.

2: Expected revenue and timing are all based on beneficiaries' estimates.

3: Anl. Sales=Annual Sales, ext. inpt.=Extra Input, Sales Sb-T=Sales Sub-Total for the PDA component

Input sub-total = Inputs for the PDA component, Total Input Cost = Total input cost for the PDA

Puffien

PDA 1 Intergrated Farming												Total Input Cost: 2694
	Cowpea Input sb-total		**182**	Sorghum Input sub-total		**172**	Goat Input sub-total		**1010**	Sheep Input sub-total		**1330**
	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T
Yr	40		40	112		112	0		0	0		0
2010	40		80	112		**224**	0		0	0		0
2011	40		120				0		0	0		0
2012	40		160				200		200	500		500
2013	40		**200**				200		400	500		1000
2014							200		600	500		**1500**
2015							200		800			
2016							200		1000			
2017							200		**1200**			

PDA 2 Mango Tree Planting			Total Input Cost: 584
	Mango Input sub-total		**584**
	Anl. Sales	Ext. Inpt.	Sales Sb-T
Yr	0		0
2010	0		0
2011	0		0
2012	0		0
2013	0		0
2014	99		99
2015	544.5		**643.5**

Tome-Kokodour

PDA 1 Intergrated Farming												Total Input Cost: 1568
	Cowpea Input sb-total		**117**	Sorghum Input sub-total		**107**	Goat Input sub-total		**576**	Sheep Input sub-total		**768**
	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T
Yr 2009	0	0	0	0		0	0		0			
2010	240		**240**	144		**144**	0		0			
2011							210		210	165		165
2012							210		420	165		330
2013							210		**630**	165		495
2014										165		660
2015										165		**825**

PDA 2 Dry Season Gardening															Total Input Cost: 712.5
	Tomato Input sb-total		**145**	Onion Input sub-total		**141**	Okra Input sub-total		**140**	Egg-plant Input sub-total		**143**	Cabbage Input sub-total		**143.5**
	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-	Anl. Sales	Ext. Inpt.	Sales Sb-	Anl. Sales	Ext. Inpt.	Sales Sb-T
Yr 2009	0		0	0		0	0		0	50		50	0		0
2010	420		**420**	200		**200**	80		80	50		100	80		80
2011							80		**160**	50		**150**	80		**160**

Table L.2 Details of the Beneficiaries' Projections for the PDA's Inputs and Sales Amount (2/5)

Zakpee

PDA 1 Integrated Farming															Total Input Cost: 903
	Upland Rice Input sb-total		**78.25**	Soya bean Input sub-total		**103.25**	Groundnut Input sub-total		**93.25**	Cow pea Input sub-total		**88.25**	Pig Input sub-total		**540**
	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-	Anl. Sales	Ext. Inpt.	Sales Sb-	Anl. Sales	Ext. Inpt.	Sales Sb-T
Yr 2009	40		40	80		80	15.6		15.6	50		50	0		0
2010	40		**80**	80		**160**	15.6		31.2	50		**100**	750		**750**
2011							15.6		46.8						
2012							15.6		62.4						
2013							15.6		78.0						
2014							15.6		**93.6**						

PDA 3 Pig Rearing				Total Input Cost: 1,990.55
	Pig Input sub-total		**1990.55**	
	Anl. Sales	Ext. Inpt.	Sales Sb-T	
Yr 2009	0		0	
2010	375		375	
2011	375		750	
2012	375		1125	
2013	375		1500	
2014	375		1875	
2015	375		**2250**	

Naawuie

PDA 1 Integrated Farming										Total Input Cost: 520
	Sorghum Input sb-total		**86.5**	Cow pea Input sub-total		**91.5**	Pig Input sub-total		**342**	
	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-	
Yr 2009	0		0	0		0	0		0	
2010	24		24	144		**144**	192		192	
2011	24		48				192		**384**	
2012	24		72							
2013	24		**96**							

PDA 3 Bee Keeping				Total Input Cost: 242
	Honey Input sub-total		**242**	
	Anl. Sales	Ext. Inpt.	Sales Sb-	
Yr 2009	0		0	
2010	90		90	
2011	90		180	
2012	90		**270**	

Table L.2 Details of the Beneficiaries' Projections for the PDA's Inputs and Sales Amount (3/5)

Kogri

PDA 1 Pig Rearing and Compost Making									Total Input Cost: 558.5
	Sorghum			Cow pea			Pig		
	Input sb-total		**72.8**	Input sub-total		**77.8**	Input sub-total		**408**
	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt	Sales Sb-T	Anl. Sales	Ext. Inpt	Sales Sb-T
Yr 2009	0		0	0		0	0		0
2010	160		**160**	160		**160**	288		288
2011							0		288
2012							288		**576**

PDA 3 Bee Keeping				Total Input Cost: 242
	Honey			
	Input sub-total		**242**	
	Anl. Sales	Ext. Inpt.	Sales Sb-	
Yr	0		0	
2010	50		50	
2011	50		100	
2012	50		150	
2013	50		200	
2014	50		**250**	

Nyani

PDA 1 Intergrated Farming						Total Input Cost: 183
	Cowpea			Sorghum		
	Input sb-total		**96.5**	Input sub-total		**86.5**
	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt	Sales Sb-T
Yr 2009	90		90	0		0
2010	90		**180**	30		30
2011				30		60
2012				30		**90**

PDA 3 Agro-forestry				Total Input Cost:
	Mango			
	Input sub-total			
	Anl. Sales	Ext. Inpt.	Sales Sb-	
Yr	0		0	
2010	0		0	
2011	0		0	
2012	175		175	
2013	525		700	
2014	2500		3200	

PDA 5 Rabbit and Pig Rearing						Total Input Cost: 530
	Rabbit			Pig		
	Input sb-total		**152**	Input sub-total		**378**
	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt	Sales Sb-T
Yr 2009	0		0	0		0
2010	180		**180**	504		**504**

Daffiama

PDA 1 Small Scale Irrigation for Paddy and Vegetables																		Total Input Cost: 1253.5
	Tomato			Pepper			Onion			Okra			Cabbage			Rice		
	Input sb-total		**211**	Input sub-total		**211**	Input sub-total		**207**	Input sub-total		**206**	Input sub-total		**209.5**	Input sub-total		**209**
	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt	Sales Sb-T	Anl. Sales	Ext. Inpt	Sales Sb-T	Anl. Sales	Ext. Inpt	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-
Yr 2009	0		0	0		0	0		0	0		0	0		0	?		?
2010	225		**225**	420		**420**	1200		**1200**	300		**300**	250		**250**	?		?

Table L.2 Details of the Beneficiaries' Projections for the PDA's Inputs and Sales Amount (4/5)

Daffiama

PDA 2 Groundnut Processing Total Input Cost: 1780			
	Processed Products Input sub-total **1780**		
	Anl. Sales	Ext. Inpt.	Sales Sb-T
Yr 2009	0		0
2010	1540		1540
2011	1540		**3080**

Tabiesi

PDA 1 Guinea Fowl and Rabbit Rearing Total Input Cost: 935						
	G-fowl Input sb-total **580**			Rabbit Input sub-total **355**		
	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T
Yr 2009	0		0	0		0
2010	?			?		

PDA 2 Dry Season Gardening with the Use of Compost														Total Input Cost: 332.5
	Tomato Input sb-total **68.6**			Pepper Input sub-total **68.6**			Onion Input sub-total **64.6**			Okra Input sub-total **63.6**			Cabbage Input sub-total **67.1**		
	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-	Anl. Sales	Ext. Inpt.	Sales Sb-	Anl. Sales	Ext. Inpt.	Sales Sb-T
Yr 2009	0		0	0		0	0		0	0		0	0		0
2010	114		**114**	142.5		**142.5**	855		**855**	?			?		

Nanville

PDA 1 Guinea Fowl and Pig Rearing Total Input Cost: 958						
	G-Fowl Input sb-total **422**			Pig Input sub-total **536**		
	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T
Yr 2009	0		0	0		0
2010	0		0	200		200
2011	2940		**2940**	200		400
2012				200		**600**

Table L.2 Details of the Beneficiaries' Projections for the PDA's Inputs and Sales Amount (5/5)

Nanville

PDA 2 Dry Season Gardening with the Use of Compost															Total Input Cost: 332.5
	Tomato			Pepper			Onion			Okra			Cabbage		
	Input sb-total		68.6	Input sub-total		68.6	Input sub-total		64.6	Input sub-total		63.6	Input sub-total		67.1
	Anl. Sales	Ext. Inpt.	Sales Sb-T	Anl. Sales	Ext. Inpt	Sales Sb-T	Anl. Sales	Ext. Inpt	Sales Sb-T	Anl. Sales	Ext. Inpt	Sales Sb-T	Anl. Sales	Ext. Inpt.	Sales Sb-T
Yr 2009	0		0	0		0	0		0	0		0	0		0
2010	60		60	12		12	48		48	24		24	200		**200**
2011	60		**120**	12		24	48		**96**	24		48			
2012				12		36				24		**72**			
2013				12		48									
2014				12		60									
2015				12		**72**									

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Appendix M

Other Development Partners' Projects in the Area and Major Lessons for the Study

Appendix M Other Development Partners' Projects in the Area and Major Lessons for the Study

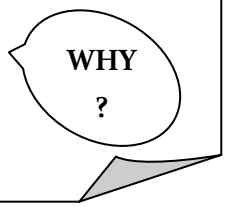
M.1 Overall Review of the Past Projects and Needed Assistance in Future

In the past decade, the number of development projects has been increasing in the northern part of Ghana. However, the performance of agriculture in UWR is still considered to have much more room to improve. Part of the reason for this could be the inappropriateness or ineffectiveness of the past assistance by development partners. One needs to recognize that changes may take time particularly in UWR where agricultural development is severely limited under harsh environments. However, in planning better development assistance to the agricultural sector in UWR, there must be important lessons in such past projects. Learning lessons from the past is meant to understand (1) why the agricultural sector in UWR is underdeveloped despite the past assistance by development partners and the efforts made by MOFA, and (2) what their outcomes have been.

Lessons from the Past Assistance to the Agricultural Sector in Upper West Region

Why is agriculture in the Upper West region still underdeveloped despite the past assistance?

- ✓ Not producing enough for domestic (family) consumption
- ✓ Not promoted with appropriate agricultural infrastructures
- ✓ Not producing what "sells"
- ✓ Not effectively linking the producers and the buyers



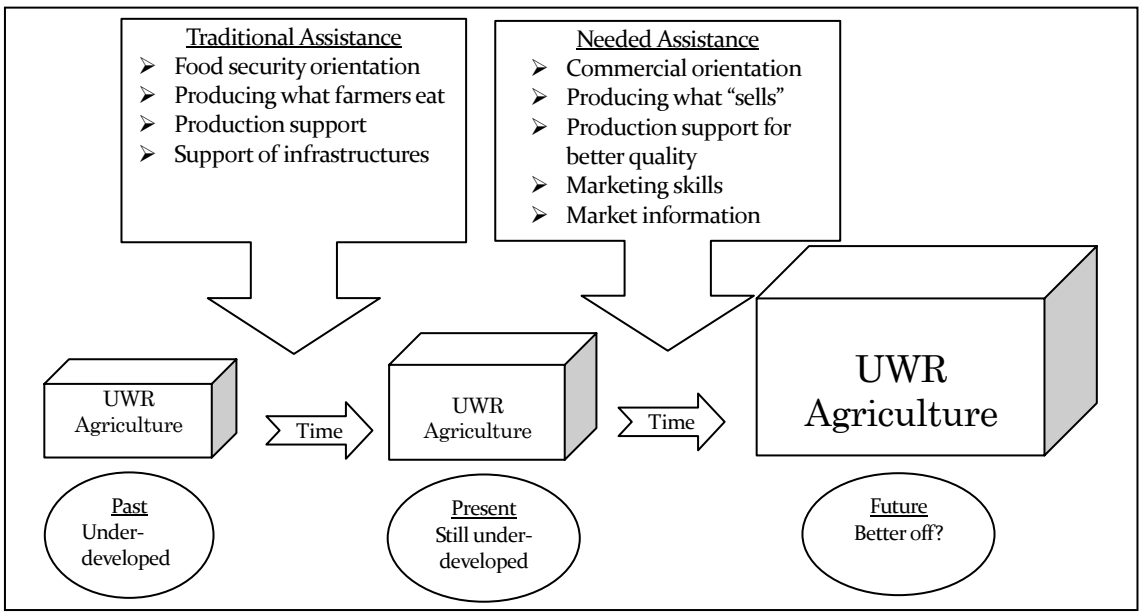
By conducting a field survey, the Study Team has found out that many farmers in UWR tend not to "plan" their production and the sales of the products. In general, they do not grow the agricultural varieties for commercial purposes, and they sell their products only when there are surplus or in case of emergency. Therefore, they cannot get much profit. If the farmers are better informed about prices, market preferences, big potential buyers and attainable revenue, they would find more incentives in improving their agricultural production and innovation.

Concerning the focus of past assistance, development partners and the Ghana Government both agree that, in the past, much more focus has been put on the production aspects of agriculture than developing market linkages. According to a study conducted by the Organization for Economic Co-operation and Development (OECD), food production was the largest area of development partners' support in the agricultural sector in Ghana. In 2006, 26 out of 108 ongoing projects of major bi-/multi-lateral donors focused on the production of food crops to improve food security, while only 3 projects focused on agricultural marketing.[1]

[1] Wolter, Denise. 2008 Business for Development: Ghana – Agriculture is Becoming a Business. (www.oecd/org/dev/publications/businessfordevelopment)

This feature is especially highlighted in the northern Ghana. Due to the geographical advantages the south has, public and private investments have gone to the south for linking the farmers and the market. The market is bigger in the south and also trading ports and the international airport are in the south. UWR's disadvantageous location has isolated the region from the market, and the development projects in the region do not place sufficient focus on commercial aspect of agriculture.

As shown in the box below, the future development assistance should have more emphasis on commercial aspects of agriculture, if the income of local farmers needs to be increased. The issue of food security in the region still needs attention, and therefore it is important to increase agricultural production as it has been concentrated in the traditional assistance. However, at the same time, there should be more support on the marketing side of the agriculture to increase the farmers' income and eventually improve their living standards. Taking this aspect into consideration, the Study Team incorporated marketing assistance in the PDAs and has set two clear objectives – food security and income generation in balance – for the Master Plan.



M.2 Recent Programs for Marketing Assistance

Concerning the development partners' support in commercial aspect of agriculture, Trade & Investment Program for a Competitive Export Economy (TIPCEE) of the United States Agency for International Development (USAID) is a good example that indicates the importance of developing value chains, which has been underdeveloped in UWR.

Trade & Investment Program for a Competitive Export Economy (TIPCEE)

It is the USAID's flagship project, which started in 2005 and scheduled to end in 2009, with 30 million US dollars budget. It consists of Enabling Environment (EE) component and Export Business Development (EBD) component. EE concentrates on upgrading the regulatory aspects of private business environment and investment in regard to trade, finance and agriculture. EBD helps the private sector to be competitive in the regional and international market. EBD trains farmers "to produce what they can sell and not to sell what they produce". Integrating smallholder farmers into export-oriented value chains is a major goal. TIPCEE tries to build networks between large international companies and the Ghanaian private sector. High-value horticultural crops such as pineapple, mango, papaya, cashews and Asian vegetables are the main target crops. The success of TIPCEE can be seen from the fact that 1 million US dollars investment from TIPCEE leveraged 1.3 million US dollars of largely private investment.

The Northern Rural Growth Programme (NRGP) of the International Fund for Agricultural Development (IFAD) is also seen as one of the flagship programmes in the northern Ghana in the coming years. The NRGP, which was launched in 2008, started field operation in November 2009. It will be a test case for applying the value chain approach covering both marketing and production aspects of agriculture. The NRGP will also collaborate with rural and community banks to strengthen the institutional capacity and widen the access to financial services for farmers, and develop rural infrastructure such as roads and bridges.[2] If it effectively changes the reluctant attitude among local banks toward lending to small farmers, it is also expected to benefit the farmers in UWR. Improvement of rural infrastructure, particularly those related to physical access to market, will also contribute to improve the marketing activities of farmers in UWR.

The NRGP has been started also in the Study Area; for example, in Jirapa 9 irrigation pumps and tubes were installed at the river side. All were supplied by the Programme to individual farmers at 60 % of the purchased price. Those farmers should repay it at every harvest time in 4 years. They are requested to cultivate maize for multiplying its certified seeds as the government intends to export maize from next year. All the harvested seeds will be brought by the Seed Growers Association. The farmers will be paid by bank check after selling the harvest to the Association, and the banks will deduct the due amount before it pays to the farmers. As seen, the NRGP intends to introduce and establish a system of business-oriented agriculture in the rural communities, by encouraging the production of high value or value added crops.

M.3 The Past Development Projects in UWR included in the Baseline Survey and Interviews

In order to understand the community people's general view on the effectiveness of past development projects in UWR, the Study Team commissioned a baseline survey in 18 communities to a local consultant in the first year of the Study on UWIAD. Followings are identified as the major projects implemented in UWR in the recent years.

[2] Ghanaian Chronicle, 17 November 2009 (http://allafrica.com/stories/200911170963.html) and Accra Mail, 19 September 2009 (http://allafrica.com/stories/200909210064.html)

(1) "Upper West Agricultural Development Project " (UWADEP) funded by IFAD:
UWADEP was implemented from 1996 to 2004, aiming at empowering rural populations living in poverty and providing access to improved technology services and credit in UWR. Its main activities were provision of rural credit for income-generating activities, construction and renovation of dams and irrigation, agricultural extension, seed production, on-farm adaptive research and upgrading of local livestock.

(2) "Farmer Responsive Mechanisms in Extension and Research Project" (FARMER) funded by Canadian International Development Agency (CIDA):
FARMER was implemented from 2002 to 2007, aiming to improve access to and use of demand-driven agricultural information and technology by low income and resource-poor farm households, agro-processors, marketers and communities in three northern regions including UWR. Its main activities included improving collaboration and coordination between government agencies and NGOs, supporting development of agricultural societies, providing training for AEAs, providing communication and logistical support, providing training on planning, reporting and management and financial support to demand-driven sub-projects.

(3) "Agricultural Services Sub-Sector Investment Program" (AgSSIP) funded by World Bank:
Under AgSSIP, the World Bank provided loans to the Ghana Government during 2000-2007. The Program aimed at initiating and accelerating policy and institutional reforms for the strengthening of Government's capacity, decentralizing the planning and implementation of agricultural development programs to the regions and districts, promoting cost-effective demand-driven agricultural and extension systems to generate and disseminate technologies on a contracting and/or cost sharing basis, and strengthening the capacity of farmers-based organizations. The major components of the program are strengthening the agricultural technology generation diffusion systems, institutional reform and strengthening of MOFA, development of Farmer Based Organizations, and strengthening agricultural education and training.

(4) Projects implemented by Non-Governmental Organizations (NGOs):
Two international NGOs, namely, Adventist Development and Relief Agency (ADRA) and World Vision, and a local NGO called Rural Action Aid Project (RAAP) had project activities related to agriculture in UWR. ADRA generally works to provide emergency food aids and disaster reliefs. However, they were also involved in community supporting activities in a small scale such as training on food processing and nutrition, input credit for crops and processors, and introduction of crop diversification. World Vision provided credit for farming and trading and supported women groups. RAAP also provided credit for sheep and goats, as well as for self help groups.

To further understand local stakeholders' view on the past development projects, the Study Team conducted several interviews with MOFAUR officers, project officers and beneficiary farmers of UWADEP, FARMER, and one additional project "West Africa Sorghum Chain Development Project" which was selected for further study since its unique feature of putting focus on marketing aspects of agriculture should offer important lessons.

(5) "West Africa Sorghum Value Chain Development Project" funded by Food and Agricultural Organization (FAO).

West Africa Sorghum Value Chain Development Project started from 2006 as a 5-year project and has been implemented by an American NGO called Technoserve. The project aimed at empowering rural populations living in poverty and providing access to improved technology services and credit in Brong-Ahafo region and three northern regions including UWR. Its main activities are provision of credit to selected farmers, provision of training to farmers on cleaning, packaging and transporting sorghum to the buyers and provision of improved sorghum variety. Guinness Ghana Brewery Limited, Sinapi Aba Trust (a micro-finance institution), Venture Capital Trust and MOFA are the project partners.

M.4 Major Lessons Learnt from the Survey and Interviews on the Past Development Projects

M.4.1 Technical Aspect of Assistance

The following is the major lessons learnt regarding the technical aspect of the assistance:

- For the first few years of the pilot phase, the West Africa Sorghum Value Chain Development Project was not able to produce the expected amount of sorghum. However, in recent years, the project is enjoying a success as the sorghum production and sales has soared. The participating farmers have reported that having Guinness as the buyer has been a great incentive to join and work for the project. They say that, when they know that their products will be bought at a known agreed price, they are much more motivated to produce them than before. This implies that finding viable markets for the products and having sufficient purchasing power in the locality are imperative to achieve increased agricultural production and incomes.

- The introduction of a high yielding variety of sorghum popularly known amongst farmers in the Study Area as Global 2000 was not much successful largely due to lack of market for the variety and the rejection of TZ prepared from the variety. Also, many households in Nadowli district stopped cultivating soybeans after ADRA withdrew its support due to marketing problems. It also indicates importance of marketing issues to be considered when some crops or varieties are to be introduced.

- Most of the community households rear and sell small ruminant at the nearby markets, and therefore market competition is high. The UWADEP introduced an improved breed of small ruminants, expecting that their marketability could be improved. It however faced high levels of mortality at the first time. Then, by focusing on the beneficiaries who can afford improved housing, feed and proper

health measures, they were able to recover it for redistribution. It concluded that "the breed is not suited to the free-grazing, mixed-herd system practiced in northern Ghana"[3]. It also mentioned that, by having crossed with local breeds, "the improved stock reaches a larger size than the local breeds, thus bringing farmers a higher income more quickly". This suggests that not necessarily a purely exotic, but even a crossed with local breed could show a higher performance than local breeds, if suitable care is given.

- The UWADEP upgraded local poultry with improved cockerels, and proved that the production package is technically feasible for even resource poor farmers. However, it was discontinued because it was found interfering with the business of commercial suppliers. The UWADEP shifted to upgrading guinea fowl stock with the improved breeds originally imported from Belgium. It was reported that "the average survival rate for the first two batches was 84%. Beneficiaries report that the imported guinea fowls were robust and about twice the size of local birds. They fetch 35,000 GH¢ as compared to about 20,000 GH¢ for local birds." This case indicates high potentiality of the improved breeds of guinea fowls for increasing incomes of the people in UWR.

- Many farmers have referred the livestock projects under FARMER and RAAP. The project supplied improved animal stock and provided health care for the animals. Although the project was successful in the initial stages, a large number of livestock died due to animal and poultry diseases. Due to the insufficient control on such disease and the lack of countermeasures, many beneficiary farmers did not gain benefits from this component of the project.

- Two women's groups in Jirapa district supported by AgSSIP for shea butter processing were interviewed. They were supplied with processing machines, and some of them were sent to Kumasi in 2005 for 15-day-training on bookkeeping, group management, marketing, etc. Unfortunately, both of them have currently stopped their production due to heavy costs of operation and maintenance of the processing machines. They have not been able to make enough profits to meet such costs since the selling price of shea butter at the local market was low and there is no support to connect them to outside markets. As a result, both of them are still heavily indebted for the initial installation fee of the machines, and moreover one of the groups has been cut electricity supply because they cannot pay the bill any more. This indicates the importance of assessing the possibilities whether a beneficiary group can really cover the operating and maintenance costs when introducing machineries. It also suggests that there should be support for marketing, such as exploration of new markets, shifting to value added products, etc.

- In the baseline survey, some of the respondents recognized that they successfully generated income from cashew and mango production, however, many respondents who tried to grow crops failed due to the damages caused by harsh weather conditions. Another reason for crop failure was that the lands

[3] Interim Evaluation, Upper West Agricultural Development Project, IFAD, May 2006

allocated for crop production were generally marginal lands not suitable for food crops. It indicates there should have been special care when crop cultivation is planned and implemented in such conditions.

- Many farmers responded in the baseline survey that the land and water management project was effective. In the past projects, cultural practices to facilitate collective actions of the community people for enhancing water storage and controlling soil erosion have been adopted. Construction of water ways, stone lines and planting of border crops to mitigate soil erosion and running off the excess water have been beneficial for most of the farmers. Although those activities do not generate incomes in the short term, there should be considered in the long term development plans.

M.4.2 Institutional Aspect of Assistance

The following is the major lessons learnt regarding the institutional aspect of the assistance:

- Most of the above projects included an element of institutional building at the community level through formation of groups by farmers. However, the outcomes of baseline survey showed that such farmers groups have not developed to the level of the organizations with registered status nor legal status, and they were unable to access to financial and other supporting resources. Many of those groups became not functional and could not further develop its capacity nor sustain the groups themselves after the termination of the projects. The reasons for weakness in farmer groups were considered as absence of incentives for them to continue the groups, lack of mechanism to continuously provide training and assistance to further build necessary capacity of them, and the lack of leadership and clear responsibilities among the groups.

- The data collected in the baseline survey showed that some irrigation facilities in the Study Area were not in use even though structures like dams were usable there. Most of these irrigation facilities were not properly set up nor maintained, and some facilities were left before they were completed for effective utilization. Further inquiries with community people indicated that the beneficiary farmers were supposed to develop the water users associations for actively participate in construction and operation of irrigation facilities. However, this component of project was delayed and the associations were not developed. Absence of the group led largely to malfunction of the facilities. It can therefore be strongly suggested that establishing a strong organization be considered together when infrastructures are planned to be built.

- Under FARMER, the project provided the operational cost for Research-Extension-Farmer Linkage Committee (RELC), which functioned as a mechanism to facilitate the cooperation among the stakeholders such as MOFA, research institutions such as SARI, and NGOs. However, the RELC has been inactive since the end of the project due to lack of financial resources. The other reason is that researchers are generally interested to be promoted with their research papers by being acknowledged, but not with field-level assistance to particular project activities. This suggests that creating a new

organization without considering financial sustainability as well as incentives of the stakeholders is already at risk from onset.

- The interviewed beneficiary farmer of FARMER mentioned that reproduction of seeds and utilization of fertilizer has been continued by some farmers even after the termination of the project. The project provided farmers with improved variety of seeds and fertilizer and asked them to reproduce and sell the seeds to other farmers in neighborhood. Reproduction of the seeds has been succeeded and today more farmers are using them. Some farmers also maintain the use of fertilizer by purchasing fertilizers with the income from product sales. The interviewed farmer stated that it was an efficient way to enhance the impact to the whole community.

- The UWADEP trained the selected community people to be community livestock volunteers. After the training, the volunteers were given drugs and equipment necessary for taking care of livestock and bicycles. They were expected to provide frontline first aid veterinary services to the community. Technoserve also trained the people to be extension volunteers, and provided them with bicycles, soaps, and travel allowances as incentives. It was expected through those activities that the trained people would become chief farmers in the communities to assist the other people on what they had learnt in the program or project. They were however mostly inactive as they do not see an incentive to be the chief farmers. It indicates that community volunteers may not be developed by merely providing training and equipment. In the communities, there are the existing leaders voluntarily function as such. The examples are opinion leaders, leading farmers, or other outstanding persons. They should be recognized as the leaders also for extension activities.

- The interviewed beneficiary farmer of the West Africa Sorghum Value Chain Development Project stated that it was not possible for them to be self-sustainable within the 5-year project period and required 2 to 3 additional years for them to accumulate saving enough to be self-sustainable. The project officer of Technoserve also stressed that the partnership between Guinness and farmer is still immature and there is an urgent needs of an action to build up trust among them to ensure the sustainability of the project activities. This shows that it is necessary to plan a long-term strategy for building the beneficiaries' competence to sustain the project activities in the long run.

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in the Republic of Ghana

Final Report

Appendix N

Training Modules

Appendix N Training Modules

Training Module-1

Subject	Staple Food Production
Trainees	Cereal Crop Growers DAOs and AEAs
Trainers	RAOs, DAOs and AEAs
Objectives	Introduce trainees the basic technologies on cereal crop production
Duration/Frequency	4 days (once a year)
In class or Field	In field
Short Description	Introduction of basic technologies on cereal crop production including land preparation, fertilizer application, crop management such as weeding and crop protection from pest and disease.

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Field preparation including fertilizer application and sowing	Before starting cultivation	1 day	Explain on field preparation, fertilizer application, and sowing seeds
2	Crop management including weeding, inter-tillage and pest control	When starting nursing	1 day	Explain on plant diagnosis both at vegetative and reproductive stage, weeding and inter-tillage, major disease and insect including control methods
3	Harvest and postharvest	Before harvesting	1 day	Explain on determination of harvesting time, threshing, drying and milling
4	Seed production including plant selection and trimming	Before harvesting	1 day	Explain on selection of maternal plants for seed production, seed trimming

Training Resources/ Materials	Stationary, fuel, hand out based on "Manual for Agricultural Technologies and Tools", agricultural tools, seeds, fertilizer, pesticide
Evaluation Indicators	Trainees' knowledge, crop growth
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for crop production of the trainees

Remarks

1. It is recommended to have a practical session. For the practical session, agricultural tools are required. Other materials such as seed, fertilizer, and pesticide are also provided if necessary.
2. For the second year and onward, if the project expands to the other area, the same contents of the training will be delivered to the cereal crop growers of the new place. On the other hand, following up should be made to the ex-trainees.
3. Refer to "Agricultural Manual" for the stage of the each plant to understand the timing of the sub-modules.

Training Module-2

Subject	Introduction of drying and storing the harvests
Trainees	Crop growers DAOs and AEAs
Trainers	RAOs, DAOs and AEAs
Objectives	Improve knowledge and skills of farmers on post-harvest management of grains
Duration/Frequency	1 day (once a year)
In class or Field	In field
Short Description	Introduction of basic technologies on post-harvest management including drying, threshing, winnowing, packing and storing

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Drying, threshing and winnowing	Before harvesting season	1 day	Explain on drying grains after harvest, Threshing, when and how winnowing, drying grains before packing and storing
2	Sterilizing and packing grains			Explain on solar heat sterilization for food grain, chemical fumigation for seed grain, packing grains into sacks Store in granary

Training Resources/ Materials	Stationary, fuel, hand out based on "Manual for Agricultural Technologies and Tools", agricultural tools, seeds, fertilizer, pesticide
Evaluation Indicators	Trainees' knowledge, condition of stored grains
Means of Evaluation	- Training report to be submitted after the training - Monitoring on the conditions of stored grains

Remarks

1. It is recommended to have a practical session. For the practical session, agricultural tools are required.
2. For the second year and onward, if the project expands to the other area, the same contents of the training will be delivered to those who are willing to learn the post-harvest management. On the other hand, following up should be made to the ex-trainees.

Training Module-3

Subject	Vegetable cultivation
Trainees	Vegetable growers DAOs and AEAs
Trainers	RAOs, DAOs and AEAs
Objectives	Introduce trainees the basic technologies on vegetable cultivation
Duration/Frequency	3 days (once a year)
In class or Field	In field
Short Description	Introduction of basic technologies on vegetable production including raising seedling, land preparation, fertilizer application, crop management such as pruning and crop protection from pest and disease.

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Vegetable field preparation and fertilizer application	Before starting	1 day	Explain on field preparation, standard methods of planting, and fertilizer application
2	Nursery management	When starting nursing	1 day	Explain preparation of nursery soil, sowing methods, and raising seedling using planting pot
3	Crop management	Before transplanting	1 day	Explain pruning, top dressing, inter-tillage and weeding, and pest control

Training Resources/ Materials	Stationary, fuel, hand out based on "Manual for Agricultural Technologies and Tools", agricultural tools, seeds, fertilizer, pesticide
Evaluation Indicators	Trainees' knowledge, vegetable growth
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for vegetable production of the trainees

Remarks

1. It is recommended to have a practical session. For the practical session, agricultural tools are required. Other materials such as seed, fertilizer, and pesticide are also provided if necessary.
2. For the second year and onward, if the project expands to the other area, the same contents of the training will be delivered to the vegetable growers at the new place. On the other hand, following up should be made to the ex-trainees.
3. For dry season vegetable cultivation, a training regarding irrigation is also delivered.
4. Refer to "Agricultural Manual" for the stage of the each plant, to understand the timing of the sub-modules.

Training Module-4

Subject	Introduction of melon production
Trainees	Vegetable growers DAOs and AEAs
Trainers	RAOs, DAOs and AEAs
Objectives	Introduce trainees the basic technologies on melon cultivation
Duration/Frequency	3 days (once a year)
In class or Field	In field
Short Description	Introduction of basic technologies on melon production including raising seedling, land preparation, fertilizer application, crop management such as pruning and crop protection from pest and disease.

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Melon field preparation and fertilizer application	Before starting	1 day	Explain on field preparation, standard methods of planting, and fertilizer application
2	Nursery management	When starting nursing	1 day	Explain preparation of nursery soil, sowing methods, and raising seedling using planting pot
3	Crop management	Before transplanting	1 day	Explain pruning, top dressing, inter-tillage and weeding, and pest control

Training Resources/ Materials	Stationary, fuel, hand out based on "Manual for Agricultural Technologies and Tools", agricultural tools, seeds, fertilizer, pesticide
Evaluation Indicators	Trainees' knowledge, melon growth
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for melon production of the trainees

Remarks

1. It is recommended to have a practical session. For the practical session, agricultural tools are required. Other materials such as seed, fertilizer, and pesticide are also provided if necessary.
2. For the second year and onward, if the project expands to the other area, the same contents of the training will be delivered to those who are willing to grow melon. On the other hand, following up should be made to the ex-trainees.
3. For dry season melon cultivation, a training regarding irrigation is also delivered.
4. Refer to "Agricultural Manual" for the stage of the melon, to understand the timing of the sub-modules

Training Module-5

Subject	Pig Rearing
Trainees	Pig breeding/fattening farmers (both community and household based) AEAs, DAOs
Trainers	Staff of Babile Pig Station, RAO/DAOs-Veterinary (for health care)
Objectives	Introduce trainees the basic technologies on pig rearing
Duration/Frequency	5 days (once a year)
In class or Field	In field (trainees' compound)
Short Description	Introduction of pig rearing technologies focusing on profitability. Basic technologies cover pig rearing including feed formulation, piggery construction, piggery management, health care, reproduction and delivery

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Introduction of Pig Rearing	Initial stage	1 day	General guidance of pig rearing technologies, profitability of pig rearing
2	Piggery Construction and management	At the starting time	1 day	Explain methods of piggery construction and piggery management
3	Feed formulation	At the starting time	1 day	Explain how to prepare compound feed
4	Health care	At the starting time	1 day	Explain how to prevent diseases
5	Reproduction and Delivery	After 4 months	1 day	Introduce the methods of mating, feeding for pregnant sow, preparation for delivery and initial piglets care

Training Resources/ Materials	Stationary, fuel/ Manuals for Agricultural Technologies and Tools, Feed Ingredients (sample to show farmers), coco bowl, tomato puree tin, milo tin weighing tape
Evaluation Indicators	Trainees' knowledge, pig growth
Means of Evaluation	Pig growth should be measured regularly by weighing tape

Remarks

1. Regular visit to the pig farmers by staff of Babile Pig Station is essential.
2. The training for health care should be delivered by the staff of veterinary department.
3. For the second year and onward, if the project expands to the other area, the same contents of the training will be delivered to those who are willing to rear pigs. On the other hand, following up should be made to the ex-trainees.

Training Module-6

Subject	Rabbit Rearing
Trainees	Rabbit rearing farmers AEAs, DAOs
Trainers	RAO-APD / RAO-Vet DAO-Veterinary (for health care)
Objectives	Introduce trainees the basic technologies on rabbit rearing
Duration/Frequency	One day (once a year)
In class or Field	In field (trainees' compound)
Short Description	Introduction of basic technologies on rabbit rearing including feeding, housing and its maintenance, health care, reproduction and delivery

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Introduction to rabbit rearing	Initial stage	1 day	General guidance of rabbit rearing technologies, profitability of rabbit rearing
2	Housing, feeding and health care			Explain methods on housing requirement and maintenance, feeding items and volume, and health care
3	Reproduction management			Introduce methods of mating, nesting box for delivery and nursing a litter, feeding after weaning

Training Resources/ Materials	Stationary, fuel, handouts based on Manuals for Agricultural Technologies and Tools
Evaluation Indicators	Trainees' knowledge, rabbit growth and delivery
Means of Evaluation	Rabbit growth should be measured regularly by eyes

Remarks

1. Regular visit to the rabbit farmers by AEA/DAO is essential.
2. The training for health care should be delivered by the staff of veterinary department.
3. For the second year and onward, if the project expands to the other area, the same contents of the training will be delivered to those who are willing to rear rabbits. On the other hand, following up should be made to the ex-trainees.

Training Module-7

Subject	Guinea fowl Rearing
Trainees	Guinea fowl rearing farmers AEAs, DAOs
Trainers	RAO-APD / RAO-Vet DAO-Veterinary (for health care)
Objectives	Introduce trainees the basic technologies on guinea fowl rearing
Duration/Frequency	One day (once a year)
In class or Field	In field (trainees' compound)
Short Description	Introduction to basic technologies on guinea fowl rearing including feeding, housing and its maintenance, health care, lay eggs and incubation

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Introduction to guinea fowl rearing	Initial stage	1 day	General guidance of guinea fowl rearing technologies, profitability of guinea fowl rearing
2	Housing, feeding and health care			Explain methods on housing requirement and maintenance, feeding items and volume, and health care
3	Harvest eggs and incubation management			Introduce methods of incubation management, feeding for hatched fowls

Training Resources/ Materials	Stationary, fuel, handouts based on Manuals for Agricultural Technologies and Tools
Evaluation Indicators	Trainees' knowledge, guinea fowl growth and laid eggs
Means of Evaluation	Guinea fowl growth should be measured regularly by eyes

Remarks

1. Regular visit to the guinea fowl farmers by AEA/DAO is essential.
2. The training for health care should be delivered by the staff of veterinary department.
3. For the second year and onward, if the project expands to the other area, the same contents of the training will be delivered to those who are willing to rear guinea fowls. On the other hand, following up should be made to the ex-trainees.

Training Module-8

Subject	Shea soap making
Trainees	Women engaged in shea nut processing AEAs, DAOs
Trainers	RAO-WIAD /DAO-WIAD
Objectives	Introduce trainees the basic technologies on shea soap making
Duration/Frequency	3 days (once a year)
In class or Field	In field
Short Description	Introduction of basic technologies on shea soap making including preparation of necessary tools and materials, different shapes and methods of making the soaps

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Necessary tools and materials for shea soap making	Initial stage	3 days	Explain on the preparation of necessary tools and materials, Profitability of shea soap making
2	Round soap making			Explain the method of making round soaps
3	Key soap making			Explain the method of making key soaps
4	OMO soap making			Explain the method of making OMO soaps

Training Resources/ Materials	Stationary, fuel, hand out based on "Manual for Agricultural Technologies and Tools", tools and equipment, shea nut
Evaluation Indicators	Trainees' knowledge, qualities of soaps made
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for shea soap production of the trainees

Remarks

1. It is recommended to have a practical session. For the practical session, necessary tools and equipment are required.
2. For the second year and onward, if the project expands to the other area, the same contents of the training will be delivered to those who are willing to learn the shea soap making. On the other hand, following up should be made to the ex-trainees.

Training Module-9

Subject	Compost making
Trainees	Crop growers DAOs and AEAs
Trainers	RAOs, DAOs and AEAs
Objectives	Introduce trainees the basic technologies on compost making
Duration/Frequency	1 day (once a year)
In class or Field	In field
Short Description	Introduction of basic technologies on compost making including composting materials, piling the materials, decomposition check, re-piling and usage of the compost.

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Materials for compost	Before end of the rainy season (More materials are able to be gathered in harvesting period.)	1 day	Explain necessary materials such as organic materials including animal dung
2	Piling the materials			Explain ratio of materials to be mixed including water and their piling order, decomposition check and timing for re-piling
3	Application of the compost			Explain how to apply the compost: when, where, volume

Training Resources/ Materials	Stationary, fuel, hand out based on "Manual for Agricultural Technologies and Tools", agricultural tools, raw materials
Evaluation Indicators	Trainees' knowledge, compost actually made
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for compost making of the trainees

Remarks

1. It is recommended to have practical session. For the practical session, agricultural tools are required.
2. For the second year and onward, if the project expands to the other area, the same contents of the training will be delivered to those who are willing to make compost.
3. Refer "Agricultural Manual" for the stage of the compost making and the timing of the sub-modules.

Training Module-10

Subject	Water management and regulatory structures in small-scale irrigation.
Trainees	AEAs, Dry season gardeners
Trainers	RAO-ENGINEERING, DAOs and AEAs
Objectives	Introduce trainees on irrigation methods for crops production
Duration/Frequency	1 day (once a year)
In class or Field	In class (at the district office)
Short Description	Introduction of simple water management technologies on irrigation for crop production and operation and maintenance of water regulatory structures, including the use of small engine pump.

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Simple water use management and crop irrigation	Prior to the commencement of crop cultivation	1 day	Explain on simple water harvest technologies and related structures such as dike, weir, canal, well, etc. for effective irrigation for crops
2	Portable engine pump irrigation			Explain on engine and pump, O & M of engine pump, use of equipment: connector, packing, suction pipe, foot valve, delivery hose, sprinkler, drip pipe

Training Resources/ Materials	Stationary, fuel, agricultural tools, Manual for Agricultural Technologies and Tools
Evaluation Indicators	Trainees' knowledge, crop growth
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for crop production of the trainees

Remarks

1. It is recommended to have a practical session. For the practical session, agricultural tools are required.
2. For the second year and onward, if the project expands to the other area, the same contents of the training will be delivered to those who are willing to do dry season gardening. On the other hand, following up should be made to the ex-trainees.

Training Module-11

Subject	Data collection methods, tools and organization
Trainees	DAOs, MISOs, AEAs
Trainers	Selected RAOs
Objectives	Trainees will: - be able to understand the main types of data collection methods/ tools; - acquire basic data collection skills to assist in design and implementation of data collection and management in their districts; - be able to determine the appropriate data collection methods and tools to use for monitoring and evaluation; - be able to make an organizational arrangement for data collection
Duration/Frequency	3 days (once a year)
In class or Field	In class
Short Description	Introduction of basic knowledge on: - Definition of data collection methods - Classification of data - Types of data collection methods - Types of sampling methods for data collection - Design and implementation of data collection instruments/ tools - Participatory monitoring and evaluation data collecting methods - Design organizational arrangement

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Data and data collection methods	Before starting the new fiscal year	0.5 day	Explain on definition of data and data collection methods, and types of data collection methods
2	Designing data collection		1 day	Explain how data collection is designed, and practice the designing of data collection
3	Sampling, data collection and analysis		1 day	Practice sampling, data collection, and analysis of the results
4	Participatory monitoring and evaluation		0.5 day	Explain on how data collection is done with participatory methods, particularly for monitoring and evaluation

Training Resources/ Materials	Stationary, fuel, hand out for the practice
Evaluation Indicators	Trainees' knowledge
Means of Evaluation	- Designed data collection plan - Results of the exercise

Remarks

1. The material for the practice should be prepared by a trainer in advance.

Training Module-12

Subject	Market information system
Trainees	MISOs, AEAs and market enumerators
Trainers	RAO-M&E
Objectives	Trainees will gain the knowledge and skills in market information including prices, movement of commodities, data compilation and dissemination, and interviewing techniques.
Duration/Frequency	2 days (once a year)
In class or Field	In class
Short Description	Introduction of basic knowledge on: - Types of information to be focused - Movement of each commodity and types of prices - Ways to compile and disseminate the information The knowledge will be utilized for upgrading the market information system in MOFAUWR office.

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Market information:	Before starting the new fiscal year	1 day	Explain types of market information to be focused, how commodities move in a market chain and from what points market information should be collected
2	Ways to compile and disseminate the information		1 day	Explain how the collected information should be compiled, and how and where such information should be disseminated

Training Resources/ Materials	Stationary, fuel, hand out
Evaluation Indicators	Trainees' knowledge, progress of the system upgrading
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for progress of upgrading market information system

Remarks

Most of the responsible staff do not have enough experience in market surveys, such as price monitoring, and dissemination. This training intends to upgrade the MOFAUWR's current market information system by enhancing the common understanding and knowledge of those staff on the concepts and operations of the system.

Training Module-13

Subject	Sensitization on commodity price trends and demand function of food crops
Trainees	MISOs, DAOs, Market Enumerators and AEAs
Trainers	RAO (Programmes & Budget Officer)
Objectives	Trainees will: 1. improve knowledge and skills on agricultural market data analysis. 2. increase awareness on the supply-demand relationship of food crops in specific districts by using market information.
Duration/Frequency	1 day (once a year)
In class or Field	In class
Short Description	1. Time series analysis of wholesale and retail prices of commodities taking into consideration monthly consumer price index (CPI) 2. Create awareness on commodity supply effects on prices in different market locations

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Commodity price variations and fluctuations, price elasticity	Before starting the new fiscal year	0.5 day	Explain wholesale and retail prices and their variations and fluctuations in relation to supply and demand changes, including how market prices are elastic.
2	Market data analysis		0.5 day	Explain how market data should be analyzed

Training Resources/ Materials	Stationery, fuel, hand out
Evaluation Indicators	Trainees' knowledge
Means of Evaluation	- Training report to be submitted after the training

Remarks

1. The knowledge gained in the training will be utilized for upgrading the market information system of MOFAUWR.

Training Module-14

Subject	Organization management
Trainees	Members of Beneficiary Groups, AEA s
Trainers	Officers of the Cooperative Department
Objectives	Trainees will gain the knowledge regarding how organizations are established and managed to be able to effectively function
Duration/Frequency	2 days (once a year)
In class or Field	In class
Short Description	Introduction of knowledge on the benefit of forming a group and provision of general guidance on group management

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Establishment of an organization	Before starting the project activities	1 day	Explain the merits of an organization, and how a group should be established
2	Group management		1 day	Explain how an organization should be managed

Training Resources/ Materials	Stationary, fuel, hand out
Evaluation Indicators	Trainees' knowledge Activities and performances of the groups
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for the activities of the targeted groups

Remarks

The topics to be included will be:
Group Dynamics, Behavior of Group Members, Meeting and Meeting Procedure, Good Leadership, Conflict resolution and management, Cash Management, Credit Management, Marketing Negotiation skills with traders

Training Module-15

Subject	Book Keeping & Proper Accountability
Trainees	Executive members of Beneficiary Groups, AEAs
Trainers	Officers of the Cooperative Department
Objectives	Trainees will gain the knowledge on book keeping for maintaining the group's accountability. Trainees will understand the financial status of their own activities by using the knowledge gained.
Duration/Frequency	5 days (once a year)
In class or Field	In class
Short Description	Trainees will understand how to keep records of financial transactions, including purchases of materials, sales, income, and so on by the group.

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Basic of bookkeeping	After the formation of a group	2 days	Explain the ways for bookkeeping (recording of day-to-day financial transactions, weekly and monthly totaling and balancing)
2	Follow-up	After 6 months	1 day	Follow up training to review whether the trainees are following the method.
3	Closing of the account for audit	At the end of fiscal year	2 days	Prepare the trial balance sheet and ledgers (the income statement and balance sheet, if possible)

Training Resources/ Materials	Fuel, notebook, various ledgers, cash book, pen and calculator
Evaluation Indicators	Trainees' knowledge Account book
Means of Evaluation	Monitor the account book regularly

Remarks

1. A treasurer of the group should participate in this training. Attendance of the other staff such as executive members is also important since the treasurer may change in the future.
2. It is also important that the trainees are literate.
3. For the second year and onward, if the project will expand to the other area, the same contents of the training will be delivered to the group of the new place. On the other hand, following up should be made to the ex-trainees.

Training Module-16

Subject	Decentralization Policy and Roles of Region and Districts
Trainees	RAO, DDAs and DAOs
Trainers	MOFA Headquarters
Objectives	Introduce and discuss with trainees how the decentralization policy should be applied to the regular operations in the region. The roles and responsibilities of the regional and district offices will be clarified.
Duration/Frequency	2 days (once a year)
In class or Field	In class
Short Description	Introduction of the current decentralization policies of the government, and based on that, the participants will discuss their roles and responsibilities.

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Related policies	Before starting the new fiscal year	1 day	Explain the current decentralization policy in relation to daily operations at the region and district levels.
2	Roles and responsibilities of MOFAUWR staff		1 day	Discuss and decide among the participants, with the support of the trainer, on their roles and responsibilities for the daily operations

Training Resources/ Materials	Stationery, fuel, hand out
Evaluation Indicators	Trainees' knowledge
Means of Evaluation	- Training report (improved organizational arrangement) to be submitted after the training

Remarks

1. The results of the training should be reflected to the daily operations of MOFAUWR office.

Training Module-17

Subject	Participatory Methods in Agricultural Development
Trainees	RAOs and DDAs
Trainers	NGOs
Objectives	Introduce and discuss with trainees how participatory methods are applied for agricultural development
Duration/Frequency	2 days (once)
In class or Field	In class
Short Description	Introduction of the concepts and meaning of the participatory development, and the ways to apply the participatory methods at various levels.

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Participatory development	Before starting the new fiscal year	1 day	Explain the concept, meaning, effectiveness, pitfalls, etc. of participatory development in agriculture sector
2	Application of the participatory methods		1 day	Explain how the participatory concepts and methods are applied for agricultural development at the central, regional, district and community levels.

Training Resources/ Materials	Stationery, fuel, hand out
Evaluation Indicators	Trainees' knowledge
Means of Evaluation	- Training report to be submitted after the training

Remarks

1. The contents of this training should be different from the training for DAOs and AEAs on the same subject since RAOs and DDAs have the different functions. They are expected to supervise DAOs and AEAs for smooth application of participatory methods.
2. A trainer(s) should be obtained from one of NGOs which are familiar with local conditions in the UWR, and competent in participatory development in agriculture sector.

Training Module-18

Subject	Development Planning and Budgeting
Trainees	RAOs and DDAs
Trainers	RDA, selected DDAs and RAOs
Objectives	Introduce and discuss with trainees how development plans should be made from the bottom and how the plans are reflected to the budgets
Duration/Frequency	1 day (once a year)
In class or Field	In class
Short Description	Currently, MOFA's planning and budgeting process are bottom-up, starting from the district level. To streamline and expedite this process, and make clear the roles of the stakeholders, this training will upgrade the knowledge and skills for the planning of the stakeholders.

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Development planning and budgeting	Before starting the process of development planning at the district level	1 day	Explain the expected process of planning and budgeting, roles of the stakeholders, and ways to improve the process

Training Resources/ Materials	Stationary, fuel, hand out
Evaluation Indicators	Trainees' knowledge
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for planning and budgeting process

Remarks

1. The results of the training should be reflected to the planning and budgeting process of MOFAUWR office.

Training Module-19

Subject	Marketing Strategies
Trainees	RAO, DDAs and DAOs
Trainers	Selected RAOs
Objectives	Introduce and discuss with trainees how marketing strategies should be made and applied for each commodity
Duration/Frequency	2 days (once a year)
In class or Field	In class
Short Description	Introduction of the basics of marketing strategies and prepare the marketing strategies for the main commodities

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Basics of marketing strategies	Before starting crop season	1 day	Explain the basics of marketing strategies including main stakeholders in market chain, price variations and fluctuations, ways of exploring new markets, value addition, etc.
2	Marketing strategies of the main commodities		1 day	Prepare the marketing strategies on the focused commodities

Training Resources/ Materials	Stationary, fuel, calculator, handout, market information collected through the market information system of MOFAUWR
Evaluation Indicators	Trainees' knowledge, marketing strategies prepared
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for marketing of the focused commodities

Remarks

The market information system, strengthened through the training on the "Market information system", should be utilized for enhancing the effectiveness of this training.

Training Module-20

Subject	Project Monitoring and Evaluation
Trainees	RAOs, DDAs and DAOs
Trainers	Selected RAOs
Objectives	Introduce and discuss with trainees how project activities should be monitored and evaluated
Duration/Frequency	1 day (once a year)
In class or Field	In class
Short Description	Introduction of ways for monitoring and evaluation of the project activities by the responsible officers

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Project monitoring and evaluation	Before starting the fiscal year	1 day	Explain "who" should do "what" for monitoring and evaluation of the project activities for making clear the roles and responsibilities of the responsible officers

Training Resources/ Materials	Stationary, fuel, handout
Evaluation Indicators	Trainees' knowledge, monitoring and evaluation plans prepared
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for monitoring and evaluation of the responsible officers

Remarks

The training should be conducted for the responsible officers in the project implementation structure.

Training Module-21

Subject	Benefit Revolving System
Trainees	RAOs and DDAs
Trainers	Selected RAOs
Objectives	Introduce and discuss with trainees how the benefit revolving system should be established and monitored
Duration/Frequency	1 day (once a year)
In class or Field	In class
Short Description	Introduction of the basics of the benefit revolving system and the ways to operate it

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Benefit revolving system	Before starting the new fiscal year	1 day	Explain the concept and meaning of the benefit revolving system, the ways to apply it for the project activities

Training Resources/ Materials	Stationary, fuel, handout
Evaluation Indicators	Trainees' knowledge, progress of operating the system
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for the operation of the system

Remarks

Strong assistance for managing the benefit revolving system will be needed for the project beneficiaries since the system is very new to them.

Training Module-22

Subject	Extension Methods
Trainees	DAOs, AEAs, community leaders responsible for disseminating agricultural technologies in the community
Trainers	(1) RAO-EXTENSION/DAOs-EXTENSION (2) RAO-CROPS/RELC COORDINATOR/DAOs-CROPS (3) RAO-APD /RAO-Vet (4) RAO-WIAD/DAO-WIAD
Objectives	1. Sensitize the trainees on the extension principles and methods proposed in the Extension Manuals 2. Upgrade the basic knowledge of the trainees on agricultural technologies based on the Agricultural Manuals, such as farming practices for food and cash crops including post harvest activities, livestock rearing practices for pigs, guinea fowls and rabbits, and processing practices for groundnuts and shea nuts
Duration/Frequency	2 days (once a year)
In class or Field	In class
Short Description	This module intends to: 1. Introduce and/or update the extension principles and methods including the "community approach" 2. Introduce appropriate plant spacing, seed rates, and other important farming technologies for the crops 3. Explain the importance of cleaning of animal huts to ensure good sanitary conditions and feed formulation 4. Introduce appropriate processing technologies of groundnut into oil and kurikuri, and shea nuts into soap

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Extension principles and methods	At convenient time of the stakeholders	1 day	Introduce the extension principles and methods in line with the Extension Manual
2	Appropriate agricultural technologies		1 day	Introduce appropriate agricultural technologies proposed in the Agricultural Manual

Training Resources/ Materials	Stationery, fuel/Instruction Manuals for Extension Methods and Tools, Instruction Manuals for Agricultural Technologies and Tools
Evaluation Indicators	Trainees' knowledge, progress of extension activities
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for the extension activities of the trainees

Remarks

In this module, only the basics of the proposed agricultural technologies in the Instruction Manuals will be covered since the focus should be given to the extension methods. The details of each agricultural technology will be covered in the other modules.

Training Module-23

Subject	Facilitating Participatory Development
Trainees	DAOs, AEAs, community leaders responsible for disseminating agricultural technologies in the community
Trainers	RAOs or DAOs who have recently learnt the facilitation of the participatory development, or NGOs' staff who are engaged in participatory development
Objectives	Introduce the trainees how to facilitate participatory workshops
Duration/Frequency	3 days (once)
In class or Field	In class and community
Short Description	This module intends to make the trainees ready for the facilitation of the planning workshop and review workshop to be conducted in the communities. After in-class training, the trainees will go to a community to use the facilitation skills with the community people.

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Participatory development principles and methods	Before the planning workshop at the communities	1 day	Introduce the participatory development principles and methods in line with the Extension Manual
2	Facilitation skills		1 day	Familiarize the trainees with the facilitation skills through in-class exercise
3	Facilitation of a workshop		1 day	Use the facilitation skills for conducting one-day-workshop in a community

Training Resources/ Materials	Stationery, fuel/Instruction Manuals for Extension Methods and Tools
Evaluation Indicators	Trainees' knowledge and facilitation capacity
Means of Evaluation	- Training report to be submitted after the training - Observation of one-day-workshop in a community - Monitoring for the planning and review workshops to be facilitated by the trainees

Remarks

- AEAs are expected to be facilitators for the planning and review workshops at each community.
- DAOs should be able to supervise the AEAs for the facilitation. The community leaders will be involved in those workshops at the first time, and they are expected to be facilitators for the workshops in future.

Training Module-24

Subject	Basics of Farm Management and Marketing
Trainees	DAOs, AEAs, community leaders (agricultural committee members and other persons selected by the community)
Trainers	RAOs or DAOs who are knowledgeable on farm management and marketing
Objectives	Introduce trainees the basics of farm management and marketing in relation to data collection methods and analysis of gross margins and balance sheets
Duration/Frequency	3 days (once a year)
In class or Field	In class and field
Short Description	The basics of farm management and marketing including data collection and analysis methods will be taught aiming to contribute for increasing income of the farmers

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Basics of farm management	Before starting farming activities	1 day	Introduce the ways how farm management should be planned for increasing income of the producers
2	Marketing		1 day	Explain the importance of marketing in relation to income of the producers
3	Methods of data collection and analysis		1 day	Have a seminar-style lecture and exercise regarding how the data is collected from the field and analyzed in relation to incomes of the producers

Training Resources/ Materials	Stationary, fuel, handouts in which the above training issues are summarized and with which simple calculation exercise is made, calculator
Evaluation Indicators	Trainees' knowledge, progress of project activities in relation to the impact on beneficiaries' income
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for the project activities

Remarks

- After the training, AEAs and community leaders are expected to be able to train the farmers on record keeping and help them to calculate gross margins.

Training Module-25

Subject	Management of Agricultural Committee
Trainees	DAOs, AEAs, Community members
Trainers	RAO (M&E), selected DAOs, Officers of the Cooperative Department
Objectives	Introduce and discuss with trainees how the Agricultural Committee should be established and managed in each community
Duration/Frequency	3 days (once a year)
In class or Field	In class and community
Short Description	Introduction of the concept and meaning of the agricultural committee, its roles and responsibilities, and key issues on organizational management

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Basics of an agricultural committee	Before starting the new fiscal year	1 day	Explain the concept and meaning of the agricultural committee, and its roles and responsibilities
2	Ways of establishment and management		1 day	Explain how the committee should be established and managed, how the members of the committees should be selected and how they should function
3	Establishment of the committee		1 day	Discuss and start establishing the committee among the leaders and the people at the community

Training Resources/ Materials	Stationery, fuel, hand out
Evaluation Indicators	Trainees' knowledge Activities and performances of the committee
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for the activities of the committee

Remarks

1. At the third day of the training, the trainees will go to the respective communities and start establishing the committee through the discussion among the leaders and people.
2. AEAs are expected to manage the agricultural committee in each community when projects are planned and implemented.

Training Module-26

Subject	Operation of Benefit Revolving System
Trainees	DAOs, AEAs, Community Leaders
Trainers	RAO (M&E), selected DAOs
Objectives	Introduce and discuss with trainees how the Benefit Revolving System should be established, operated and managed
Duration/Frequency	2 days (once a year)
In class or Field	In class
Short Description	Introduction of the operational basics of the benefit revolving system and the ways to calculate the revolving plans

Sub-modules

Sr No.	Name of sub-module	Timing	Duration	Short Description
1	Operational basics of the benefit revolving system	Before starting the new fiscal year	1 day	Explain how the system should be established, operated and managed practically at the district and community levels.
2	Practice on revolving the benefits		1 day	Explain and practice how the benefits should actually be revolved

Training Resources/ Materials	Stationary, fuel, hand out, calculator
Evaluation Indicators	Trainees' knowledge, result of exercise, progress of the system establishment and operation
Means of Evaluation	- Training report to be submitted after the training - Regular monitoring for progress of establishment and operation of the system

Remarks

1. The material for the practice should be prepared by a trainer in advance.
2. AEAs are expected to manage the benefit revolving system in each community for ensuring the sustainability of the projects.

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Final Report

Appendix O

Possible Collaborations

– JICA's Group Training Program "Sustainable Rural Development in Japan", and JICA's "Project for Strengthening Health System in UWR"

Appendix O Possible Collaborations – JICA's Group Training Program "Sustainable Rural Development in Japan", and JICA's "Project for Strengthening Health System in UWR"

The following describes the forms of collaboration being made or to be possibly made between the Study on UWIAD and the JICA's other schemes, such as (i) JICA's Group Training Program "Sustainable Rural Development" in Japan, and (ii) JICA's "Project for Strengthening Health System in UWR".

O.1 JICA's Group Training Program "Sustainable Rural Development" in Japan

O.1.1 Background

Three MOFAUWR officers studied in JICA's group training program "Sustainable Rural Development" at University of Tsukuba in Japan. The course was jointly organized by JICA and University of Tsukuba. It is an academic program and the participants were awarded master's degree upon completion. Duration of the program was sixteen months, of which six months were scheduled for in-country preparation and ten months were for the full-time course study at the University. Description of the three MOFAUWR trainees' research work is listed below.

Table O.1.1 Trainees from MOFAUWR for JICA's Training (2006 to 2008)

Name of the Trainees	Mr. Abu Huudu	Mr. Kwasi Wih	Mr. Ndamani Francis
Year of Training	2006-2007	2007-2008	2007-2008
Assigned Section at MOFAUWR	Crop production	Crop protection	Monitoring and evaluation
Research Topic	Effect of Traditional Farming Practices on Yield of Indigenous Kersting's Groundnut (Macrotyloma Geocarpum Harm) Crop in the UWR of Ghana	Assessment of Fruit Fly Damage and Implications for the Dissemination of Management Practices on Mango Production in UWR of Ghana	Analysis of the Market Strategies of Food Crop Farmers: the Case of UWR of Ghana

This JICA's program intends that, based on the research work, each trainee prepares an action plan to be implemented after the trainee returns to his/her country. Each of the three trainees have therefore drawn up an Action Plan according to the findings of their research during the course study. JICA Study Team has then discussed with each of them, and made the follow-up plans and the implementation plan (the Revised Plan of Operation for UWIAD) for them to be able to pursue their Action Plans in the framework of the Study on UWIAD.

O.1.2 The Follow-up Plans

(1) Mr. Abu Huudu

a) Summary of the Action Plan

Mr. Abu Huudu emphasizes, in his Action Plan, the necessity to enhance the capacity of MOFA staff and, subsequently, farmers. He considers that this capacity development can be effectively done through improving coordination between research and extension and by training extension volunteers at the community level. Mr. Huudu's Action Plan is summarized in Table O.1.2.

Table O.1.2 Summary of the Action Plan of Mr. Abu Huudu

Narrative Summary	Objectively Verifiable Indicators
Overall Goal Dissemination and adoption of agricultural technologies by farmers improved	Farmers in 20 communities learn and apply technologies taught by trained extension volunteers and extension staff
Project Purpose The delivery of technical extension services to beneficiary farmers in rural communities increased	20 rural farming communities without extension staff covered by trained extension volunteer farmers
Outputs 1. Training program for extension staff and extension volunteers established and facilitated	1. The developed training program, content delivered and schedules 2. 20 extension volunteers trained in 20 farming communities
2. Crops demonstrations protocols developed and implemented	64 crops demonstrations sites in place in cooperation with 64 farmers in 8 districts
3. Monitoring and evaluation system for demonstrations established and facilitated	1. 32 crops demonstration fields visited in 8 districts 2. 16 field days conducted in 8 districts
4. Moringa production and utilization in four rural communities increased	1. 4 acres of moringa fields established in 4 communities 2. Food demonstrations on the utilization of moringa 3. Field days conducted in 4 communities

b) The Plan of Operations (by the end of 2009)

The Plan of Operations, i.e. the Outputs and Activities planned in his Action Plan are shown in Table O.1.8.

c) Follow-up Plan

By keeping the Project Purpose and the Outputs of the Action Plan unchanged, the follow-up plan has been prepared how the Study Team can assist Mr. Abu through the implementation of the PDAs.

- Output 1: can be produced within the current PO of the PDAs. Mr. Abu shall conduct the training on agricultural technologies and extension to the AEAs and extension volunteers (8 AEAs and 16 extension volunteers from 8 communities). The extension volunteers are mostly the contact persons in the communities when MOFA conducts training. They will therefore be one of the possible cores or the leaders for extension. The Project shall provide fuel to Mr. Abu for 3 round trips between Wa and each

of the 8 PDA communities (Nanvilli is not included).

- Output 2: can be produced within the current PO through seed distribution and demonstration farm. No additional cost is required.
- Output 3: can be produced within the current PO. Mr. Abu shall support and supervise the 8 communities. The Project shall provide fuel to Mr. Abu for 3 round trips between Wa and each of the 8 communities.
- Output 4: beyond the scope of the Study

(2) Mr. Kwasi Wih

a) Summary of the Action Plan

Mr. Kwasi Wih claims that, to stop and eventually eliminate the damage from fruit flies on mangoes, it is imperative to train extension officers on the management of damages caused by fruit flies. In addition, he plans to make sure that the knowledge and techniques given to the extension officers are passed on to the mango farmers. His Action Plan is summarized in Table O.1.3.

Table O.1.3 Action Plan for Mr. Kwasi Wih

Narrative Summary	Objectively Verifiable Indicators
Overall Goal To enhance food security and income generation capacity of mango farmers in the target area	By 2015, mango farmers' income in the target area increases to account for more than 40% of the total household income in more than 80% of the households
Project Purpose To develop and implement in collaboration with development partners effective approaches to reduce mango losses due to pests infestation leading to quality production; and to improve market access and processing to meet the needs of domestic, urban and export markets	By December 2010, more than 60% of the mango farmers who have participated in the skill training start using the technology on their orchard farms
Outputs 1. Agricultural Extension Officers' knowledge enhanced in appropriate methods of managing fruit fly damage on mango	By December 2010, more than 80% of the Agricultural Extension Officers in the region have their knowledge and skills on identification and management of fruit flies enhanced
2. Mango farmers have knowledge and skills on how to identify mango related pests and control them	By December 2010, more than 70% of the mango farmers who acquired the skill training can identify mango related pests and diseases and possible control measures
3. Development partners have access to information on mango pests and their management at the Regional Plant Protection Office	By December 2010, development partners have access to valuable information on mango related pests at the Regional Plant Protection Office

b) The Plan of Operations (by the end of 2009)

The Plan of Operations, i.e. the Outputs and Activities planned in his Action Plan are shown in Table O.1.8.

c) Follow-up Plan

By keeping the Project Purpose and the Outputs of the Action Plan unchanged, the follow-up plan has been prepared how the Study Team can assist Mr. Kwasi through the implementation of the PDAs.

- Output 1: can be produced within the current PO. Mr. Kwasi shall conduct the training on mango related pests and diseases to the AEAs responsible for Puffien, Tome-kokodour, and Nyani where mango nurseries are to be supplied by the PDAs. The Project shall provide fuel to Mr. Kwasi for a round trip between Wa and each of the 3 communities.
- Output 2: Part of the activities (2.1, 2.3 and 2.4) can be conducted within the current PO. Mr. Kwasi shall provide the training on mango related pests and diseases to the mango producers in the above 3 communities, by forming the mango farmer groups. No additional costs shall be required as the activities for Outputs 1and 2 can be done at the same time.
- Output 3: too early to produce it within the project period.

(3) Mr. Ndamani Francis

a) Summary of the Action Plan

Mr. Ndamani Francis underlines the need to strengthen food crop farmers' market strategy. He suggests that MOFA staff study market structure and prices of crops to improve the suggestions they make to the farmers on marketing, especially pricing. At the same time, he recommends farmers establish farmers groups in order to market their products more effectively. The Action Plan of Mr. Ndamani is shown in Table O.1.4.

Table O.1.4 Action Plan for Mr. Ndamani Francis

Narrative Summary	Objectively Verifiable Indicators
Overall Goal Ensure appropriate planning and implementation of agricultural activities using food crop market information	By 2010, 6 districts include market structure analysis in their plans and more than 60% of farmers in the 3-model districts use information on market strategies to plan
Project Purpose Food crop farmers acquire knowledge and skill to attain increased prices for their products	By 2010, more than 60% farmers in the 3-model districts experience 30% increase in income accruing from sale of products
Outputs 1. Farmers have knowledge in food crops market structures in the region	By December 2009, 30% of farmers have access to food crop market prices in the 3-major markets in the region
2. Farmers have knowledge in crop market plans and marketing strategies	By June 2010, more than 50% FBOs market their products collectively in at least 2 major markets in the region
3. Farmers establish groups to market their crops	By June 2010, more than 60% of market groups strengthened/established sell their products together/collectively
4. Farmers are aware of their district agricultural plans	By 2010, 70% of farmers in model villages participate in district agricultural plans awareness creation programs
5. Agricultural staff have knowledge in market structure of food crops in the region	By 2010, all 3-model DADUs will undertake market structure analysis by themselves
6. Staff have knowledge in food crop market plans and market strategies	3-model DADUs include market strategy analysis in their annual work plan and budgets (AWPB) by 2009

7. Monitoring conducted on project activities	8-quarterly monitoring carried out by 2010

b) The Plan of Operations (by the end of 2009)

The Plan of Operations, i.e. the Outputs and Activities planned in his Action Plan are shown in Table O.1.8.

c) Follow-up Plan

By keeping the Project Purpose and the Outputs of the Action Plan unchanged, the follow-up plan has been prepared how the Study Team can assist Mr. Ndamani through the implementation of the PDAs.

- Output 1: Part of the activities (1-1 and 1-2) can be conducted within the current PO. Mr. Ndamani shall conduct the workshop on marketing to the MOFA district staff and the community beneficiaries at the same time at the District Offices. The Project shall provide Mr. Ndamani for a round trip between Wa and each of the 3 District Offices, and also provide the community beneficiaries for a round trip between their communities and the District Offices.
- Output 2: Part of the activity (2-1) can be included although it is beyond the framework of the current PO. The activity shall be conducted in collaboration with DOC (Department of Cooperatives), and shall be considered as a trial because it is yet to be known whether "an existing farmer marketing group" really exist in the PDA communities. The activity should therefore include the identification and strengthening of the potential farmer group and, if needed, forming of them into a cooperative. One from each of the 9 communities shall be selected. The Project shall provide DOC for training fee and two round trips between Wa and each of the 9 communities, and Mr. Ndamani for two round trips for the same.
- Output 3: beyond the scope of the Study
- Output 4: can be produced within the current PO. Mr. Ndamani shall conduct the monitoring for the Outputs 1 and 2 at the 9 community. The Project shall provide fuel to Mr. Ndamani for a round trip between Wa and each of the 9 communities.

O.1.3 Revised Plans of Operation for UWIAD and Progress

The implementation schedules for the above follow-up plans, i.e., the revised Plans of Operations (POs) for UWIAD have been prepared by each of the three officers according to the implementation plans and progress of the PDAs. The schedules and the progress of the revised POs for UWIAD as of the end of September 2009 are summarized as follows:

(1) Mr. Abu Huudu

The Revised PO for UWIAD is shown in Table O.1.5. The progress of each activity is as follows:

Output No	Activity No	Progress
1	1	Identified (but all are not literates)
	2	Classroom training converted to practical training at Zakpee, Kogri, Nyani and Tome-Kokoduor
	3	Job site training during implementation at Zakpee, Kogri, Nyani and Tome-Kokoduor
	4	Job site training during implementation at Zakpee, Kogri, Nyani and Tome-Kokoduor
2	1	Done
	2	Done
	3	Done
3	1	Ongoing at all related sites
	2	Yet to be done at Kogri and Nyani on sorghum demos during harvesting and vegetative growth

(2) Mr. Kwasi Wih

The Revised PO for UWIAD is shown in Table O.1.6. No progress has been made.

(3) Mr. Ndamani Francis

The Revised PO for UWIAD is shown in Table O.1.7. No progress has been made.

Table O.1.5 Revised Plan of Operations for UWIAD of Mr. Abu Huudu (1/2)

Revised Plan of Operations for UWIAD - Abu Huudu

Output 1: Training programme for Extension staff and Extension Volunteers established and facilitated

Activity	Expected Results	Schedule				Responsibility	Implementer	Materials
		Q1	Q2	Q3	Q4			
1.Identification and selection of 6	12 literates farmers in	X				RADU/DADU	AEAs	Petrol
communities and 12 Literate farmers	rural pilot communities							
	identified							
2.Acquisition and Preparation of	The developed training					RADU	RAO-crops	stationery
training materials.	programme, content						RAO-Extension	
	delivered and on	X	X					
	schedules.							
3. Train 12 extension volunteers on .	12 extension volunteers					RADU	RAO-crops	stationery
agronomic practices of cereal	trained in 6 pilot	X	X				RAO-Extension	Accommodation
and legume crops (sorghum and cowpea)	communities							DSA
								Transport
								snack/lunch
								fuel
4. Train 6 extension staff on crops	6 MOFA Extension							stationery
demonstrations protocol and	Staff trained and		X					transport
data collection.	demostrations							allowance
	implemented.							accommodation
								fuel

Table O.1.5 Revised Plan of Operations for UWIAD of Mr. Abu Huudu (2/2)

Revised Plan of Operations for UWIAD - Abu Huudu

Output 2: Crops Demonstrations protocols developed and implemented.

Activity	Expected Results	Schedule				Responsibility	Implementer	Materials
		Q1	Q2	Q3	Q4			
1. Identification and Acquisition of	12 seed packages in place	X	X			MOFA/SARI	RAO-crops	sorghum seed
foundation/certified seeds.							Researcher	cowpea seed
							Seed Inspector	insecticide
								fertilizers
								(N PK & SA)
2. Development and production of demonstrations protocols.	demonstrations sites in place in cooperation with 12 trained volunteers in 6 pilot communities	X	X			SARI/MOFA	Researcher RAO-crops	A4 paper toner for photocopying
3. Packaging and distribution of 12			X			MOFA/SARI	RAO-crops	sacks
demonstration materials to 4 districts.							Researcher	polythene bags
(Nadowli, Jirapa, Lambussie, Lawra)							Seed Inspector	packaging fees

Output 3: Monitoring and Evaluation system for demonstrations established and facilitated.

Activity	Expected Results	Schedule				Responsibility	Implementer	Materials
		Q1	Q2	Q3	Q4			
1.Conduction of field visits to	12 crops		X	X	X	MOFA/RELC	DADU	Fuel
demonstrations sites in 4 districts.	demonstration fields							DSA
	visited in 4 districts							stationery
2. Facilitation and conduction of	6 field days			X	X	MOFA/RELC		Fuel
12 field days for farmers to crops	conducted in							snacks
demonstrations sites in 6 communities.	6 communities.							documentation
								materials

Table O.1.6 Revised Plan of Operations for UWIAD of Mr. Kwasi Wih

Revised Plan of Operations for UWIAD - KWASI WIH

OUTPUT 1. Agricultural Extension Officers' knowledge enhanced in appropriate methods of managing fruit fly and disease damage on mango.

Activity	Expected Results	Q1	Q2	Q3	Q4	Responsibility	Implementor	Materials
1.1 Organise a day's training for Agricultural Extension Officers on identification and management of mango related pests and diseases.	3AEAs, 3DAOs, 2 DDAs on PDA's trained on identification and management of fruit fly and other mango related diseases.				x	RADU/DADU	RAO-PPRS	Fuel

OUTPUT 2. Mango farmers have knowledge and skills on how to identify mango related pests and control them.

Activities	Expected Results	Q1	Q2	Q3	Q4	Responsibility	Implementor	Materials
2.1 Organise farmers' fora in PDA mango communities to create awareness of mango pests.	Three(3) communities are expected to be covered within the year 2009				x	RADU/DADU	RAO-PPRS	Fuel
2.2 Facilitate the formation of mango farmer groups in PDA communities	Three(3) mango groups formed.				x	RADU/DADU	AEAs	Fuel
2.3 Organise training for mango farmer groups on the identification and management of mango related pests and diseases in PDAs.	Thirty(30) mango farmers trained on identification and management of fruit fly and other mango related diseases.				x	RADU/DADU	RAO-PPRS, AEAs	Fuel

Target Communities: Puffien; Nyani; Tome-kokoduor

Table O.1.7 Revised Plan of Operations for UWIAD of Mr. Ndamani Francis

Revised Plan of Operations for UWIAD - Francis Ndamani

Output 1: **Staff and farmers have knowledge in food crop market structure in the region**

Activities	Expected Results	Schedule				Responsibility	Implementer	Materials
		1st	2nd	3rd	4th			
1-1 Provide workshop to sensitize staff on market structure of food crops in the region	3-workshops are organized for MOFA staff. One in each district				X	RADU/DADU	M&E Unit/DAOs	Fuel
1-2 Sensitize farmers on market structure of food crops in each district	3-workshops are organized. One in each district (same time as 1-1)				X	RADU/DADU	M&E Unit/DAOs	Fuel

Output 2: **Capacities of FBOs built to market their produce collectively**

Activities	Expected Results	Schedule				Responsibility	Implementer	Materials
		1st	2nd	3rd	4th			
2-1 Revitalise existing farmer marketing groups in each district	9 farmer groups are reinvigorated. one from each community				X	RADU/DADU	M&E Unit/DAOs/DOC	Training fee for DOC and Fuel

Output 4: **Conduct monitoring on activities**

Activities	Expected Results	Schedule				Responsibility	Implementer	Materials
		1st	2nd	3rd	4th			
4-1 Conduct monitoring on activities	9- monitoring visits. One for each community				X	RADU/DADU	M&E Unit/DAOs	Fuel

Table O.1.8 Plans of Operations of Three MOFAUWR Officers Studied in JICA's Group Training Program "Sustainable Rural Development"

PLAN OF OPERATIONS **Abu Huudu: Effect of Traditional Farming Practice of Kersting's Groundnut**

Output 1: **Training programme for Extension staff and Extension Volunteers established and facilitated**

Activity	Expected Results	Schedule				Responsibility	Implementer	Materials
		Q1	Q2	Q3	Q4			
1.Identification and selection of 9 .	18 literates farmers in	X				RADU/DADU	AEAs	Petrol
communities and 18 Literate farmers	rural pilot communities							
	identified							
2.Acquisition and Preparation of	The developed training					RADU	RAO-crops	stationery
training materials.	programme, content						RAO-Extension	
	delivered and on	X	X					
	schedules.							
3. Train 18 extension volunteers on .	18 extension volunteers					RADU	RAO-crops	stationery
agronomic practices of cereal	trained in 9 pilot	X	X				RAO-Extension	Accommodation
and legume crops (sorghum and cowpea)	communities							DSA
								Transport
								Allowance
								fuel
4. Train 9 extension staff on crops	9 MOFA Extension							stationery
demonstrations protocol and	Staff trained and		X					transport
data collection.	demostrations							allowance
	implemented.							accommodation
								fuel

Output 2: **Crops Demonstrations protocols developed and implemented.**

Activity	Expected Results	Schedule				Responsibility	Implementer	Materials
		Q1	Q2	Q3	Q4			
1. Identification and Acquisition of	18 crops	X	X			MOFA/SARI	RAO-crops	sorghum seed
foundation/certified seeds.							Researcher	
							Seed Inspector	cowpea seed
								insecticide
								fertilizers
								(N PK & SA)
2. Development and production of	demonstrations sites in	X	X			SARI/MOFA	Researcher	A4 paper
demonstrations protocols.	place in cooperation with						RAO-crops	toner for
	18 trained volunteers in 9							photocopying
	pilot communities							
3. Packaging and distribution of 18			X			MOFA/SARI	RAO-crops	sacks
demonstration materials to 4 districts.							Researcher	polythene bags
							Seed Inspector	packaging fees
(Nadowli, Jirapa, Lambussie, Lawra)								

Output 3: **Monitoring and Evaluation system for demonstrations established and facilitated.**

Activity	Expected Results	Schedule				Responsibility	Implementer	Materials
		Q1	Q2	Q3	Q4			
						MOFA/RELC	DADU	Fuel
1.Conduction of field visits to	18 crops		X	X	X			DSA
demonstrations sites in 4 districts.	demonstration fields							stationery
	visited in 4 districts							
2. Facilitation and conduction of	9 field days			X	X	MOFA/RELC		Fuel
16 field days for farmers to crops	conducted in							snacks
demonstrations sites in 9 communities.	9 communities.							documentation
								materials

PLAN OF OPERATIONS OF KWASI WIH-GHANA-CALENDER OF ACIVITIES

OUTPUT 1. Agricultural Extension Officers' knowledge enhanced in appropriate methods of managing fruit fly damage on mango.									
Activity	Expected Results	Q1	Q2	Q3	Q4	Responsibility	Implementor	Materials	Remarks
1.1 Organise training for Agricultural Extension Officers on identification and management of mango related pests and diseases.	Ninety(90)AEAs and 18 DAOs trained on identification and management of fruit fly	x			x	RADU/DADU	RAO-PPRS	Petrol Lunch	Ten(10)AEAs and 2 DDOs from each of the 9 districts.

OUTPUT 2. Mango farmers have knowledge and skills on how to identify mango related pests and control them.									
Activities	Expected Results	Q1	Q2	Q3	Q4	Responsibility	Implementor	Materials	Remarks
2.1 Organise farmers' fora in mango communities to create awareness of mango pests.	Ten(10) communities are expected to be covered within the year 2009	x			x	RADU/DADU	AEAs	Petrol	
2.2 Organise Radio talk shows to educate farmers on the management of mango pests and diseases.	Three(3)times radio talk shows organised.	x	x		x	RADU	RAO-PPRS	Air time	Two(2) talk shows at Radio Upper West and one at Radio Progress.
2.3 Facilitate the formation of mango farmer groups	Ten(10) mango groups forr	x			x	RADU/DADU	AEAs	Petrol	
2.4 Organise training for mango farmer groups on the identification and management of mango related pests and diseases.	Two hundred(200) mango farmers trained on identification and management of fruit fly and other mango related diseases.	x			x	RADU/DADU	RAO-PPRS, AEAs	petrol Refreshment	Twenty(20) farmers trained from each of the 10 chosen communities.

OUTPUT 3. Development Partners have access to information on mango pests and their management at the Regional Plant Protection Office.									
Activities	Expected Results	Q1	Q2	Q3	Q4	Responsibility	Implementor	Materials	Remarks
3.1 Establish inventory of fruit flies responsible for the damage of mango in the target area.	Inventory of fruit flies and other major pest on some crops documented.	x	x	x	x	RADU/DADU	RAO-PPRS/AEA	Petrol	25 gallons per quarter
3.2 Develop and produce manuals on mango related pests and diseases for beneficiaries.	Manuals to address some identified problems on mangoes produced as the need arises.	x	x	x	x	RADU	RAO-PPRS	Stationery	
4.1 Monitoring of fruit flies situation and report to the National Plant Protection Regulatory Service(PPRS) Office.	Monthly, quartely and annual reports compiled to check the pest status in the region.	x	x	x	x	RADU/DADU	RAO-PPRS/AEA	Petrol	30 gallons per quarter
								Knapsack sprayer(10)	One knapsack for each district for bait application.
								GPS(10)	One GPS(Magallan explorer-200) for each district and Regional office
								Traps	

Plan of Operation of Ndamani Francis

Project Title: Capacity Development of Farmers on Marketing Strategies
Document Title: Plan of Operations (POs) **Duration: January, 2009 to December, 2009** **Version No. 3**
Target Area: Upper West Region **Target Group: Food Crop Farmers** **February, 2009**

Activities	Expected Results	Schedule 2009				Responsibility	Implementer	Materials and Equipment
		1st Qter	2nd Qter	3rd Qter	4th Qter			
1-1 Provide workshop to sensitize staff on market structure of food crops in the region	1-day workshop would be organized for MOFA staff		X			RADU/DADU	M&E Unit/DAOs	Fuel and lubricants, refreshment, lunch, stationery, travel allowance for staff
1-2 Sensitize farmers on market structure of food crops in each district	9-workshops would be organized. One in each district		X			RADU/DADU	M&E Unit/DAOs	Fuel and lubricants, refreshment, stationery, travel allowance for farmers
1-3 Provide 5-day training for MISOs and Market Enumerators on analysis of marketing strategies of crops	5-day workshop would be organized		X			RADU	M&E Unit	Fuel and lubricants, refreshment, lunch, stationery, travel allowance for staff
2-1 Revitalise existing farmer marketing groups in each district	27 farmer groups would be reinvigorated. 3 from each district		X	X		RADU/DADU	M&E Unit/DAOs/DOC	Fuel and lubricants, refreshment, lunch, stationery, travel allowance for farmers
2-2 Provide training for farmer marketing groups on analysis of marketing strategies of crops	9-workshops would be organized. One in each district			X	X	RADU/DADU	M&E Unit/DAOs	Fuel and lubricants, refreshment, stationery, travel allowance for farmers

Activities	Expected Results	Schedule				Responsibility	Implementer	Materials and Equipment
		2009						
		1st Qter	2nd Qter	3rd Qter	4th Qter			
2-3 Provide market information to farmers through radio broadcast	This activity will be carried out Weekly	X	X	X	X	MOFA/PLAN GHANA	M&E/Enumerators/Radio Upper West	Weekly market data, radio air time
2-4 Facilitate the construction of warehouses/storage facilities for farmer groups	27-farmer groups to have warehouses/storage facilities			X	X	RADU/DADU	M&E Unit/PPRS/CSD/ DAOs	Fuel and lubricants
2-5 Establish market information centers in districts	9-market information centers expected to be established. One in each district		X	X	X	RADU/DADU/ District Assemblies	M&E Unit/Extension Unit/DAOs	Building facility, furniture set, computers and accessories, market brochures and bulletins, radio sets, etc
2-6 Establish networking among marketing groups	All 27-revitalised groups to be networked			X	X	RADU/DADU	M&E Unit/DAOs/ DOC	Fuel and lubricants, refreshment
3-1 Organize meetings at community level to sensitize farmers on district agricultural development plans	3-workshops in three communities in each district. A total of 27 workshops would be organized					RADU/DADU	M&E Unit/RELC/ DAOs	Fuel and lubricants, refreshment, stationery
4-1 Conduct monitoring on activities	4 monitoring visits. Once every quarter for 1 year	X	X	X	X	RADU/DADU	M&E Unit/DAOs	Fuel and lubricants, DSA

O.2 JICA's "Project for Strengthening Health System in UWR"

O.2.1 Project Overview

JICA's "Project for Strengthening Health System in UWR" (the Health Project) was started in March 2006 as a part of JICA's health cooperation program in the UWR. This program aims at improving health conditions of the people in the UWR, particularly through improvement of access to health facilities, namely Community-based Health Planning and Service (CHPS) facilities. The phase 1 of the project ends in February 2010, and the phase 2 is planned to be started before the end of 2010. The phase 1 of the project was carried out with the following key objectives:

1. Strengthening the management capacity of Ministry of Health officials at the regional and district level,
2. Strengthening the capacity of Community Health Officers (CHO) and Sub-District Health Teams,
3. Development of supervision system for CHPS,
4. Strengthening of referral and counter-referral system, and
5. Promotion of Community Health Committee (CHC) and Community Health Volunteers (CHV) for improvement of community health activities.

The Health Project basically covers all the districts in the region, and there are some pilot areas where the project works intensively.

O.2.2 The Progress Made So Far

The number of CHPS facilities (or compound) in the UWR has increased significantly since the commencement of the project, from 30 to over 70, and as a result, the access to health facilities has become better. In addition, the management capacity of the Ministry of Health officials at the regional and district levels has been improved greatly through a number of trainings implemented by the Health Project. The health sector's structure has four levels (regional, district, sub-district, and CHPS), but supervision of the subordinate organizations by the superior had not been appropriately conducted. The Health Project emphasized the improvement of regional and district officers' supervisory function over the officers at sub-district level and CHPS. As a result of the trainings on management, a periodical monitoring system has been established for different levels.

Technical trainings have also been given for the Community Health Officers who work at CHPS. For the local residents, the Health Project has emphasized the importance of preventive measures against diseases, given the resource limitations on both demand and supply sides in regard to curative care. Such awareness raising campaign was done by supporting the work of a community health committee, which is composed of only local residents, and Community Health Volunteers.

O.2.3 Collaboration with UWIAD

Kogri and Tabiesi communities have been incidentally selected for the implementation of both the PDAs of UWIAD and the Health Project. Therefore, in these two communities, there was a plan for the

two projects to exchange information about its own activities and ask the other project to disseminate it. Such information exchange between the projects could be valuable for the projects' beneficiaries since most of them are in need of improved agricultural knowledge and practice as well as available government health services. Both projects worked with government agents in charge of information dissemination, namely the Community Health Officers (CHOs) for the Health Project and the AEAs for UWIAD. They both had a mission to inform the community people of available government services. Considering this common task, it was planned for the CHOs to inform their clients of UWIAD activities, and vice versa for the AEAs. It was originally planned to prepare a "Project Information Card" of two JICA projects to be carried by the CHOs and the AEAs although it was yet to be conducted.

In the case of Tabiesi, the CHO was eager to start cultivating vegetables with the local residents and use the sales revenues for assisting the work of CHPS. This is because in most cases the CHOs do not have sufficient financial resources to operate CHPS, and need to be supported by the local residents in one way or the other to be sustainable. Therefore, the PDA beneficiaries in Tabiesi collaborated with the CHO and his supporters by sharing technical knowledge and skills learned through the PDA for dry season gardening.

The Study on Upper West Integrated Agricultural Development
in the Republic of Ghana

Final Report

Appendix P

Baseline Survey Final Report

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CHAPTER 1

1 BACKGROUND AND INTRODUCTION OF STUDY

1.1 Introduction

This baseline survey is for the collection of data towards the preparation of the master plan for the JICA sponsored project "The study on Upper West Integrated Agricultural Development."

Post Agric Associates, the consulting firm selected to undertake this baseline studies after going through the necessary bidding and selection procedures commenced field work after finalizing deskwork on 24th June, 2008. Mr. Sammy Akagbor on behalf of Post Agric Associates and Hiroshi Okabe for Kaihatsu Management Consulting, Inc. signed for the commencement of the study.

1.2 Purpose of Study

The main objective is to collect information necessary for the study. These include agric-related statistics, socio-economic and cultural indicators within the study area.

1.3 Scope of Work

The Scope of works as defined in the terms of reference is captured in the topics as below.

1) Collection and analysis of existing data
   - Natural environment (climate, water resources, soil quality, etc.)
   - Agricultural production (seeds, production techniques, machinery, production costs, processing methods, etc.)
   - Social and economic indicators (land tenure, population, social structure, farmers organizations, non-agricultural income sources, etc.)

2) Market research on crops, livestock, processed agricultural products and other items
   - Transportation/distribution infrastructure, market facilities, storage facilities, market information network, financial system
   - Prices of items (e.g. seeds, fertilizer etc.)
   - Marketing firms/agencies

3) Analysis of past development projects

The Study Team will draw lessons from the development projects that were recently implemented, namely IFAD's Upper West Agricultural Development Project, CIDA's Farmer Project, a project implemented by Techno Serve (NGO), etc.

CHAPTER 2

2 APPROACH AND METHODOLOGY

2.1 The Survey Team

The team led by Mr. Sammy Akagbor, the Managing Consultant of the company; includes Messrs Sammy Abbey, Seth Amedahe, Enam Akagbor and George Blay as the appropriate consultants to conduct the data collection in the field. Miss. Dela Akuetteh accompanied the team as a data input assistant. The team worked closely with a team of Agric staff from the study area and district crop officers from Nadowli, Lawra and Jirapa. They were Messrs Damian Tampoari, James Segtaa, Epiphanus Tuuroziin and Mr. Allan Gumo who is an Agric Extension Agent from the Lambusie district.

With reference to the terms of reference, the various operational areas within the district were identified by the district directorate of Agriculture. Accordingly, at the meeting on Sunday 22nd June 2008, the actual villages in the designated operational areas were clarified as indicated in table 2.2.1.

At the same meeting four distinct survey teams A, B, C and D were formed to collect the field data. The meeting was purposely for discussions, comprehension, understanding and synchronization of the team members with respect to the questionnaire administration and data collection.

Again at the meeting it became necessary to form a 5th team. This team was composed of Mr. Francis Xavier and the Corresponding Market Research and Information Officers (MIO) of the various districts. The staffs were more conversant with the market conditions and would be able to extract the required information from the middlemen in the market. The respective MIOs in each of the districts were accordingly notified and linked to form the team E.

Table 2.1.1 The Survey team

Survey Teams	A	Sammy Abbey & and Epiphanus Tuuroziin
	B	Enam Akagbor &. Allan Gumo
	C	Seth Amedahe & James Segtaa
	D	Gearge Blay & Damian Tampoari,
	E	Francis Xavier & Corresponding District. Market. Research Officer

Supervisors: Sammy Akagbor Team Leader, Mr. Abu Huudu and Mr. John Dasaah

2.2 Details of the Study Area

Operational areas and villages were identified by the district Agric Directorate. At the meeting on Sunday 22nd June 2008, the district crop officers who have been co-opted into the study team proposed 5 operational areas each for Lawra, Nadowli and Jirapa-Lambusie. With the aid of the

district map, 3 operational areas were selected exclusively based on diversity. The criteria for selecting the operational areas takes into account the socio-economic and agricultural diversity in the districts. In each district 2 active villages with histories of agricultural intervention and interaction with the MOFA through the agric extension agents were selected.

Table 2.2.2 Details of the areas surveyed

District	Operational area	Com. name	Basic information about operational area								
			Total area	Agric area	Population		No. of communities	Central comm. name	Dist. from district capital (km)	Time from district capital by car (min)	
			km^2	km^2	Male	Female				Dry season	Rainy season
Jirapa Lambusie	Tuggo	Kayaani	5.0	4.5	3178	3145	11	Tuggo	12.0	15	25
		Wulling			3178	3145	3	Wulling	16.0	10	15
	Sigiri	Sigiri			381	398	5	Sigiri	5.0	15	25
		Tigboro			131	130	2	Sigiri	6.0	10	15
	Lambusie	Lambusie			2141	2278	6	Lambusie	0.0	0	0
		Sentu			510	1640	6	Sentu	6.0	30	60
Lawra	Babile	Tanchera	28.9		1394	1289	10	Tanchera	13.4	20	30
		Tongoh	6.1		265	299	2	Babile	8.0	30	30
	Nandom	Puffien	9.5		469	411	5	Nandom	35.0	60	60
		Kogle	7.6		341	360	10	Kogle	33.0	60	90
	Tom	Kokodur	21.3		1607	953	2	Tom	23.0	40	50
		Panyaan	3.9		176	189	6	Panyaan	6.0	12	45
Nadowli	Daffiama	Daffiama	78.4	70.1	1411	1220	5	Daffiama	15.0	20	20
		Duong	116.0	110.0	987	1075	3	Daffiama	21.0	30	30
	Serekpere	Goli	82.0	75.0	835	878	3	Goli	13.0	20	25
		Serekpere	105.0	96.0	607	669	6	Serekpere	40.0	30	30
	Takpoe	Gyilli	136.0	112.0	296	304	2	Gyilli	38.0	30	35
		Takpoe	118.0	106.0	604	672	6	Takpoe	40.0	26	26

2.2.1 **The Respondents**

Ten households from each village were interviewed. A couple (husband and wife) from each household answered sections B & C after which either the male or female answered section E. In total 180 questionnaires were administered.

At each district, 2 market centres were selected and Section D of the questionnaire was administered. Five middlemen and middle women from each market were selected at random for the exercise. In all 60 respondents were captured.

Table 2.2.3 Schedule of the Field Work

No.	Date	Day	District	Operational Area	Village	Team
1	25th June	Wednesday	Jirapa	Tuggo	Tuggo	A&B
					Wulling	C&D
2	26th June	Thursday	Jirapa	Sigiri	Sigiri	A&B
					Tigboro	C&D
			Nadowli	Tanagie	Tanagie Market	E
3	27th June	Friday	Jirapa	Tuggo	Tuggo	A
					Wulling	A
				Sigiri	Sigiri	B
					Tigboro	B
			Lawra	Babile	Tanchera	C&D
4	28th June	Saturday	Lawra	Babile	Tongho	C&D
				Lawra	Lawra Market	A+Mktg
			Lambussie	Pinnah	Pinnah Market	B+Mktg
			Nadowli	Busie	Busie Market	E+Mktg
5	29th June	Sunday	Jirapa	Jirapa	Jirapa Market	E+Mktg
6	30th June	Monday	Lawra	Babile	Tongho	C&D
					Tanchera	D
				Tom	Panyaan	A&B
7	1st July	Tuesday	Lawra	Tom	Kokodur	A&B
					Panyaan	C&D
8	2nd July	Wednesday	Lawra	Tom	Panyaan	A
					Kokodur	B
				Nandom	Kogle	C&D
9	3rd July	Thursday	Lawra	Nandom	Puffien	C&D
			Lambussie	Lambussie	Lambussie	A&B
10	4th July	Friday	Lambussie	Lambussie	Sentu	A&B
					Kogle	C
			Lawra	Nandom	Puffien	D
11	5th July	Saturday	Lambussie	Lambussie	Lambussie	A
					Sentu	B
			Nadowli	Takpoe	Takpoe	C&D
12	6th July	Sunday				
13	7th July	Monday	Nadowli	Takpoe	Gyilli	C&D
				Serekpere	Guli	A&B
14	8th July	Tuesday	Nadowli	Serekpere	Serekpere	A&B
				Takpoe	Takpoe	C
					Gyilli	D
15	9th July	Wednesday	Nadowli	Serekpere	Serekpere	A
					Guli	B
				Daffiama	Goung	C&D
16	10th July	Thursday	Nadowli	Daffiama	Daffiama	C&D
					Daffiama	A
					Goung	B

2.3 Sampling Methods and Approach

The selection criteria for the individual household respondents were left at the discretion of the consultants. At a meeting and discussion between the consultants and the study team, various approaches were discussed. It was proposed that the use of household data compiled somewhere in the late 90's will be the most appropriate and efforts were made to procure such data from the district assembly albeit unsuccessfully. Eventually, the use of the multistage stratified random sampling methodology was further encouraged.

The approach indicated the household sampling units as being samples from the larger units (population) of villages, operational areas and districts or above. The stratified systematic approach was used to include individual respondents of household classified as rich, average and poor as defined below.

For the current rural household survey, the households were regarded as sub-units of the villages and the operational areas selected above. With this approach, the sample size of the rich, average and poor for each village were selected with probability proportional to the size by using the ratio or regression method.

The selection of sampled households over a greater number of households and villages and operational areas eventually indicate the samples to be representative of the operational area. The selection of villages to participate in the baseline studies was based on the diversity of the operational areas rather than the preponderance of the different agricultural systems within the districts.

The system was stratified with respect to the financial status of the farmer respondents. In collaboration between the Team, the resident Agric. Extension Officer and opinion leaders of the selected villages, the number of individual household's respondents were selected based on their status in the community as defined as bellow.

a. **Rich Farmer:** Persons categorized under this criterion had large land holdings, two or more wives, enough food for the family as well as other socio-economic resources. His compound is invariably roofed with galvanized aluminium sheets and owns other properties as farming equipment, car or motor cycle.

b. **Average farmer:** Generally he owns enough land and other socio-economic resources. His household might sometimes face food shortage problems in harsh years. At least part of the compound is sometimes roofed with the galvanized aluminium roofing sheet and generally owns a bicycle.

c. **Poor Farmer:** He generally commands limited land area for cropping and always has food security problems that invariably results in the consumption of their seed for the following year.

His compound is poor in outlook and roofed invariably with only local material. Most of them are too poor to own a bicycle.

In the field the ten household respondents were selected by the team members before administering the questionnaire. The resident Agric Extension Agent provided a list of 20 families which was subdivided into classes as defined above. This classification was done in consultation with the opinion leaders in the villages. According to the normal distribution of the sub classes, 2 respondents were selected at random from the poor, 2 from the rich and 6 from the average to sum up to the required number (10). This process was repeated for all the selected villages. The Random sampling was to enable the approach and methodology to remove any bias in the data collection process.

CHAPTER 3

3 SOCIO-ECONOMICS AND CULTURAL ISSUES

3.1 Household Characteristics

In the Upper West Region, the most common family structure is the Compound House type of which a family unit is composed of relatives and generations. The compound is made up of either a household or many households. The household by definition is the number of individuals that share a common income and feed together from one pot.

Over 50% of the male population were above 50 years compared to 29% for the female. This gives an indication that most males in their youthful age have left to the south in search for greener pastures, leaving their wives and the aged behind.

Table 3.1.1 Household Age (years) distribution

District	Resp	Male											Female										
		<30		30-39		40-49		50-59		59<		Av	<30		30-39		40-49		50-59		59<		Av
		No	%	No.	%	No.	%	No.	%	No.	%		No	%	No.	%	No.	%	No.	%	No.	%	
Lawra	60	3	5	9	15	13	22	15	25	20	33	51	6	10	16	27	14	23	17	28	7	12	44
Nadowli	60	2	3	16	27	11	18	15	25	16	27	50	7	12	23	38	16	27	8	13	6	10	41
Jirapa	60	3	5	12	20	15	25	18	30	12	20	48	5	8	25	42	15	25	10	17	5	8	41
Total Area	180	8	4	37	21	39	22	48	27	48	27	50	18	10	64	36	45	25	35	19	18	10	42

Adult population per household is concentrated within 3 and 5 membership range for Lawra and Nadowli whilst in Jirapa it falls within 6 and 8. According to that data, children population is within 3 and 5 per household. In general Lawra and Nadowli have an average population size of 8 per household unlike Jirapa which is 11.

Table 3.1.2 Household distribution of adults and children

District	Resp	Adult											Children										
		<3		3-5		6-8		9-11		11<			<3		3-5		6-8		9-11		11<		Av
		No	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	Av	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	**No.**	**%**	
Lawra	60	5	8	32	53	14	23	4	7	5	8	6	9	15	21	35	14	23	7	12	8	13	6
Nadowli	60	11	18	25	42	16	27	6	10	2	3	5	6	10	29	48	12	20	8	13	5	8	6
Jirapa	60	2	3	23	38	27	45	5	8	3	5	6	10	17	20	33	14	23	4	7	12	20	7
Total Area	180	18	10	80	44	57	32	15	8	10	6	6	25	14	70	39	40	22	19	11	25	14	6

3.2 Income Earners

Income earners constitute 53-68% of the entire household population. It is quite interesting to know that in Lawra and Jirapa three families recorded cases where income earners numbers exceeds 15.

Table 3.2.1 Distribution of income earners

District	Resp.	% of Income Earners								
		<5		5-10		11-15		15<		Av
		No	%	No	%	No	%	No	%	
Lawra	60	39	65	19	32	1	2	1	2	5
Nadowli	60	41	68	17	28	2	3	0	0	4
Jirapa	60	32	53	26	43	0	0	2	3	5
Total	180	112	62	62	34	3	2	3	2	5

3.3 **Income Source**

The rural communities in the Upper West are really deprived. The sources of income available to households are derived from economic activities. Income from farm produce is generally less than 20% of the total household income. Most families say they consume whatever is produced because yields are generally very low. Income from livestock is also less than 20% and according to them, it is due to frequent disease outbreak.

Table 3.3.1 Income source

District	Resp.	(A) Income from farm produce (%)											(B) Income from livestock (%)										
		<21		21-40		41-60		61-80		80<		Av	<21		21-40		41-60		61-80		80<		Av
		No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	
Lawra	60	44	73	8	13	3	5	3	5	2	3	18	39	65	7	12	7	12	5	8	2	3	22
Nadowli	60	34	57	13	22	7	12	4	7	2	3	24	42	70	10	17	4	7	3	5	1	2	18
Jirapa	60	39	65	9	15	5	8	5	8	2	3	22	43	72	9	15	6	10	1	2	1	2	16
Total	180	117	65	30	17	15	8	12	7	6	3	21	124	69	26	14	17	9	9	5	4	2	19

Income from processed items is vital in the total household income. “Pitoh” a traditional drink made from sorghum is produced in almost every household. This economic activity spreads across although most households still earn less that 21% of their total income from processed items.

Income from casual labour is very minimal due to communal family system which encourages working in groups for each other (Nnoboa system).

Table 3.3.1 cont.

District	Resp.	(C) Income from processed items (%)											(D) Income from casual labour (%)										
		<21		21-40		41-60		61-80		80<			<21		21-40		41-60		61-80		80<		
		No.	%	No.	%	No.	%	No.	%	No.	%	Av	No.	%	No.	%	No.	%	No.	%	No.	%	av
Lawra	60	27	45	7	12	3	5	10	17	13	22	39	57	95	2	3	0	-	1	2	-	-	3
Nadowli	60	17	28	12	20	17	28	7	12	7	12	41	36	60	2	3	0	-	2	3	-	-	4
Jirapa	60	25	42	5	8	7	12	10	17	13	22	42	57	95	3	5	0	-	-	-	-	-	3
Total	180	69	38	24	13	27	15	27	15	33	18	41	150	83	7	4	-	-	3	2	-	-	3

Incomes derived from seasonal migration activities in the south and other petty sources are also less than 21% of the total income.

Table 3.3.1 cont.

District	Resp.	(E) Income from migrant labour (%)											(F) Other sources of income (%)										
		<21		21-40		41-60		61-80		80<		Av	<21		21-40		41-60		61-80		80<		
		No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	av
Lawra	60	53	88	4	7	0	0	1	2	2	3	8	53	88	2	3	0	0	1	2	4	7	9
Nadowli	60	44	73	1	2	3	5	1	2	0	0	5	44	73	3	5	1	2	1	2	2	3	7
Jirapa	60	48	80	9	15	1	2	1	2	1	2	10	57	95	0	0	1	2	1	2	1	2	5
Total	180	145	81	14	8	4	2	3	2	3	2	8	154	86	5	3	2	1	3	2	7	4	7

In summary, sale of processed items generates the highest income for the family followed by sale of farm produce and livestock as indicated the graphs below. Interestingly, the women prepare and sell the processed items and also help their families in the farm. The suvival of the family depends on the woman.

CHAPTER 4

4 AGRICULTURAL PRODUCTION

4.1 Land Holdings; Potential, cultivated and irrigated

This section projects how much of potential agricultural land the families own and what amount of that land is cultivated (whether all or part of it) and whether any of the land under cultivation is under irrigation.

A little more than 50% of respondents in Lawra and Jirapa districts have up to 5.8ha potential land as family property. Similarly 48% of respondents in Nadowli district have between 6 and 10.9 ha as potential land.

Out of the potential land, majority of respondent in Lawra and Nadowli cultivate more than 4ha every season whilst in Jirapa farmers cultivate between 2 and 2.9ha per season.

Table 4.1.1 Potential land holdings

District	Resp.	Potential Cultivable Land size										
		<5.9 ha		6-10.9 ha		11-15.9 ha		16-20.9 ha		20.9< ha		
		No.	%	No.	%	No.	No.	%	No.	%	No.	Av.
Lawra	60	35	58	20	33	4	7	1	2	0	0	6
Nadowli	60	12	20	29	48	7	12	3	5	9	15	13
Jirapa	60	32	53	23	38	2	3	1	2	2	3	7
Total	180	79	44	72	40	13	7	5	3	11	6	9

Table 4.1.2 Land holdings (cultivated)

District	Resp.	Actual size being Cultivated										
		<0.9		1-1.9		2-2.9		3-3.9		4<		
		No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	3	5	11	18	8	13	14	23	24	40	4
Nadowli	60	0	0	6	10	8	13	9	15	37	62	5
Jirapa	60	3	5	9	15	19	32	12	20	17	28	3
Total	180	6	3	26	14	35	19	35	19	78	43	4

It should be noted that none of the respondents in the three districts have any access to irrigable land for cultivation. Either none of the selected villages have access to developed irrigation projects or the projects are not being utilized.

4.2 Land Productivity (Soil fertility, rainfall pattern and annual crop yields)

Soil fertility and productivity are clearly related to both soil physical, chemical and biological characteristics. Soils are anisotropic implying that soil conditions change dramatically along the catena (summit to bottom of the landscape). The soils are gravely and concretionary at the summits through sandy loam to clay loam at the middle and lower slopes. The production capacity of the soils is accordingly relative to the soil condition.

4.2.1 **Yields of Sorghum in Previous Season**

As with respect to the yield of sorghum last year the figures are much diverse. One characteristic about sorghum production is that it is a crop which is not generally fertilized since it is grown mainly for sustenance. It is also intercropped most of the time and the plant population density is far below the normal. The phenomenon coupled with the drastic reduction and poorly distributed rainfall and soil fertility results in poor yields.

Most of the respondents had less than 1bag per ha in the previous season. Only one respondent in Lawra recorded yield above 3.9bags/ha.

Table 4.2.1 Yield of sorghum in previous year

District	Resp.	Sorghum Yield/ ha. in previous year (bags)										
		<1		1-1.9		2-2.9		3-3.9		3.9<		
		No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	46	77	9	15	1	2	2	3	1	2	1
Nadowli	60	57	95	3	5	0	0	0	0	0	0	0
Jirapa	60	51	85	8	13	1	2	0	0	0	0	1
Total	180	154	86	20	11	2	1	2	1	1	1	1

4.2.2 **Soil Fertility**

None of the respondents in the 3 districts rated fertility of the soil as high. The rating falls within low and poor with only a few saying it is medium.

4.2.3 **Rainfall Pattern**

Similarly, the rainfall pattern in the area has reduced drastically over the years. It is common to hear the indigenes say that by the month of June-July, green leaves from leguminous crops should have been part of their diets. Unfortunately, the rains have delayed with a consequent effect on the availability of the green leaves. Strictly speaking it has been the trend (desertification) for the past 10 years. Respondents in all the districts ranked rainfall pattern either as low or poor.

Table 4.2.2 Soil fertility, Rainfall Pattern

District	Resp.	Fertility Status								Rainfall Pattern							
		High		Medium		Low		Poor		High		Medium		Low		Poor	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	60	0	0	6	10	43	72	11	18	0	0	4	7	30	50	27	45
Nadowli	60	0	0	6	10	35	58	19	32	0	0	6	10	15	25	39	65
Jirapa	60	0	0	13	22	34	57	13	22	0	0	1	2	31	52	28	47
Total	180	0	0	25	14	112	62	43	24	0	0	11	6	76	42	94	52

4.3 **Production of Major Crops in Previous Season**

4.3.1 **Crops and Yields; Cereals**

The major cereals produced usually are the staple foods within the communities. They include sorghum, millet and maize. Rice is also produced but in smaller quantities where poor drainage conditions are encountered within the land use and cropping systems.

a) **Sorghum:** In Lawra and Nadowli, 28% of farmers cultivate 0.6-0.8ha of sorghum while 27% in Jirapa cultivate less than 0.3ha of the crop. Between 17 and 22% of farmers across the region cultivates more than 1.4ha of sorghum.

Yields of 2-3.9bags/ha are what 47% of respondents in Lawra harvest. 68% and 42% of respondents in Nadowli and Jirapa respectively harvest less than 2bags/ha. Generally, about 70% cultivate less than 1ha with an average yield of 2bags/ha.

Table 4.3.1a Area cultivated to sorghum

District	Resp.	Area cultivated (ha)												
		<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	8	13	15	25	17	28	3	5	7	12	10	17	1
Nadowli	60	7	12	13	22	17	28	0	0	10	17	13	22	1
Jirapa	60	16	27	12	20	14	23	0	0	5	8	13	22	1
Total	180	31	17	40	22	48	27	3	2	22	12	36	20	1

Table 4.3.1b Yield of sorghum

District	Resp.	Total yield (bag/ha)												
		<2		2-3.9		4-5.9		6-7.9		8-10		10<		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	16	27	28	47	10	17	4	7	1	2	1	2	3
Nadowli	60	41	68	16	27	2	3	1	2	0	0	0	0	1
Jirapa	60	25	42	18	30	8	13	6	10	1	2	2	3	3
Total	180	82	46	62	34	20	11	11	6	2	1	3	2	3

b) **Millet:** The cropping characteristics and conditions for millet production are similar to that of sorghum. As indicated below, area under millet cultivation is within 0.3-0.8ha. This cuts across the entire districts. Yields however, is low just as in the case of sorghum. Most farmers in Lawra averagely harvest 2.5bags/ha unlike Nadowli and Jirapa were farmers harvest is just 1.5-2bags/ha.

Table 4.3.2a Area cultivated to millet

District	Resp.	Area cultivated												
		<0.3ha		0.3-0.5ha		0.6-0.8ha		0.9-1.1ha		1.2-1.4ha		1.4<ha		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	17	28	18	30	15	25	2	3	5	8	3	5	1
Nadowli	60	21	35	13	22	18	30	0	0	5	8	3	5	1
Jirapa	60	23	38	7	12	15	25	3	5	4	7	8	13	1
Total	180	61	34	38	21	48	27	5	3	14	8	14	8	1

Table 4.3.2b Yield of millet

District	Resp.	Total yield (bag/ha)												
		<2		2-3.9		4-5.9		6-7.9		8-10		10<		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	28	47	26	43	5	8	1	2	0	0	0	0	2
Nadowli	60	47	78	6	10	6	10	0	0	0	0	1	2	1
Jirapa	60	38	63	12	20	4	7	4	7	0	0	2	3	2
Total	180	113	63	44	24	15	8	5	3	0	0	3	2	2

c) **Maize:** Even though maize cultivation is risky due to unfavourable climatic condition, some respondents recorded yields of over 8bags/ha which is quite substantial unlike sorghum and millet.

Table 4.3.3a Area cultivated to maize

District	Resp.	Area cultivated (ha)												
		<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	17	28	16	27	16	27	3	5	5	8	3	5	1
Nadowli	60	16	27	26	43	13	22	1	2	2	3	2	3	0
Jirapa	60	13	22	16	27	16	27	2	3	6	10	7	12	1
Total	180	46	26	58	32	45	25	6	3	13	7	12	7	1

Table 4.3.3b Yield of maize

District	Resp.	Total yield (bag/ha)												
		<2		2-3.9		4-5.9		6-7.9		8-10		10<		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	21	35	18	30	10	17	4	7	3	5	4	7	4
Nadowli	60	24	40	10	17	13	22	4	7	7	12	2	3	4
Jirapa	60	21	35	11	18	9	15	8	13	4	7	7	12	5
Total	180	66	37	39	22	32	18	16	9	14	8	13	7	4

d) **Rice:** Rice production is on a very small scale in the all the 3 districts. An average area of less than 0.3ha is under rice cultivation. Rice farming takes place only at lowland areas and normally farmers do not apply fertilizer to the crop. Yields however are very low i.e. less than 2bags/ha.

Table 4.3.4a Area cultivated to rice

District	Resp.	Area cultivated (ha)												
		<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	41	68	14	23	4	7	0	0	1	2	0	0	0.2
Nadowli	60	27	45	22	37	10	17	1	2	0	0	0	0	0.3
Jirapa	60	44	73	7	12	7	12	0	0	2	3	0	0	0.2
Total	180	112	62	43	24	21	12	1	1	3	2	0	0	0.2

Table 4.3.4b Yield of rice

District	Resp.	Total yield (bag/ha)												
		<2		2-3.9		4-5.9		6-7.9		8-10		10<		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	40	67	9	15	6	10	1	2	2	3	2	3	2
Nadowli	60	18	30	8	13	11	18	7	12	8	13	8	13	6
Jirapa	60	37	62	4	7	2	3	5	8	2	3	10	17	4
Total	180	95	53	21	12	19	11	13	7	12	7	20	11	4

4.3.2 **Crops and Yields; Legumes**

a) **Groundnuts:** Legumes is an integral part of food production and income source. About 0.8ha of land is cultivated to groundnut by each household. Yields are relatively high compared to the cereals. Averagely, yield ranges from 4 to 8bags/ha. Some farmers even harvest over 10bags/ha.

Table 4.3.5a Area cultivated to groundnut

District	Resp.	Area cultivated (ha)												
		<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	13	22	17	28	25	42	1	2	2	3	2	3	1
Nadowli	60	3	5	9	15	15	25	-	-	11	18	22	37	1
Jirapa	60	7	12	12	20	21	35	-	-	9	15	11	18	1
Total	180	23	13	38	21	61	34	1	1	22	12	35	19	1

Table 4.3.5b Yield of groundnut

District	Resp.	Total yield (bag/ha)												
		<2		2-3.9		4-5.9		6-7.9		8-10		10<		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	8	13	17	28	10	17	10	17	5	8	10	17	7
Nadowli	60	5	8	10	17	16	27	10	17	7	12	12	20	8
Jirapa	60	8	13	9	15	8	13	6	10	11	18	18	30	9
Total	180	21	12	36	20	34	19	26	14	23	13	40	22	8

b) **Cowpea:** Majority of farmers in all the districts cultivate less than 0.3ha of cowpea. This crop is basically for home consumption and that farmers do not fully concentrate of improving the yields as it is in the case of groundnut. Average yield is about 1bag/ha.

Table 4.3.6a Area cultivated to cowpea

District	Resp.	Area cultivated (ha)												
		<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	30	50	15	25	11	18	1	2	0	0	3	5	0
Nadowli	60	7	12	13	22	25	42	2	3	7	12	6	10	1
Jirapa	60	19	32	19	32	11	18	2	3	5	8	4	7	1
Total	180	56	31	47	26	47	26	5	3	12	7	13	7	1

Table 4.3.6b Yield of cowpea

District	Resp.	Total yield (bag/ha)												
		<2		2-3.9		4-5.9		6-7.9		8-10		10<		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	50	83	7	12	1	2	1	2	1	2	-	-	1
Nadowli	60	29	48	22	37	8	13	-	-	1	2	-	-	2
Jirapa	60	31	52	17	28	9	15	-	-	2	3	1	2	2
Total	180	110	61	46	26	18	10	1	1	4	2	1	1	2

4.3.3 **Crops and Yields; Tubers**

a) **Yams:** Yam is mostly grown as a backyard crop purposely for home consumption. As a result farm size for the crop is normally less than 0.3ha. Less than 100tubers/ha are the most likely yields by majority of the respondents. However, there are those who could not quantify their yield. They argued that, yam is harvested as and when it is needed for consumption and as such it was difficult to quantify the total yield.

Table 4.3.7a Area cultivated to yam

District	Resp.	Area cultivated (ha)												
		<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	54	90	4	7	2	3	0	0	0	0	0	0	0.1
Nadowli	60	43	72	15	25	2	3	0	0	0	0	0	0	0.2
Jirapa	60	50	83	7	12	3	5	0	0	0	0	0	0	0.1
Total	180	147	82	26	14	7	4	0	0	0	0	0	0	0.1

Table 4.3.7b Yield of yam

District	Resp	Total yield (Tubers)														
		No resp		<50		50-99		100-149		150-199		200-249		>250		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	3	5	34	57	11	18	6	10	2	3	0	0	4	7	538
Nadowli	60	9	15	16	27	13	22	4	7	11	18	4	7	3	5	969
Jirapa	60	24	40	3	5	8	13	14	23	3	5	5	8	2	3	1,287
Total	180	36	20	53	29	32	18	24	13	16	9	9	5	9	5	878

4.4 **Sale of Major Crops**

4.4.1 **Crops and Marketing; Cereal**

Across the three districts, most respondents submit that farm produce is mainly for food security rather than for sale.

A. **Sorghum:** Sorghum is produced for food, not for sale. In the 3 districts, farmers made very little sale of their sorghum that is about 2bags. The product is either carried to the market centre for sale or sold at home for an average price of GH¢30/bag.

Table 4.4.1 Sales of sorghum

District	Resp.	Quantity. Sold (bags)												Price / bag GH¢		
		No Sales.		<2		2-4		5-7		8-10		10<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	49	82	7	12	2	3	1	2	0	0	1	2	12	48	29
Nadowli	60	55	92	3	5	2	3	0	0	0	0	0	0	28	50	39
Jirapa	60	52	87	4	7	2	3	2	3	0	0	0	0	16	40	28
Total	180	156	87	14	8	6	3	3	2	0	0	1	1	12	50	31

b) **Millet**: As in the case of sorghum, millet is produced for home consumption not for sale. Millet is rather scarcer than sorghum. Price ranges from a minimum of GH¢14 to a maximum of GH¢ 16/bag.

Table 4.4.2 Sales of millet

District	Resp.	Quantity. Sold (bags)												Price / bag GH¢		
		No sales.		<2		2-4		5-7		8-10		10<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	59	98	0	0	0	0	0	0	0	0	1	2	0	0	0
Nadowli	60	59	98	1	2	0	0	0	0	0	0	0	0	16	16	16
Jirapa	60	59	98	1	2	0	0	0	0	0	0	0	0	14	14	14
Total	180	177	98	2	1	0	0	0	0	0	0	1	1	14	16	15

c) **Maize:** Just like the other cereals, maize is produced generally not for sale but for home consumption. Very few farmers only sell part of the produce in the harsh periods to raise some money for other purposes. Price ranges from GH¢15 to GH¢40/bag depending on the location.

Table 4.4.3 Sale of maize

District	Resp.	Quantity. Sold (bags)												Price / bag GH¢		
		No sales.		<2		2-4		5-7		8-10		10<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	54	90	3	5	3	5	0	0	0	0	0	0	15	40	21
Nadowli	60	58	97	1	2	0	0	1	2	0	0	0	0	40	50	45
Jirapa	60	54	90	2	3	1	2	1	2	0	0	2	3	20	48	33
Total	180	166	92	6	3	4	2	2	1	0	-	2	1	15	50	30

d) **Rice:** 83-85% of farmers in all the districts do not sell rice. Only 17%, 7% and 3% of farmers in Lawra, Nadowli and Jirapa respectively sell an average of 2bags at an average price of GH¢24/bag.

Table 4.4.4 Rice sales

District	Resp.	Quantity Sold (bags)												Price / bag GH¢		
		No sales		<2		2-4		5-7		8-10		10<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	50	83	10	17	0	0	0	0	0	0	0	0	16	40	28
Nadowli	60	50	83	4	7	4	7	0	0	2	3	0	0	16	40	27
Jirapa	60	51	85	2	3	3	5	3	5	0	0	1	2	20	40	24
Total	180	151	84	16	9	7	4	3	2	2	1	1	1	16	40	27

4.4.2 Crops and Marketing; Legumes & Tubers

a) **Groundnuts:** Groundnut is a major farm product for sale in the study area and the quantity sold cuts across all the production range. About 30% of farmers in each district did not sell any groundnut. Averagely a bag of groundnut is sold for GH¢20, GH¢19 and GH¢29 in Lawra, Nadowli and Jirapa district respectively depending on the location of sale and the client.

Table 4.4.5 Sales of groundnuts

District	Resp.	Quantity Sold (bags)												Price / bag GH¢		
		No sale		<2		2-4		5-7		8-10		10<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	29	48	17	28	12	20	1	2	1	2	0	0	5	40	20
Nadowli	60	17	28	5	8	18	30	4	7	3	5	13	22	10	25	19
Jirapa	60	27	45	2	3	10	17	11	18	5	8	5	8	10	95	29
Total	180	73	41	24	13	40	22	16	9	9	5	18	10	5	95	23

b) **Cowpea and Yam:** Unlike groundnut, cowpea and yam is a major food item and therefore not generally sold out.

4.5 Production and Sales of Minor Crops

a) **Shea nuts:** Majority of respondents do not engage in shea nuts collection at all in the 3 district areas. Most of the products are not for sale but rather processed for domestic use. However, there

are few who do not produce but do trade in the produce (they buy and sell). The price range is from GH¢ 0.4 to GH¢0.5/kg.

Table 4.5.1a Shea nut production

District	Resp.	Total yield (kg)											
		No resp.		<51		51-100		101-150		151-200		200<	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	60	53	88	3	5	2	3	0	0	0	0	2	3
Nadowli	60	31	52	7	12	8	13	3	5	8	13	3	5
Jirapa	60	38	63	8	13	6	10	0	0	4	7	4	7
Total	180	122	68	18	10	16	9	3	2	12	7	9	5

Table 4.5.1b Shea nut sales

District	Resp.	Quantity sold (kg)												Price / kg GH¢		
		No resp.		<51		51-100		101-150		151-200		200<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	min	Max	Av.
Lawra	60	56	93	1	2	0	0	0	0	0	0	3	5	0.30	0.60	0.40
Nadowli	60	41	68	8	13	4	7	2	3	5	8	0	0	0.20	1.40	0.50
Jirapa	60	45	75	7	12	3	5	0	0	1	2	3	5	0.20	1.20	0.50
Total	180	142	79	16	9	7	4	2	1	6	3	6	3	0.20	1.40	0.50

b) **Dawadawa:** In all the three district areas, production and sales of dawadawa is on a small scale. About 80% in each district do not produce dawadawa. Over 88% do not make any sales rather processed it for home consumption. Again there are few who do buy and sell. The price ranges between GH¢0.7 to GH¢0.9/kg.

Table 4.5.2a Dawadawa production

District	Resp.	Total yield (kg)											
		No resp.		<51		51-100		101-150		151-200		200<	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	60	55	92	3	5	-	-	2	3	-	-	-	-
Nadowli	60	41	68	17	28	1	2	-	-	1	2	-	-
Jirapa	60	48	80	9	15	3	5	-	-	-	-	-	-
Total	180	144	80	29	16	4	2	2	1	1	1	0	-

Table 4.5.2b Sale of dawadawa

District	Resp.	Quantity sold (kg)												Price / kg GH¢		
		No resp.		<51		51-100		101-150		151-200		200<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	55	92	1	2	1	2	1	2	-	-	2	3	0.3	1.5	0.8
Nadowli	60	53	88	5	8	2	3	-	-	-	-	-	-	0.4	1.0	0.7
Jirapa	60	53	88	4	7	-	-	-	-	-	-	-	-	0.3	1.2	0.9
Total	180	161	89	10	6	3	2	1	1	0	-	2	1	0.3	1.5	0.8

c) **Cashew nut and Mango:** There is very little cashew nut and mango production in the surveyed areas. About 3% of respondents in the whole survey area produce mangoes out of which 2% is sold out. Price ranges from GH¢0.3 to GH¢1/kg.

4.6 **Use of Inputs**

The questionnaire gave an insight to the approach to agricultural practices with respect to inputs on the different crops. Inputs such as inorganic fertilizers, organic manure, improved seeds and local seeds were discussed. Salient to the inputs is their availability and prices.

In the districts the most common input used to improve soil fertility is the organic fertilizer or manure. Most of the respondents use it on all crops. It is only on rice and yam that the organic manure is sparsely used. Inorganic fertilizer is normally applied on maize. Maize is supposed to be a recently introduced crop within the sub region and perceived to have higher yields per hectare than sorghum and millet. However it is a risky crop to most farmers since it is not as drought resistant as the sorghum and millet and one can easily loose the crops completely if the rains fail as has been happening recently. Moreover, most of the newly developed varieties need to be fed with fertilizers to enable them produce high yields.

With the endemic poverty situation within the area, farmers are unable to purchase the inorganic fertilizer since invariably they have to procure it from the district capital. In all situations farmers use the local seed preserved from the previous season crop either by themselves or procure from colleagues.

Table 4.6.1 Fertilizer application and seed type used

District	Resp.	Sorghum								Millet							
		O-F		I-F		L-S		I-S		O-F		I-F		L-S		I-S	
		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	60	48	80	3	5	58	97	1	2	28	47	1	2	55	92	-	-
Nadowli	60	21	35	2	3	50	83	2	3	17	28	3	5	41	68	-	-
Jirapa	60	32	53	2	3	46	77	2	3	19	32	-	-	39	65	-	-
Total	180	101	56	7	4	154	86	5	3	64	36	4	2	135	75	0	-

O-F Organic fertilizer I-F Inorganic fertilizerL-S Local seed I-S Improved seed

Table 4.6.1 Fertilizer application and seed type used (Cont)

District	Resp.	Maize								Groundnut							
		O-F		I-F		L-S		I-S		O-F		I-F		L-S		I-S	
		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
		Yes		Yes		Yes		Yes		No.	%	No.	%	No.	%	No.	%
Lawra	60	45	75	23	38	43	72	18	30	18	30	-	-	54	90	1	2
Nadowli	60	36	60	26	43	30	50	25	42	17	28	3	5	54	90	3	5
Jirapa	60	36	60	28	47	37	62	20	33	17	28	-	-	52	87	3	5
Total	180	117	65	77	43	110	61	63	35	52	29	3	2	160	89	7	4

O-F Organic fertilizer I-F Inorganic fertilizerL-S Local seed I-S Improved seed

District	Resp.	Cowpea								Yam							
		O-F		I-F		L-S		I-S		O-F		I-F		L-S		I-S	
		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	60	18	30	-	-	39	65	4	7	13	22	1	2	34	57	0	0
Nadowli	60	17	28	1	2	47	78	11	18	12	20	0	0	39	65	2	3
Jirapa	60	12	20	1	2	37	62	13	22	20	33	0	0	37	62	1	2
Total	180	47	26	2	1	123	68	28	16	45	25	1	1	110	61	3	2

Table 4.6.1 Fertilizer application and seed type used (Cont)

O-F Organic fertilizer I-F Inorganic fertilizerL-S Local seed I-S Improved seed

District	Resp.	Rice							
		O-F		I-F		L-S		I-S	
		Yes		Yes		Yes		Yes	
		No.	%	No.	%	No.	%	No.	%
Lawra	60	8	13	-	-	30	50	2	3
Nadowli	60	10	17	-	-	41	68	-	-
Jirapa	60	8	13	1	2	23	38	1	2
Total	180	26	14	1	1	94	52	3	2

4.7 **Production and Sale of Livestock and Poultry**

a) **Cattle:** About 50% of farmers in each of the district do not own any cattle. Out of the remaining 50% who own cattle, only 20% sold the animal for income at an average price of GH¢140/head.

Table 4.7.1a Production of cattle

District	Resp.	Total head own											
		No resp.		<3		3-5		5-8		8-11		11<	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	60	30	50	9	15	9	15	8	13	4	7	0	0
Nadowli	60	35	58	6	10	8	13	4	7	1	2	6	10
Jirapa	60	31	52	6	10	10	17	4	7	5	8	4	7
Total	180	96	53	21	12	27	15	16	9	10	6	10	6

Table 4.7.1b Sale of cattle

District	Resp.	Head sold										Price / head GH¢		
		No resp.		<2		2-3		4-5		6-7				
		No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	49	82	8	13	3	5	-	-	-	-	50	300	127
Nadowli	60	56	93	1	2	3	5	-	-	-	-	100	250	178
Jirapa	60	51	85	4	7	4	7	1	2	-	-	50	400	139
	180	156	87	13	7	10	6	1	1	0	-	50	400	139

b) **Goats:** Across the 3 district, only few farmers have no goats at all. Most household normally rare about 3-5 goats and sell for income in times of need. A mature goat is averagely sold for GH¢20 depending on the size and condition of the animal.

Table 4.7.2a Production of goats

District	Resp.	Total head own											
		No resp.		<3		3-5		5-8		8-11		11<	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	60	5	8	4	7	19	32	12	20	8	13	12	20
Nadowli	60	7	12	5	8	8	13	20	33	4	7	16	27
Jirapa	60	8	13	-	-	8	13	8	13	11	18	25	42
Total	180	20	11	9	5	35	19	40	22	23	13	53	29

Table 4.7.2b Sale of goats

District	Resp.	Head sold												Price / head GH¢		
		No resp.		<2		2-3		4-5		6-7		7<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	35	58	11	18	8	13	5	8	-	-	1	2	6	25	14
Nadowlii	60	27	45	7	12	16	27	8	13	-	-	2	3	10	45	22
Jirapa	60	29	48	6	10	17	28	6	10	2	3	-	-	5	40	19
Total	180	91	51	24	13	41	23	19	11	2	1	3	2	5	45	19

c) **Sheep:** Sheep raring is not so common with farmers but the few who rare sheep use the animals either for rituals or for sale. Occasionally some kill the animals for celebrates. Very few farmers own heads larger than 11. The price of sheet is almost same for all the districts i.e. GH¢28/head.

District	Resp.	Total head own											
		No resp.		<3		3-5		5-8		8-11		11<	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	60	40	67	8	13	5	8	5	8	1	2	1	2
Nadowli	60	35	58	3	5	6	10	3	5	3	5	10	17
Jirapa	60	31	52	3	5	8	13	7	12	5	8	6	10
Total	180	106	59	14	8	19	11	15	8	9	5	17	9

Table 4.7.3a Sheep production

Table 4.7.3b Sale of sheep

District	Resp.	Head sold												Price / head GH¢		
		No resp.		<2		2-3		4-5		6-7		7<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	57	95	2	3	1	2	-	-	-	-	-	-	8	61	28
Nadowli	60	44	73	4	7	7	12	4	7	-	-	1	2	19	60	30
Jirapa	60	47	78	4	7	7	12	1	2	1	2	-	-	15	40	24
Total	180	148	82	10	6	15	8	5	3	1	1	1	1	8	61	28

d) **Pig:** Pig rearing is evenly spread across the entire districts though about 40% of farmers do not rare the animal. About 70 to 95% of respondents made no sales due to the outbreak of swan fever disease. 20% respondent from each district make annual sale up to 3 head at an average price of GH¢30/head.

Table 4.7.4a Pig production

District	Resp.	Total head own											
		No resp.		<3		3-5		5-8		8-11		11<	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	60	29	48	8	13	9	15	8	13	4	7	2	3
Nadowli	60	19	32	10	17	11	18	10	17	4	7	6	10
Jirapa	60	24	40	7	12	14	23	4	7	5	8	6	10
Total	180	72	40	25	14	34	19	22	12	13	7	14	8

Table 4.7.4b Sale of pig

District	Resp.	Head sold												Price / head GH¢		
		No resp.		<2		2-3		4-5		6-7		7<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	49	82	7	12	4	7	-	-	-	-	-	-	10	80	29
Nadowli	60	43	72	3	5	6	10	2	3	4	7	2	3	8	70	36
Jirapa	60	47	78	3	5	7	12	2	3	1	2	-	-	15	50	30
Total	180	139	77	13	7	17	9	4	2	5	3	2	1	8	80	32

e) **Chicken & Guinea fowl:** Poultry production was also very bad in the previous year with the outbreak of the Newcastle disease. About 30% and 40% of respondents do not rare chicken and guinea fowl respectfully. Only 20% sales were made in both cases at an average price of GH¢2.6 and GH¢3.9/head for chicken and guinea fowl respectfully.

Table 4.7.5a Production of chicken

District	Resp.	Total head own											
		No resp.		<3		3-5		5-8		8-11		11<	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	60	18	30	4	7	12	20	4	7	5	8	17	28
Nadowli	60	3	5	-	-	5	8	9	15	5	8	38	63
Jirapa	60	14	23	1	2	8	13	6	10	5	8	26	43
Total	180	35	19	5	3	25	14	19	11	15	8	81	45

Table 4.7.5b Sale of chicken

District	Resp.	Head sold												Price / head GH¢		
		No resp.		<2		2-3		4-5		6-7		7<				
		No.	%	No	%	No	%	No	%	No	%	No	%	Min	Max	Av.
Lawra	60	50	83	-	-	2	3	2	3	1	2	5	8	1	6	2.8
Nadowli	60	31	52	-	-	3	5	8	13	3	5	15	25	1	5	2.6
Jirapa	60	47	78	1	2	2	3	2	3	1	2	7	12	0.5	5	2.2
Total	180	128	71	1	1	7	4	12	7	5	3	27	15	0.5	6	2.6

Table 4.7.6a Production of guinea fowl

District	Resp.	Total head own											
		No resp.		<3		3-5		5-8		8-11		11<	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	60	40	67	-	-	3	5	5	8	4	7	8	13
Nadowli	60	37	62	1	2	1	2	2	3	1	2	18	30
Jirapa	60	35	58	1	2	5	8	3	5	3	5	13	22
Total	180	112	62	2	1	9	5	10	6	8	4	39	22

Table 4.7.6b Sale of guinea fowl

District	Resp.	Head sold												Price / head GH¢		
		No resp.		<2		2-3		4-5		6-7		7<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	52	87	1	2	3	5	1	2	1	2	2	3	2.0	7.0	4.3
Nadowli	60	51	85	-	-	1	2	2	3	2	3	4	7	2.5	5.0	3.9
Jirapa	60	53	88	1	2	2	3	2	3	-	-	2	3	2.5	4.0	3.4
Total	180	156	87	2	1	6	3	5	3	3	2	8	4	2	7	3.9

CHAPTER 5

5 THE MARKET

5.1 Introduction

The main economic activity in the region is agriculture and the major crops grown include; maize, millet, sorghum inter alia. Livestock production is also a major activity of the people. Farming is however on subsistence basis.

The markets are places of contact for the exchange of goods and services. In the study area, almost all villages have markets. However, there are a number of markets that producers and middle men come to exchange the goods. And accordingly, two of the most patronized markets from each district were selected for the data collection.

Petty trading is a major economic activity mostly undertaken by the women. They usually move from one market to the other across the region and beyond to major markets like Techiman and Kumasi. Market days in the region fall every 6 days except for Jirapa market day which falls every 7 days as a result of the influence of the Catholic Church. The catholic missionaries were the first to introduce Christianity to the people of north-western Ghana and Jirapa was their first settlement.

5.2 Description of the Various Markets

The time of the survey was in June/July which is the lean season. It is the season of scarcity where there are only limited products for sale. The new crops just sprouted and are still in their vegetative stages whilst the previous harvest have all been consume during the long dry season. Most of the products brought to the market are from speculations, within the communities that buy items during the peak season, preserve them at a cost and resell during the lean season.

Along this line, many of the middlemen do not patronize the markets during these times, and at the same time some also limit the products in which they deal in and only trade in specific commodities. The data were collected in these circumstances.

The socio-cultural situation that prevails in that area prevents women from dealing in livestock and therefore the data was taken for women dealing in the food items and men for livestock. At each of the markets 5 individuals each of both men and women were interviewed. The respondents were generally known by the District Agric Informant Officers as traders and the interview conducted on the specific market day condition.

5.2.1 **Jirapa Market**

Jirapa market has some of the best facilities in the region. Being a district capital, it has certain facilities other markets don't have.

To begin with, it has quite a number of stores which the district assembly has rented out to the people. The market has four main gates which are often locked after market activities are over.
The market is divided into sections; there is a section for food crops, a section for clothing and ingredients, a section for livestock and a section for butchers. The butchers are housed in a large building where veterinary officers usually go to inspect the animals before they are slaughtered.

Though a car park has not been constructed, there is a well defined place outside the market where heavy trucks, cars, bicycles are often parked. In addition, the market has one toilet facility and a urinal pit. There is electricity in the market and a good road system.

5.2.2 **Babile Market**

Babile Market is one of the major markets in Lawra district of the Upper West Region. It is not walled but has a number of stores. Like the Jirapa market, it is divided into sections. The market has no car park and for this reason, vehicles are parked on the sides of the road which is very risky for road users. There are accessible roads to the market but not tarred. There is neither a toilet facility nor a urinal.

5.2.3 **Busie Market**

Busie market is one of the busiest in the region; it is located in the eastern corridor of the Nadowli District. Roads leading to the market are accessible but not tarred. The market has no car park. The market is neither walled nor fenced and has a few number of stores. Its busy nature is as a result of the business-like nature of the people. Prices of goods are said to be cheaper in the Busie market compared to the other markets. There is no electricity in the market, no toilet facility and no urinal.

5.2.4 **Tangasia Market**

Tangasia is in the Nadowli district of the Upper West Region. Roads leading to the market are not in good condition; it has no car park, no electricity and has only few stores. It has a toilet facility but no urinal.

5.2.5 **Pinna Market**

The Pinna market has few stores. It has been divided into basically three segments. One segment was for those dealing in animals. The second was for those dealing in mainly cereals. In the third part were people who sold general goods and other food stuffs. Goods sold included cloths, bicycle parts, mats, benches etc. There was a butchery which is about 200m from the main market centre. Here Veterinary Officers inspect the animals before they are slaughtered. Even though there is no designated place for a car park, drivers carrying goods, park beside the road or inside the market to offload or load goods. There are about two foods vending huts and a pittoh hut where shoppers, sellers and drivers stop to relax and have a drink. Roads leading to the market are relatively motorable but not tarred.

5.2.6 **Lawra Market**

The Lawra market has some good facilities in the region. Being a district capital of the Lawra-Nandom district, it has certain facilities some markets do not have. It is quite a big market compared to the others. As rich traders come to buy food stuffs and then transported to bigger markets like that in Wa and Techiman.

It has quite a number of stores which the district assembly has rented out to the people. Lawra market is divided into sections; there's a section for food crops, a section for clothing and ingredients, a section for livestock and a section for butchers. The butchers are housed in a large building where Veterinary Officers usually go to inspect the animals before they are slaughtered. The market has a few foods vending stalls where both sellers and shoppers buy food to eat.

5.2.7 **Units of the Market Items**

Weight of bag in kg

1. Maize ……100kg
2. Millet …… 93kg
3. Sorghum …….. 109kg
4. Cowpea ……..... 109kg
5. Rice …….. 100kg
6. Groundnuts ……..... 82kg

5.3 **Sales and Prices of Crops**

5.3.1 **Sorghum**

At the Babile, Jirapa and Busie markets, 4(80%) of the respondents could not get any products due to its scarcity. Only 1(20%) were able to buy products of 5 to 19 bags at the Tanasei,

Lawra and Pinnah markets. At the time of purchase, the cost price of a bag ranges from GH¢12 at Lawra to GH¢64 at Busie.

The products are mainly transported to the market centres either at Wa, Tamale or Techiman where they are sold between GH¢48 to GH¢70.

Table 5.3.1 Trading of sorghum in the various markets

Market	Resp.	Vol. purchased (bags)												Cost price (GH¢/bag)			Selling price (GH¢/bag)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av	Min	Max	Av
Babile	5	4	80	0	0	0	0	1	20	0	0	0	0	58	58	58	62	62	62
Tangasia	5	3	60	0	0	0	0	0	0	1	20	1	20	54	56	55	60	60	60
Jirapa	5	4	80	1	20	0	0	0	0	0	0	0	0	52	52	52	56	56	56
Lawra	5	2	40	0	0	1	20	0	0	1	20	1	20	12	48	30.7	51	56	54.3
Busie	5	4	80	0	0	1	20	0	0	0	0	0	0	64	64	64	70	70	70
Pinnah	5	1	20	3	60	0	0	0	0	0	0	1	20	43	48	46.8	48	50	49.5
Total	30	18	60	4	13	2	7	1	3	2	7	3	10	12	64	47	48	70	56

5.3.2 **Millet**

At the Tanasei, Jirapa and Pinnah market, 3(60%) of respondents did not get any products. At Babile, 3(60%) of respondents were able to procure over 19. The price range from GH¢15 to GH¢60 and the selling price at the market centres range from GH¢20 to GH¢68.

Table 5.3.2 Trading of millet in the various markets

Market	Resp.	Vol. purchased (bags)												Cost price (GH¢/bag)			Selling price (GH¢/bag)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av	Min	Max	Av
Babile	5	1	20	0	0	0	0	1	20	0	0	3	60	54	56	54.5	60	62	60.5
Tangasia	5	3	60	0	0	0	0	0	0	1	20	1	20	15	16	15.5	20	20	20
Jirapa	5	3	60	2	40	0	0	0	0	0	0	0	0	44	52	48	62	64	63
Lawra	5	2	40	1	20	0	0	1	20	0	0	1	20	32	48	40	48	56	53.3
Busie	5	2	40	2	40	0	0	1	20	0	0	0	0	58	60	59.3	64	68	65.3
Pinnah	5	3	60	2	40	0	0	0	0	0	0	0	0	48	56	52	56	58	57
Total	30	14	47	7	23	0	-	3	10	1	3	5	17	15	60	47	20	68	55

5.3.3 **Maize**

The data for maize is in a similar sequence. Majority of sellers in all the markets were able to procure less than 5 bags. At Babile and Lawra 2(40%) each as well as 1(20%) of respondents in Tanasie had made over 19 bags purchases. The price ranges from GHc12 to GH¢56 and sold at the market centres at GH¢15 to GH¢66.

Table 5.3.3 Trading of maize in the various markets

Market	Resp.	Vol. purchased (bags)												Cost price (GH¢/bag)			Selling price (GH¢/bag)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av	Min	Max	Av
Babile	5	2	40	0	0	0	0	1	20	0	0	2	40	52	54	53.3	58	62	60
Tangasia	5	1	20	0	0	2	40	0	0	1	20	1	20	12	54	33	15	60	38.3
Jirapa	5	1	20	4	80	0	0	0	0	0	0	0	0	48	56	50	52	60	54
Lawra	5	1	20	1	20	1	20	0	0	0	0	2	40	28	48	38.5	48	56	50.8
Busie	5	2	40	1	20	1	20	0	0	1	20	0	0	52	54	52.7	60	66	63.3
Pinnah	5	4	80	1	20	0	0	0	0	0	0	0	0	40	40	40	44	44	44
Total	30	11	37	7	23	4	13	1	3	2	7	5	17	12	56	44	15	66	52

5.3.4 **Groundnuts**

Groundnuts are really out of season, apart from the Tanasia market, all the other centres have none or only little of the product. At Tanasia, 2(40%) of respondents bought over 19 bags of the product, whilst 20% each at Busie and Pinnah bought up to 19 and 9 bags respectively. The price range from GH¢22 to GH¢100 and sold at GH¢28 to GH¢140.

Table 5.3.4 Trading of groundnuts in the various markets

Market	Resp.	Vol. purchased (bags)												Cost price (GH¢/bag)			Selling price (GH¢/bag)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av	Min	Max	Av
Babile	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tangasia	5	3	60	0	0	0	0	0	0	0	0	2	40	22	25	23.5	28	30	29
Jirapa	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lawra	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Busie	5	4	80	0	0	0	0	0	0	1	20	0	0	100	100	100	140	140	140
Pinnah	5	4	80	0	0	1	20	0	0	0	0	0	0	28	28	28	55	55	55
Total	30	26	87	0	-	1	3	0	-	1	3	2	7	22	100	44	28	140	66

5.3.5 **Cowpea**

This crop was also generally not marketed. Products less than 5 bags were bought at the Jirapa 2(40%) and Lawra 3(60%) markets whilst 1(20%) of respondents was able to procure up to 9 and over 19 bags in the Babile market. The price ranges from GH¢48 to GH¢100 a bag and sold at between GH¢154 and GH¢150.

Table 5.3.5 Trading of cowpea in the various markets

Market	Resp.	Vol. purchased (bags)												Cost price (GH¢/bag)			Selling price (GH¢/bag)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av	Min	Max	Av
Babile	5	3	60	0	0	1	20	0	0	0	0	1	20	48	50	49	54	56	55
Tangasia	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jirapa	5	2	40	3	60	0	0	0	0	0	0	0	0	80	100	93.3	88	120	109
Lawra	5	3	60	2	40	0	0	0	0	0	0	0	0	80	80	80	88	100	94
Busie	5	3	60	0	0	1	20	1	20	0	0	0	0	100	100	100	130	150	140
Pinnah	5	4	80	0	0	1	20	0	0	0	0	0	0	80	80	80	140	140	140
Total	30	20	67	5	17	3	10	1	3	0	0	1	3	48	100	82	54	150	105

5.3.6 **Yams**

There were no yams in any market other than Lawra where 1(20%) responded to purchase over 19 tubers at GH¢0.5 per tuber and sold at GH¢0.7 per tuber.

Table 5.3.6 Trading of Yam in the various markets

Market	Resp.	Vol. purchased (bags)												Cost price (GH¢/bag)			Selling price (GH¢/bag)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av	Min	Max	Av
Babile	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tangasia	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jirapa	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lawra	5	4	80	0	0	0	0	0	0	0	0	1	20	0.5	0.5	0.5	0.7	0.7	0.7
Busie	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinnah	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	30	29	97	0	-	0	-	0	-	0	-	1	3	0.5	0.5	0.5	0.7	0.7	0.7

5.3.7 **Rice**

Rice is also a scarce commodity, generally produced only in small quantities within the region. It was only at Babile that few respondents could procure some rice. There is virtually no rice at all the other markets. The prices range from GH¢30 to GH¢112 and sold at GH¢40 to GH¢130.

Table 5.3.7 Trading of rice in the various markets

Market	Resp.	Vol. purchased (bags)												Cost price (GH¢/bag)			Selling price (GH¢/bag)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av	Min	Max	Av
Babile	5	2	40	0	0	1	20	0	0	1	20	1	20	30	40	36.7	40	50	46.7
Tangasia	5	3	60	2	40	0	0	0	0	0	0	0	0	58	60	59	68	68	68
Jirapa	5	4	80	1	20	0	0	0	0	0	0	0	0	112	112	112	130	130	130
Lawra	5	4	80	0	0	1	20	0	0	0	0	0	0	45	45	45	100	100	100
Busie	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinnah	5	4	80	1	20	0	0	0	0	0	0	0	0	92	92	92	100	100	100
Total	30	22	73	4	13	2	7	0	0	1	3	1	3	30	112	60	40	130	76

5.4 **Sales and Prices of Livestock**

5.4.1 **Cattle**

Cattle are not brought to the market centres for sale. However, at Busie and Pinnah middle men provided information that between 1 and 4 cattle could be procured at a time at a price range of GH¢150 to GH¢600. This is resold at GH¢170 to GH¢800.

Table 5.4.1 Trading of Cattle in the various markets

Market	Resp.	Total head purchased												Cost price / head (GH¢)			Selling price/head (GH¢)		
		NR		1		2		3		4		4<							
		No	%	No	%	No	%	No	%	No	%	No	%	Min	Ma	Av	Mi	Ma	Av
Babile	5	5	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tangasi	5	5	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jirapa	5	5	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lawra	5	5	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Busie	5	4	80	0	0	1	2	0	0	0	0	0	0	150	150	15	170	170	17
Pinnah	5	3	60	1	2	0	0	0	0	0	0	1	2	170	600	38	190	800	49
Total	30	27	90	1	3	1	3	0	0	0	0	1	3	150	600	30	170	800	38

5.4.2 **Pigs**

Like cattle pigs are also not transported to the market centres.

Table 5.4.2 Trading of pig in the various markets

Market	Resp.	Total head purchased												Cost price / head (GH¢)			Selling price/head (GH¢)		
		NR		1		2		3		4		4<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av	Min	Max	Av
Babile	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tangasia	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jirapa	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lawra	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Busie	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinnah	5	3	60	1	20	0	0	0	0	0	0	1	20	50	80	65	60	90	75
Total	30	28	93	1	3	0	0	0	0	0	0	1	3	50	80	65	60	90	75

5.4.3 **Goats**

Goats were rather scarce at the Lawra market where 4(80%) of respondents got no products and 1(20%) got up to 9 goats. At Pinnah all the respondents were able to procure over 19 herds. Various quantities of up to 19 herds were purchased at all the other market centres. The price range is between GH¢12 and GH¢40 and sold at the market centre at GH¢15 and GH¢48.

Table 5.4.3 Trading of goats in the various markets

Market	Resp.	Total head purchased												Cost price / head (GH¢)			Selling price/head (GH¢)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av	Min	Max	Av
Babile	5	0	0	1	20	2	40	2	40	0	0	0	0	20	25	22.4	22	30	26.4
Tangasia	5	1	20	1	20	1	20	0	0	1	20	1	20	17	25	22.3	20	30	25.8
Jirapa	5	2	40	1	20	0	0	1	20	0	0	1	20	25	30	26.7	27	33	30
Lawra	5	4	80	0	0	1	20	0	0	0	0	0	0	12	12	12	15	15	15
Busie	5	0	0	1	20	1	20	0	0	0	0	3	60	20	30	26	25	40	31.4
Pinnah	5	0	0	0	0	0	0	0	0	0	0	5	100	25	40	31	35	48	42.6
Total	30	7	23	4	13	5	17	3	10	1	3	10	33	12	40	25	15	48	31

5.4.4 **Sheep**

Apart from Lawra again, there were adequate amounts of sheep at all markets. Most of the middlemen get up to 9 herds from all centres. At Busie, Pinnah, Tanasie and Jirapa, herds of up to 19 and over were procured. The price range is between GH¢24 and GH¢50 and resold at GH¢27 and GH¢65.

Table 5.4.4 Trading of sheep in the various markets

Market	Resp.	Total head purchased												Cost price / head (GH¢)			Selling price/head (GH¢)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av	Min	Max	Av
Babile	5	2	40	1	20	2	40	0	0	0	0	0	0	30	32	30.7	30	38	34
Tangasia	5	2	40	0	0	2	40	0	0	0	0	1	20	24	30	27.3	28	35	31
Jirapa	5	2	40	1	20	1	20	0	0	0	0	1	20	29	35	31.3	32	38	35
Lawra	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Busie	5	1	20	1	20	0	0	0	0	1	20	2	40	26	35	30.3	27	50	38
Pinnah	5	0	0	1	20	0	0	0	0	1	20	3	60	40	50	46	58	65	61.6
Total	30	12	40	4	13	5	17	0	-	2	7	7	23	24	50	34	27	65	42

5.4.5 **Chicken**

On the average, about 3(60%) of traders in the Babile, Tanasei and Pinnah markets were unable to procure any products. However between 20 and 40% were able to purchase over 19 birds. The price range is between GH¢1.5 and GH¢6 and resold at between GH¢2 to GH¢7.

Table 5.4.5 Trading of Chicken in the various markets

Market	Resp.	Total head purchased												Cost price / head (GH¢)			Selling price/head (GH¢)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av	Min	Max	Av
Babile	5	3	60	0	0	0	0	0	0	0	0	2	40	2	4	3	2.5	4.5	3.5
Tangasia	5	3	60	0	0	0	0	1	20	0	0	1	20	4	4	4	4.2	4.5	4.35
Jirapa	5	2	40	1	20	1	20	0	0	0	0	1	20	1.5	6	3.5	2	7	4.17
Lawra	5	1	20	1	20	1	20	1	20	0	0	1	20	4	5	4.58	5	6	5.38
Busie	5	0	0	0	0	1	20	2	40	0	0	2	40	3	5	4.2	3.5	6	5
Pinnah	5	3	60	0	0	0	0	0	0	0	0	2	40	3.5	3.5	3.5	4.5	5	4.75
Total	30	12	40	2	7	3	10	4	13	0	0	9	30	1.5	6	3.9	2	7	4.7

5.4.6 **Guinea Fowl**

With the exception of Lawra and Busie markets, over 60% of respondents could not procure any products from all the other centres. However others got over 19 birds at Tanasie, Lawra, Busie and Pinnah. The price range is between GH¢4 and GH¢5 and resold at GH¢4.5 and GH¢7.

Table 5.4.6 Trading of guinea fowl in the various markets

Market	Resp.	Total head purchased												Cost price / head (GH¢)			Selling price/head (GH¢)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av	Min	Max	Av
Babile	5	3	60	0	0	0	0	2	40	0	0	0	0	4	4	4	4.5	4.5	4.5
Tangasia	5	4	80	0	0	0	0	0	0	0	0	1	20	4.5	4.5	4.5	5.2	5.2	5.2
Jirapa	5	4	80	1	20	0	0	0	0	0	0	0	0	4	4	4	5	5	5
Lawra	5	1	20	0	0	1	20	2	40	0	0	1	20	4	5	4.48	4.5	5.5	5.13
Busie	5	2	40	0	0	0	0	1	20	0	0	2	40	4	5	4.67	5	6	5.33
Pinnah	5	3	60	0	0	0	0	0	0	0	0	2	40	4.5	4.5	4.5	6.5	7	6.75
Total	30	17	57	1	3	1	3	5	17	0	0	6	20	4	5	4.4	4.5	7	5.3

CHAPTER 6

6 DISSERMINATION OF INFORMATION, EXTENSION AND FINANCE

6.1 Information Farming Technology

The introduction of new component technologies and approaches to improve agricultural output has been one of the activities of almost all programmes by both government and donor funded projects. Various submissions were made as to whether the respondents from the 3 districts are usually aware or informed about these approaches.

A few of the respondents from all the 3 districts admitted that they are always informed (abreast with time and information) and aware of any new technologies that are introduced. However within this class, the men are always more informed than the women

Most of them are generally informed of the most useful information and technologies. Implications are that, they are many a time informed on the relevant information required to undertake their activities. Between 20 and 40% of respondents are of this view.

On the other hand, between 1 and 3% of respondents are also of the view that they are seldom informed about new technologies and as such lack the knowledge about new development in the industry.

Table 6.1.1 Level of access to information on farming technology

District	Sex		Access to info.							
			A		B		C		D	
			No	%	No	%	No	%	No	%
Lawra	F	29	3	10	18	62	7	24	1	3
	M	31	14	45	10	32	6	19	1	3
Nadowli	F	30	4	13	20	67	6	20	0	0
	M	30	9	30	19	63	2	6.7	0	0
Jirapa	F	30	5	17	13	43	12	40	0	0
	M	30	10	33	14	47	6	20	0	0
Total Survey Area	F	89	12	13	51	57	25	28	1	1
	M	91	33	36	43	47	14	15	1	1
	All	180	45	25	94	52	39	22	2	1

A. I am always updated on the newest technology.

B. I am informed on the most useful information on technology.

C. I seldom receive information on technology.

D. Other

6.1.1 **Means of Access to Information Farming Technology**

As to the source of their information the Radio features prominently with 5 to 30% of respondents always informed on the radio. For all the other farmers, the Agric Extension Assistant is always their source of information for over 30 to 50%. Between 5 to 25% of the respondents submit that the AEA is often their source of information. However there are few farmers that are never or seldom contacted by AEA. Sometimes community heads and friends also relate information to their neighbours.

Table 6.1.2 Means of access to information on farming technology (Radio, TV)

District	Sex		Radio								TV							
			N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	5	17	6	21	11	38	7	24	29	10	0	0	0	0	0	0
	M	31	3	10	4	13	10	32	14	45	29	94	0	0	1	3	1	3
Nadowli	F	30	1	3	4	13	19	63	6	20	28	93	1	3	0	0	1	3
	M	30	0	0	4	13	12	40	14	47	29	97	0	0	0	0	1	3
Jirapa	F	30	8	27	0	0	13	43	9	30	25	83	2	7	3	10	0	0
	M	30	2	7	3	10	14	47	11	37	25	83	3	10	2	7	0	0
Total Survey Area	F	89	14	16	10	11	43	48	22	25	82	92	3	3	3	3	1	1
	M	91	5	5	11	12	36	40	39	43	83	91	3	3	3	3	2	2
	A	18	19	11	21	12	79	44	61	34	16	92	6	3	6	3	3	2

5: always, 3: often, 1: occasional

Table 6.1.3 Means of access to information on farming technology (Newspaper, AEA)

District	Sex		News paper								AEAs							
			N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	29	100	0	0	0	0	0	0	3	10	5	17	5	17	16	55
	M	31	30	97	1	3	0	0	0	0	2	6	4	13	1	3	24	77
Nadowli	F	30	28	93	1	3	1	3	0	0	1	3	1	3	4	13	24	80
	M	30	29	97	1	3	0	0	0	0	0	0	0	0	2	7	28	93
Jirapa	F	30	28	93	2	7	0	0	0	0	1	3	2	7	8	27	19	63
	M	30	26	87	3	10	1	3	0	0	2	7	3	10	10	33	15	50
Total Survey Area	F	89	85	96	3	3	1	1	0	0	5	6	8	9	17	19	59	66
	M	91	85	93	5	5	1	1	0	0	4	4	7	8	13	14	67	74
	All	180	170	94	8	4	2	1	0	0	9	5	15	8	30	17	126	70

5: always, 3: often, 1: occasional

District	Sex		Community head								Friends							
			N-R		Occasion		often		Always		N-R		Occasion		Often		Always	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	12	41	8	28	8	28	1	3	4	14	9	31	15	52	1	3
	M	31	15	48	3	10	7	23	6	19	6	19	4	13	13	42	8	26
Nadowli	F	30	19	63	8	27	2	7	1	3	4	13	3	10	22	73	1	3
	M	30	17	57	6	20	4	13	3	10	2	7	4	13	17	57	7	23
Jirapa	F	30	15	50	5	17	6	20	4	13	3	10	9	30	14	47	4	13
	M	30	11	37	7	23	9	30	3	10	3	10	7	23	14	47	6	20
Total Survey Area	F	89	46	52	21	24	16	18	6	7	11	12	21	24	51	57	6	7
	M	91	43	47	16	18	20	22	12	13	11	12	15	16	44	48	21	23
	All	180	89	49	37	21	36	20	18	10	22	12	36	20	95	53	27	15

Table 6.1.4 Means of access to information on farming technology (Comm. Head, Friend)

Table 6.1.5Means of access to information on farming technology (Development partners, others)

District	Sex		Development partner								Farmers day							
			N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	18	62	9	31	1	3	1	3	25	86	2	7	0	0	2	7
	M	31	16	52	9	29	4	13	2	6	26	84	2	6	2	6	1	3
Nadowli	F	30	13	43	13	43	2	7	2	7	29	97	1	3	0	0	0	0
	M	30	15	50	8	27	3	10	4	13	27	90	0	0	0	0	3	10
Jirapa	F	30	17	57	6	20	4	13	3	10	27	90	2	7	0	0	1	3
	M	30	12	40	10	33	5	17	3	10	27	90	0	0	1	3	2	7
Total Survey Area	F	89	48	54	28	31	7	8	6	7	81	91	5	6	0	0	3	3
	M	91	43	47	27	30	12	13	9	10	80	88	2	2	3	3	6	7
	All	180	91	51	55	31	19	11	15	8	161	89	7	4	3	2	9	5

5: always, 3: often, 1: occasional

6.2 **Information on Agricultural Policy**

The trend on policy dissemination is similar to that of the technologies. Between 5 to 15% responded that they are always and abreast with government policy. A higher number of between 10 to 30% also responds of being aware of the important policies that affect them are thus often informed. On the whole, the means of receiving information through Radio, TV, Newspapers, AEA'S, Community heads, Friends, Developmental partners and Farmers is the same.

Table 6.2.1 Level of access to information on agricultural policy

District	Sex		Access to info.							
			A		B		C		D	
			No	%	No	%	No	%	No	%
Lawra	F	29	1	3	13	45	13	45	2	7
	M	31	11	35	8	26	11	35	1	3
Nadowli	F	30	5	17	9	30	16	53	0	0
	M	30	7	23	8	27	15	50	0	0
Jirapa	F	310	4	13	12	40	14	47	0	0
	M	310	6	20	13	43	11	37	0	0
Total Survey Area	F	89	10	11	34	38	43	48	2	2
	M	91	24	26	29	32	37	41	1	1
	All	180	34	19	63	35	80	44	3	2

A. I am always updated on the newest policy.
B. I am informed to the most relevant policy change.
C. I seldom receive information on agricultural policy.
D. Other

Table 6.2.2 Means by which information is accessed and & received on agricultural policy

District	Sex		Radio								TV							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	8	28	6	21	12	41	3	10	29	100	0	0	0	0	0	0
	M	31	5	16	5	16	6	19	15	48	31	100	0	0	0	0	0	0
Nadowli	F	30	2	7	9	30	13	43	6	20	27	90	2	7	0	0	1	3
	M	30	1	3	6	20	9	30	14	47	29	97	0	0	0	0	1	3
Jirapa	F	310	7	23	1	3	14	47	8	27	26	87	2	7	2	7	0	0
	M	310	6	20	3	10	9	30	12	40	26	87	2	7	2	7	0	0
Total Survey Area	F	89	17	19	16	18	39	44	17	19	82	92	4	4	2	2	1	1
	M	91	12	13	14	15	24	26	41	45	86	95	2	2	2	2	1	1
	All	180	29	16	30	17	63	35	58	32	168	93	6	3	4	2	2	1

5: always, 3: often, 1: occasional

Table 6.2.2 Means by which information is received on agricultural policy (cont)

District	Sex		News paper								AEAs							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	29	100	0	0	0	0	0	0	4	14	8	28	3	10	14	48
	M	31	30	97	1	3	0	0	0	0	4	13	4	13	2	6	21	68
Nadowli	F	30	29	97	0	0	1	3	0	0	3	10	0	0	9	30	18	60
	M	30	29	97	0	0	1	3	0	0	2	7	1	3	8	27	19	63
Jirapa	F	310	28	93	2	7	0	0	0	0	0	0	4	13	7	23	19	63
	M	310	27	90	2	7	1	3	0	0	5	17	3	10	9	30	13	43
Total Survey Area	F	369	86	97	2	2	1	1	0	0	7	8	12	13	19	21	51	57
	M	371	86	95	3	3	2	2	0	0	11	12	8	9	19	21	53	58
	All	740	172	96	5	3	3	2	0	0	18	10	20	11	38	21	104	58

Table 6.2.2 Means by which information is received on agricultural policy (cont)

District	Sex		Community head								Friends							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	17	59	8	28	4	14	0	0	8	28	7	24	13	45	1	3
	M	31	16	52	2	6	5	16	8	26	7	23	1	3	13	42	10	32
Nadowli	F	30	19	63	5	17	5	17	1	3	9	30	7	23	13	43	1	3
	M	30	17	57	4	13	4	13	5	17	9	30	5	17	10	33	6	20
Jirapa	F	310	17	57	5	17	5	17	3	10	6	20	6	20	14	47	4	13
	M	310	16	53	4	13	7	23	3	10	9	30	4	13	11	37	6	20
Total Survey Area	F	369	53	60	18	20	14	16	4	4	23	26	20	22	40	45	6	7
	M	371	49	54	10	11	16	18	16	18	25	27	10	11	34	37	22	24
	All	740	102	57	28	16	30	17	20	11	48	27	30	17	74	41	28	16

Table 6.2.2 Means by which information is received on agricultural policy (cont)

District	Sex		Development partner								Farmers day							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	23	79	5	17	1	3	0	0	26	90	0	0	1	3	2	7
	M	31	17	55	9	29	2	6	3	10	28	90	1	3	2	6	0	0
Nadowli	F	30	18	60	7	23	3	10	2	7	30	100	0	0	0	0	0	0
	M	30	15	50	8	27	4	13	3	10	29	97	0	0	0	0	1	3
Jirapa	F	310	16	53	7	23	5	17	2	7	25	83	2	7	2	7	1	3
	M	310	14	47	11	37	3	10	2	7	27	90	3	10	0	0	0	0
Total Survey Area	F	369	57	64	19	21	9	10	4	4	81	91	2	2	3	3	3	3
	M	371	46	51	28	31	9	10	8	9	84	92	4	4	2	2	1	1
	All	740	103	57	47	26	18	10	12	7	165	92	6	3	5	3	4	2

6.3 **Relation with the AEA's**

Most of the farmers have cordial relations with their local AEA's either by personal contact or at meetings that are generally organized within the communities. He is commonly known as the "Agric clerk" even though some of them know their real names.

The frequency of the AEAs meeting the farmers varies from weekly to quarterly intervals. Irrespective of this, a few responded never to have met the AEA. Issues discussed also vary generally from group formation and capacity building issues to crop and livestock improvement and technological issues. As to their general opinion about the AEA's with respect to their attitudinal approach and interaction with the farmers, 60 to 100% of respondents in the 3 districts responded positively.

Table 6.3.1 General Impression about extension agents (A, B, C)

District	Sex		A						B						C					
			Y		N		C T		Y		N		CT		Y		N		CT	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	24	83	3	10	2	7	23	79	2	7	4	14	23	79	3	10	3	10
	M	31	27	87	2	6	2	6	28	90	2	6	1	3	27	87	2	6	2	6
Nadowli	F	30	22	73	3	10	5	17	21	70	3	10	6	20	23	77	3	10	4	13
	M	30	28	93	1	3	1	3	27	90	0	0	3	10	27	90	0	0	3	10
Jirapa	F	30	23	77	2	7	5	17	23	77	0	0	7	23	23	77	0	0	7	23
	M	30	21	70	6	20	3	10	22	73	4	13	4	13	22	73	5	17	3	10
Total Survey Area	F	89	69	78	8	9	12	13	67	75	5	6	17	19	69	78	6	7	14	16
	M	91	76	84	9	10	6	7	77	85	6	7	8	9	76	84	7	8	8	9
	All	180	145	81	17	9	18	10	144	80	11	6	25	14	145	81	13	7	22	12

Y- Yes, N- No, CT- Cant tell

A. They are friendly and easy to interact with.

B. They are knowledgeable.

C. They often give information on suitable methods of farming.

Table 6.3.2 General Impression about extension agents (D, E, F)

District	Sex		D						E						F					
			Y		N		CT		Y		N		CT		Y		N		CT	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	19	66	5	17	5	17	23	79	2	7	4	14	22	76	2	7	5	17
	M	31	26	84	3	10	2	6	26	84	3	10	2	6	27	87	2	6	2	6
Nadowli	F	30	19	63	3	10	8	27	17	57	9	30	4	13	24	80	2	7	4	13
	M	30	26	87	2	7	2	7	22	73	5	17	3	10	26	87	2	7	2	7
Jirapa	F	30	22	73	0	0	8	27	20	67	2	7	8	27	22	73	1	3	7	23
	M	30	19	63	7	23	4	13	20	67	5	17	5	17	22	73	5	17	3	10
Total Survey Area	F	89	60	67	8	9	21	24	60	67	13	15	16	18	68	76	5	6	16	18
	M	91	71	78	12	13	8	9	68	75	13	14	10	11	75	82	9	10	7	8
	All	180	131	73	20	11	29	16	128	71	26	14	26	14	143	79	14	8	23	13

Y- Yes, N- No, CT- Cant tell

D. They often update farmers on new agricultural policies.

E. They often use extension materials to make understanding easy.

F. They often encourage farmers to explain the idea.

6.4 **Involvements in Farmer/Community Based Organisation**

Most of the respondents in the 3 districts are associated with an organisation even though in different stages of development. From the data only few respondents belong to fully registered and documented co-operative for specific purposes, others belongs FBO groups that are not registered or co-operatives but recognised by MOFA and get all the necessary support. Many others belong to other groups not registered but related to credit institutions and NGOs and seeking financial support for income generating activities.

As to why they joined the organisation, they believe that it is necessary for getting information, government services, credit and subsidies. Some have also joined because they were advised and encouraged by colleagues, friends and AEA to join.

Table 6.4.1 Organization one belongs to

District	Sex		Do you belong to any org.				Organization you belong to															
			Yes		No		NR		A		B		C		D		E		F		G	
			No	%	No.	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	19	66	10	34	10	34	1	3	2	7	7	24	1	3	3	1	0	0	5	17
	M	31	19	61	12	39	12	39	6	19	1	3	12	39	0	0	0	0	0	0	0	0
Nadowli	F	30	29	97	1	3	1	3	1	3	4	13	16	53	1	3	1	3	2	7	4	13
	M	30	25	83	5	17	5	17	4	13	5	17	12	40	0	0	0	0	0	0	4	13
Jirapa	F	30	21	70	9	30	9	30	3	10	2	7	11	37	1	3	1	3	0	0	3	10
	M	30	20	67	10	33	10	33	2	7	3	10	13	43	1	3	0	0	0	0	1	3
Total Survey Area	F	89	69	78	20	22	20	22	5	6	8	9	34	38	3	3	5	6	2	2	12	13
	M	91	64	70	27	30	27	30	12	13	9	10	37	41	1	1	0	0	0	0	5	5
	A	180	133	74	47	26	47	26	17	9	17	9	71	39	4	2	5	3	2	1	17	9

A. Farmers Cooperatives (registered for specify the purpose)

B. Farmer Bases Organization (registered for specify the purpose)

C. Organisations for production (not registered)

D. Organisations for processing (not registered)

E. Organisations for marketing (not registered)

F. Financial Cooperatives (registered)

G. Other organisations for financial support (not registered)

Table 6.4.2 Reasons for joining the organisation

District	Sex		Acquire information								Gain govt. services							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	19	66	0	0	7	24	3	10	23	79	1	3	4	14	1	3
	M	31	16	52	0	0	6	19	9	29	18	58	1	3	6	19	6	19
Nadowli	F	30	11	37	0	0	8	27	11	37	15	50	0	0	9	30	6	20
	M	30	9	30	1	3	5	17	15	50	15	50	1	3	7	23	7	23
Jirapa	F	30	13	43	0	0	9	30	8	27	15	50	0	0	8	27	7	23
	M	30	15	50	2	7	4	13	9	30	22	73	0	0	6	20	2	7
Total Survey Area	F	89	43	48	0	0	24	27	22	25	53	60	1	1	21	24	14	16
	M	91	40	44	3	3	15	16	33	36	55	60	2	2	19	21	15	16
	All	180	83	46	3	2	39	22	55	31	108	60	3	2	40	22	29	16

Table 6.4.2 Reasons for joining the organisation (cont)

District	Sex		Receive subsidy								Encouraged by colleague							
			N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	18	62	0	0	8	28	3	10	27	93	1	3	0	0	1	3
	M	31	16	52	1	3	7	23	7	23	22	71	0	0	4	13	5	16
Nadowli	F	30	7	23	2	7	9	30	12	40	24	80	0	0	2	7	4	13
	M	30	8	27	1	3	7	23	14	47	21	70	1	3	2	7	6	20
Jirapa	F	30	12	40	0	0	10	33	8	27	25	83	1	3	1	3	3	10
	M	30	20	67	1	3	6	20	3	10	24	80	2	7	3	10	1	3
Total Survey Area	F	89	37	42	2	2	27	30	23	26	76	85	2	2	3	3	8	9
	M	91	44	48	3	3	20	22	24	26	67	74	3	3	9	10	12	13
	All	180	81	45	5	3	47	26	47	26	143	79	5	3	12	7	20	11

Table 6.4.2 Reasons for joining the organisation (cont)

District	Sex		Encouraged by AEAs								Friends do so							
			N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	22	76	2	7	1	3	4	14	23	79	0	0	4	14	2	7
	M	31	20	65	0	0	0	0	11	35	21	68	0	0	5	16	5	16
Nadowli	F	30	20	67	1	3	1	3	8	27	12	40	3	10	6	20	9	30
	M	30	16	53	0	0	0	0	14	47	18	60	1	3	6	20	5	17
Jirapa	F	30	21	70	0	0	1	3	8	27	20	67	1	3	4	13	5	17
	M	30	22	73	0	0	2	7	6	20	24	80	0	0	0	0	6	20
Total Survey Area	F	89	63	71	3	3	3	3	20	22	55	62	4	4	14	16	16	18
	M	91	58	64	0	0	2	2	31	34	63	69	1	1	11	12	16	18
	All	180	121	67	3	2	5	3	51	28	118	66	5	3	25	14	32	18

For those that have not joined any group, a few responded that there is occasionally no gain in joining any group and also occasionally, one has to pay some dues. Some also indicate that they have never been informed about the groups and are not aware that such groups exist.

Table 6.4.3 Reasons for not joining any organisation

District	Sex		Gain nothing								Payment of money							
			N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	29	100	0	0	0	0	0	0	27	93	1	3	0	0	1	3
	M	31	29	94	0	0	2	6	0	0	29	94	0	0	2	6	0	0
Nadowli	F	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
	M	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
Jirapa	F	30	29	97	1	3	0	0	0	0	27	90	1	3	1	3	1	3
	M	30	27	90	2	7	0	0	1	3	27	90	2	7	0	0	1	3
Total Survey Area	F	89	88	99	1	1	0	0	0	0	84	94	2	2	1	1	2	2
	M	91	86	95	2	2	2	2	1	1	86	95	2	2	2	2	1	1
	All	180	174	97	3	2	2	1	1	1	170	94	4	2	3	2	3	2

Table 6.4.3 Reasons for not joining any organisation (cont)

District	Sex		Not informed								No such group							
			N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	27	93	1	3	0	0	1	3	23	79	0	0	1	3	5	17
	M	31	26	84	1	3	2	6	2	6	24	77	0	0	2	6	5	16
Nadowli	F	30	30	100	0	0	0	0	0	0	29	97	0	0	0	0	1	3
	M	30	26	87	1	3	0	0	3	10	29	97	0	0	0	0	1	3
Jirapa	F	30	26	87	0	0	1	3	3	10	27	90	0	0	1	3	2	7
	M	30	25	83	3	10	0	0	2	7	27	90	0	0	1	3	2	7
Total Survey Area	F	89	83	93	1	1	1	1	4	4	79	89	0	0	2	2	8	9
	M	91	77	85	5	5	2	2	7	8	80	88	0	0	3	3	8	9
	All	180	160	89	6	3	3	2	11	6	159	88	0	0	5	3	16	9

6.5 **Financial Status**

Respondents were requested to indicate the state of their financial situation with respect to the socio-cultural and economic condition of the area.

Less than 50(28%) of those interviewed responded that they generally have no financial problems and usually have some savings either in the bank or elsewhere. Generally the men are more financially sound than the women.

Most of the respondents, up to 111(62%) across the 3 districts responded that they sometimes have financial problems. The implications are that, they are socio-culturally able to maintain their households and families. However, they sometimes do require financial assistance for investment into other ventures and cropping. Others are also saddled with financial problems and are always in debt.

Table 6.5.1 Financial status of respondents

District	Sex		Fin-status							
			A		B		C		D	
			No	%	No	%	No	%	No	%
Lawra	F	29	3	10	18	62	4	14	4	14
	M	31	12	39	16	52	2	6	1	3
Nadowli	F	30	4	13	25	83	0	0	1	3
	M	30	10	33	20	67	0	0	0	0
Jirapa	F	30	7	23	20	67	3	10	0	0
	M	30	14	47	12	40	4	13	0	0
Total Survey Area	F	89	14	16	63	71	7	8	5	6
	M	91	36	40	48	53	6	7	1	1
	All	180	50	28	111	62	13	7	6	3

A. I have some savings and usually have no problem with finance.

B. I sometimes have problems with finance. (I sometimes borrow money)

C. I often have problems in finance. (I am always in debt)

D. I do not like to talk about my financial situations.

6.6 **Supporting Financial Institutions**

In the all the district, many of the respondents never relate to any recognised institution for any purpose. It is clear that loans from either the rich or relatives are prevalent in the district. The main purpose of relating to the institutions is to access loans and many of the respondents mainly approach them for this purpose.

In all situations, more women obtain loans than men whilst more men undertake savings than women. It is observed also that more women have more access to financial support from other sources in the areas where those facilities exist. The data also indicate that more males are likely to approach the banks, whilst more females patronize the rich and their relatives.

Table 6.6.1 Types of financial institutions being approached

District	Sex		Type of institution/people															
			N-R		A		B		C		D		E		F		G	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	F	29	7	24	1	3	0	0	0	0	3	10	6	21	5	17	2	7
	M	31	6	19	5	16	1	3	2	6	1	3	5	16	4	13	2	6
Nadowli	F	30	2	7	0	0	0	0	2	7	1	3	4	13	11	37	4	13
	M	30	3	10	3	10	1	3	3	10	3	10	1	3	8	27	2	7
Jirapa	F	30	7	23	0	0	0	0	2	7	1	3	3	10	6	20	6	20
	M	30	6	20	2	7	1	3	1	3	4	13	2	7	2	7	5	17
Total Survey Area	F	89	16	18	1	1	0	0	4	4	5	6	13	15	22	25	12	13
	M	91	15	16	10	11	3	3	6	7	8	9	8	9	14	15	9	10
	All	180	31	17	11	6	3	2	10	6	13	7	21	12	36	20	21	12

A. *Commercial Bank* *B.* *Agricultural Bank*

C. *Cooperatives* *D.* *Public / private credit union*

E. *Loan from the rich* *F.* *Relatives*

G. *Other*

Table 6.6.2 Purpose for approaching the financial institution

District	Sex		Purpose							
			N-R		L		S		S-L	
			No.	%	No.	%	No.	%	No.	%
Lawra	F	29	8	28	17	59	1	3	3	10
	M	31	7	23	13	42	4	13	7	23
Nadowli	F	30	2	7	22	73	2	7	4	13
	M	30	3	10	17	57	8	27	2	7
Jirapa	F	30	7	23	16	53	4	13	3	10
	M	30	6	20	15	50	6	20	3	10
Total Survey Area	F	89	17	19	55	62	7	8	10	11
	M	91	16	18	45	49	18	20	12	13
	All	180	33	18	100	56	25	14	22	12

N-R: No response L: Loans,

S: Saving S-L: Saving and Loans

6.7 **Reasons for Taking the Credit/ Uses for Credit**

Table 6.7.1 Reasons for taking loans

District	Sex		Buy fertilizer & chem.								Buy food							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	20	69	2	7	5	17	2	7	15	52	3	10	8	28	3	10
	M	31	20	65	1	3	5	16	5	16	16	52	1	3	10	32	4	13
Nadowli	F	30	19	63	4	13	4	13	3	10	19	63	5	17	5	17	1	3
	M	30	15	50	3	10	8	27	4	13	17	57	9	30	4	13	0	0
Jirapa	F	30	21	70	1	3	3	10	5	17	18	60	5	17	4	13	3	10
	M	30	21	70	0	0	5	17	4	13	19	63	0	0	7	23	4	13
Total Survey Area	F	89	60	67	7	8	12	13	10	11	52	58	13	15	17	19	7	8
	M	91	56	62	4	4	18	20	13	14	52	57	10	11	21	23	8	9
	All	180	116	64	11	6	30	17	23	13	104	58	23	13	38	21	15	8

Table 6.7.1 Reasons for taking loans (cont)

District	Sex		Buy equip.								Buy seed							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	23	79	1	3	5	17	0	0	18	62	6	21	3	10	2	7
	M	31	18	58	2	6	8	26	3	10	18	58	5	16	6	19	2	6
Nadowli	F	30	22	73	1	3	5	17	2	7	16	53	1	3	9	30	4	13
	M	30	22	73	2	7	5	17	1	3	21	70	4	13	4	13	1	3
Jirapa	F	30	23	77	3	10	2	7	2	7	22	73	7	23	1	3	0	0
	M	30	19	63	2	7	6	20	3	10	24	80	2	7	3	10	1	3
Total Survey Area	F	89	68	76	5	6	12	13	4	4	56	63	14	16	13	15	6	7
	M	91	59	65	6	7	19	21	7	8	63	69	11	12	13	14	4	4
	All	180	127	71	11	6	31	17	11	6	119	66	25	14	26	14	10	6

Table 6.7.1 Reasons for taking loans (cont)

District	Sex		Children Education								Heath							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	13	45	0	0	11	38	5	17	11	38	2	7	13	45	3	10
	M	31	13	42	1	3	10	32	7	23	11	35	3	10	11	35	6	19
Nadowli	F	30	11	37	4	13	12	40	3	10	15	50	2	7	12	40	1	3
	M	30	14	47	0	0	10	33	6	20	17	57	2	7	11	37	0	0
Jirapa	F	30	18	60	2	7	5	17	5	17	19	63	3	10	5	17	3	10
	M	30	17	57	2	7	9	30	2	7	15	50	2	7	7	23	6	20
Total Survey Area	F	89	42	47	6	7	28	31	13	15	45	51	7	8	30	34	7	8
	M	91	44	48	3	3	29	32	15	16	43	47	7	8	29	32	12	13
	All	180	86	48	9	5	57	32	28	16	88	49	14	8	59	33	19	11

Table 6.7.1 Reasons for taking loans (cont)

District	Sex		Other							
			N-R		Occa.		Often		Always	
			No	%	No	%	No	%	No	%
Lawra	F	29	18	62	3	10	7	24	1	3
	M	31	20	65	2	6	8	26	1	3
Nadowli	F	30	20	67	2	7	4	13	4	13
	M	30	25	83	1	3	3	10	1	3
Jirapa	F	30	22	73	2	7	3	10	3	10
	M	30	25	83	0	0	5	17	0	0
Total Survey Area	F	89	60	67	7	8	14	16	8	9
	M	91	70	77	3	3	16	18	2	2
	All	180	130	72	10	6	30	17	10	6

CHAPER 7

7 HARVESTING AND PROCESSING

7.1 Means of Harvesting and Processing

The two major activities are threshing and grinding of the produce. Threshing is generally the removal of the farm produce e.g. seed, fruits etc., from the stalk. The operation is done in all cases only by the traditional means with local tools and equipments since there are no machines for such operations. For the crops specified, 90-100% of respondents use the traditional method.

Similarly, for all the crops, grinding is done mostly by the machine where 45-90% of respondents indicated so. However, sometimes both the machine and traditional methods are used in case of power failure or when machines have broken down, 20-50% of respondents indicated so. Groundnut is the only product where most of the grinding between 65-95% is done in the traditional way even though a small quantity of about 5-10% is done in both ways or by machine.

Table 7.1.1 Means of Processing Sorghum

District	Sex		Sorghum (Threshing)								Sorghum (grinding)							
			N-R		Trad.		Both		Machine		N-R		Trad.		Both		Machine	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	1	3	28	97	0	0	0	0	1	3	0	0	6	21	22	76
	M	31	0	0	31	100	0	0	0	0	0	0	0	0	11	35	20	65
Nadowli	F	30	4	13	26	87	0	0	0	0	4	13	0	0	2	7	24	80
	M	30	2	7	28	93	0	0	0	0	2	7	0	0	1	3	27	90
Jirapa	F	30	5	17	25	83	0	0	0	0	5	17	1	3	11	37	13	43
	M	30	2	7	28	93	0	0	0	0	2	7	0	0	17	57	11	37
Total Survey Area	F	89	10	11	79	89	0	0	0	0	10	11	1	1	19	21	59	66
	M	91	4	4	87	96	0	0	0	0	4	4	0	0	29	32	58	64
	All	180	14	8	166	92	0	0	0	0	14	8	1	1	48	27	117	65

Table 7.1.2 Means of Processing Millet

District	Sex		Millet (threshing)								Millet (grinding)							
			N-R		Trad.		Both		Machine		N-R		Trad.		Both		Machine	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	2	7	27	93	0	0	0	0	2	7	0	0	6	21	21	72
	M	31	0	0	30	97	1	3	0	0	0	0	0	0	11	35	20	65
Nadowli	F	30	5	17	25	83	0	0	0	0	4	13	1	3	2	7	23	77
	M	30	6	20	24	80	0	0	0	0	6	20	0	0	1	3	23	77
Jirapa	F	30	6	20	24	80	0	0	0	0	7	23	1	3	10	33	12	40
	M	30	3	10	27	90	0	0	0	0	3	10	0	0	17	57	10	33
Total Survey Area	F	89	13	15	76	85	0	0	0	0	13	15	2	2	18	20	56	63
	M	91	9	10	81	89	1	1	0	0	9	10	0	0	29	32	53	58
	All	180	22	12	157	87	1	1	0	0	22	12	2	1	47	26	109	61

Table 7.1.3 Means of Processing Maize

District	Sex		Maize (threshing)								Maize (grinding)							
			N-R		Trad.		Both		Machine		N-R		Trad.		Both		Machine	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	2	7	27	93	0	0	0	0	2	7	0	0	5	17	22	76
	M	31	0	0	31	100	0	0	0	0	0	0	0	0	11	35	20	65
Nadowli	F	30	2	7	27	90	0	0	1	3	3	10	0	0	2	7	25	83
	M	30	1	3	29	97	0	0	0	0	1	3	0	0	1	3	28	93
Jirapa	F	30	1	3	29	97	0	0	0	0	2	7	1	3	10	33	17	57
	M	30	3	10	27	90	0	0	0	0	3	10	0	0	14	47	13	43
Total Survey Area	F	89	5	6	83	93	0	0	1	1	7	8	1	1	17	19	64	72
	M	91	4	4	87	96	0	0	0	0	4	4	0	0	26	29	61	67
	All	180	9	5	170	94	0	0	1	1	11	6	1	1	43	24	125	69

Table 7.1.4 Means of Processing Cowpea

District	Sex		Cowpea (threshing)								Cowpea (grinding)							
			N-R		Trad.		Both		Machine		N-R		Trad.		Both		Machine	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	3	10	26	90	0	0	0	0	3	10	0	0	5	17	21	72
	M	31	3	10	28	90	0	0	0	0	3	10	0	0	10	32	18	58
Nadowli	F	30	2	7	28	93	0	0	0	0	2	7	0	0	2	7	26	87
	M	30	1	3	29	97	0	0	0	0	1	3	0	0	1	3	28	93
Jirapa	F	30	4	13	26	87	0	0	0	0	4	13	1	3	11	37	14	47
	M	30	1	3	29	97	0	0	0	0	2	7	0	0	17	57	11	37
Total Survey Area	F	89	9	10	80	90	0	0	0	0	9	10	1	1	18	20	61	69
	M	91	5	5	86	95	0	0	0	0	6	7	0	0	28	31	57	63
	All	180	14	8	166	92	0	0	0	0	15	8	1	1	46	26	118	66

Table 7.1.5 Means of Processing Groundnuts

District	Sex		G-nuts (dehusk)								G-nuts (grinding)							
			N-R		Trad.		Both		Machine		N-R		Trad.		Both		Machine	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	3	10	26	90	0	0	0	0	3	10	23	79	1	3	2	7
	M	31	1	3	30	97	0	0	0	0	1	3	25	81	3	10	2	6
Nadowli	F	30	1	3	28	93	1	3	0	0	1	3	22	73	4	13	3	10
	M	30	0	0	26	87	4	13	0	0	0	0	26	87	2	7	2	7
Jirapa	F	30	0	0	28	93	1	3	1	3	2	7	18	60	3	10	7	23
	M	30	0	0	24	80	6	20	0	0	1	3	22	73	3	10	4	13
Total Survey Area	F	89	4	4	82	92	2	2	1	1	6	7	63	71	8	9	12	13
	M	91	1	1	80	88	10	11	0	0	2	2	73	80	8	9	8	9
	All	180	5	3	162	90	12	7	1	1	8	4	136	76	16	9	20	11

7.2 **Limitations of Harvesting and Processing Methods**

7.2.1 **Threshing by Traditional Way**

In all the three districts, majority of respondents believe the traditional way of threshing is invariable and always time consuming and tiring. Only few respondents indicate it is only often (sometimes) time consuming and tiresome. According to them, it depends on the quantity one is processing. Larger quantities involve more time and energy.

Table 7.2.1 Limitations of Threshing (traditional way) – ranking

District	Sex		Takes time								Tiring							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	F	29	1	3	1	3	5	17	22	76	1	3	1	3	1	3	26	90
	M	31	0	0	1	3	1	3	29	94	0	0	0	0	1	3	30	97
Nadowli	F	30	1	3	0	0	7	23	22	73	1	3	0	0	1	3	28	93
	M	30	0	0	0	0	5	17	25	83	1	3	0	0	0	0	29	97
Jirapa	F	30	1	3	1	3	4	13	24	80	0	0	0	0	1	3	29	97
	M	30	2	7	2	7	3	10	23	77	1	3	1	3	0	0	28	93
Total Survey Area	F	89	3	3	2	2	16	18	68	76	2	2	1	1	3	3	83	93
	M	91	2	2	3	3	9	10	77	85	2	2	1	1	1	1	87	96
	All	180	5	3	5	3	25	14	145	81	4	2	2	1	4	2	170	94

Table 7.2.1 Limitations of Threshing (traditional way) – ranking (cont)

District	Sex		Poor quality								Other							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No	%	No	%	No	%	No	%	No	%	N	%	No	%	No	%
Lawra	F	29	3	10	16	55	8	28	2	7	21	72	1	3	1	3	6	2
	M	31	3	10	14	45	9	29	5	16	21	68	4	13	1	3	5	1
Nadowli	F	30	2	7	20	67	8	27	0	0	24	80	0	0	0	0	6	2
	M	30	2	7	17	57	9	30	2	7	26	87	1	3	1	3	2	7
Jirapa	F	30	2	7	12	40	10	33	6	20	21	70	1	3	0	0	8	2
	M	30	5	17	15	50	9	30	1	3	23	77	2	7	1	3	4	1
Total Survey Area	F	89	7	8	48	54	26	29	8	9	66	74	2	2	1	1	20	2
	M	91	10	11	46	51	27	30	8	9	70	77	7	8	3	3	11	1
	All	180	17	9	94	52	53	29	16	9	136	76	9	5	4	2	31	1

7.2.2 **Grinding by Traditional Way**

Majority of respondents also believe that the traditional grinding is always time consuming and 45-75% perceive that it is tiring. Despite these limitations, they are of the view that the quality the grinding produce is only occasionally poor. Again, they argue that the quality depends on the individual. If one want fine grinding you have to sieve and regrind to produce your desire quality.

Table 7.2.2 Limitation of Grinding (traditional way) – ranking

District	Sex		Takes time								Tiring							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	F	29	8	28	2	7	8	28	11	38	9	31	0	0	2	7	18	62
	M	31	7	23	0	0	4	13	20	65	8	26	2	6	1	3	20	65
Nadowli	F	30	11	37	0	0	12	40	7	23	11	37	0	0	2	7	17	57
	M	30	11	37	1	3	12	40	6	20	11	37	2	7	4	13	13	43
Jirapa	F	30	14	47	0	0	5	17	11	37	13	43	0	0	2	7	15	50
	M	30	8	27	0	0	4	13	18	60	8	27	1	3	3	10	18	60
Total Survey Area	F	90	33	37	2	2	25	28	29	33	33	37	0	0	6	7	50	56
	M	90	26	29	1	1	20	22	44	48	27	30	5	5	8	9	51	56
	All	180	59	33	3	2	45	25	73	41	60	33	5	3	14	8	101	56

Table 7.2.2 Limitation of Grinding (traditional way) – ranking

District	Sex		Poor quality								Other							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	F	29	12	41	8	28	9	31	0	0	28	97	1	3	0	0	0	0
	M	31	12	39	11	35	5	16	3	10	30	97	0	0	0	0	1	3
Nadowli	F	30	12	40	14	47	3	10	1	3	30	100	0	0	0	0	0	0
	M	30	14	47	12	40	4	13	0	0	29	97	1	3	0	0	0	0
Jirapa	F	30	17	57	10	33	2	7	1	3	30	100	0	0	0	0	0	0
	M	30	13	43	13	43	4	13	0	0	30	100	0	0	0	0	0	0
Total Survey Area	F	90	41	46	32	36	14	16	2	2	88	99	1	1	0	0	0	0
	M	90	39	43	36	40	13	14	3	3	89	98	1	1	0	0	1	1
	All	180	80	44	68	38	27	15	5	3	177	98	2	1	0	0	1	1

7.2.3 **Threshing by Machine**

In all the cases, the respondents have no experience or opportunity to use any machine for the threshing activity since they are not part of the cropping system. They therefore have a 100% no response to use of machine and its limitations.

Table 7.2.3 Limitation of Tthreshing by machines - ranking

District	Sex		Expensive								Wait so long							
			N-R		1		3		5		N-R		1		3		5	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	F	29	29	100	0	0	0	0	0	0	29	100	0	0	0	0	0	0
	M	31	31	100	0	0	0	0	0	0	31	100	0	0	0	0	0	0
Nadowli	F	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
	M	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
Jirapa	F	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
	M	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
Total Survey Area	F	89	89	100	0	0	0	0	0	0	89	100	0	0	0	0	0	0
	M	91	91	100	0	0	0	0	0	0	91	100	0	0	0	0	0	0
	All	180	180	100	0	0	0	0	0	0	180	100	0	0	0	0	0	0

Table 7.2.3 Limitation of Tthreshing by machines - ranking

District	Sex		Machine breaks down								Other							
			N-R		1		3		5		N-R		1		3		5	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	F	29	29	100	0	0	0	0	0	0	29	100	0	0	0	0	0	0
	M	31	31	100	0	0	0	0	0	0	31	100	0	0	0	0	0	0
Nadowli	F	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
	M	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
Jirapa	F	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
	M	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
Total Survey Area	F	89	89	100	0	0	0	0	0	0	89	100	0	0	0	0	0	0
	M	91	91	100	0	0	0	0	0	0	91	100	0	0	0	0	0	0
	All	180	180	100	0	0	0	0	0	0	180	100	0	0	0	0	0	0

7.2.4 **Grinding by Machine**

In the poverty endemic socio-cultural situation within the districts, 90-100% of respondents believe the activity is always expensive. Across board all over the 3 districts, between 35-70% are of the view that there is always an element of time wasting at the mill. However, 20-35% is of the view that the waiting is only often. Most do not believe that there is anytime wasting or even relevant.

Table 7.2.4 Limitation of Grinding by machine - ranking

District	Sex		Expensive								Wait so long							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	F	29	1	3	0	0	2	7	26	90	1	3	2	7	14	48	12	41
	M	31	1	3	0	0	1	3	29	94	0	0	1	3	12	39	18	58
Nadowli	F	30	2	7	0	0	0	0	28	93	2	7	3	10	10	33	15	50
	M	30	0	0	0	0	0	0	30	100	0	0	3	10	8	27	19	63
Jirapa	F	30	0	0	1	3	2	7	27	90	1	3	8	27	6	20	15	50
	M	30	0	0	0	0	0	0	30	100	0	0	5	17	10	33	15	50
Total Survey Area	F	89	3	3	1	1	4	4	81	91	4	4	13	15	30	34	42	47
	M	91	1	1	0	0	1	1	89	98	0	0	9	10	30	33	52	57
	All	180	4	2	1	1	5	3	170	94	4	2	22	12	60	33	94	52

Table 7.2.4 Limitation of Grinding by machine - ranking

District	Sex		Machine breaks down								Diesel shortage							
			N-R		Occa.		Often		Always		N-R		Occa.		Often		Always	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	F	30	7	24	8	28	12	41	2	7	21	72	2	7	5	17	1	3
	M	30	7	23	4	13	11	35	9	29	22	71	1	3	3	10	5	16
Nadowli	F	30	5	17	9	30	15	50	1	3	23	77	2	7	3	10	2	7
	M	30	5	17	7	23	12	40	6	20	17	57	3	10	5	17	5	17
Jirapa	F	30	7	23	9	30	12	40	2	7	21	70	5	17	1	3	3	10
	M	30	1	3	8	27	19	63	2	7	20	67	3	10	5	17	2	7
Total Survey Area	F	89	19	21	26	29	39	44	5	6	65	73	9	10	9	10	6	7
	M	91	13	14	19	21	42	46	17	19	59	65	7	8	13	14	12	13
	All	180	32	18	45	25	81	45	22	12	124	69	16	9	22	12	18	10

7.3 **Processed Items**

The data indicates that, the main products captured in the processed items are pitto, dawadawa and others. Where others include shea butter, groundnut cake and “kose” (cowpea pie).

However, the major commodity is the pitto. In the three districts, the volume of pitto produced range from none to over 500 gallons per year. A relatively high percentage of respondents respond in the negative to the volumes produced.

Table 7.3.1 Items processed

District	Resp.	Processed item		
		Pito	Dawadawa	Other
Lawra	60	42	8	16
Nadowli	60	44	2	14
Jirapa	60	42	4	10

Production values ranges from less than 100gallons/year to over 500gallons of pittoh per year. In all the districts and the 9 operational areas, most of the respondents i.e. over 50% produce over 500gallons of pittoh per year. Those who do not produce are very few.

Table 7.3.2 Volume processed

District	Resp.	Pitto (gal.)							Dawadawa (kg)						
		N-R	<100	100-199	200-299	300-399	400-499	499<	N-R	<100	100-199	200-299	300-399	400-499	499<
Lawra	60	18	5	3	1	6	2	25	52	3	1	2	0	0	2
Nadowli	60	16	1	2	5	4	2	30	58	2	0	0	0	0	0
Jirapa	60	18	6	8	0	5	0	23	56	3	1	0	0	0	0

It was ascertained that, many respondents do not indulge in the production of dawadawa if the source of raw materials that is the dawadawa tree does not grow in the locality. In that case, the little that can be processed is done purely for domestic consumption. However, dawadawa production could also be taken as an agro business where the respondents usually travel from market to market to purchase the fruits for processing. Production in this context is usually for sale.

In all the situations most of the respondents sell 60 to 80% of pitto volumes produced.

Table 7.3.3 Percentage of processed item sold

District	Resp.	Pitto			Dawadawa		
		Percentage sold			Percentage sold		
		≤ 50	60 - 80	> 80	≤ 50	60 - 80	> 80
Lawra	60	0	35	5	3	5	0
Nadowli	60	1	40	4	2	0	0
Jirapa	60	1	40	4	2	0	0

CHAPTER 8

8 DONOR FUNDED PROJECTS

8.1 Project Brief

The Upper West region in Ghana is among the poorest and hence has been a prominent target area formany Donor and N.G.O funding agencies including IFAD, WB, CIDA, UNDP etc. for investments and interventions. The most notable is the IFAD supported projects with considerable impact on the livelihoods of the rural poor is the Upper West Agricultural Development Project (UWADEP) and the AgSSIP (World Bank)

The overall goal of the UWADEP as well as the other donor funds was to contribute to sustainable alleviation of poverty, increased household food security and improved living conditions of rural poor, particularly women in the region The project objective was to increase the incomes of rural people in the region while protecting the environment and improving access to water.

A major modification of the approach in the WB AgSSIP is its demand-driven character and a strong focus on grass root capacity building and participation, gender equity, quality issues and cost recovery and sustainability.

The main areas of experience, knowledge and technology development by the projects can be grouped as follows:

- Institutional Development e.g. Water Users Associations
- Inclusive Targeting and Securing Land and Water Access for the Rural Poor
- Innovations, Learning and Knowledge for Sustainable Farming Systems and Rural Livelihoods
- Multiple Use Systems and Rural Water Health Nutrition and Sanitation
- Capacity Building, Training and Education
- Participatory Design, Construction of Rural infrastructure/Small Reservoirs

8.2 Upper West Agric Development Project (UWADEP)

This is the most widely spread project undertaken in the study area. From the discussions with the respondents just as the team noted above, there were many thematic areas of operation.

8.2.1 Capacity Building and Training

The strategy for group formation and training was a key element in the program. The farmer and community based groups were formed and developed to different levels or stages to enable them play their roles and responsibilities effectively on the project. The program expected the farmers to identify themselves with the project activities and own the project. The capacity building strategy is to develop leadership structures within communities so as to enable the whole community move in unison to upgrade the life and conditions of living of the community as an entity rather than as

individuals. Intrinsically likened with the groups formed is the technical training. Training includes the introduction of various component technologies and skills in order to increase yields and sustained land use. Various technologies including the use of improved seeds, crop diversification soil and water management, Agroforestory, livestock improvement etc. were introduced.

8.2.2 **Input Credit**

Invariably in any project, input credit is always a major component. It is understood that the poor farmers are unable to mobilize the capital on their own to undertake an agricultural project as a commercial activity. Even though many a time the re-payment of the credits becomes a problem since many farmers are unable to pay due to crop failure. Submission from the respondents indicates that credit for seed, fertilizer, agrochemicals, equipments etc. was key in the implementation of the project.

8.2.3 **Agroforestory and Afforestation**

The introduction of agroforestory and afforestation was to combat desertification and improve the micro-environment. Commercial tree crops as cashew and mango were introduced within the project. The concept of alley cropping was also introduced to compliment the land utilization to its fullest capacity. The monetary value of fruits as a product of the trees is universal, however the roles of trees in providing shade and influencing the micro-environment for crop and animals as well as land degradation was valued within the communities.

8.2.4 **Land and Water Management**

Land degradation is persistent in the region due to the traditional method of cropping. New technologies to reduce soil erotion and land degradation were introduced. These include land preparation along contours, stone lining, creating water ways to direct the rainfall over flow and outlets. Also in this context is the water management where micro basins were created as part of the land development strategy to harvest and capture rainfall that might have been washed away to enable it seep in to the soil for crop use. The project also introduced the concept of seed production and appropriate technologies and structures of seed storage..

8.2.5 **Livestock Project**

The livestock project was for the improvement of animal production in the communities. Structures like dams for drinking and health care facilities were introduced to encourage farmers generate income from livestock.

8.3 World Bank AgSSIP Programme

The AgSSIP support in the Upper West region involves financial support for the MoFA and institutions and Community/Farmer Based Organization Development (CBO/FBO) in the districts. In this context, the CBO/FBO were structures developed and recognized by the university.

8.3.1 Capacity Building and Training

The demand driven concept in project initiation and support was introduced. Under this strategy, the communities have to play a role before the introduction of a project to support them. The community is expected to contribute some traditional resources such as land and labour towards any program.

The capacity building and training involves the normal activities of group formation and the subsequent technological training to acquire skills. However even though the groups were encouraged the necessary structures, most of them do not have the legal status with the Dept. of co-operatives. But the ministry of Agriculture and other NGOs are able to deal with them at that level.

8.3.2 Input Credit

Just as in the UWADEP project, there is a credit element. But on this program the groups deal directly with the ministry and not with the bank.

8.4 CIDA (Farmers Project)

The project focused on building the capacity of existing institutions, organizations and agencies involved in the development, delivery and coordination of agricultural research and extension services. It supported the development and delivery of improved and innovative processes, approaches and programs. The impact of FARMER project was relished in strengthened production, processing and marketing linkages in northern Ghana. This contributed to CIDA's Country Program Objectives in Ghana and to CIDA's Food Security Program objectives in the north.

PROJECT PURPOSE AND OUTCOMES

The purpose of the FARMER project was to improve access to and use of demand-driven agricultural information and technology by low-income and/or resource poor farm households, agro-processors, marketers and communities in the north of Ghana; using existing partner systems and structures for management implementation.

Three achieved outcomes for the FARMER Project include:

- Strengthened formal and non-formal research, extension, agro-processing and marketing organizations based on participatory needs assessment;
- The development and adoption of more diversified, sustainable and appropriate agricultural technologies contributing to improved farm and household management; and
- The development of collaboration and partnership for relevant technology generation, transfer and utilization for the north of Ghana.

Broad sectors and commodities on which interventions were delivered include:

- Livestock: small ruminants, large ruminants, poultry and guinea fowl
- Crops: roots and tubers, cereals, legumes and pulses
- Vegetable production and processing
- Afro-forestry, soil and water conservation/environment management
- Animal traction
- Fisheries
- Post-harvest management and agro-processing
- Nutrition
- Non-traditional agriculture (grass cutter rearing, beekeeping)
- Other income generating activities with associated business approaches to these activities(food processing, soap making) and

Alternative approaches for technology development, dissemination and utilization were also operationalised with the view to enhance technology adoption and adaptation.
The essence of the CIDA project was generally to encourage the Ministry of Agriculture through the District Agric. structures to make interventions in the production activities of the farmers. The intervention generally involves the introduction of new technologies and support for the farms. Under this project also were the following programmes:

The essence of the CIDA project was generally to encourage the Ministry of Agriculture through the District Agric. structures to make interventions in the production activities of the farmers. The intervention generally involves the introduction of new technologies and support for the farms. Under this project also were the following programmes:

8.4.1 **Capacity Building and Training**

Group formation, training and a subsequent input credit. The input credit was also used to support women groups for food processing.

8.4.2 **Small Ruminants and Poultry Projects**

Under this project, improved varieties of small ruminants like sheep and goats improved parent stock were given to individuals, farmers or children on credit. As they are reared to maturity the farmers are able to pay back by also giving the offspring to their neighbours to continue the cycle. The program also promotes farmer to farmer relations. The poultry element of the program involves the supply of eggs of the improved variety of guinea fowl to the farmers.

8.4.3 **Food Processing**

Women groups in the CBOs were trained in nutrition and food processing both for the household and income generation.

8.5 **ADRA**

ADRA is an international NGO that is also involved in the district. Generally they come in to undertake food aid in cases of disasters. However, after a period of time, they become involved in supporting the communities albeit on a limited basis.

(i) Training: The training is usually in food processing and nutrition, where wheat, Soybeans, cowpea, groundnut and food products are produced.
(ii) They also introduce input credit, support for both crops and processors. The credit also includes support for livelihood support for many families.
(iii) Introduction of crop diversification

8.6 **World Vision**

This is also an international NGO which supports credit for farming and trading. They also give support to women groups.

8.7 **Rural Action Aid Project (RAAP)**

Their project is similar to the farmers' project under CIDA.

(i) Animal support and exchange: They introduced health care support and exchange of bullocks and donkeys. They also input credit for sheep and goats.
(ii) Credit for self help, for the promotion of social amenities.

8.8 **Youth Development Programme**

Newly introduced with credit facilities for land preparation purposely to reduce cost and increase land productivity. The credit is also available for processing.

8.9 Inferences and Observations from the Data Analysis

8.9.1 Institution, Capacity Building and Training

One of the key elements that run through all the projects is the capacity building and training of the communities into strong groups and co-operative organization and institutions. It is envisaged that a functional group with working structures is able to relate and link to other institutions for support and improvement in their activities and life.

Group formation and development is in stages and has to culminate into a fully fledged co-operative with all the necessary legal documents for recognition. Deliberations at the meetings during the questionnaire administration did not indicate so but rather revealed that the status of farmer group organization and formation activities are still weak with not much cohesion among the desired beneficiaries.

Consequently responses from their relation to organization need much to be designed. It is only of two centres that respondents belonged to co-operations and are able to attract assistance from the banks. Another women group has also developed into a credit union and members are able to attract support from the institutions. Many of the respondents do not belong to various groups that are neither registered nor have any legal status. Such groups are not able to relate to any institution for support of any form. Consequently many of the farmers are only able to relate to local rich or relatives for financial support in time of need.

It is evident that such loans attract very high interest and many a time the recipients are unable to repay since the creditor sometimes is repaid in kind at prices well below the market prices. The poor farmers therefore continue in the vicious poverty cycle and also remain in dept.

But why did many of the groups fail to develop to full capacity. Experiences from the officers indicate that farmer capacity building and training should be a continuous exercise and invariable must not stop for a long period. However at the end of each project and somewhere along the line, the training and group formation component of many programs tails off. Invariably no matter which stage of development the group has reached the farmers and communities on their own are unable to sustain the groups. And in a situation where all the farmers are equal in responsibility and authority with respect to the homes it is difficult for the required authority and commitment of the leadership put in place to be established.

8.9.2 The Water Users Association

The data indicate clearly that there is no utilization if the irrigation facilities in the districts even though structures like dams were evident. Information is that, most of these structures were never completion for effective utilization. In some cases the facilities collapsed and deteriorated after only one raining season therefore can no longer be used. Further inquiries indicated that, the beneficiary farmer were supposed to be develop into a vibrant and operational Water Users Associations (WAU)

i.e. strong groups to enable them participate actively in the construction and operation of irrigation facilities.

However, this component of the project was delayed and not effectively organized. The results are that all the projects for irrigation development are underutilized and therefore contribute largely to food insecurity especially in the long dry season. Rice is generally a crop grown under irrigation in the north and regarded mainly as a cash crop; the non utilization of this project therefore contributes largely to the poverty conditions.

8.9.3 **The Agroforestory and Afforestation Project**

Some of the respondents have recognized it as being beneficial and useful. Many others are of the opposite view. For the enlightened farmers, a few stands of cashew and mango are able to generate some income. For most of the respondents they could not maintain the project under the harsh weather conditions and failure of the rains at various sites the crops could not survive. Moreover the sites generally allocated for these tree crops are usually the marginal lands not suitable for food crops. Under such conditions special attention and inputs are required for the tree to survive.

8.9.4 **Land and Water Management Project**

Many farmers' respondents are of the view that the project has been beneficial. Attempts have been made all over the districts to adopt cultural practices that would enhance water storage and militate against soil erosion. Water ways have been created for run off to flow down the valley. Farmers have also deliberately created the stone line and also border Crops to contain the erosion

8.9.5 **The Livestock Projects**

These activities were undertaken in the UWADEP, FARMERS and RAAP projects. The respondents remember vividly Farmers and RAAP projects where the supply of improved animal stock and health care for the animals are the main issues. The projects were highly recommended on being successful in the initial stages. However the incidence of animal and poultry diseases the previous year has wiped out all the benefits as there was not much livestock left with many of the respondents. The national livestock project under the UWADEP programme has gone to oblivion also due to the non availability of the necessary support from the related institutions.

8.9.6 **Input Credit and Assistance from Different Groups**

In absence of developed groups with legal connotations, most of the respondents are unable to approach the recognized financial institution for support. From discussions and reports from the officers, much of the credit support for the farmers under many of the projects remains unpaid.

In the context of the revolving fund strategy by the donor agencies and NGOs, the framers are left stranded since no more assistance can be extended to them when the funds become depleted.

Under such conditions, since they are limited in financial resources for production the poverty cycle prevails.

Some of the NGOs are now support credit for the for livelihood conditions as a response to disasters that are arising. They are also supporting women groups mostly in capital for trading and processing. Return to these type of activities are encouraging and the supervisory roles of the donors are more efficient than for the projects.

In conclusion, one can generally imply that over 30% of the respondents from the 3 districts have never had any type of assistance and support from any of the projects and therefore did not have any response as to the effectiveness of any of this project.

The IFAD (UWADEP) and WB (AgSSIP) projects were the most widely spread covering all the 3 districts. The discussion indicates that they are highly valued or having greatly supported and impacted on the communities. Over 30% within the 3 districts regarded them as being useful whilst about 20% of the respondents think the projects have been very useful.

It is true that some component technology and support programs have been instituted. However the general output from the area is still low and much improvement is required. Of course some of the respondents also indicate to have negative results from the project intervention. Others also view them as not having contributed much. Implications are that the negative effect could imply indebtedness of the respondents or a waste of time and efforts.

CHAPTER 9

9 ANALYSIS AND CONCLUSIONS.

9.1 Household Characteristics

Generally, the condition of the study area can be described as an endemic poverty condition. The situation is characterised by the household characteristics where there are generally large families of between 10 and 15 and over individuals. Most of the youth have migrated out and the households are left with mostly the aged. In the situation where large areas have to be cropped, the labour requirement is limited leading to food insecurity and poverty.

In most households income earners are few because the children and traditional family commitments of supporting the aged and kindred. The annual income ranges between GH¢70 and GH¢7500.

In the trend of poverty in Ghana 2007, poverty is described in many dimensions and characterized by low income, malnutrition, ill health and insecurity. And the interaction of these characteristics results in social invisibility and isolation of the poor from the normal social activities in the community.

The Ghana Living Standard Survey (GLSS) 2007 classifies the Ghana social units into 5 quintiles.

Q1 Less than GH¢380
Q2 GH¢380.10- GH¢690
Q3 GH¢690.10- GH¢780
Q4 GH¢780- GH¢1040
Q5 Greater than GH¢11700

Two levels of poverty limits were denoted

i. Extreme poverty levels of below GH¢288.47
ii. Normal poverty below GH¢380

Even with respect to the total annual household income in the study area, over 95% of respondents in the 3 districts fall under the extremely poor category. The introduction of projects and programs such as the UWIAP are really required to lift the communities out of poverty. Indications are that, if the annual household income is further divided by the household size to come out with the social class limits as defined in the Ghana Living Standard Survey 2007 (GLSS). The poverty class values would really be very low indeed.

Agriculture is the major commercial activity in the study area. However household income from agriculture is rather on the low side and if the poverty is to be reduced, then programmes that call for increased production should be encouraged. This calls for increase in crop production, diversification and improved technology for income generating activities.

9.2 Land Holding and Cultivation

Within the study area lands are generally held in trust by the 'Tindana' land chief. Even though individual households have land rights with respect to their surrounding compounds and nearby land around the village. The hectarage of land declared by most respondents as potential is rather on the low side.

The limited land available to the household also limits the cropping area and subsequently the production capacity of the communities. Submissions are that in instances even when donors came in with intervention to develop projects for the communities, problems are still encountered with landownership and ability to work freely on it. Under such situations, individuals are unable to invest and improve the land values for sustained yields and increase production. It is necessary to involve both the cultural and political structures and leadership within the areas in order to improve the land tenure system in the area.

9.3 Land Productivity

Currently, crop yields are a factor of the area cropped due to the low production capacity of the land. The traditional land use practices, coupled with usage over long periods have resulted in the land degradation. In some cases the iron pan has been exposed on the surface indicating the final stage of degradation.

The rainfall pattern has also been unfavourable over the last decade and is contributing largely to the desertification process. The combined effect of these two interacting factors has resulted into the low yield of sorghum in the report. The situation calls for the introduction of new technological approaches to cultural practices especially tillage practices. It is important to introduce technologies that can be sustained within the socio-economic and environmental context. It would be interesting to introduce land preparation technologies as well as crop diversification programs. Efforts must also be made for soil and water conservation programs and efficient utilisation to increase crop and livestock production.

9.4 Major Crops

9.4.1 Cereals

The major cereal crops of sorghum and millet are the traditional crops that ensure food security within the region. Maize is just a recent introduction, and though it has higher yields per hector, the cropping risks are higher since it has low tolerance for adverse weather conditions and one can loose the entire crop unlike sorghum and millet. However with upgraded technologies within the

different cultural operation, yields and production can be increased for more sales and income generation and a consequent reduction in poverty.

Rice production should be encouraged whenever there is an opportunity. Rice is usually a cash crop in the north rather than a food crop although parts may end at homes. The rice production and market chain is a vibrant industry in the Upper East Region and can be replicated also in the Upper West Region. This call for the re-vitalisation of the irrigation structures and groups coupled with all the support programs

9.4.2 **Legumes**

These are major agricultural crops that are produced mainly for income generation. Even though cow-peas are used largely for food quite a sizable amount is sold. Similar technology interventions as in the cereals and other programmes should be introduced for increased yields.

9.4.3 **Minor Crops**

Shear-nut and dawadawa are traditional industries. In most cases, the product is sold in the fresh state. Any program and assistance in this area should be to encourage the addition of value, where these products are processed into butter and cake. The process would create income generating activities in communities.

Cashew and mangoes are new crops introduced. Even though the harsh weather conditions would affect their growth and development, special attention should be paid to such crops considering that they can be grown in a alley cropping farming system. A few stands of these crops would bring some income to the households.

9.5 **Agricultural Inputs**

It is advocated that the appropriate usage of the organic manure should be encouraged where it is available. Other programs like crop rotation, residue and other practices should also be encouraged. However inputs like fertilizers and improved seeds should not be discarded, rather the communities should work within their capacities and increase the utilization of these new interventions over time.

9.6 **Livestock and Poultry**

Livestock is a major source of income if managed well. Many a time most of the stock are left to fend for themselves and not really reared and weaned for sale. More attention should be paid to their feed by developing pastures and fodder for the dry season. Attention should also be paid to their sources of drinking and the management of diseases to prevent their being wiped out as it did last year.

9.7 **Dissemination of Information and Finance**

Information on technology and policy issues sent to the farms mostly by radio and the Agric Extension Agents. It would be important to increase the interaction between the Agric Extension Agents and the communities. Improved facilities and materials and motivation for the AEA are necessary. Currently the operational areas of the AEA are also too wide and the staff numbers need to be increased. The AEAs should make efforts to relate to all sections of the household and include the poor in their programs. It is only through their participation in these programmes that they take advantage of the resources available to them which will help them come out of their poverty.

9.8 **Community Based Organisations and Financial Support**

Community/farmer based organisations would have been the key to success and increased production in the study area. A fully developed and working group with all the necessary structures and legal documents is an asset in its own. Since the documents are generally an attestation and serve as collateral and guarantee as well as trust in the seeking of assistance and support from other institutions. The need for financial resources to operate any effective commercial agricultural activity cannot be underrated. The groups are therefore a necessary prerequisite for the full realization of all development objectives.

In the study area only a few of the respondents belong to fully fledged working groups. All the others are either unregistered and of different stages of development. Many of the individual's respondents are not financially sound and need help most of the time. Under the socio-economic and cultural conditions of the area sufficient resources are required to undertake a successful crop production and income generating activities. Submissions and observations are that it is only within the context of the groups that individuals can get access to the necessary resources.

The provision of infrastructural intervention and credit for the farmer groups so developed is one of the surest ways for increased production and a consequent reduction in poverty alleviation. Any project intervention in the future should necessarily cause the group development very critically since these projects are social projects.

TABLES FOR BASELINE SURVEY

Age distribution

District	Op-Area	Village	Resp.	Age																							
				Male												Female											
				<30		30-39		40-49		50-59		59<				<30		30-39		40-49		50-59		59<			
				No.	%	No.	%	No.	%	No.	%	No.	%	Av		No.	%	No.	%	No.	%	No.	%	No.	%	Av	
Lawra	Babili	Tanchera	10	1	10	2	20	2	20	1	10	4	40	51		2	20	4	40	0	0	3	30	1	10	42	
		Tongho	10	0	0	0	0	3	30	4	40	3	30	52		0	0	3	30	6	60	0	0	1	10	43	
	Tom	Panyaan	10	1	10	0	0	0	0	5	50	4	40	56		1	10	0	0	1	10	5	50	3	30	51	
		Kokodur	10	0	0	3	30	3	30	2	20	2	20	48		1	10	4	40	1	10	3	30	1	10	43	
	Nandom	Kogle	10	1	10	1	10	4	40	2	20	2	20	47		0	0	4	40	3	30	3	30	0	0	42	
		Puffien	10	0	0	3	30	1	10	1	10	5	50	53		2	20	1	10	3	30	3	30	1	10	44	
Nadowli	Daffiama	Daffiama	10	0	0	3	30	3	30	1	10	3	30	54		1	10	2	20	3	30	2	20	2	20	46	
		Guong	10	0	0	2	20	3	30	1	10	4	40	52		0	0	5	50	3	30	1	10	1	10	41	
	Serekpere	Serekpere	10	1	10	2	20	2	20	3	30	2	20	49		1	10	4	40	5	50	0	0	0	0	38	
		Guli	10	0	0	2	20	1	10	5	50	2	20	50		2	20	3	30	2	20	2	20	1	10	41	
	Takpoe	Takpoe	10	1	10	5	50	0	0	2	20	2	20	43		2	20	6	60	0	0	2	20	0	0	36	
		Gylli	10	0	0	2	20	2	20	3	30	3	30	52		1	10	3	30	3	30	1	10	2	20	42	
Jirapa	Tuggo	Tuggo	10	1	10	1	10	0	0	4	40	4	40	54		1	10	1	10	2	20	5	50	1	10	47	
		Wulling	10	0	0	0	0	6	60	3	30	1	10	47		0	0	5	50	4	40	1	10	0	0	39	
	Sigri	Sigri	10	1	10	3	30	2	20	2	20	2	20	45		1	10	4	40	3	30	1	10	1	10	40	
		Tigboro	10	0	0	2	20	3	30	2	20	3	30	50		0	0	4	40	2	20	3	30	1	10	45	
	Lambusie	Lambusie	10	1	10	4	40	0	0	4	40	1	10	44		3	30	5	50	1	10	0	0	1	10	36	
		Sentu	10	0	0	2	20	4	40	3	30	1	10	47		0	0	6	60	3	30	0	0	1	10	40	

District	Resp.	Age																							
		Male												Female											
		<30		30-39		40-49		50-59		59<				<30		30-39		40-49		50-59		59<			
		No.	%	No.	%	No.	%	No.	%	No.	%	Av		No.	%	No.	%	No.	%	No.	%	No.	%	Av	
Lawra	60	3	5	9	15	13	22	15	25	20	33	51		6	10	16	27	14	23	17	28	7	12	44	
Nadowli	60	2	3	16	27	11	18	15	25	16	27	50		7	12	23	38	16	27	8	13	6	10	41	
Jirapa	60	3	5	12	20	15	25	18	30	12	20	48		5	8	25	42	15	25	10	17	5	8	41	
Total Area	180	8	4	37	21	39	22	48	27	48	27	50		18	10	64	36	45	25	35	19	18	10	42	

Household Adults and Children

District	Op-Area	Village	Resp.	HH size																							
				Adult												Children											
				<3		3-5		6-8		9-11		11<				<3		3-5		6-8		9-11		11<			
				No.	%	No.	%	No.	%	No.	%	No.	%	Av.		No.	%	No.	%	No.	%	No.	%	No.	%	Av.	
Lawra	Babili	Tanchera	10	1	10	5	50	3	30	0	0	1	10	6		0	0	4	40	1	10	3	30	2	20	8	
		Tongho	10	0	0	3	30	1	10	2	20	4	40	13		0	0	2	20	3	30	2	20	3	30	9	
	Tom	Panyaan	10	1	10	5	50	4	40	0	0	0	0	5		2	20	3	30	2	20	1	10	2	20	7	
		Kokodur	10	1	10	5	50	4	40	0	0	0	0	5		3	30	3	30	3	30	1	10	0	0	5	
	Nandom	Kogle	10	1	10	8	80	0	0	1	10	0	0	4		2	20	5	50	3	30	0	0	0	0	4	
		Puffien	10	1	10	6	60	2	20	1	10	0	0	5		2	20	4	40	2	20	0	0	1	10	5	
Nadowli	Daffiama	Daffiama	10	3	30	1	10	5	50	0	0	1	10	6		5	50	2	20	1	10	0	0	2	20	5	
		Guong	10	2	20	5	50	2	20	1	10	0	0	5		0	0	4	40	1	10	4	40	1	10	7	
	Serekpere	Serekpere	10	2	20	5	50	2	20	1	10	0	0	5		0	0	9	90	1	10	0	0	0	0	4	
		Guli	10	2	20	5	50	1	10	1	10	1	10	5		1	10	7	70	2	20	0	0	0	0	4	
	Takpoe	Takpoe	10	0	0	7	70	2	20	1	10	0	0	5		0	0	5	50	3	30	2	20	0	0	7	
		Gylli	10	2	20	2	20	4	40	2	20	0	0	6		0	0	2	20	4	40	2	20	2	20	8	
Jirapa	Tuggo	Tuggo	10	1	10	2	20	6	60	1	10	0	0	6		2	20	0	0	2	20	1	10	5	50	11	
		Wulling	10	0	0	2	20	4	40	2	20	2	20	9		2	20	3	30	2	20	0	0	3	30	8	
	Sigri	Sigri	10	0	0	5	50	5	50	0	0	0	0	5		2	20	6	60	2	20	0	0	0	0	4	
		Tigboro	10	1	10	5	50	3	30	1	10	0	0	5		2	20	4	40	1	10	1	10	2	20	7	
	Lambusie	Lambusie	10	0	0	4	40	6	60	0	0	0	0	5		1	10	4	40	4	40	1	10	0	0	6	
		Sentu	10	0	0	5	50	3	30	1	10	1	10	7		1	10	3	30	3	30	1	10	2	20	7	

District	Resp.	HH size																					
		Adult											Children										
		<3		3-5		6-8		9-11		11<			<3		3-5		6-8		9-11		11<		
		No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	5	8	32	53	14	23	4	7	5	8	6	9	15	21	35	14	23	7	12	8	13	6
Nadowli	60	11	18	25	42	16	27	6	10	2	3	5	6	10	29	48	12	20	8	13	5	8	6
Jirapa	60	2	3	23	38	27	45	5	8	3	5	6	10	17	20	33	14	23	4	7	12	20	7
Total Area	180	18	10	80	44	57	32	15	8	10	6	6	25	14	70	39	40	22	19	11	25	14	6

Q1c - 2a. HH size / income earners (%)

District	Op-Area	Village	Resp.	% of HH Size									% of Income Earners								
				<5		5-10		11-15		15<			<5		5-10		11-15		15<		
				No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	Babili	Tanchera	10	0	0	5	50	2	20	3	30	13	7	70	3	30	0	0	0	0	4
		Tongho	10	0	0	1	10	2	20	7	70	21	3	30	5	50	1	10	1	10	9
	Tom	Panyaan	10	2	20	2	20	4	40	2	20	12	5	50	5	50	0	0	0	0	5
		Kokodur	10	1	10	5	50	4	40	0	0	10	8	80	2	20	0	0	0	0	4
	Nandom	Kogle	10	0	0	7	70	3	30	0	0	8	9	90	1	10	0	0	0	0	4
		Puffien	10	2	20	5	50	2	20	1	10	9	7	70	3	30	0	0	0	0	4
Nadowli	Daffiama	Daffiama	10	3	30	3	30	2	20	2	20	11	7	70	1	10	2	20	0	0	5
		Guong	10	0	0	4	40	4	40	2	20	12	8	80	2	20	0	0	0	0	4
	Serekpere	Serekpere	10	0	0	7	70	3	30	0	0	9	4	40	6	60	0	0	0	0	5
		Guli	10	0	0	7	70	3	30	0	0	10	8	80	2	20	0	0	0	0	4
	Takpoe	Takpoe	10	0	0	5	50	3	30	2	20	12	7	70	3	30	0	0	0	0	5
		Gylli	10	0	0	3	30	2	20	5	50	14	7	70	3	30	0	0	0	0	4
Jirapa	Tuggo	Tuggo	10	1	10	2	20	2	20	5	50	17	3	30	7	70	0	0	0	0	5
		Wulling	10	0	0	2	20	5	50	3	30	16	1	10	8	80	0	0	1	10	9
	Sigri	Sigri	10	0	0	8	80	2	20	0	0	9	6	60	4	40	0	0	0	0	4
		Tigboro	10	0	0	5	50	4	40	1	10	11	8	80	2	20	0	0	0	0	4
	Lambussie	Lambussie	10	0	0	5	50	5	50	0	0	11	7	70	3	30	0	0	0	0	4
		Sentu	10	0	0	4	40	1	10	5	50	14	7	70	2	20	0	0	1	10	5

District	Resp.	% of HH Size									% of Income Earners								
		<5		5-10		11-15		15<			<5		5-10		11-15		15<		
		No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	5	8	25	42	17	28	13	22	12	39	65	19	32	1	2	1	2	5
Nadowli	60	3	5	29	48	17	28	11	18	11	41	68	17	28	2	3	0	-	4
Jirapa	60	1	2	26	43	19	32	14	23	13	32	53	26	43	0	-	2	3	5
Total Area	180	9	5	80	44	53	29	38	21	12	112	62	62	34	3	2	3	2	5

Q2b. Income Source (%)

District	Op-Area	Village	Resp.	(A) Income from farm produce (%)											(B) Income from livestock (%)										
				<21		21-40		41-60		61-80		80<			<21		21-40		41-60		61-80		80<		
				No.	%	No.	%	No.	%	No.	%	No.	%	Av	No.	%	No.	%	No.	%	No.	%	No.	%	Av
Lawra	Babili	Tanchera	10	7	70	3	30	0	0	0	0	0	0	14	6	60	1	10	3	30	0	0	0	0	21
		Tongho	10	3	30	3	30	2	20	2	20	0	0	39	5	50	1	10	2	20	1	10	1	10	37
	Tom	Panyaan	10	8	80	0	0	0	0	1	10	1	10	19	4	40	2	20	1	10	2	20	1	10	34
		Kokodur	10	7	70	2	20	1	10	0	0	0	0	18	7	70	1	10	0	0	2	20	0	0	20
	Nandom	Kogle	10	9	90	0	0	0	0	0	0	1	10	11	8	80	1	10	1	10	0	0	0	0	12
		Puffien	10	10	100	0	0	0	0	0	0	0	0	5	9	90	1	10	0	0	0	0	0	0	6
Nadowli	Daffiama	Daffiama	10	6	60	3	30	0	0	0	0	1	10	20	5	50	3	30	1	10	1	10	0	0	22
		Guong	10	6	60	3	30	1	10	0	0	0	0	17	8	80	2	20	0	0	0	0	0	0	12
	Serekpere	Serekpere	10	7	70	0	0	3	30	0	0	0	0	21	8	80	1	10	0	0	1	10	0	0	11
		Guli	10	5	50	4	40	0	0	1	10	0	0	24	7	70	1	10	2	20	0	0	0	0	18
	Takpoe	Takpoe	10	7	70	1	10	0	0	1	10	1	10	20	7	70	1	10	0	0	1	10	1	10	27
		Gylli	10	3	30	2	20	3	30	2	20	0	0	41	7	70	2	20	1	10	0	0	0	0	16
Jirapa	Tuggo	Tuggo	10	7	70	1	10	1	10	0	0	1	10	23	6	60	3	30	1	10	0	0	0	0	15
		Wulling	10	9	90	1	10	0	0	0	0	0	0	8	10	100	0	0	0	0	0	0	0	0	7
	Sigri	Sigri	10	9	90	0	0	0	0	1	10	0	0	8	6	60	3	30	1	10	0	0	0	0	17
		Tigboro	10	3	30	3	30	1	10	3	30	0	0	40	8	80	0	0	1	10	1	10	0	0	17
	Lambussie	Lambussie	10	5	50	1	10	2	20	1	10	1	10	34	7	70	1	10	1	10	0	0	1	10	22
		Sentu	10	6	60	3	30	1	10	0	0	0	0	21	6	60	2	20	2	20	0	0	0	0	21

District	Resp.	(A) Income from farm produce (%)											(B) Income from livestock (%)										
		<21		21-40		41-60		61-80		80<			<21		21-40		41-60		61-80		80<		
		No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	
Lawra	60	44	73	8	13	3	5	3	5	2	3	18	39	65	7	12	7	12	5	8	2	3	22
Nadowli	60	34	57	13	22	7	12	4	7	2	3	24	42	70	10	17	4	7	3	5	1	2	18
Jirapa	60	39	65	9	15	5	8	5	8	2	3	22	43	72	9	15	6	10	1	2	1	2	16
Total	180	117	65	30	17	15	8	12	7	6	3	21	124	69	26	14	17	9	9	5	4	2	19

District	Op-Area	Village	Resp.	(C) Income from processed items (%)											(D) Income from casual labour (%)										
				<21		21-40		41-60		61-80		80<			<21		21-40		41-60		61-80		80<		
				No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	
Lawra	Babili	Tanchera	10	2	20	2	20	1	10	4	40	1	10	50	9	90	1	10	0	0	0	0	0	0	5
		Tongho	10	9	90	0	0	0	0	0	0	1	10	15	10	100	0	0	0	0	0	0	0	0	0
	Tom	Panyaan	10	6	60	1	10	2	20	1	10	0	0	22	9	90	1	10	0	0	0	0	0	0	4
		Kokodur	10	4	40	1	10	0	0	2	20	3	30	44	10	100	0	0	0	0	0	0	0	0	0
	Nandom	Kogle	10	4	40	1	10	0	0	1	10	4	40	49	9	90	0	0	0	0	1	10	0	0	8
		Puffien	10	2	20	2	20	0	0	2	20	4	40	56	10	100	0	0	0	0	0	0	0	0	0
Nadowli	Daffiama	Daffiama	10	4	40	1	10	3	30	1	10	1	10	34	9	90	0	0	0	0	1	10	0	0	9
		Guong	10	0	0	0	0	6	60	3	30	1	10	63	10	100	0	0	0	0	0	0	0	0	2
	Serekpere	Serekpere	10	4	40	2	20	1	10	0	0	3	30	43	9	90	1	10	0	0	0	0	0	0	2
		Guli	10	3	30	5	50	2	20	0	0	0	0	26	8	80	1	10	0	0	1	10	0	0	10
	Takpoe	Takpoe	10	3	30	1	10	2	20	2	20	2	20	45	0	0	0	0	0	0	0	0	0	0	0
		Gylli	10	3	30	3	30	3	30	1	10	0	0	35	0	0	0	0	0	0	0	0	0	0	1
Jirapa	Tuggo	Tuggo	10	5	50	0	0	1	10	1	10	3	30	38	9	90	1	10	0	0	0	0	0	0	5
		Wulling	10	0	0	1	10	2	20	2	20	5	50	72	10	100	0	0	0	0	0	0	0	0	3
	Sigri	Sigri	10	2	20	1	10	0	0	3	30	4	40	62	10	100	0	0	0	0	0	0	0	0	2
		Tigboro	10	8	80	0	0	1	10	1	10	0	0	18	9	90	1	10	0	0	0	0	0	0	3
	Lambussie	Lambusie	10	7	70	1	10	1	10	0	0	1	10	21	10	100	0	0	0	0	0	0	0	0	0
		Sentu	10	3	30	2	20	2	20	3	30	0	0	43	9	90	1	10	0	0	0	0	0	0	4

District	Resp.	(C) Income from processed items (%)											(D) Income from casual labour (%)										
		<21		21-40		41-60		61-80		80<			<21		21-40		41-60		61-80		80<		
		No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	Av
Lawra	60	27	45	7	12	3	5	10	17	13	22	39	57	95	2	3	0	0	1	2	0	0	3
Nadowli	60	17	28	12	20	17	28	7	12	7	12	41	36	60	2	3	0	0	2	3	0	0	4
Jirapa	60	25	42	5	8	7	12	10	17	13	22	42	57	95	3	5	0	0	0	0	0	0	3
Total	180	69	38	24	13	27	15	27	15	33	18	41	150	83	7	4	0	0	3	2	0	0	3

District	Op-Area	Village	Resp.	(E) Income from migrant labour (%)											(F) Other sources of income (%)										
				<21		21-40		41-60		61-80		80<			<21		21-40		41-60		61-80		80<		
				No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	Av
Lawra	Babili	Tanchera	10	9	90	1	10	0	0	0	0	0	0	6	9	90	1	10	0	0	0	0	0	0	3
		Tongho	10	9	90	1	10	0	0	0	0	0	0	5	10	100	0	0	0	0	0	0	0	0	2
	Tom	Panyaan	10	10	100	0	0	0	0	0	0	0	0	0	8	80	0	0	0	0	0	0	2	20	20
		Kokodur	10	7	70	1	10	0	0	1	10	1	10	19	10	100	0	0	0	0	0	0	0	0	0
	Nandom	Kogle	10	10	100	0	0	0	0	0	0	0	0	1	9	90	0	0	0	0	0	0	1	10	9
		Puffien	10	8	80	1	10	0	0	0	0	1	10	14	7	70	1	10	0	0	1	10	1	10	19
Nadowli	Daffiama	Daffiama	10	0	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	0	0	0	0	4
		Guong	10	9	90	1	10	0	0	0	0	0	0	5	9	90	1	10	0	0	0	0	0	0	2
	Serekpere	Serekpere	10	7	70	0	0	1	10	1	10	0	0	15	9	90	0	0	0	0	1	10	0	0	7
		Guli	10	9	90	0	0	1	10	0	0	0	0	8	8	80	1	10	0	0	0	0	1	10	15
	Takpoe	Takpoe	10	9	90	0	0	1	10	0	0	0	0	4	9	90	0	0	0	0	0	0	1	10	10
		Gylli	10	10	100	0	0	0	0	0	0	0	0	1	9	90	0	0	1	10	0	0	0	0	6
Jirapa	Tuggo	Tuggo	10	7	70	2	20	0	0	0	0	1	10	17	10	100	0	0	0	0	0	0	0	0	2
		Wulling	10	8	80	2	20	0	0	0	0	0	0	10	10	100	0	0	0	0	0	0	0	0	0
	Sigri	Sigri	10	7	70	3	30	0	0	0	0	0	0	10	10	100	0	0	0	0	0	0	0	0	0
		Tigboro	10	8	80	1	10	1	10	0	0	0	0	10	10	100	0	0	0	0	0	0	0	0	1
	Lambussie	Lambusie	10	10	100	0	0	0	0	0	0	0	0	0	7	70	0	0	1	10	1	10	1	10	23
		Sentu	10	8	80	1	10	0	0	1	10	0	0	11	10	100	0	0	0	0	0	0	0	0	1

District	Resp.	(E) Income from migrant labour (%)											(F) Other sources of income (%)										
		<21		21-40		41-60		61-80		80<		Av.	<21		21-40		41-60		61-80		80<		Av
		No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	
Lawra	60	53	88	4	7	0	0	1	2	2	3	8	53	88	2	3	0	0	1	2	4	7	9
Nadowli	60	44	73	1	2	3	5	1	2	0	0	5	44	73	3	5	1	2	1	2	2	3	7
Jirapa	60	48	80	9	15	1	2	1	2	1	2	10	57	95	0	0	1	2	1	2	1	2	5
Total	180	145	81	14	8	4	2	3	2	3	2	8	154	86	5	3	2	1	3	2	7	4	7

Q3a, 3b and 3c. Land Holding (%)

District	Op-Area	Village	Resp.	Potential Cultivable Land size											Actual size being Cultivated										
				<5.9		6-10.9		11-15.9		16-20.9		20.9<			<0.9		1-1.9		2-2.9		3-3.9		4<		
				No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	Babili	Tanchera	10	5	50	5	50	0	0	0	0	0	0	5	0	0	1	10	3	30	2	20	4	40	4
		Tongho	10	4	40	3	30	2	20	1	10	0	0	8	0	0	1	10	0	0	3	30	6	60	5
	Tom	Panyaan	10	7	70	3	30	0	0	0	0	0	0	5	1	10	2	20	0	0	4	40	3	30	3
		Kokodur	10	4	40	4	40	2	20	0	0	0	0	6	2	20	1	10	0	0	0	0	7	70	4
	Nandom	Kogle	10	8	80	2	20	0	0	0	0	0	0	4	0	0	3	30	2	20	4	40	1	10	3
		Puffien	10	7	70	3	30	0	0	0	0	0	0	5	0	0	3	30	3	30	1	10	3	30	3
Nadowli	Daffiama	Daffiama	10	5	50	2	20	1	10	0	0	2	20	11	0	0	4	40	2	20	1	10	3	30	3
		Guong	10	2	20	6	60	1	10	0	0	1	10	9	0	0	1	10	0	0	0	0	9	90	5
	Serekpere	Serekpere	10	1	10	3	30	1	10	1	10	4	40	20	0	0	0	0	2	20	3	30	5	50	5
		Guli	10	1	10	9	90	0	0	0	0	0	0	7	0	0	1	10	2	20	2	20	5	50	4
	Takpoe	Takpoe	10	2	20	6	60	1	10	1	10	0	0	9	0	0	0	0	2	20	2	20	6	60	4
		Gylli	10	1	10	3	30	3	30	1	10	2	20	24	0	0	0	0	0	0	1	10	9	90	6
Jirapa	Tuggo	Tuggo	10	7	70	3	30	0	0	0	0	0	0	5	0	0	3	30	4	40	2	20	1	10	2
		Wulling	10	6	60	4	40	0	0	0	0	0	0	6	0	0	1	10	5	50	1	10	3	30	4
	Sigri	Sigri	10	6	60	3	30	0	0	1	10	0	0	6	3	30	2	20	4	40	1	10	0	0	2
		Tigboro	10	7	70	2	20	1	10	0	0	0	0	5	0	0	1	10	2	20	3	30	4	40	4
Lambusie	Lambusie	Lambusie	10	3	30	6	60	0	0	0	0	1	10	9	0	0	2	20	3	30	3	30	2	20	3
		Sentu	10	3	30	5	50	1	10	0	0	1	10	11	0	0	0	0	1	10	2	20	7	70	5

District	Resp.	Potential Cultivable Land size											Actual size being Cultivated										
		<5.9		6-10.9		11-15.9		16-20.9		20.9<			<0.9		1-1.9		2-2.9		3-3.9		4<		
		No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	35	58	20	33	4	7	1	2	0	0	6	3	5	11	18	8	13	14	23	24	40	4
Nadowli	60	12	20	29	48	7	12	3	5	9	15	13	0	0	6	10	8	13	9	15	37	62	5
Jirapa	60	32	53	23	38	2	3	1	2	2	3	7	3	5	9	15	19	32	12	20	17	28	3
Total	180	79	44	72	40	13	7	5	3	11	6	9	6	3	26	14	35	19	35	19	78	43	4

District	Op-Area	Village	Resp.	Irrigable									
				<5.9		6-10.9		11-15.9		16-20.9		20.9<	
				No.	%	No.	%	No.	%	No.	%	No.	%
	Babili	Tanchera	10	0	0	0	0	0	0	0	0	0	0
		Tongho	10	0	0	0	0	0	0	0	0	0	0
Lawra	Tom	Panyaan	10	0	0	0	0	0	0	0	0	0	0
		Kokodur	10	0	0	0	0	0	0	0	0	0	0
	Nandom	Kogle	10	0	0	0	0	0	0	0	0	0	0
		Puffien	10	0	0	0	0	0	0	0	0	0	0
Nadowli	Daffiama	Daffiama	10	0	0	0	0	0	0	0	0	0	0
		Guong	10	0	0	0	0	0	0	0	0	0	0
	Serekpere	Serekpere	10	0	0	0	0	0	0	0	0	0	0
		Guli	10	0	0	0	0	0	0	0	0	0	0
	Takpoe	Takpoe	10	0	0	0	0	0	0	0	0	0	0
		Gylli	10	0	0	0	0	0	0	0	0	0	0
Jirapa	Tuggo	Tuggo	10	0	0	0	0	0	0	0	0	0	0
		Wulling	10	0	0	0	0	0	0	0	0	0	0
	Sigri	Sigri	10	0	0	0	0	0	0	0	0	0	0
		Tigboro	10	0	0	0	0	0	0	0	0	0	0
Lambusie	Lambusie	Lambusie	10	0	0	0	0	0	0	0	0	0	0
		Sentu	10	0	0	0	0	0	0	0	0	0	0

District	Resp.	Irrigable									
		<5.9		6-10.9		11-15.9		16-20.9		20.9<	
		No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	60	0	0	0	0	0	0	0	0	0	0
Nadowli	60	0	0	0	0	0	0	0	0	0	0
Jirapa	60	0	0	0	0	0	0	0	0	0	0
Total	180	0	0	0	0	0	0	0	0	0	0

Q3d, 3e and 4a. Fertility, Rainfall and Yield in previous season (%)

District	Op-Area	Village	Resp.	Fertility Status								Rainfall Pattern								Sorghum Yield in previous year (Bags)												
				High		Medium		Low		Poor		High		Medium		Low		Poor		<1		1-1.9		2-2.9		3-3.9		>3.9			
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
	Babili	Tanchera	10	0	0	1	10	6	60	3	30	0	0	1	10	6	60	3	30	8	80	2	20	0	0	0	0	0	0	0
		Tongho	10	0	0	3	30	7	70	0	0	0	0	3	30	7	70	1	10	5	50	3	30	0	0	0	0	1	10	1
Lawra	Tom	Panyaan	10	0	0	1	10	7	70	2	20	0	0	0	0	6	60	4	40	9	90	0	-	1	10	0	0	0	0	1
		Kokodur	10	0	0	0	0	7	70	3	30	0	0	0	0	5	50	5	50	7	70	1	10	0	0	2	20	0	0	1
	Nandom	Kogle	10	0	0	0	0	9	90	1	10	0	0	0	0	6	60	4	40	9	90	1	10	0	0	0	0	0	0	1
		Puffien	10	0	0	1	10	7	70	2	20	0	0	0	0	0	-	10	100	8	80	2	20	0	0	0	0	0	0	0
Nadowli	Daffiama	Daffiama	10	0	0	2	20	4	40	4	40	0	0	3	30	3	30	4	40	9	90	1	10	0	0	0	0	0	0	0
		Guong	10	0	0	1	10	6	60	3	30	0	0	0	0	3	30	7	70	9	90	1	10	0	0	0	0	0	0	0
	Serekpere	Serekpere	10	0	0	1	10	3	30	6	60	0	0	1	10	1	10	8	80	10	100	0	-	0	0	0	0	0	0	0
		Guli	10	0	0	1	10	9	90	0	0	0	0	1	10	3	30	6	60	10	100	0	-	0	0	0	0	0	0	0
	Takpoe	Takpoe	10	0	0	0	0	5	50	5	50	0	0	1	10	3	30	6	60	9	90	1	10	0	0	0	0	0	0	0
		Gylli	10	0	0	1	10	8	80	1	10	0	0	0	0	2	20	8	80	10	100	0	-	0	0	0	0	0	0	0
Jirapa	Tuggo	Tuggo	10	0	0	0	0	6	60	4	40	0	0	0	0	4	40	6	60	6	60	4	40	0	0	0	0	0	0	1
		Wulling	10	0	0	0	0	4	40	6	60	0	0	0	0	5	50	5	50	10	100	0	-	0	0	0	0	0	0	0
	Sigri	Sigri	10	0	0	1	10	6	60	3	30	0	0	1	10	2	20	7	70	9	90	1	10	0	0	0	0	0	0	1
		Tigboro	10	0	0	4	40	6	60	0	0	0	0	0	0	8	80	2	20	8	80	2	20	0	0	0	0	0	0	1
Lambusie	Lambussie	Lambusie	10	0	0	5	50	5	50	0	0	0	0	0	0	6	60	4	40	9	90	0	-	1	10	0	0	0	0	0
		Sentu	10	0	0	3	30	7	70	0	0	0	0	0	0	6	60	4	40	9	90	1	10	0	0	0	0	0	0	1

District	Resp.	Fertility Status								Rainfall Pattern								Sorghum Yield/ ha in previous year										
		High		Medium		Low		Poor		High		Medium		Low		Poor		<1		1-1.9		2-2.9		3-3.9		>3.9		
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	0	0	6	10	43	72	11	18	0	0	4	7	30	50	27	45	46	77	9	15	1	2	2	3	1	2	1
Nadowli	60	0	0	6	10	35	58	19	32	0	0	6	10	15	25	39	65	57	95	3	5	0	0	0	0	0	0	0
Jirapa	60	0	0	13	22	34	57	13	22	0	0	1	2	31	52	28	47	51	85	8	13	1	2	0	0	0	0	1
Total	180	0	0	25	14	112	62	43	24	0	0	11	6	76	42	94	52	154	86	20	11	2	1	2	1	1	1	1

A. PRODUCTION OF MAIN CROPS

1. Production of Sorghum (Area Cultivate, Total Yeild)

District	Op-Area	Village	Resp.	Sorghum																											
				Area cultivated (ha)														Total yield (bag/ha)														
				<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<				<2		2-3.9		4-5.9		6-7.9		8-10		10<			
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	
Lawra	Babili	Tanchera	10	3	30	3	30	3	30	0	0	1	10	0	0	1		3	30	5	50	1	10	1	10	0	0	0	0	3	
		Tongho	10	0	0	5	50	5	50	0	0	0	0	0	0	1		1	10	4	40	4	40	0	0	1	10	0	0	4	
	Tom	Panyaan	10	0	0	1	10	2	20	1	10	4	40	2	20	1		2	20	5	50	2	20	0	0	0	0	1	10	5	
		Kokodur	10	3	30	1	10	0	0	0	0	2	20	4	40	1		3	30	4	40	2	20	1	10	0	0	0	0	3	
	Nandom	Kogle	10	0	0	2	20	4	40	1	10	0	0	3	30	1		3	30	5	50	1	10	1	10	0	0	0	0	3	
		Puffien	10	2	20	3	30	3	30	1	10	0	0	1	10	1		4	40	5	50	0	0	1	10	0	0	0	0	2	
Nadowli	Daffiama	Daffiama	10	3	30	2	20	2	20	0	0	1	10	2	20	1		7	70	1	10	1	10	1	10	0	0	0	0	2	
		Guong	10	1	10	2	20	2	20	0	0	2	20	3	30	1		7	70	3	30	0	0	0	0	0	0	0	0	1	
	Serekpere	Serekpere	10	0	0	0	0	4	40	0	0	2	20	4	40	1		8	80	1	10	1	10	0	0	0	0	0	0	1	
		Guli	10	2	20	5	50	1	10	0	0	1	10	1	10	1		4	40	6	60	0	0	0	0	0	0	0	0	2	
	Takpoe	Takpoe	10	1	10	2	20	3	30	0	0	2	20	2	20	1		8	80	2	20	0	0	0	0	0	0	0	0	1	
		Gylli	10	0	0	2	20	5	50	0	0	2	20	1	10	1		7	70	3	30	0	0	0	0	0	0	0	0	1	
Jirapa	Tuggo	Tuggo	10	3	30	2	20	2	20	0	0	1	10	2	20	1		6	60	0	0	1	10	2	20	0	0	1	10	5	
		Wulling	10	2	20	3	30	3	30	0	0	1	10	1	10	1		6	60	2	20	1	10	1	10	0	0	0	0	2	
	Sigri	Sigri	10	1	10	5	50	3	30	0	0	1	10	0	0	1		2	20	5	50	2	20	1	10	0	0	0	0	3	
		Tigboro	10	4	40	0	0	3	30	0	0	2	20	1	10	1		5	50	4	40	0	0	1	10	0	0	0	0	2	
	Lambusie	Lambusie	10	6	60	2	20	1	10	0	0	0	0	1	10	0		6	60	1	10	1	10	1	10	0	0	1	10	3	
		Sentu	10	0	0	0	0	2	20	0	0	0	0	8	80	2		0	0	6	60	3	30	0	0	1	10	0	0	4	

District

District	Resp.	Sorghum																													
		Area cultivated (ha)																Total yield (bag/ha)													
		<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<				<2		2-3.9		4-5.9		6-7.9		8-10		10<			
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	
Lawra	60	8	13	15	25	17	28	3	5	7	12	10	17	1		16	27	28	47	10	17	4	7	1	2	1	2	3	
Nadowli	60	7	12	13	22	17	28	0	0	10	17	13	22	1		41	68	16	27	2	3	1	2	0	0	0	0	1	
Jirapa	60	16	27	12	20	14	23	0	0	5	8	13	22	1		25	42	18	30	8	13	6	10	1	2	2	3	3	
Total	180	31	17	40	22	48	27	3	2	22	12	36	20	1		82	46	62	34	20	11	11	6	2	1	3	2	3	

2. Production of Millet (Area Cultivate, Total Yeild)

District	Op-Area	Village	Resp.	Millet																											
				Area cultivated (ha)														Total yield (bag/ha)													
				<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<				<2		2-3.9		4-5.9		6-7.9		8-10		10<			
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	
Lawra	Babili	Tanchera	10	2	20	4	40	2	20	1	10	1	10	0	0	1		4	40	5	50	1	10	0	0	0	0	0	0	2	
		Tongho	10	2	20	6	60	2	20	0	0	0	0	0	0	0		3	30	6	60	0	0	1	10	0	0	0	0	3	
	Tom	Panyaan	10	3	30	1	10	2	20	1	10	2	20	1	10	1		5	50	5	50	0	0	0	0	0	0	0	0	2	
		Kokodur	10	3	30	1	10	3	30	0	0	1	10	2	20	1		3	30	5	50	2	20	0	0	0	0	0	0	3	
	Nandom	Kogle	10	3	30	2	20	4	40	0	0	1	10	0	0	1		5	50	3	30	2	20	0	0	0	0	0	0	2	
		Puffien	10	4	40	4	40	2	20	0	0	0	0	0	0	0		8	80	2	20	0	0	0	0	0	0	0	0	1	
Nadowli	Daffiama	Daffiama	10	5	50	3	30	1	10	0	0	0	0	1	10	0		8	80	0	0	2	20	0	0	0	0	0	0	1	
		Guong	10	2	20	1	10	7	70	0	0	0	0	0	0	1		6	60	2	20	1	10	0	0	0	0	1	10	3	
	Serekpere	Serekpere	10	5	50	2	20	1	10	0	0	1	10	1	10	0		9	90	1	10	0	0	0	0	0	0	0	0	1	
		Guli	10	6	60	2	20	2	20	0	0	0	0	0	0	0		6	60	2	20	2	20	0	0	0	0	0	0	2	
	Takpoe	Takpoe	10	3	30	2	20	2	20	0	0	3	30	0	0	1		10	100	0	0	0	0	0	0	0	0	0	0	1	
		Gylli	10	0	0	3	30	5	50	0	0	1	10	1	10	1		8	80	1	10	1	10	0	0	0	0	0	0	2	
Jirapa	Tuggo	Tuggo	10	2	20	1	10	3	30	0	0	1	10	3	30	2		3	30	4	40	1	10	1	10	0	0	1	10	5	
		Wulling	10	4	40	3	30	1	10	0	0	1	10	1	10	0		7	70	1	10	0	0	2	20	0	0	0	0	2	
	Sigri	Sigri	10	3	30	0	0	3	30	1	10	1	10	2	20	1		7	70	3	30	0	0	0	0	0	0	0	0	1	
		Tigboro	10	4	40	0	0	3	30	2	20	1	10	0	0	1		9	90	0	0	1	10	0	0	0	0	0	0	1	
	Lambusie	Lambusie	10	8	80	1	10	1	10	0	0	0	0	0	0	0		7	70	1	10	1	10	1	10	0	0	0	0	1	
		Sentu	10	2	20	2	20	4	40	0	0	0	0	2	20	1		5	50	3	30	1	10	0	0	0	0	1	10	3	

District	Resp.	Millet																											
		Area cultivated (ha)													Total yield (bag/ha)														
		<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<			<2		2-3.9		4-5.9		6-7.9		8-10		10<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			Av.
Lawra	60	17	28	18	30	15	25	2	3	5	8	3	5	1	28	47	26	43	5	8	1	2	0	0	0	0			2
Nadowli	60	21	35	13	22	18	30	0	0	5	8	3	5	1	47	78	6	10	6	10	0	0	0	0	1	2			1
Jirapa	60	23	38	7	12	15	25	3	5	4	7	8	13	1	38	63	12	20	4	7	4	7	0	0	2	3			2
Total	180	61	34	38	21	48	27	5	3	14	8	14	8	1	113	63	44	24	15	8	5	3	0	0	3	2			2

3. Production of Maize (Area Cultivate, Total Yeild)

District	Op-Area	Village	Resp.	Maize																									
				Area cultivated (ha)													Total yield (bag/ha)												
				<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<			<2		2-3.9		4-5.9		6-7.9		8-10		10<			
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		Av.
Lawra	Babili	Tanchera	10	0	0	4	40	2	20	0	0	3	30	1	10	1	3	30	3	30	4	40	0	0	0	0	0	0	3
		Tongho	10	2	20	4	40	3	30	1	10	0	0	0	0	1	2	20	4	40	2	20	1	10	1	10	0	0	4
	Tom	Panyaan	10	3	30	3	30	3	30	0	0	1	10	0	0	1	4	40	4	40	2	20	0	0	0	0	0	0	2
		Kokodur	10	4	40	0	0	4	40	1	10	0	0	1	10	1	5	50	0	0	1	10	3	30	0	0	1	10	4
	Nandom	Kogle	10	5	50	2	20	2	20	0	0	0	0	1	10	0	5	50	5	50	0	0	0	0	0	0	0	0	1
		Puffien	10	3	30	3	30	2	20	1	10	1	10	0	0	1	2	20	2	20	1	10	0	0	2	20	3	30	9
Nadowli	Daffiama	Daffiama	10	1	10	4	40	3	30	1	10	1	10	0	0	1	2	20	0	0	2	20	2	20	3	30	1	10	7
		Guong	10	5	50	2	20	3	30	0	0	0	0	0	0	0	5	50	2	20	2	20	0	0	1	10	0	0	3
	Serekpere	Serekpere	10	2	20	4	40	3	30	0	0	0	0	1	10	1	7	70	1	10	1	10	0	0	1	10	0	0	2
		Guli	10	3	30	5	50	2	20	0	0	0	0	0	0	0	1	10	2	20	4	40	1	10	1	10	1	10	6
	Takpoe	Takpoe	10	4	40	4	40	1	10	0	0	0	0	1	10	0	4	40	3	30	3	30	0	0	0	0	0	0	3
		Gylli	10	1	10	7	70	1	10	0	0	1	10	0	0	1	5	50	2	20	1	10	1	10	1	10	0	0	3
Jirapa	Tuggo	Tuggo	10	0	0	1	10	6	60	0	0	2	20	1	10	1	0	0	1	10	1	10	3	30	1	10	4	40	12
		Wulling	10	1	10	2	20	3	30	0	0	2	20	2	20	1	5	50	2	20	2	20	1	10	0	0	0	0	2
	Sigri	Sigri	10	7	70	1	10	2	20	0	0	0	0	0	0	0	5	50	1	10	2	20	0	0	1	10	1	10	4
		Tigboro	10	3	30	4	40	1	10	0	0	1	10	1	10	1	3	30	4	40	1	10	2	20	0	0	0	0	3
	Lambusie	Lambusie	10	0	0	3	30	2	20	2	20	0	0	3	30	1	4	40	1	10	2	20	1	10	0	0	2	20	5
		Sentu	10	2	20	5	50	2	20	0	0	1	10	0	0	0	4	40	2	20	1	10	1	10	2	20	0	0	4

District	Resp.	Maize																											
		Area cultivated (ha)													Total yield (bag/ha)														
		<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<			<2		2-3.9		4-5.9		6-7.9		8-10		10<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%			Av.
Lawra	60	17	28	16	27	16	27	3	5	5	8	3	5	1	21	35	18	30	10	17	4	7	3	5	4	7			4
Nadowli	60	16	27	26	43	13	22	1	2	2	3	2	3	0	24	40	10	17	13	22	4	7	7	12	2	3			4
Jirapa	60	13	22	16	27	16	27	2	3	6	10	7	12	1	21	35	11	18	9	15	8	13	4	7	7	12			5
Total	180	46	26	58	32	45	25	6	3	13	7	12	7	1	66	37	39	22	32	18	16	9	14	8	13	7			4

4. Production of Groundnuts (Area Cultivate, Total Yeild)

District	Op-Area	Village	Resp.	Groundnut																									
				Area cultivated (ha)													Total yield (bag/ha)												
				<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<			<2		2-3.9		4-5.9		6-7.9		8-10		10<			
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		Av.
Lawra	Babili	Tanchera	10	0	0	4	40	3	30	0	0	1	10	2	20	1	1	10	2	20	2	20	3	30	1	10	1	10	6
		Tongho	10	1	10	3	30	6	60	0	0	0	0	0	0	1	0	0	4	40	2	20	2	20	0	0	2	20	7
	Tom	Panyaan	10	4	40	0	0	6	60	0	0	0	0	0	0	1	3	30	2	20	0	0	2	20	0	0	3	30	6
		Kokodur	10	3	30	2	20	4	40	0	0	1	10	0	0	1	0	0	2	20	5	50	3	30	0	0	0	0	5
	Nandom	Kogle	10	3	30	5	50	1	10	1	10	0	0	0	0	0	3	30	5	50	0	0	0	0	2	20	0	0	4
		Puffien	10	2	20	3	30	5	50	0	0	0	0	0	0	0	1	10	2	20	1	10	0	0	2	20	4	40	12
Nadowli	Daffiama	Daffiama	10	2	20	3	30	3	30	0	0	2	20	0	0	1	1	10	2	20	3	30	1	10	1	10	2	20	9
		Guong	10	0	0	0	0	3	30	0	0	2	20	5	50	2	1	10	2	20	5	50	2	20	0	0	0	0	5
	Serekpere	Serekpere	10	1	10	2	20	1	10	0	0	1	10	5	50	2	2	20	2	20	2	20	2	20	1	10	1	10	6
		Guli	10	0	0	1	10	4	40	0	0	2	20	3	30	1	1	10	0	0	0	0	2	20	2	20	5	50	14
	Takpoe	Takpoe	10	0	0	2	20	2	20	0	0	2	20	4	40	1	0	0	2	20	5	50	1	10	1	10	1	10	6
		Gylli	10	0	0	1	10	2	20	0	0	2	20	5	50	2	0	0	2	20	1	10	2	20	2	20	3	30	9
Jirapa	Tuggo	Tuggo	10	0	0	1	10	1	10	0	0	5	50	3	30	2	0	0	1	10	0	0	1	10	2	20	6	60	14
		Wulling	10	1	10	1	10	3	30	0	0	0	0	5	50	1	2	20	2	20	1	10	1	10	3	30	1	10	6
	Sigri	Sigri	10	2	20	2	20	4	40	0	0	2	20	0	0	1	2	20	3	30	0	0	1	10	1	10	3	30	7
		Tigboro	10	0	0	2	20	4	40	0	0	2	20	2	20	1	0	0	0	0	4	40	1	10	1	10	4	40	11
Lambusse	Lambusie	Lambusie	10	4	40	3	30	3	30	0	0	0	0	0	0	0	4	40	1	10	3	30	0	0	0	0	2	20	5
		Sentu	10	0	0	3	30	6	60	0	0	0	0	1	10	1	0	0	2	20	0	0	2	20	4	40	2	20	10

District	Resp.	Groundnut																											
		Area cultivated (ha)													Total yield (bag/ha)														
		<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<			<2		2-3.9		4-5.9		6-7.9		8-10		10<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	13	22	17	28	25	42	1	2	2	3	2	3	1	8	13	17	28	10	17	10	17	5	8	10	17	7
Nadowli	60	3	5	9	15	15	25	0	0	11	18	22	37	1	5	8	10	17	16	27	10	17	7	12	12	20	8
Jirapa	60	7	12	12	20	21	35	0	0	9	15	11	18	1	8	13	9	15	8	13	6	10	11	18	18	30	9
Total	180	23	13	38	21	61	34	1	1	22	12	35	19	1	21	12	36	20	34	19	26	14	23	13	40	22	8

5. Production of Cowpea (Area Cultivate, Total Yeild)

District	Op-Area	Village	Resp.	Cowpea																									
				Area cultivated (ha)													Total yield (bag/ha)													
				<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<			<2		2-3.9		4-5.9		6-7.9		8-10		10<			
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	Babili	Tanchera	10	3	30	5	50	2	20	0	0	0	0	0	0	0	8	80	2	20	0	0	0	0	0	0	0	0	1
		Tongho	10	4	40	3	30	2	20	1	10	0	0	0	0	0	8	80	0	0	1	10	1	10	0	0	0	0	1
	Tom	Panyaan	10	9	90	1	10	0	0	0	0	0	0	0	0	0	8	80	2	20	0	0	0	0	0	0	0	0	1
		Kokodur	10	6	60	0	0	3	30	0	0	0	0	1	10	0	8	80	1	10	0	0	0	0	1	10	0	0	1
	Nandom	Kogle	10	5	50	3	30	0	0	0	0	0	0	2	20	1	8	80	2	20	0	0	0	0	0	0	0	0	1
		Puffien	10	3	30	3	30	4	40	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	1
Nadowli	Daffiama	Daffiama	10	4	40	2	20	2	20	0	0	0	0	2	20	1	6	60	2	20	2	20	0	0	0	0	0	0	2
		Guong	10	0	0	1	10	6	60	1	10	1	10	1	10	1	1	10	7	70	2	20	0	0	0	0	0	0	3
	Serekpere	Serekpere	10	0	0	1	10	5	50	1	10	2	20	1	10	1	6	60	3	30	1	10	0	0	0	0	0	0	2
		Guli	10	2	20	2	20	4	40	0	0	2	20	0	0	1	2	20	4	40	3	30	0	0	1	10	0	0	4
	Takpoe	Takpoe	10	1	10	5	50	2	20	0	0	2	20	0	0	1	6	60	4	40	0	0	0	0	0	0	0	0	2
		Gylli	10	0	0	2	20	6	60	0	0	0	0	2	20	1	8	80	2	20	0	0	0	0	0	0	0	0	1
Jirapa	Tuggo	Tuggo	10	4	40	2	20	2	20	0	0	2	20	0	0	0	4	40	3	30	3	30	0	0	0	0	0	0	2
		Wulling	10	2	20	3	30	5	50	0	0	0	0	0	0	1	7	70	2	20	0	0	0	0	1	10	0	0	2
	Sigri	Sigri	10	2	20	3	30	1	10	1	10	1	10	2	20	1	7	70	3	30	0	0	0	0	0	0	0	0	1
		Tigboro	10	1	10	5	50	2	20	0	0	1	10	1	10	1	4	40	4	40	2	20	0	0	0	0	0	0	2
Lambussie	Lambusie	Lambusie	10	6	60	2	20	1	10	1	10	0	0	0	0	0	7	70	0	0	3	30	0	0	0	0	0	0	2
		Sentu	10	4	40	4	40	0	0	0	0	1	10	1	10	1	2	20	5	50	1	10	0	0	1	10	1	10	4

District	Resp.	Cowpea																											
		Area cultivated (ha)													Total yield (bag/ha)														
		<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<			<2		2-3.9		4-5.9		6-7.9		8-10		10<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	30	50	15	25	11	18	1	2	0	0	3	5	0	50	83	7	12	1	2	1	2	1	2	0	0	1
Nadowli	60	7	12	13	22	25	42	2	3	7	12	6	10	1	29	48	22	37	8	13	0	0	1	2	0	0	2
Jirapa	60	19	32	19	32	11	18	2	3	5	8	4	7	1	31	52	17	28	9	15	0	0	2	3	1	2	2
Total	180	56	31	47	26	47	26	5	3	12	7	13	7	1	110	61	46	26	18	10	1	1	4	2	1	1	2

6. Production of Yam (Area Cultivate, Total Yeild)

District	Op-Area	Village	Resp.	Yam																									
				Area cultivated (ha)													Total yield (bag/ha)													
				<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<			NR		<50		50-99		100-149		150-199		200-249		>250		
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	Babili	Tanchera	10	8	80	1	10	1	10	0	0	0	0	0	0	0.19	3	30	2	20	2	20	1	10	1	10	0	0	1	10	1079
		Tongho	10	10	100	0	0	0	0	0	0	0	0	0	0	0.08	0	0	5	50	2	20	2	20	0	0	0	0	1	10	700
	Tom	Panyaan	10	9	90	1	10	0	0	0	0	0	0	0	0	0.09	0	0	9	90	1	10	0	0	0	0	0	0	0	0	80
		Kokodur	10	10	100	0	0	0	0	0	0	0	0	0	0	0.08	0	0	5	50	3	30	0	0	1	10	0	0	1	10	658
	Nandom	Kogle	10	7	70	2	20	1	10	0	0	0	0	0	0	0.19	0	0	6	60	2	20	2	20	0	0	0	0	0	0	389
		Puffien	10	10	100	0	0	0	0	0	0	0	0	0	0	0.05	0	0	7	70	1	10	1	10	0	0	0	0	1	10	484
Nadowli	Daffiama	Daffiama	10	8	80	2	20	0	0	0	0	0	0	0	0	0.10	0	0	6	60	0	0	1	10	3	30	0	0	0	0	612
		Guong	10	8	80	1	10	1	10	0	0	0	0	0	0	0.20	0	0	5	50	2	20	0	0	1	10	1	10	1	10	935
	Serekpere	Serekpere	10	7	70	3	30	0	0	0	0	0	0	0	0	0.17	3	30	1	10	4	40	0	0	2	20	0	0	0	0	752
		Guli	10	7	70	3	30	0	0	0	0	0	0	0	0	0.16	6	60	1	10	1	10	1	10	1	10	0	0	0	0	925
	Takpoe	Takpoe	10	9	90	1	10	0	0	0	0	0	0	0	0	0.14	0	0	2	20	2	20	1	10	2	20	2	20	1	10	1256
		Gylli	10	4	40	5	50	1	10	0	0	0	0	0	0	0.36	0	0	1	10	4	40	1	10	2	20	1	10	1	10	1240
Jirapa	Tuggo	Tuggo	10	6	60	3	30	1	10	0	0	0	0	0	0	0.22	3	30	3	30	2	20	0	0	1	10	1	10	0	0	769
		Wulling	10	10	100	0	0	0	0	0	0	0	0	0	0	0.09	6	60	0	0	2	20	2	20	0	0	0	0	0	0	863
	Sigri	Sigri	10	9	90	1	10	0	0	0	0	0	0	0	0	0.07	6	60	0	0	1	10	2	20	0	0	1	10	0	0	1372
		Tigboro	10	10	100	0	0	0	0	0	0	0	0	0	0	0.04	5	50	0	0	1	10	3	30	1	10	0	0	0	0	1100
Lambussie	Lambusie	Lambusie	10	8	80	1	10	1	10	0	0	0	0	0	0	0.22	3	30	0	0	1	10	3	30	0	0	1	10	1	10	1636
		Sentu	10	7	70	2	20	1	10	0	0	0	0	0	0	0.23	1	10	0	0	1	10	4	40	1	10	2	20	1	10	1673

District	Resp.	Yam																													
		Area cultivated (ha)													Total yield (Tubers)																
		<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<			NR		<50		50-99		1oo-149		150-199		200-249		>250			
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	
Lawra	60	54	90	4	7	2	3	0	0	0	0	0	0	0.11	3	5	34	57	11	18	6	10	2	3	0	0	4	7	538
Nadowli	60	43	72	15	25	2	3	0	0	0	0	0	0	0.19	9	15	16	27	13	22	4	7	11	18	4	7	3	5	969
Jirapa	60	50	83	7	12	3	5	0	0	0	0	0	0	0.15	24	40	3	5	8	13	14	23	3	5	5	8	2	3	1287
Total	180	147	82	26	14	7	4	0	0	0	0	0	0	0.15	36	20	53	29	32	18	24	13	16	9	9	5	9	5	878

7. Production of Rice (Area Cultivate, Total Yeild)

District	Op-Area	Village	Resp.	Rice																											
				Area cultivated (ha)													Total yield (bag/ha)														
				<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<			<2		2-3.9		4-5.9		6-7.9		8-10		10<			
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	Babili	Tanchera	10	6	60	3	30	1	10	0	0	0	0	0	0	0.2	5	50	3	30	2	20	0	0	0	0	0	0	2
		Tongho	10	9	90	1	10	0	0	0	0	0	0	0	0	0.1	8	80	1	10	1	10	0	0	0	0	0	0	1
	Tom	Panyaan	10	5	50	3	30	2	20	0	0	0	0	0	0	0.3	8	80	2	20	0	0	0	0	0	0	0	0	1
		Kokodur	10	8	80	2	20	0	0	0	0	0	0	0	0	0.1	8	80	0	0	2	20	0	0	0	0	0	0	1
	Nandom	Kogle	10	7	70	3	30	0	0	0	0	0	0	0	0	0.2	7	70	0	0	1	10	0	0	1	10	1	10	3
		Puffien	10	6	60	2	20	1	10	0	0	1	10	0	0	0.3	4	40	3	30	0	0	1	10	1	10	1	10	5
Nadowli	Daffiama	Daffiama	10	6	60	2	20	1	10	1	10	0	0	0	0	0.3	7	70	1	10	0	0	0	0	1	10	1	10	3
		Guong	10	0	0	9	90	1	10	0	0	0	0	0	0	0.4	0	0	4	40	1	10	3	30	1	10	1	10	6
	Serekpere	Serekpere	10	1	10	3	30	6	60	0	0	0	0	0	0	0.6	2	20	2	20	2	20	1	10	1	10	2	20	7
		Guli	10	4	40	5	50	1	10	0	0	0	0	0	0	0.3	0	0	0	0	5	50	2	20	0	0	3	30	8
	Takpoe	Takpoe	10	6	60	3	30	1	10	0	0	0	0	0	0	0.3	0	0	1	10	3	30	1	10	4	40	1	10	9
		Gylli	10	10	100	0	0	0	0	0	0	0	0	0	0	0.0	9	90	0	0	0	0	0	0	1	10	0	0	1
Jirapa	Tuggo	Tuggo	10	9	90	0	0	1	10	0	0	0	0	0	0	0.1	9	90	0	0	0	0	0	0	0	0	1	10	2
		Wulling	10	10	100	0	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0
	Sigri	Sigri	10	10	100	0	0	0	0	0	0	0	0	0	0	0.0	9	90	0	0	0	0	0	0	0	0	1	10	2
		Tigboro	10	6	60	0	0	4	40	0	0	0	0	0	0	0.4	3	30	1	10	1	10	2	20	1	10	2	20	7
Lambussie	Lambusie	Lambusie	10	3	30	3	30	2	20	0	0	2	20	0	0	0.5	2	20	0	0	0	0	3	30	0	0	5	50	11
		Sentu	10	6	60	4	40	0	0	0	0	0	0	0	0	0.2	4	40	3	30	1	10	0	0	1	10	1	10	4

District	Resp.	Rice																											
		Area cultivated (ha)													Total yield (bag/ha)														
		<0.3		0.3-0.5		0.6-0.8		0.9-1.1		1.2-1.4		1.4<			<2		2-3.9		4-5.9		6-7.9		8-10		10<			
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Av.
Lawra	60	41	68	14	23	4	7	#	#	1	2	#	#	0.19	40	67	9	15	6	10	1	2	2	3	2	3	2	
Nadowli	60	27	45	22	37	10	17	1	2	#	#	#	#	0.32	18	30	8	13	11	18	7	12	8	13	8	13	6	
Jirapa	60	44	73	7	12	7	12	#	#	2	3	#	#	0.20	37	62	4	7	2	3	5	8	2	3	10	17	4	
Total	180	112	62	43	24	21	12	1	1	3	2	0	0	0.24	95	53	21	12	19	11	13	7	12	7	20	11	4	

B. SALE OF MAIN CROPS

1. Sale of Sorghum & Millet (Sales Volume, Price Range)

District	Op-Area	Village	Resp.	Sorghum																Millet													
				Qtty. Sold (bags)												Price / bag GH¢				Qtty. Sold (bags)												Price / bag GH¢		
				No resp.		<2		2-4		5-7		8-10		10<						No resp.		<2		2-4		5-7		8-10		10<					
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.	
Lawra	Babili	Tanchera	10	9	90	0	0	0	0	0	0	0	0	1	10	20	20	20	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Tongho	10	8	80	2	20	0	0	0	0	0	0	0	0	20	48	34	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tom	Panyaan	10	6	60	1	10	2	20	1	10	0	0	0	0	20	40	27	9	90	0	0	0	0	0	0	0	0	1	10	0	0	0	0	0
		Kokodur	10	7	70	3	30	0	0	0	0	0	0	0	0	12	40	25	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nandom	Kogle	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Puffien	10	9	90	1	10	0	0	0	0	0	0	0	0	40	40	40	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nadowli	Daffiama	Daffiama	10	9	90	1	10	0	0	0	0	0	0	0	0	28	28	28	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Guong	10	8	80	2	20	0	0	0	0	0	0	0	0	40	48	44	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Serekpere	Serekpere	10	8	80	0	0	2	20	0	0	0	0	0	0	30	50	40	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Guli	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Takpoe	Takpoe	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Gylli	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	9	90	1	10	0	0	0	0	0	0	0	0	16	16	16	16	16
Jirapa	Tuggo	Tuggo	10	9	90	0	0	1	10	0	0	0	0	0	0	16	16	16	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Wulling	10	9	90	1	10	0	0	0	0	0	0	0	0	40	40	40	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sigri	Sigri	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		Tigboro	10	9	90	0	0	0	0	1	10	0	0	0	0	40	40	40	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lambussie	Lambusie	Lambusie	10	8	80	0	0	1	10	1	10	0	0	0	0	20	32	26	9	90	1	10	0	0	0	0	0	0	0	0	14	14	14	14	14
		Sentu	10	7	70	3	30	0	0	0	0	0	0	0	0	18	32	25	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

District	Resp.	Sorghum																Millet													
		Qtty. Sold (bags)												Price / bag GH¢				Qtty. Sold (bags)												Price / bag GH¢		
		No sales		<2		2-4		5-7		8-10		10<						No sales		<2		2-4		5-7		8-10		10<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	49	82	7	12	2	3	1	2	#	#	1	2	12	48	29		59	98	#	#	#	#	#	#	#	#	1	2	-	#	#
Nadowli	60	55	92	3	5	2	3	#	#	#	#	#	#	28	50	39		59	98	1	2	#	#	#	#	#	#	#	#	16	16	16
Jirapa	60	52	87	4	7	2	3	2	3	#	#	#	#	16	40	28		59	98	1	2	#	#	#	#	#	#	#	#	14	14	14
Total	180	156	87	14	8	6	3	3	2	-	-	1	1	12	50	31		177	98	2	1	0	0	0	0	0	0	1	1	14	16	15

2. Sale of Maize & Groundnuts (Sales Volume, Price Range)

District	Op-Area	Village	Resp.	Maize																Groundnut													
				Qtty. Sold (bags)										Price / bag GH¢				Qtty. Sold (bags)												Price / bag GH¢		
				No resp.		<2		2-4		5-7		8-10		10<						No resp.		<2		2-4		5-7		8-10		10<				
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	Babili	Tanchera	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0		3	30	1	10	6	60	0	0	0	0	0	0	10	40	24
		Tongho	10	7	70	2	20	1	10	0	0	0	0	0	0	16	22	18		4	40	5	50	1	10	0	0	0	0	0	0	5	24	14
	Tom	Panyaan	10	9	90	0	0	1	10	0	0	0	0	0	0	22	22	22		4	40	2	20	2	20	1	10	1	10	0	0	10	36	22
		Kokodur	10	8	80	1	10	1	10	0	0	0	0	0	0	15	40	28		5	50	4	40	1	10	0	0	0	0	0	0	10	40	20
	Nandom	Kogle	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
		Puffien	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0		3	30	5	50	2	20	0	0	0	0	0	0	15	32	21
Nadowli	Daffiama	Daffiama	10	9	90	1	10	0	0	0	0	0	0	0	0	40	40	40		6	60	0	0	3	30	0	0	0	0	1	10	15	24	20
		Guong	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0		1	10	2	20	5	50	0	0	1	10	1	10	10	25	19
	Serekpere	Serekpere	10	9	90	0	0	0	0	1	10	0	0	0	0	50	50	50		5	50	1	10	2	20	0	0	0	0	2	20	15	25	19
		Guli	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0		2	20	0	0	3	30	0	0	2	20	3	30	16	25	20
	Takpoe	Takpoe	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0		3	30	1	10	2	20	3	30	0	0	1	10	15	25	19
		Gylli	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0		0	0	1	10	3	30	1	10	0	0	5	50	12	22	17
Jirapa	Tuggo	Tuggo	10	9	90	0	0	0	0	0	0	0	0	1	10	48	48	48		1	10	0	0	0	0	5	50	3	30	1	10	10	95	53
		Wulling	10	9	90	0	0	1	10	0	0	0	0	0	0	36	36	36		4	40	1	10	2	20	2	20	1	10	0	0	16	40	24
	Sigri	Sigri	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0		8	80	0	0	1	10	0	0	0	0	1	10	0	0	0
		Tigboro	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0		3	30	0	0	1	10	3	30	1	10	2	20	15	18	16
Lambusie	Lambusie	Lambusie	10	8	80	0	0	0	0	1	10	0	0	1	10	20	32	26		9	90	1	10	0	0	0	0	0	0	0	0	20	20	20
		Sentu	10	8	80	2	20	0	0	0	0	0	0	0	0	32	32	32		2	20	0	0	6	60	1	10	0	0	1	10	16	23	20

District	Resp.	Maize																Groundnut															
		Qtty. Sold (bags)												Price / bag GH¢				Qtty. Sold (bags)												Price / bag GH¢		
		No resp.		<2		2-4		5-7		8-10		10<						No resp.		<2		2-4		5-7		8-10		10<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	54	90	3	5	3	5	#	#	#	#	#	#	15	40	22		29	48	17	28	12	20	1	2	1	2	#	#	5	40	20
Nadowli	60	58	97	1	2	#	#	1	2	#	#	#	#	40	50	45		17	28	5	8	18	30	4	7	3	5	13	22	10	25	19
Jirapa	60	54	90	2	3	1	2	1	2	#	#	2	3	20	48	33		27	45	2	3	10	17	11	18	5	8	5	8	10	95	29
Total	180	166	92	6	3	4	2	2	1	0	0	2	1	15	50	30		73	41	24	13	40	22	16	9	9	5	18	10	5	95	23

3. Sale of Cowpea & Yam (Sales Volume, Price Range)

District	Op-Area	Village	Resp.	Cowpea																Yam															
				Qtty. Sold (bags)												Price / bag GH¢				Qtty. Sold (Tubers)												Price / Tuber GH¢		
				No resp.		<2		2-4		5-7		8-10		10<						No resp.		<50		50-99		100-149		>149							
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.		No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.			
Lawra	Babili	Tanchera	10	7	70	3	30	0	0	0	0	0	0	0	0	30	72	45		9	90	0	0	0	0	1	10	0	0	0	0	0	0	0	
		Tongho	10	9	90	1	10	0	0	0	0	0	0	0	0	10	10	10		10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Tom	Panyaan	10	9	90	1	10	0	0	0	0	0	0	0	0	40	40	40		10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Kokodur	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0		9	90	0	0	1	10	0	0	0	0	0.7	0.7	0.7			
	Nandom	Kogle	10	9	90	1	10	0	0	0	0	0	0	0	0	46	46	46		10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Puffien	10	9	90	1	10	0	0	0	0	0	0	0	0	56	56	56		8	80	2	20	0	0	0	0	0	0	0.7	1	0.85			
Nadowli	Daffiama	Daffiama	10	8	80	1	10	1	10	0	0	0	0	0	0	48	64	56		10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Guong	10	8	80	2	20	0	0	0	0	0	0	0	0	20	80	50		8	80	0	0	1	10	0	0	1	10	0.5	0.8	0.65			
	Serekpere	Serekpere	10	9	90	0	0	0	0	1	10	0	0	0	0	60	60	60		10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Guli	10	9	90	0	0	1	10	0	0	0	0	0	0	14	14	14		10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
	Takpoe	Takpoe	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Gylli	10	9	90	1	10	0	0	0	0	0	0	0	0	18	18	18		8	80	1	10	0	0	0	0	1	10	0.8	1	0.9			
Jirapa	Tuggo	Tuggo	10	8	80	1	10	1	10	0	0	0	0	0	0	16	48	32		9	90	0	0	0	0	1	10	0	0	0.7	0.7	0.7			
		Wulling	10	9	90	1	10	0	0	0	0	0	0	0	0	48	48	48		9	90	0	0	0	0	1	10	0	0	0.5	0.5	0.5			
	Sigri	Sigri	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
		Tigboro	10	8	80	1	10	0	0	0	0	1	10	0	0	20	50	35		10	100	0	0	0	0	0	0	0	0	0	0	0	0	0	
Lambusie	Lambusie	Lambusie	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0		8	80	0	0	0	0	0	0	2	20	0.7	0.7	0.7			
		Sentu	10	5	50	3	30	1	10	0	0	0	0	1	10	60	56	58		7	70	0	0	2	20	1	10	0	0	0.6	0.8	0.767			

District	Resp.	Cowpea																Yam															
		Qtty. Sold (bags)												Price / bag GH¢				Qtty. Sold (Tubers)												Price / bag GH¢		
		No resp.		<2		2-4		5-7		8-10		10<						No resp.		<50		50-99		100-149		>149							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.		No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.			
Lawra	60	53	88	7	12	#	#	#	#	#	#	#	#	10	72	41		56	93	2	3	1	2	1	2	#	#	0.7	1	0.8			
Nadowli	60	53	88	4	7	2	3	1	2	#	#	#	#	14	80	43		56	93	1	2	1	2	#	#	2	3	0.5	1	0.8			
Jirapa	60	50	83	6	10	2	3	#	#	1	2	1	2	6	56	28		53	88	#	#	2	3	3	5	2	3	0.5	0.8	0.7			
Total	180	156	87	17	9	4	2	1	1	1	1	1	1	6.0	80	43		165	92	3	2	4	2	4	2	4	2	0.5	1	0.7			

4. Sale of Rice (Sales Volume, Price Range)

District	Op-Area	Village	Resp.	Rice														
				Qtty. Sold (bags)												Price / bag GH¢		
				No resp.		<2		2-4		5-7		8-10		10<				
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	Babili	Tanchera	10	9	90	1	10	0	0	0	0	0	0	0	0	32	32	32
		Tongho	10	9	90	1	10	0	0	0	0	0	0	0	0	36	36	36
	Tom	Panyaan	10	9	90	1	10	0	0	0	0	0	0	0	0	40	40	40
		Kokodur	10	9	90	1	10	0	0	0	0	0	0	0	0	40	40	40
	Nandom	Kogle	10	9	90	1	10	0	0	0	0	0	0	0	0	16	16	16
		Puffien	10	5	50	5	50	0	0	0	0	0	0	0	0	16	32	23
Nadowli	Daffiama	Daffiama	10	9	90	0	0	1	10	0	0	0	0	0	0	40	40	40
		Guong	10	8	80	1	10	1	10	0	0	0	0	0	0	24	40	32
	Serekpere	Serekpere	10	6	60	1	10	1	10	0	0	2	20	0	0	16	30	22
		Guli	10	7	70	2	20	1	10	0	0	0	0	0	0	24	28	27
	Takpoe	Takpoe	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
		Gylli	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Jirapa	Tuggo	Tuggo	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
		Wulling	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sigri	Sigri	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
		Tigboro	10	9	90	0	0	0	0	1	10	0	0	0	0	40	40	40
Lambussie	Lambusie	Lambusie	10	3	30	1	10	3	30	2	20	0	0	1	10	20	34	23
		Sentu	10	9	90	1	10	0	0	0	0	0	0	0	0	20	20	20

District	Resp.	Rice														
		Qtty. Sold (bags)												Price / bag GH¢		
		No resp.		<2		2-4		5-7		8-10		10<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	50	83	10	17	#	#	#	#	#	#	#	#	16	40	28
Nadowli	60	50	83	4	7	4	7	#	#	2	3	#	#	16	40	27
Jirapa	60	51	85	2	3	3	5	3	5	#	#	1	2	20	40	24
Total	180	151	84	16	9	7	4	3	2	2	1	1	1	16	40	27

C. PRODUCTION AND SALE OF MINOR CROPS

1. Production and sale of Sheanut (Production Volume, Total Yeild, Price range)

District	Op-Area	Village	Resp.	Shea nut																								
				Total yield (kg)												Quantity sold (kg)												Price / kg GH¢
				No resp.		<51		51-100		101-150		151-200		200<		No resp.		<51		51-100		101-150		151-200		200<		
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	Babili	Tanchera	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0
		Tongho	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0
	Tom	Panyaan	10	9	90	0	0	1	10	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0
		Kokodur	10	8	80	0	0	1	10	0	0	0	0	1	10	8	80	0	0	0	0	0	0	0	0	2	20	0	1	1
	Nandom	Kogle	10	8	80	1	10	0	0	0	0	0	0	1	10	8	80	1	10	0	0	0	0	0	0	1	10	0.3	0.5	0.4
		Puffien	10	8	80	2	20	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Nadowli	Daffiama	Daffiama	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
		Guong	10	5	50	2	20	2	20	0	0	1	10	0	0	9	90	1	10	0	0	0	0	0	0	0	0	12	12	12
	Serekpere	Serekpere	10	6	60	1	10	1	10	0	0	1	10	1	10	7	70	2	20	0	0	0	0	1	10	0	0	0	1	1
		Guli	10	1	10	2	20	2	20	3	30	1	10	1	10	4	40	2	20	4	40	0	0	0	0	0	0	0	4	1
	Takpoe	Takpoe	10	7	70	0	0	2	20	0	0	1	10	0	0	7	70	2	20	0	0	0	0	1	10	0	0	0.3	1.4	0.7
		Gylli	10	2	20	2	20	1	10	0	0	4	40	1	10	4	40	1	10	0	0	2	20	3	30	0	0	0.3	0.4	0.4
Jirapa	Tuggo	Tuggo	10	8	80	0	0	1	10	0	0	0	0	1	10	9	90	0	0	0	0	0	0	0	0	1	10	9.6	9.6	9.6
		Wulling	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sigri	Sigri	10	5	50	4	40	1	10	0	0	0	0	0	0	7	70	2	20	0	0	0	0	0	0	0	0	0	4	2
		Tigboro	10	2	20	1	10	4	40	0	0	2	20	1	10	5	50	2	20	2	20	0	0	0	0	1	10	0	0	0
Lambussie	Lambusie	Lambusie	10	8	80	2	20	0	0	0	0	0	0	0	0	8	80	2	20	0	0	0	0	0	0	0	0	4	40	22
		Sentu	10	5	50	1	10	0	0	0	0	2	20	2	20	6	60	1	10	1	10	0	0	1	10	1	10	0.2	0.9	0.5

District	Resp.	Shea nut																										
		Total yield (kg)												Quantity sold (kg)												Price / kg GH¢		
		No resp.		<51		51-100		101-150		151-200		200<		No resp.		<51		51-100		101-150		151-200		200<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	53	88	3	5	2	3	#	#	#	#	2	3	56	93	1	2	#	#	#	#	#	#	3	5	0.3	0.6	0.4
Nadowli	60	31	52	7	12	8	13	3	5	8	13	3	5	41	68	8	13	4	7	2	3	5	8	#	#	0.2	1.4	0.5
Jirapa	60	38	63	8	13	6	10	#	#	4	7	4	7	45	75	7	12	3	5	#	#	1	2	3	5	0.2	1.2	0.5
Total	180	122	68	18	10	16	9	3	2	12	7	9	5	142	79	16	9	7	4	2	1	6	3	6	3	0.2	1.4	0.5

2. Production and sale of Dawadawa (Production Volume, Total Yeild, Price range)

				Dawadawa																													
				Total yield (kg)													Quantity sold (kg)															Price / kg GH¢		
District	Op-Area	Village	Resp.	No resp.		<51		51-100		101-150		151-200		200<			No resp.		<51		51-100		101-150		151-200		200<					
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%				Min	Max	Av.
Lawra	Babili	Tanchera	10	9	90	1	10	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				1	1	1
		Tongho	10	7	70	2	20	0	0	1	10	0	0	0	0		6	60	1	10	0	0	1	10	0	0	2	20				0.3	0.6	0.5
	Tom	Panyaan	10	9	90	0	0	0	0	1	10	0	0	0	0		9	90	0	0	1	10	0	0	0	0	0	0				1.5	1.5	1.5
		Kokodur	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
	Nandom	Kogle	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
		Puffien	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
Nadowli	Daffiama	Daffiama	10	8	80	2	20	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				1	1	1
		Guong	10	4	40	5	50	0	0	0	0	1	10	0	0		7	70	2	20	1	10	0	0	0	0	0	0				0.4	1	0.7
	Serekpere	Serekpere	10	9	90	1	10	0	0	0	0	0	0	0	0		9	90	1	10	0	0	0	0	0	0	0	0				1	1	1
		Guli	10	6	60	3	30	1	10	0	0	0	0	0	0		9	90	0	0	1	10	0	0	0	0	0	0				0	0	0
	Takpoe	Takpoe	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
		Gylli	10	4	40	6	60	0	0	0	0	0	0	0	0		8	80	2	20	0	0	0	0	0	0	0	0				0.5	1	0.8
Jirapa	Tuggo	Tuggo	10	8	80	2	20	0	0	0	0	0	0	0	0		8	80	1	10	0	0	0	0	0	0	0	0				1.2	1.2	1.2
		Wulling	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
	Sigri	Sigri	10	5	50	5	50	0	0	0	0	0	0	0	0		7	70	1	10	0	0	0	0	0	0	0	0				1	8	3
		Tigboro	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
Lambusie	Lambusie	Lambusie	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
		Sentu	10	5	50	2	20	3	30	0	0	0	0	0	0		8	80	2	20	0	0	0	0	0	0	0	0				0.4	1	0.7

		Dawadawa																											
		Total yield (kg)												Quantity sold (kg)												Price / kg GH¢		
District	Resp.	No resp.		<51		51-100		101-150		151-200		200<		No resp.		<51		51-100		101-150		151-200		200<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	55	92	3	5	#	#	2	3	#	#	#	#	55	92	1	2	1	2	1	2	#	#	2	3	0.3	1.5	0.8
Nadowli	60	41	68	17	28	1	2	#	#	1	2	#	#	53	88	5	8	2	3	#	#	#	#	#	#	0.4	1.0	0.7
Jirapa	60	48	80	9	15	3	5	#	#	#	#	#	#	53	88	4	7	#	#	#	#	#	#	#	#	0.3	1.2	0.9
Total	180	144	80	29	16	4	2	2	1	1	1	0	0	161	89	10	6	3	2	1	1	0	0	2	1	0.3	1.5	0.8

3. Production and sale of Cashew nut (Production Volume, Total Yeild, Price range)

				Cashew nut																													
				Total yield (kg)													Quantity sold (kg)															Price / kg GH¢		
District	Op-Area	Village	Resp.	No resp.		<51		51-100		101-150		151-200		200<			No resp.		<51		51-100		101-150		151-200		200<					
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%				Min	Max	Av.
Lawra	Babili	Tanchera	10	9	90	1	10	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
		Tongho	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
	Tom	Panyaan	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
		Kokodur	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
	Nandom	Kogle	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
		Puffien	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
Nadowli	~~Daffiama~~	Daffiama	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
		Guong	10	8	80	1	10	1	10	0	0	0	0	0	0		9	90	1	10	0	0	0	0	0	0	0	0				0.3	0.3	0.3
	Serekpere	Serekpere	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
		Guli	10	8	80	1	10	1	10	0	0	0	0	0	0		8	80	1	10	1	10	0	0	0	0	0	0				0.25	0	0
	Takpoe	Takpoe	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
		Gylli	10	8	80	1	10	1	10	0	0	0	0	0	0		8	80	1	10	1	10	0	0	0	0	0	0				0.3	0.9	0.6
Jirapa	Tuggo	Tuggo	10	9	90	1	10	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
		Wulling	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
	Sigri	Sigri	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
		Tigboro	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
Lambusie	Lambusie	Lambusie	10	10	100	0	0	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0				0	0	0
		Sentu	10	9	90	1	10	0	0	0	0	0	0	0	0		9	90	1	10	0	0	0	0	0	0	0	0				0.2	0.2	0.2

		Cashew nut																											
		Total yield (kg)												Quantity sold (kg)												Price / kg GH¢		
District	Resp.	No resp.		<51		51-100		101-150		151-200		200<		No resp.		<51		51-100		101-150		151-200		200<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	59	98	1	2	#	#	#	#	#	#	#	#	60	##	#	#	#	#	#	#	#	#	#	#	#	#	#
Nadowli	60	54	90	3	5	3	5	#	#	#	#	#	#	55	92	3	5	2	3	#	#	#	#	#	#	0.3	0.9	0.4
Jirapa	60	58	97	2	3	#	#	#	#	#	#	#	#	59	98	1	2	#	#	#	#	#	#	#	#	0.2	0.2	0.2
Total	180	171	95	6	3	3	2	0	0	0	0	0	0	174	97	4	2	2	1	0	0	0	0	0	0	0.2	0.9	0.4

4. Production and sale of Mango (Production Volume, Total Yeild, Price range)

District	Op-Area	Village	Resp.	Mango																							
				Total yield (kg)												Quantity sold (kg)												Price / kg GH¢		
				No resp.		<51		51-100		101-150		151-200		200<		No resp.		<51		51-100		101-150		151-200		200<				
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	Babili	Tanchera	10	8	80	0	0	0	0	0	0	0	0	2	20	9	90	1	10	0	0	0	0	0	0	0	0	1	1	1
		Tongho	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
	Tom	Panyaan	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
		Kokodur	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nandom	Kogle	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
		Puffien	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Nadowli	Daffiama	Daffiama	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
		Guong	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
	Serekpere	Serekpere	10	9	90	0	0	0	0	0	0	0	0	1	10	9	90	0	0	0	0	0	0	0	0	1	10	0.5	0.5	0.5
		Guli	10	8	80	1	10	0	0	1	10	0	0	0	0	8	80	1	10	0	0	1	10	0	0	0	0	0.3	0.3	0.3
	Takpoe	Takpoe	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
		Gylli	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Jirapa	Tuggo	Tuggo	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
		Wulling	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
	Sigri	Sigri	10	9	90	0	0	1	10	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0.26	0.26	0.26
		Tigboro	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Lambussie	Lambusie	Lambusie	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
		Sentu	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0

District	Resp.	Mango																									
		Total yield (kg)												Quantity sold (kg)												Price / kg GH¢		
		No resp.		<51		51-100		101-150		151-200		200<		No resp.		<51		51-100		101-150		151-200		200<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	58	97	#	#	#	#	#	#	#	#	2	3	59	98	1	2	#	#	#	#	#	#	#	#	1.0	1.0	1.0
Nadowli	60	57	95	1	2	#	#	1	2	#	#	1	2	57	95	1	2	#	#	1	2	#	#	1	2	0.3	0.5	0.4
Jirapa	60	59	98	#	#	1	2	#	#	#	#	#	#	60	##	#	#	#	#	#	#	#	#	#	#	0.3	0.3	0.3
Total	180	174	97	1	1	1	1	1	1	0	0	3	2	176	98	2	1	0	0	1	1	0	0	1	1	0.3	1.0	0.6

D. PRODUCTION AND SALE OF LIVESTOCK

1. Production and sale of Cattle (Head Own, Head sold, Price range/head)

District	Op-Area	Village	Resp.	Cow																							
				Total head own												Head sold										Price / head GH¢		
				No resp.		<3		3-5		5-8		8-11		11<		No resp.		<2		2-3		4-5		6-7		7<				
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	Babili	Tanchera	10	5	50	0	0	3	30	2	20	0	0	0	0	8	80	2	20	0	0	0	0	0	0	0	0	70	100	85
		Tongho	10	5	50	2	20	1	10	2	20	0	0	0	0	9	90	1	10	0	0	0	0	0	0	0	0	60	60	60
	Tom	Panyaan	10	3	30	1	10	2	20	1	10	3	30	0	0	5	50	3	30	2	20	0	0	0	0	0	0	90	300	158
		Kokodur	10	10	100	0	0	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
	Nandom	Kogle	10	3	30	2	20	2	20	3	30	0	0	0	0	9	90	0	0	1	10	0	0	0	0	0	0	100	200	150
		Puffien	10	4	40	4	40	1	10	0	0	1	10	0	0	8	80	2	20	0	0	0	0	0	0	0	0	50	150	100
Nadowli	Daffiama	Daffiama	10	5	50	0	0	0	0	1	10	0	0	4	40	9	90	0	0	1	10	0	0	0	0	0	0	130	130	130
		Guong	10	2	20	0	0	4	40	1	10	1	10	2	20	8	80	1	10	1	10	0	0	0	0	0	0	230	250	240
	Serekpere	Serekpere	10	6	60	2	20	1	10	1	10	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
		Guli	10	9	90	0	0	1	10	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
	Takpoe	Takpoe	10	7	70	1	10	2	20	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
		Gylli	10	6	60	3	30	0	0	1	10	0	0	0	0	9	90	0	0	1	10	0	0	0	0	0	0	100	100	100
Jirapa	Tuggo	Tuggo	10	2	20	1	10	1	10	2	20	1	10	3	30	8	80	0	0	2	20	0	0	0	0	0	0	50	100	75
		Wulling	10	7	70	1	10	2	20	0	0	0	0	0	0	9	90	0	0	0	0	1	10	0	0	0	0	0	0	0
	Sigri	Sigri	10	9	90	0	0	0	0	0	0	0	0	1	10	9	90	1	10	0	0	0	0	0	0	0	0	160	160	160
		Tigboro	10	9	90	1	10	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	0
Lambussie	Lambusie	Lambusie	10	4	40	1	10	3	30	1	10	1	10	0	0	9	90	1	10	0	0	0	0	0	0	0	0	150	150	150
		Sentu	10	0	0	2	20	4	40	1	10	3	30	0	0	6	60	2	20	2	20	0	0	0	0	0	0	70	400	163

District	Resp.	Cow																									
		Total head own												Head sold												Price / head GH¢		
		No resp.		<3		3-5		5-8		8-11		11<		No resp.		<2		2-3		4-5		6-7		7<				
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Min	Max	Av.
Lawra	60	30	50	9	15	9	15	8	13	4	7	#	#	49	82	8	13	3	5	#	#	#	#	#	#	50	##	##
Nadowli	60	35	58	6	10	8	13	4	7	1	2	6	10	56	93	1	2	3	5	#	#	#	#	#	#	##	##	##
Jirapa	60	31	52	6	10	10	17	4	7	5	8	4	7	51	85	4	7	4	7	1	2	#	#	#	#	50	##	##
Total	180	96	53	21	12	27	15	16	9	10	6	10	6	156	87	13	7	10	6	1	1	-	-	-	-	50	##	##

2. Production and sale of Goats (Head Own, Head sold, Price range/head)

				Goat																													
District	Op-Area	Village	Resp.	Total head own												Head sold																Price / head GH¢		
				No resp.		<3		3-5		5-8		8-11		11<		No resp.		<2		2-3		4-5		6-7		7<								
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%							
Lawra	Babili	Tanchera	10	0	0	0	0	4	40	1	10	2	20	3	30	5	50	1	10	2	20	1	10	0	0	1	10							
		Tongho	10	1	10	0	0	3	30	2	20	1	10	3	30	5	50	4	40	1	10	0	0	0	0	0	0							
	Tom	Panyaan	10	1	10	1	10	2	20	2	20	4	40	0	0	8	80	0	0	2	20	0	0	0	0	0	0							
		Kokodur	10	2	20	1	10	2	20	2	20	0	0	3	30	6	60	1	10	2	20	1	10	0	0	0	0							
	Nandom	Kogle	10	0	0	0	0	4	40	4	40	1	10	1	10	5	50	2	20	1	10	2	20	0	0	0	0							
		Puffien	10	1	10	2	20	4	40	1	10	0	0	2	20	6	60	3	30	0	0	1	10	0	0	0	0							
Nadowli	Daffiama	Daffiama	10	5	50	0	0	1	10	2	20	1	10	1	10	6	60	0	0	3	30	1	10	0	0	0	0							
		Guong	10	1	10	1	10	0	0	4	40	0	0	4	40	6	60	1	10	1	10	2	20	0	0	0	0							
	Serekpere	Serekpere	10	0	0	1	10	3	30	5	50	0	0	1	10	7	70	2	20	1	10	0	0	0	0	0	0							
		Guli	10	1	10	2	20	1	10	5	50	1	10	0	0	4	40	1	10	3	30	2	20	0	0	0	0							
	Takpoe	Takpoe	10	0	0	1	10	2	20	2	20	1	10	4	40	3	30	0	0	5	50	2	20	0	0	0	0							
		Gylli	10	0	0	0	0	1	10	2	20	1	10	6	60	1	10	3	30	3	30	1	10	0	0	2	20							
Jirapa	Tuggo	Tuggo	10	2	20	0	0	2	20	0	0	0	0	6	60	5	50	0	0	2	20	2	20	1	10	0	0							
		Wulling	10	1	10	0	0	0	0	0	0	2	20	7	70	1	10	0	0	8	80	1	10	0	0	0	0							
	Sigri	Sigri	10	2	20	0	0	2	20	3	30	2	20	1	10	6	60	1	10	3	30	0	0	0	0	0	0							
		Tigboro	10	1	10	0	0	2	20	0	0	1	10	6	60	4	40	1	10	3	30	1	10	1	10	0	0							
Lambussie	Lambusie	Lambusie	10	2	20	0	0	1	10	1	10	3	30	3	30	7	70	2	20	1	10	0	0	0	0	0	0							
		Sentu	10	0	0	0	0	1	10	4	40	3	30	2	20	6	60	2	20	0	0	2	20	0	0	0	0							

		Goat																													
District	Resp.	Total head own												Head sold														Price / head GH¢		
		No resp.		<3		3-5		5-8		8-11		11<		No resp.		<2		2-3		4-5		6-7		7<						
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%					
Lawra	60	5	8	4	7	19	32	12	20	8	13	12	20	35	58	11	18	8	13	5	8	#	#	1	2	6	25	14			
Nadowli	60	7	12	5	8	8	13	20	33	4	7	16	27	27	45	7	12	16	27	8	13	#	#	2	3	10	45	22			
Jirapa	60	8	13	#	#	8	13	8	13	11	18	25	42	29	48	6	10	17	28	6	10	2	3	#	#	5	40	19			
Total	180	20	11	9	5	35	19	40	22	23	13	53	29	91	51	24	13	41	23	19	11	2	1	3	2	5	45	19			

3. Production and sale of Sheep (Head Own, Head sold, Price range/head)

				Sheep																													
District	Op-Area	Village	Resp.	Total head own												Head sold																Price / head GH¢		
				No resp.		<3		3-5		5-8		8-11		11<		No resp.		<2		2-3		4-5		6-7		7<								
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%							
Lawra	Babili	Tanchera	10	7	70	1	10	1	10	1	10	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0							
		Tongho	10	8	80	0	0	2	20	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0							
	Tom	Panyaan	10	6	60	1	10	1	10	1	10	1	10	0	0	9	90	0	0	1	10	0	0	0	0	0	0							
		Kokodur	10	9	90	1	10	0	0	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0							
	Nandom	Kogle	10	3	30	5	50	0	0	2	20	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0							
		Puffien	10	7	70	0	0	1	10	1	10	0	0	1	10	8	80	2	20	0	0	0	0	0	0	0	0							
Nadowli	Daffiama	Daffiama	10	6	60	0	0	2	20	1	10	0	0	1	10	8	80	0	0	0	0	2	20	0	0	0	0							
		Guong	10	6	60	0	0	0	0	1	10	1	10	2	20	8	80	0	0	1	10	1	10	0	0	0	0							
	Serekpere	Serekpere	10	8	80	1	10	1	10	0	0	0	0	0	0	9	90	1	10	0	0	0	0	0	0	0	0							
		Guli	10	9	90	0	0	1	10	0	0	0	0	0	0	9	90	0	0	1	10	0	0	0	0	0	0							
	Takpoe	Takpoe	10	4	40	2	20	2	20	1	10	0	0	1	10	7	70	0	0	3	30	0	0	0	0	0	0							
		Gylli	10	2	20	0	0	0	0	0	0	2	20	6	60	3	30	3	30	2	20	1	10	0	0	1	10							
Jirapa	Tuggo	Tuggo	10	6	60	0	0	2	20	1	10	0	0	1	10	9	90	0	0	0	0	0	0	0	0	1	10							
		Wulling	10	5	50	0	0	3	30	1	10	0	0	1	10	10	100	0	0	0	0	0	0	0	0	0	0							
	Sigri	Sigri	10	4	40	0	0	1	10	3	30	2	20	0	0	5	50	2	20	3	30	0	0	0	0	0	0							
		Tigboro	10	6	60	2	20	0	0	0	0	1	10	1	10	10	100	0	0	0	0	0	0	0	0	0	0							
Lambussie	Lambusie	Lambusie	10	6	60	0	0	1	10	0	0	2	20	1	10	7	70	0	0	3	30	0	0	0	0	0	0							
		Sentu	10	4	40	1	10	1	10	2	20	0	0	2	20	6	60	2	20	1	10	1	10	0	0	0	0							

		Sheep																													
District	Resp.	Total head own												Head sold														Price / head GH¢		
		No resp.		<3		3-5		5-8		8-11		11<		No resp.		<2		2-3		4-5		6-7		7<						
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%					
Lawra	60	40	67	8	13	5	8	5	8	1	2	1	2	57	95	2	3	1	2	#	#	#	#	#	#	8	61	28			
Nadowli	60	35	58	3	5	6	10	3	5	3	5	10	17	44	73	4	7	7	12	4	7	#	#	1	2	19	60	30			
Jirapa	60	31	52	3	5	8	13	7	12	5	8	6	10	47	78	4	7	7	12	1	2	1	2	#	#	15	40	24			
Total	180	106	59	14	8	19	11	15	8	9	5	17	9	148	82	10	6	15	8	5	3	1	1	1	1	8	61	28			

4. Production and sale of Pig (Head Own, Head sold, Price range/head)

District	Op-Area	Village	Resp.	Pig																															
				Total head own													Head sold																Price / head GH¢		
				No resp.		<3		3-5		5-8		8-11		11<			No resp.		<2		2-3		4-5		6-7		7<								
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%								
Lawra	Babili	Tanchera	10	3	30	2	20	1	10	2	20	2	20	0	0		7	70	1	10	2	20	0	0	0	0	0	0								
		Tongho	10	4	40	1	10	2	20	2	20	1	10	0	0		9	90	1	10	0	0	0	0	0	0	0	0								
	Tom	Panyaan	10	8	80	1	10	1	10	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0								
		Kokodur	10	7	70	1	10	0	0	0	0	0	0	2	20		9	90	1	10	0	0	0	0	0	0	0	0								
	Nandom	Kogle	10	3	30	3	30	2	20	2	20	0	0	0	0		9	90	1	10	0	0	0	0	0	0	0	0								
		Puffien	10	4	40	0	0	3	30	2	20	1	10	0	0		5	50	3	30	2	20	0	0	0	0	0	0								
Nadowli	Daffiama	Daffiama	10	3	30	0	0	1	10	2	20	1	10	3	30		6	60	0	0	1	10	1	10	1	10	1	10								
		Guong	10	1	10	3	30	5	50	0	0	1	10	0	0		9	90	1	10	0	0	0	0	0	0	0	0								
	Serekpere	Serekpere	10	6	60	4	40	0	0	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0								
		Guli	10	2	20	0	0	2	20	4	40	2	20	0	0		4	40	1	10	2	20	1	10	2	20	0	0								
	Takpoe	Takpoe	10	5	50	0	0	2	20	1	10	0	0	2	20		8	80	0	0	1	10	0	0	1	10	0	0								
		Gylli	10	2	20	3	30	1	10	3	30	0	0	1	10		6	60	1	10	2	20	0	0	0	0	1	10								
Jirapa	Tuggo	Tuggo	10	4	40	1	10	2	20	0	0	2	20	1	10		5	50	0	0	3	30	1	10	1	10	0	0								
		Wulling	10	2	20	2	20	3	30	2	20	1	10	0	0		10	100	0	0	0	0	0	0	0	0	0	0								
	Sigri	Sigri	10	4	40	1	10	2	20	1	10	1	10	1	10		8	80	0	0	2	20	0	0	0	0	0	0								
		Tigboro	10	3	30	0	0	4	40	1	10	1	10	1	10		8	80	2	20	0	0	0	0	0	0	0	0								
Lambussie	Lambusie	Lambusie	10	8	80	0	0	1	10	0	0	0	0	1	10		8	80	0	0	1	10	1	10	0	0	0	0								
		Sentu	10	3	30	3	30	2	20	0	0	0	0	2	20		8	80	1	10	1	10	0	0	0	0	0	0								

District	Resp.	Pig																																	
		Total head own														Head sold																Price / head GH¢		
		No resp.		<3		3-5		5-8		8-11		11<			No resp.		<2		2-3		4-5		6-7		7<								
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%								
Lawra	60	29	48	8	13	9	15	8	13	4	7	2	3		49	82	7	12	4	7	#	#	#	#	#	#								
Nadowli	60	19	32	10	17	11	18	10	17	4	7	6	10		43	72	3	5	6	10	2	3	4	7	2	3								
Jirapa	60	24	40	7	12	14	23	4	7	5	8	6	10		47	78	3	5	7	12	2	3	1	2	#	#								
Total	180	72	40	25	14	34	19	22	12	13	7	14	8		139	77	13	7	17	9	4	2	5	3	2	1								

5. Production and sale of Chicken (Head Own, Head sold, Price range/head)

District	Op-Area	Village	Resp.	Chicken																															
				Total head own													Head sold																Price / head GH¢		
				No resp.		<3		3-5		5-8		8-11		11<			No resp.		<2		2-3		4-5		6-7		7<								
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%								
Lawra	Babili	Tanchera	10	2	20	1	10	3	30	0	0	2	20	2	20		9	90	0	0	0	0	0	0	1	10	0	0								
		Tongho	10	3	30	0	0	2	20	0	0	1	10	4	40		6	60	0	0	0	0	1	10	0	0	3	30								
	Tom	Panyaan	10	7	70	0	0	3	30	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0								
		Kokodur	10	4	40	1	10	1	10	0	0	0	0	4	40		8	80	0	0	1	10	0	0	0	0	1	10								
	Nandom	Kogle	10	1	10	0	0	3	30	2	20	2	20	2	20		9	90	0	0	1	10	0	0	0	0	0	0								
		Puffien	10	1	10	2	20	0	0	2	20	0	0	5	50		8	80	0	0	0	0	1	10	0	0	1	10								
Nadowli	Daffiama	Daffiama	10	1	10	0	0	0	0	0	0	3	30	6	60		8	80	0	0	0	0	1	10	0	0	1	10								
		Guong	10	0	0	0	0	2	20	2	20	1	10	5	50		8	80	0	0	0	0	2	20	0	0	0	0								
	Serekpere	Serekpere	10	1	10	0	0	1	10	3	30	0	0	5	50		4	40	0	0	0	0	1	10	1	10	4	40								
		Guli	10	0	0	0	0	0	0	2	20	0	0	8	80		1	10	0	0	1	10	3	30	2	20	3	30								
	Takpoe	Takpoe	10	1	10	0	0	1	10	0	0	1	10	7	70		6	60	0	0	0	0	0	0	0	0	4	40								
		Gylli	10	0	0	0	0	1	10	2	20	0	0	7	70		4	40	0	0	2	20	1	10	0	0	3	30								
Jirapa	Tuggo	Tuggo	10	4	40	0	0	1	10	3	30	0	0	2	20		9	90	0	0	0	0	0	0	0	0	1	10								
		Wulling	10	1	10	0	0	4	40	1	10	2	20	2	20		10	100	0	0	0	0	0	0	0	0	0	0								
	Sigri	Sigri	10	4	40	1	10	1	10	2	20	0	0	2	20		10	100	0	0	0	0	0	0	0	0	0	0								
		Tigboro	10	1	10	0	0	0	0	0	0	1	10	8	80		5	50	1	10	1	10	1	10	0	0	2	20								
Lambussie	Lambusie	Lambusie	10	3	30	0	0	1	10	0	0	1	10	5	50		7	70	0	0	0	0	0	0	1	10	2	20								
		Sentu	10	1	10	0	0	1	10	0	0	1	10	7	70		6	60	0	0	1	10	1	10	0	0	2	20								

District	Resp.	Chicken																																	
		Total head own														Head sold																Price / head GH¢		
		No resp.		<3		3-5		5-8		8-11		11<			No resp.		<2		2-3		4-5		6-7		7<								
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%								
Lawra	60	18	30	4	7	12	20	4	7	5	8	17	28		50	83	#	#	2	3	2	3	1	2	5	8								
Nadowli	60	3	5	#	#	5	8	9	15	5	8	38	63		31	52	#	#	3	5	8	13	3	5	15	25								
Jirapa	60	14	23	1	2	8	13	6	10	5	8	26	43		47	78	1	2	2	3	2	3	1	2	7	12								
Total	180	35	19	5	3	25	14	19	11	15	8	81	45		128	71	1	1	7	4	12	7	5	3	27	15								

6. Production and sale of Cattle (Head Own, Head sold, Price range/head)

District	Op-Area	Village	Resp.	Guinea fowl																															
				Total head own													Head sold																		Price / head GH¢		
				No resp.		<3		3-5		5-8		8-11		11<			No resp.		<2		2-3		4-5		6-7		7<									
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%							Min	Max	Av.
Lawra	Babili	Tanchera	10	4	40	0	0	1	10	1	10	3	30	1	10		7	70	0	0	1	10	1	10	1	10	0	0							3.5	7	5.5
		Tongho	10	6	60	0	0	0	0	1	10	0	0	3	30		8	80	0	0	1	10	0	0	0	0	1	10							5	5	5
	Tom	Panyaan	10	8	80	0	0	0	0	1	10	1	10	0	0		9	90	0	0	1	10	0	0	0	0	0	0							3	3	3
		Kokodur	10	7	70	0	0	1	10	1	10	0	0	1	10		9	90	0	0	0	0	0	0	0	0	1	10							3	3	3
	Nandom	Kogle	10	7	70	0	0	0	0	1	10	0	0	2	20		10	100	0	0	0	0	0	0	0	0	0	0							2	2	2
		Puffien	10	8	80	0	0	1	10	0	0	0	0	1	10		9	90	1	10	0	0	0	0	0	0	0	0							5	5	5
Nadowli	Daffiama	Daffiama	10	7	70	0	0	0	0	0	0	0	0	3	30		10	100	0	0	0	0	0	0	0	0	0	0							0	0	0
		Guong	10	5	50	0	0	0	0	0	0	1	10	4	40		8	80	0	0	0	0	0	0	2	20	0	0							2.5	4	3.3
	Serekpere	Serekpere	10	7	70	0	0	0	0	1	10	0	0	2	20		8	80	0	0	1	10	0	0	0	0	1	10							3	5	4
		Guli	10	8	80	0	0	0	0	0	0	0	0	2	20		8	80	0	0	0	0	1	10	0	0	1	10							4	4	4
	Takpoe	Takpoe	10	6	60	1	10	1	10	0	0	0	0	2	20		8	80	0	0	0	0	1	10	0	0	1	10							4	5	4.5
		Gylli	10	4	40	0	0	0	0	1	10	0	0	5	50		9	90	0	0	0	0	0	0	0	0	1	10							4.5	4.5	4.5
Jirapa	Tuggo	Tuggo	10	6	60	0	0	2	20	0	0	1	10	1	10		9	90	1	10	0	0	0	0	0	0	0	0							4.0	4.0	4.0
		Wulling	10	4	40	1	10	0	0	3	30	1	10	1	10		9	90	0	0	1	10	0	0	0	0	0	0							3.5	3.5	3.5
	Sigri	Sigri	10	9	90	0	0	1	10	0	0	0	0	0	0		10	100	0	0	0	0	0	0	0	0	0	0							0.0	0.0	0.0
		Tigboro	10	6	60	0	0	0	0	0	0	0	0	4	40		8	80	0	0	0	0	2	20	0	0	0	0							2.5	2.5	2.5
Lambussie	Lambusie	Lambusie	10	6	60	0	0	0	0	0	0	1	10	3	30		7	70	0	0	1	10	0	0	0	0	2	20							3.5	4.0	3.8
		Sentu	10	4	40	0	0	2	20	0	0	0	0	4	40		10	100	0	0	0	0	0	0	0	0	0	0							0.0	0.0	0.0

District	Resp.	Guinea fowl																																	
		Total head own														Head sold																		Price / head GH¢		
		No resp.		<3		3-5		5-8		8-11		11<			No resp.		<2		2-3		4-5		6-7		7<											
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%							Min	Max	Av.
Lawra	60	40	67	#	#	3	5	5	8	4	7	8	13		52	87	1	2	3	5	1	2	1	2	2	3							2.0	7.0	4.3
Nadowli	60	37	62	1	2	1	2	2	3	1	2	18	30		51	85	#	#	1	2	2	3	2	3	4	7							2.5	5.0	3.9
Jirapa	60	35	58	1	2	5	8	3	5	3	5	13	22		53	88	1	2	2	3	2	3	#	#	2	3							2.5	4.0	3.4
Total	180	112	62	2	1	9	5	10	6	8	4	39	22		156	87	2	1	6	3	5	3	3	2	8	4							2	7	3.9

E. Fertilizer application and seed Purchase

District	Op-Area	Village	Resp.	Sorghum								Millet								Maize								Groundnut							
				O-F		I-F		L-S		I-S		O-F		I-F		L-S		I-S		O-F		I-F		L-S		I-S		O-F		I-F		L-S		I-S	
				Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Yes		Yes		Yes		Yes		No.	%	No.	%	No.	%	No.	%		
Lawra	Babili	Tanchera	10	9	90	1	10	10	100	0	0	4	40	0	0	10	100	0	0	9	90	7	70	6	60	4	40	2	20	0	0	9	90	0	0
		Tongho	10	10	100	1	10	9	90	0	0	6	60	0	0	9	90	0	0	10	100	1	10	9	90	4	40	4	40	0	0	9	90	0	0
	Tom	Panyaan	10	6	60	0	0	10	100	0	0	1	10	0	0	9	90	0	0	7	70	3	30	8	80	1	10	0	0	0	0	8	80	0	0
		Kokodur	10	7	70	1	10	9	90	1	10	6	60	0	0	9	90	0	0	6	60	4	40	7	70	3	30	6	60	0	0	10	100	0	0
	Nandom	Kogle	10	9	90	0	0	10	100	0	0	4	40	1	10	9	90	0	0	8	80	1	10	9	90	1	10	0	0	0	0	9	90	1	10
		Puffien	10	7	70	0	0	10	100	0	0	7	70	0	0	9	90	0	0	5	50	7	70	4	40	5	50	6	60	0	0	9	90	0	0
Nadowli	Daffiama	Daffiama	10	5	50	2	20	5	50	1	10	2	20	2	20	5	50	0	0	8	80	7	70	4	40	5	50	3	30	0	0	7	70	2	20
		Guong	10	3	30	0	0	9	90	0	0	4	40	0	0	8	80	0	0	3	30	2	20	6	60	0	0	5	50	0	0	10	100	0	0
	Serekpere	Serekpere	10	2	20	0	0	10	100	0	0	0	0	0	0	5	50	0	0	6	60	2	20	7	70	2	20	0	0	0	0	9	90	0	0
		Guli	10	4	40	0	0	8	80	0	0	4	40	0	0	7	70	0	0	6	60	7	70	5	50	7	70	5	50	0	0	10	100	0	0
	Takpoe	Takpoe	10	0	0	0	0	8	80	0	0	0	0	1	10	7	70	0	0	6	60	2	20	3	30	6	60	0	0	2	20	9	90	0	0
		Gylli	10	7	70	0	0	10	100	1	10	7	70	0	0	9	90	0	0	7	70	6	60	5	50	5	50	4	40	1	10	9	90	1	10
Jirapa	Tuggo	Tuggo	10	7	70	0	0	7	70	0	0	6	60	0	0	8	80	0	0	4	40	7	70	6	60	4	40	3	30	0	0	9	90	1	10
		Wulling	10	6	60	2	20	9	90	1	10	5	50	0	0	8	80	0	0	7	70	7	70	6	60	5	50	3	30	0	0	10	100	1	10
	Sigri	Sigri	10	7	70	0	0	8	80	0	0	0	0	0	0	5	50	0	0	6	60	1	10	4	40	2	20	0	0	0	0	8	80	1	10
		Tigboro	10	5	50	0	0	9	90	0	0	5	50	0	0	7	70	0	0	7	70	1	10	9	90	3	30	4	40	0	0	10	100	0	0
Lambusie	Lambusie	Lambusie	10	0	0	0	0	4	40	0	0	0	0	0	0	3	30	0	0	4	40	9	90	5	50	5	50	5	50	0	0	6	60	0	0
		Sentu	10	7	70	0	0	9	90	1	10	3	30	0	0	8	80	0	0	8	80	3	30	7	70	1	10	2	20	0	0	9	90	0	0

District	Resp.	Sorghum								Millet								Maize								Groundnut							
		O-F		I-F		L-S		I-S		O-F		I-F		L-S		I-S		O-F		I-F		L-S		I-S		O-F		I-F		L-S		I-S	
		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Yes		Yes		Yes		Yes		No.	%	No.	%	No.	%	No.	%		
Lawra	60	48	80	3	5	58	97	1	2	28	47	1	2	55	92	#	#	45	75	23	38	43	72	18	30	18	30	#	-	54	90	1	2
Nadowli	60	21	35	2	3	50	83	2	3	17	28	3	5	41	68	#	#	36	60	26	43	30	50	25	42	17	28	3	5	54	90	3	5
Jirapa	60	32	53	2	3	46	77	2	3	19	32	#	#	39	65	#	#	36	60	28	47	37	62	20	33	17	28	#	-	52	87	3	5
Total	180	101	56	7	4	154	86	5	3	64	36	4	2	135	75	0	0	117	65	77	43	110	61	63	35	52	29	3	2	160	89	7	4

E. Fertilizer application and seed Purchase

District	Op-Area	Village	Resp.	Cowpea								Yam								Rice							
				O-F		I-F		L-S		I-S		O-F		I-F		L-S		I-S		O-F		I-F		L-S		I-S	
				Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	Babili	Tanchera	10	1	10	0	0	4	40	1	10	3	30	1	10	8	80	0	0	0	0	0	0	5	50	0	0
		Tongho	10	7	70	0	0	8	80	1	10	4	40	0	0	4	40	0	0	1	10	0	0	2	20	0	0
	Tom	Panyaan	10	0	0	0	0	5	50	0	0	0	0	0	0	3	30	0	0	0	0	0	0	5	50	0	0
		Kokodur	10	4	40	0	0	5	50	2	20	3	30	0	0	6	60	0	0	3	30	0	0	4	40	1	10
	Nandom	Kogle	10	2	20	0	0	8	80	0	0	0	0	0	0	8	80	0	0	0	0	0	0	7	70	0	0
		Puffien	10	4	40	0	0	9	90	0	0	3	30	0	0	5	50	0	0	4	40	0	0	7	70	1	10
Nadowli	Daffiama	Daffiama	10	2	20	0	0	5	50	2	20	0	0	0	0	3	30	1	10	0	0	0	0	5	50	0	0
		Guong	10	4	40	1	10	8	80	2	20	3	30	0	0	7	70	0	0	5	50	0	0	9	90	0	0
	Serekpere	Serekpere	10	0	0	0	0	9	90	1	10	0	0	0	0	7	70	0	0	0	0	0	0	9	90	0	0
		Guli	10	6	60	0	0	9	90	3	30	4	40	0	0	5	50	0	0	5	50	0	0	10	100	0	0
	Takpoe	Takpoe	10	0	0	0	0	7	70	2	20	0	0	0	0	7	70	0	0	0	0	0	0	7	70	0	0
		Gylli	10	5	50	0	0	9	90	1	10	5	50	0	0	10	100	1	10	0	0	0	0	1	10	0	0
Jirapa	Tuggo	Tuggo	10	1	10	0	0	5	50	1	10	7	70	0	0	8	80	0	0	0	0	0	0	1	10	0	0
		Wulling	10	1	10	1	10	9	90	1	10	3	30	0	0	9	90	0	0	1	10	0	0	1	10	0	0
	Sigri	Sigri	10	0	0	0	0	7	70	1	10	1	10	0	0	1	10	0	0	0	0	0	0	1	10	0	0
		Tigboro	10	4	40	0	0	9	90	4	40	4	40	0	0	5	50	0	0	2	20	0	0	8	80	0	0
Lambusie	Lambusie	Lambusie	10	4	40	0	0	1	10	3	30	4	40	0	0	6	60	1	10	3	30	1	10	7	70	1	10
		Sentu	10	2	20	0	0	6	60	3	30	1	10	0	0	8	80	0	0	2	20	0	0	5	50	0	0

District	Resp.	Cowpea								Yam								Rice							
		O-F		I-F		L-S		I-S		O-F		I-F		L-S		I-S		O-F		I-F		L-S		I-S	
		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes		Yes	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	60	18	30	#	#	39	65	4	7	13	22	1	2	34	57	#	#	8	13	#	#	30	50	2	3
Nadowli	60	17	28	1	2	47	78	11	18	12	20	#	#	39	65	2	3	10	17	#	#	41	68	#	#
Jirapa	60	12	20	1	2	37	62	13	22	20	33	#	#	37	62	1	2	8	13	1	2	23	38	1	2
Total	180	47	26	2	1	123	68	28	16	45	25	1	1	110	61	3	2	26	14	1	1	94	52	3	2

MARKETING AND SALE C

Market	Resp.	Sorghum																					
		Vol. purchased (bags)												Cost price (GH¢/bag)			Selling price (GH¢ /bag)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Mim	Max	Av	Mim	Max	Av
Babile	5	4	80	0	0	0	0	1	20	0	0	0	0	58	58	58	62	62	62
Tangasia	5	3	60	0	0	0	0	0	0	1	20	1	20	54	56	55	60	60	60
Jirapa	5	4	80	1	20	0	0	0	0	0	0	0	0	52	52	52	56	56	56
Lawra	5	2	40	0	0	1	20	0	0	1	20	1	20	12	48	30.67	51	56	54.33
Busie	5	4	80	0	0	1	20	0	0	0	0	0	0	64	64	64	70	70	70
Pinnah	5	1	20	3	60	0	0	0	0	0	0	1	20	43	48	46.75	48	50	49.5
Total	30	18	60	4	13	2	7	1	3	2	7	3	10	12	64	47	48	70	56

Market	Resp.	Millet																	
		Vol. purchased (bags)												Cost price (GH¢/bag)			Selling price (GH¢ /bag)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Mim	Max	Av	Mim	Max	Av
Babile	5	1	20	0	0	0	0	1	20	0	0	3	60	54	56	54.5	60	62	60.5
Tangasia	5	3	60	0	0	0	0	0	0	1	20	1	20	15	16	15.5	20	20	20
Jirapa	5	3	60	2	40	0	0	0	0	0	0	0	0	44	52	48	62	64	63
Lawra	5	2	40	1	20	0	0	1	20	0	0	1	20	32	48	40	48	56	53.33
Busie	5	2	40	2	40	0	0	1	20	0	0	0	0	58	60	59.33	64	68	65.33
Pinnah	5	3	60	2	40	0	0	0	0	0	0	0	0	48	56	52	56	58	57
Total	30	14	47	7	23	0	-	3	10	1	3	5	17	15	60	47	20	68	55

Maize

Market	Resp.	Vol. purchased (bags)												Cost price (GH¢/bag)			Selling price (GH¢ /bag)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Mim	Max	Av	Mim	Max	Av
Babile	5	2	40	0	0	0	0	1	20	0	0	2	40	52	54	53.33	58	62	60
Tangasia	5	1	20	0	0	2	40	0	0	1	20	1	20	12	54	33	15	60	38.25
Jirapa	5	1	20	4	80	0	0	0	0	0	0	0	0	48	56	50	52	60	54
Lawra	5	1	20	1	20	1	20	0	0	0	0	2	40	28	48	38.5	48	56	50.75
Busie	5	2	40	1	20	1	20	0	0	1	20	0	0	52	54	52.67	60	66	63.33
Pinnah	5	4	80	1	20	0	0	0	0	0	0	0	0	40	40	40	44	44	44
Total	30	11	37	7	23	4	13	1	3	2	7	5	17	12	56	44	15	66	52

Groundnut

Market	Resp.	Vol. purchased (bags)												Cost price (GH¢/bag)			Selling price (GH¢ /bag)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Mim	Max	Av	Mim	Max	Av
Babile	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tangasia	5	3	60	0	0	0	0	0	0	0	0	2	40	22	25	23.5	28	30	29
Jirapa	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lawra	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Busie	5	4	80	0	0	0	0	0	0	1	20	0	0	100	100	100	140	140	140
Pinnah	5	4	80	0	0	1	20	0	0	0	0	0	0	28	28	28	55	55	55
Total	30	26	87	0	-	1	3	0	-	1	3	2	7	22	100	44	28	140	66

Cowpea

Market	Resp.	Vol. purchased (bags)												Cost price (GH¢/bag)			Selling price (GH¢ /bag)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Mim	Max	Av	Mim	Max	Av
Babile	5	3	60	0	0	1	20	0	0	0	0	1	20	48	50	49	54	56	55
Tangasia	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jirapa	5	2	40	3	60	0	0	0	0	0	0	0	0	80	100	93.33	88	120	109.3
Lawra	5	3	60	2	40	0	0	0	0	0	0	0	0	80	80	80	88	100	94
Busie	5	3	60	0	0	1	20	1	20	0	0	0	0	100	100	100	130	150	140
Pinnah	5	4	80	0	0	1	20	0	0	0	0	0	0	80	80	80	140	140	140
Total	30	20	67	5	17	3	10	1	3	0	0	1	3	48	100	82	54	150	105

Yam

Market	Resp.	Vol. purchased (bags)												Cost price (GH¢ /Tuber)			Selling price (GH¢ /Tuber)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Mim	Max	Av	Mim	Max	Av
Babile	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tangasia	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jirapa	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lawra	5	4	80	0	0	0	0	0	0	0	0	1	20	0.5	0.5	0.5	0.7	0.7	0.7
Busie	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinnah	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	30	29	97	0	-	0	-	0	-	0	-	1	3	0.5	0.5	0.5	0.7	0.7	0.7

Rice

Market	Resp.	Vol. purchased (bags)												Cost price (GH¢/bag)			Selling price (GH¢ /bag)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Mim	Max	Av	Mim	Max	Av
Babile	5	2	40	0	0	1	20	0	0	1	20	1	20	30	40	36.67	40	50	46.67
Tangasia	5	3	60	2	40	0	0	0	0	0	0	0	0	58	60	59	68	68	68
Jirapa	5	4	80	1	20	0	0	0	0	0	0	0	0	112	112	112	130	130	130
Lawra	5	4	80	0	0	1	20	0	0	0	0	0	0	45	45	45	100	100	100
Busie	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinnah	5	4	80	1	20	0	0	0	0	0	0	0	0	92	92	92	100	100	100
Total	30	22	73	4	13	2	7	0	0	1	3	1	3	30	112	60	40	130	76

Cow

Market	Resp.	Total head purchased												Cost price / head (GH¢)			Selling price/head (GH¢)		
		NR		1		2		3		4		4<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Mim	Max	Av	Mim	Max	Av
Babile	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tangasia	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jirapa	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lawra	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Busie	5	4	80	0	0	1	20	0	0	0	0	0	0	150	150	150	170	170	170
Pinnah	5	3	60	1	20	0	0	0	0	0	0	1	20	170	600	385	190	800	495
Total	30	27	90	1	3	1	3	0	-	0	-	1	3	150	600	307	170	800	387

Goat

Market	Resp.	Total head purchased												Cost price / head (GH¢)			Selling price/head (GH¢)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Mim	Max	Av	Mim	Max	Av
Babile	5	0	0	1	20	2	40	2	40	0	0	0	0	20	25	22.4	22	30	26.4
Tangasia	5	1	20	1	20	1	20	0	0	1	20	1	20	17	25	22.25	20	30	25.75
Jirapa	5	2	40	1	20	0	0	1	20	0	0	1	20	25	30	26.67	27	33	30
Lawra	5	4	80	0	0	1	20	0	0	0	0	0	0	12	12	12	15	15	15
Busie	5	0	0	1	20	1	20	0	0	0	0	3	60	20	30	26	25	40	31.4
Pinnah	5	0	0	0	0	0	0	0	0	0	0	5	100	25	40	31	35	48	42.6
Total	30	7	23	4	13	5	17	3	10	1	3	10	33	12	40	25	15	48	31

Sheep

Market	Resp.	Total head purchased												Cost price / head (GH¢)			Selling price/head (GH¢)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Mim	Max	Av	Mim	Max	Av
Babile	5	2	40	1	20	2	40	0	0	0	0	0	0	30	32	30.67	30	38	34
Tangasia	5	2	40	0	0	2	40	0	0	0	0	1	20	24	30	27.33	28	35	31
Jirapa	5	2	40	1	20	1	20	0	0	0	0	1	20	29	35	31.33	32	38	35
Lawra	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Busie	5	1	20	1	20	0	0	0	0	1	20	2	40	26	35	30.25	27	50	38
Pinnah	5	0	0	1	20	0	0	0	0	1	20	3	60	40	50	46	58	65	61.6
Total	30	12	40	4	13	5	17	0	-	2	7	7	23	24	50	34	27	65	42

Pig

Market	Resp.	Total head purchased												Cost price / head (GH¢)			Selling price/head (GH¢)		
		NR		1		2		3		4		4<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Mim	Max	Av	Mim	Max	Av
Babile	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tangasia	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jirapa	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Lawra	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Busie	5	5	100	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pinnah	5	3	60	1	20	0	0	0	0	0	0	1	20	50	80	65	60	90	75
Total	30	28	93	1	3	0	-	0	-	0	-	1	3	50	80	65	60	90	75

Chicken

Market	Resp.	Total head purchased												Cost price / head (GH¢)			Selling price/head (GH¢)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Mim	Max	Av	Mim	Max	Av
Babile	5	3	60	0	0	0	0	0	0	0	0	2	40	2	4	3	2.5	4.5	3.5
Tangasia	5	3	60	0	0	0	0	1	20	0	0	1	20	4	4	4	4.2	4.5	4.35
Jirapa	5	2	40	1	20	1	20	0	0	0	0	1	20	1.5	6	3.5	2	7	4.167
Lawra	5	1	20	1	20	1	20	1	20	0	0	1	20	4	5	4.575	5	6	5.375
Busie	5	0	0	0	0	1	20	2	40	0	0	2	40	3	5	4.2	3.5	6	5
Pinnah	5	3	60	0	0	0	0	0	0	0	0	2	40	3.5	3.5	3.5	4.5	5	4.75
Total	30	12	40	2	7	3	10	4	13	0	-	9	30	1.5	6	3.9	2	7	4.7

Guinea fowl

Market	Resp.	Total head purchased												Cost price / head (GH¢)			Selling price/head (GH¢)		
		NR		<5		5-9		10-14		15-19		19<							
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	Mim	Max	Av	Mim	Max	Av
Babile	5	3	60	0	0	0	0	2	40	0	0	0	0	4	4	4	4.5	4.5	4.5
Tangasia	5	4	80	0	0	0	0	0	0	0	0	1	20	4.5	4.5	4.5	5.2	5.2	5.2
Jirapa	5	4	80	1	20	0	0	0	0	0	0	0	0	4	4	4	5	5	5
Lawra	5	1	20	0	0	1	20	2	40	0	0	1	20	4	5	4.475	4.5	5.5	5.125
Busie	5	2	40	0	0	0	0	1	20	0	0	2	40	4	5	4.667	5	6	5.333
Pinnah	5	3	60	0	0	0	0	0	0	0	0	2	40	4.5	4.5	4.5	6.5	7	6.75
Total	30	17	57	1	3	1	3	5	17	0	-	6	20	4	5	4.4	4.5	7	5.3

A. ACCESS TO INFORMATION ON FARMING TECHNOLOGY

1. Level of Acess to information on farming, animal Husbandry and agro processing techology

District	Operational Area	Sex		Access to info.							
				A		B		C		D	
				No	%	No	%	No	%	No	%
Lawra	Babili	F	10	2	20	7	70	1	10	0	0
		M	10	4	40	6	60	0	0	0	0
	Tom	F	9	1	11	3	33	4	44	1	11
		M	11	5	45	1	9	4	36	1	9
	Nandom	F	10	0	0	8	80	2	20	0	0
		M	10	5	50	3	30	2	20	0	0
Nadowli	Daffiama	F	10	0	0	6	60	4	40	0	0
		M	10	3	30	6	60	1	10	0	0
	Serekpere	F	10	2	20	8	80	0	0	0	0
		M	10	4	40	6	60	0	0	0	0
	Takpoe	F	10	2	20	6	60	2	20	0	0
		M	10	2	20	7	70	1	10	0	0
Jirapa	Tuggo	F	10	1	10	6	60	3	30	0	0
		M	10	1	10	7	70	2	20	0	0
	Sigri	F	10	0	0	4	40	6	60	0	0
		M	10	4	40	3	30	3	30	0	0
	Lambusie	F	10	4	40	3	30	3	30	0	0
		M	10	5	50	4	40	1	10	0	0

Level of Acess to information on farming, animal Husbandry and agro processing techology (District Level)

District	Sex		Access to info.							
			A		B		C		D	
			No	%	No	%	No	%	No	%
Lawra	F	29	3	10	18	62	7	24	1	3
	M	31	14	45	10	32	6	19	1	3
Nadowli	F	30	4	13	20	67	6	20	0	0
	M	30	9	30	19	63	2	6.7	0	0
Jirapa	F	30	5	17	13	43	12	40	0	0
	M	30	10	33	14	47	6	20	0	0
Total Survey Area	F	89	12	13	51	57	25	28	1	1
	M	91	33	36	43	47	14	15	1	1
	All	180	45	25	94	52	39	22	2	1

2. Means of receiving information on farming, animal Husbandry and agro processing techology

District	Operational Area	Sex		Means by which information is received on farming technology (ranking)																											
				Radio								TV								News paper								AEAs			
				N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
				No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	2	20	1	10	4	40	3	30	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	1	10	1	10	8	80
		M	10	2	20	1	10	1	10	6	60	10	100	0	0	0	0	0	0	9	90	1	10	0	0	0	0	1	10	0	0	0	0	9	90
	Tom	F	9	1	11	3	33	4	44	1	11	9	100	0	0	0	0	0	0	9	100	0	0	0	0	0	0	1	11	2	22	1	11	5	56
		M	11	0	0	3	27	5	45	3	27	10	91	0	0	1	9	0	0	11	100	0	0	0	0	0	0	1	9	2	18	0	0	8	73
	Nandom	F	10	2	20	2	20	3	30	3	30	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	2	20	2	20	3	30	3	30
		M	10	1	10	0	0	4	40	5	50	9	90	0	0	0	0	1	10	10	100	0	0	0	0	0	0	0	0	2	20	1	10	7	70
Nadowli	Daffiama	F	10	0	0	1	10	9	90	0	0	9	90	1	10	0	0	0	0	10	100	0	0	0	0	0	0	0	0	1	10	1	10	8	80
		M	10	0	0	0	0	4	40	6	60	10	100	0	0	0	0	0	0	9	90	1	10	0	0	0	0	0	0	0	0	1	10	9	90
	Serekpere	F	10	1	10	2	20	3	30	4	40	9	90	0	0	0	0	1	10	9	90	0	0	1	10	0	0	0	0	0	0	1	10	9	90
		M	10	0	0	4	40	2	20	4	40	9	90	0	0	0	0	1	10	10	100	0	0	0	0	0	0	0	0	0	0	0	0	10	100
	Takpoe	F	10	0	0	1	10	7	70	2	20	10	100	0	0	0	0	0	0	9	90	1	10	0	0	0	0	1	10	0	0	2	20	7	70
		M	10	0	0	0	0	6	60	4	40	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	1	10	9	90
Jirapa	Tuggo	F	10	4	40	0	0	4	40	2	20	8	80	1	10	1	10	0	0	10	100	0	0	0	0	0	0	0	0	1	10	2	20	7	70
		M	10	2	20	1	10	4	40	3	30	9	90	1	10	0	0	0	0	9	90	1	10	0	0	0	0	0	0	1	10	3	30	6	60
	Sigri	F	10	3	30	0	0	4	40	3	30	10	100	0	0	0	0	0	0	9	90	1	10	0	0	0	0	0	0	1	10	6	60	3	30
		M	10	0	0	1	10	4	40	5	50	8	80	2	20	0	0	0	0	8	80	2	20	0	0	0	0	2	20	1	10	5	50	2	20
Lambusie	Lambusie	F	10	1	10	0	0	5	50	4	40	7	70	1	10	2	20	0	0	9	90	1	10	0	0	0	0	1	10	0	0	0	0	9	90
		M	10	0	0	1	10	6	60	3	30	8	80	0	0	2	20	0	0	9	90	0	0	1	10	0	0	0	0	1	10	2	20	7	70

means of receiving information on farming, animal Husbandry and agro processing techology (District Level)

District	Sex		Means by which information is received on farming technology (ranking)																											
			Radio								TV								News paper								AEAs			
			N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	5	17	6	21	11	38	7	24	29	100	0	0	0	0	0	0	29	100	0	0	0	0	0	0	3	10	5	17	5	17	16	55
	M	31	3	10	4	13	10	32	14	45	29	94	0	0	1	3	1	3	30	97	1	3	0	0	0	0	2	6	4	13	1	3	24	77
Nadowli	F	30	1	3	4	13	19	63	6	20	28	93	1	3	0	0	1	3	28	93	1	3	1	3	0	0	1	3	1	3	4	13	24	80
	M	30	0	0	4	13	12	40	14	47	29	97	0	0	0	0	1	3	29	97	1	3	0	0	0	0	0	0	0	0	2	7	28	93
Jirapa	F	30	8	27	0	0	13	43	9	30	25	83	2	7	3	10	0	0	28	93	2	7	0	0	0	0	1	3	2	7	8	27	19	63
	M	30	2	7	3	10	14	47	11	37	25	83	3	10	2	7	0	0	26	87	3	10	1	3	0	0	2	7	3	10	10	33	15	50
Total	F	89	14	16	10	11	43	48	22	25	82	92	3	3	3	3	1	1	85	96	3	3	1	1	0	0	5	6	8	9	17	19	59	66
Survey	M	91	5	5	11	12	36	40	39	43	83	91	3	3	3	3	2	2	85	93	5	5	1	1	0	0	4	4	7	8	13	14	67	74
Area	All	180	19	11	21	12	79	44	61	34	165	92	6	3	6	3	3	2	170	94	8	4	2	1	0	0	9	5	15	8	30	17	126	70

Means of receiving information on farming, animal Husbandry and agro processing techology

District	Operational Area	Sex		Means by which information is received on farming technology (ranking)																											
				Community head								Friends								Developmet partner								Farmers day							
				N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
				No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	2	20	2	20	5	50	1	10	0	0	4	40	6	60	0	0	4	40	4	40	1	10	1	10	9	90	1	10	0	0	0	0
		M	10	6	60	1	10	1	10	2	20	2	20	1	10	3	30	4	40	4	40	2	20	3	30	1	10	7	70	2	20	1	10	0	0
	Tom	F	9	5	56	3	33	1	11	0	0	2	22	2	22	5	56	0	0	6	67	3	33	0	0	0	0	7	78	1	11	0	0	1	11
		M	11	4	36	1	9	4	36	2	18	2	18	2	18	5	45	2	18	6	55	4	36	0	0	1	9	10	91	0	0	0	0	1	9
	Nandom	F	10	5	50	3	30	2	20	0	0	2	20	3	30	4	40	1	10	8	80	2	20	0	0	0	0	9	90	0	0	0	0	1	10
		M	10	5	50	1	10	2	20	2	20	2	20	1	10	5	50	2	20	6	60	3	30	1	10	0	0	9	90	0	0	1	10	0	0
Nadowli	Daffiama	F	10	9	90	1	10	0	0	0	0	2	20	1	10	7	70	0	0	6	60	4	40	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	7	70	0	0	3	30	0	0	1	10	1	10	5	50	3	30	5	50	4	40	0	0	1	10	9	90	0	0	0	0	1	10
	Serekpere	F	10	7	70	2	20	1	10	0	0	2	20	0	0	7	70	1	10	5	50	4	40	1	10	0	0	10	100	0	0	0	0	0	0
		M	10	5	50	3	30	0	0	2	20	1	10	1	10	6	60	2	20	4	40	3	30	1	10	2	20	9	90	0	0	0	0	1	10
	Takpoe	F	10	3	30	5	50	1	10	1	10	0	0	2	20	8	80	0	0	2	20	5	50	1	10	2	20	9	90	1	10	0	0	0	0
		M	10	5	50	3	30	1	10	1	10	0	0	2	20	6	60	2	20	6	60	1	10	2	20	1	10	9	90	0	0	0	0	1	10
Jirapa	Tuggo	F	10	5	50	1	10	3	30	1	10	1	10	3	30	5	50	1	10	6	60	1	10	2	20	1	10	9	90	0	0	0	0	1	10
		M	10	5	50	3	30	1	10	1	10	1	10	2	20	5	50	2	20	7	70	2	20	1	10	0	0	9	90	0	0	0	0	1	10
	Sigri	F	10	7	70	3	30	0	0	0	0	1	10	5	50	3	30	1	10	8	80	2	20	0	0	0	0	9	90	1	10	0	0	0	0
		M	10	3	30	2	20	5	50	0	0	1	10	3	30	4	40	2	20	4	40	5	50	1	10	0	0	9	90	0	0	0	0	1	10
Lambussie	Lambusie	F	10	3	30	1	10	3	30	3	30	1	10	1	10	6	60	2	20	3	30	3	30	2	20	2	20	9	90	1	10	0	0	0	0
		M	10	3	30	2	20	3	30	2	20	1	10	2	20	5	50	2	20	1	10	3	30	3	30	3	30	9	90	0	0	1	10	0	0

means of receiving information on farming, animal Husbandry and agro processing techology (District Level)

District	Sex		Means by which information is received on farming technology (ranking)																											
			Community head								Friends								Developmet partner								Farmers day							
			N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	12	41	8	28	8	28	1	3	4	14	9	31	15	52	1	3	18	62	9	31	1	3	1	3	25	86	2	7	0	0	2	7
	M	31	15	48	3	10	7	23	6	19	6	19	4	13	13	42	8	26	16	52	9	29	4	13	2	6	26	84	2	6	2	6	1	3
Nadowli	F	30	19	63	8	27	2	7	1	3	4	13	3	10	22	73	1	3	13	43	13	43	2	7	2	7	29	97	1	3	0	0	0	0
	M	30	17	57	6	20	4	13	3	10	2	7	4	13	17	57	7	23	15	50	8	27	3	10	4	13	27	90	0	0	0	0	3	10
Jirapa	F	30	15	50	5	17	6	20	4	13	3	10	9	30	14	47	4	13	17	57	6	20	4	13	3	10	27	90	2	7	0	0	1	3
	M	30	11	37	7	23	9	30	3	10	3	10	7	23	14	47	6	20	12	40	10	33	5	17	3	10	27	90	0	0	1	3	2	7
Total	F	89	46	52	21	24	16	18	6	7	11	12	21	24	51	57	6	7	48	54	28	31	7	8	6	7	81	91	5	6	0	0	3	3
Survey	M	91	43	47	16	18	20	22	12	13	11	12	15	16	44	48	21	23	43	47	27	30	12	13	9	10	80	88	2	2	3	3	6	7
Area	All	180	89	49	37	21	36	20	18	10	22	12	36	20	95	53	27	15	91	51	55	31	19	11	15	8	161	89	7	4	3	2	9	5

2. Information on Agricultural Policy

Level of access to information on Agricultural Policy

District	Operational Area	Sex		Access to info.							
				A		B		C		D	
				No	%	No	%	No	%	No	%
Lawra	Babili	F	10	1	10	6	60	3	30	0	0
		M	10	3	30	4	40	3	30	0	0
	Tom	F	9	0	0	4	44	4	44	1	11
		M	11	5	45	1	9	4	36	1	9
	Nandom	F	10	0	0	3	30	6	60	1	10
		M	10	3	30	3	30	4	40	0	0
Nadowli	Daffiama	F	10	0	0	4	40	6	60	0	0
		M	10	2	20	5	50	3	30	0	0
	Serekpere	F	10	2	20	4	40	4	40	0	0
		M	10	3	30	2	20	5	50	0	0
	Takpoe	F	10	3	30	1	10	6	60	0	0
		M	10	2	20	1	10	7	70	0	0
Jirapa	Tuggo	F	10	2	20	3	30	5	50	0	0
		M	10	2	20	5	50	3	30	0	0
	Sigri	F	10	0	0	5	50	5	50	0	0
		M	10	3	30	2	20	5	50	0	0
Lambusie	Lambusie	F	10	2	20	4	40	4	40	0	0
		M	10	1	10	6	60	3	30	0	0

Level of access to information on Agricultural Policy (district Level)

District	Sex		Access to info.							
			A		B		C		D	
			No	%	No	%	No	%	No	%
Lawra	F	29	1	3	13	45	13	45	2	7
	M	31	11	35	8	26	11	35	1	3
Nadowli	F	30	5	17	9	30	16	53	0	0
	M	30	7	23	8	27	15	50	0	0
Jirapa	F	30	4	13	12	40	14	47	0	0
	M	30	6	20	13	43	11	37	0	0
Total Survey Area	F	89	10	11	34	38	43	48	2	2
	M	91	24	26	29	32	37	41	1	1
	All	180	34	19	63	35	80	44	3	2

Means of receiving information on Agricultural Policy

District	Operational Area	Sex		Radio								TV								News paper								AEAs							
				N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
				No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	2	20	2	20	5	50	1	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	2	20	1	10	7	70
		M	10	1	10	1	10	1	10	7	70	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	1	10	9	90
	Tom	F	9	3	33	2	22	4	44	0	0	9	100	0	0	0	0	0	0	9	100	0	0	0	0	0	0	1	11	4	44	1	11	3	33
		M	11	2	18	2	18	4	36	3	27	11	100	0	0	0	0	0	0	10	91	1	9	0	0	0	0	2	18	2	18	0	0	7	64
	Nandom	F	10	3	30	2	20	3	30	2	20	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	3	30	2	20	1	10	4	40
		M	10	2	20	2	20	1	10	5	50	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	2	20	2	20	1	10	5	50
Nadowli	Daffiama	F	10	1	10	3	30	5	50	1	10	9	90	1	10	0	0	0	0	10	100	0	0	0	0	0	0	2	20	0	0	4	40	4	40
		M	10	0	0	0	0	2	20	8	80	10	100	0	0	0	0	0	0	9	90	0	0	1	10	0	0	2	20	0	0	1	10	7	70
	Serekpere	F	10	1	10	3	30	2	20	4	40	9	90	0	0	0	0	1	10	9	90	0	0	1	10	0	0	1	10	0	0	1	10	8	80
		M	10	1	10	3	30	2	20	4	40	9	90	0	0	0	0	1	10	10	100	0	0	0	0	0	0	0	0	0	0	3	30	7	70
	Takpoe	F	10	0	0	3	30	6	60	1	10	9	90	1	10	0	0	0	0	10	100	0	0	0	0	0	0	0	0	0	0	4	40	6	60
		M	10	0	0	3	30	5	50	2	20	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	0	0	1	10	4	40	5	50
Jirapa	Tuggo	F	10	4	40	1	10	3	30	2	20	9	90	0	0	1	10	0	0	9	90	1	10	0	0	0	0	0	0	1	10	3	30	6	60
		M	10	4	40	0	0	2	20	4	40	9	90	1	10	0	0	0	0	9	90	1	10	0	0	0	0	1	10	1	10	1	10	7	70
	Sigri	F	10	3	30	0	0	5	50	2	20	10	100	0	0	0	0	0	0	9	90	1	10	0	0	0	0	0	0	3	30	4	40	3	30
		M	10	1	10	1	10	3	30	5	50	9	90	1	10	0	0	0	0	9	90	1	10	0	0	0	0	3	30	1	10	5	50	1	10
Lambusie	Lambusie	F	10	0	0	0	0	6	60	4	40	7	70	2	20	1	10	0	0	10	100	0	0	0	0	0	0	0	0	0	0	0	0	10	100
		M	10	1	10	2	20	4	40	3	30	8	80	0	0	2	20	0	0	9	90	0	0	1	10	0	0	1	10	1	10	3	30	5	50

Means of receiving information on Agricultural Policy (District level)

District	Sex		Radio								TV								News paper								AEAs							
			N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	8	28	6	21	12	41	3	10	29	100	0	0	0	0	0	0	29	100	0	0	0	0	0	0	4	14	8	28	3	10	14	48
	M	31	5	16	5	16	6	19	15	48	31	100	0	0	0	0	0	0	30	97	1	3	0	0	0	0	4	13	4	13	2	6	21	68
Nadowli	F	30	2	7	9	30	13	43	6	20	27	90	2	7	0	0	1	3	29	97	0	0	1	3	0	0	3	10	0	0	9	30	18	60
	M	30	1	3	6	20	9	30	14	47	29	97	0	0	0	0	1	3	29	97	0	0	1	3	0	0	2	7	1	3	8	27	19	63
Jirapa	F	30	7	23	1	3	14	47	8	27	26	87	2	7	2	7	0	0	28	93	2	7	0	0	0	0	0	0	4	13	7	23	19	63
	M	30	6	20	3	10	9	30	12	40	26	87	2	7	2	7	0	0	27	90	2	7	1	3	0	0	5	17	3	10	9	30	13	43
Total	F	89	17	19	16	18	39	44	17	19	82	92	4	4	2	2	1	1	86	97	2	2	1	1	0	0	7	8	12	13	19	21	51	57
Survey	M	91	12	13	14	15	24	26	41	45	86	95	2	2	2	2	1	1	86	95	3	3	2	2	0	0	11	12	8	9	19	21	53	58
Area	All	180	29	16	30	17	63	35	58	32	168	93	6	3	4	2	2	1	172	96	5	3	3	2	0	0	18	10	20	11	38	21	104	58

Means of receiving information on Agricultural Policy

District	Operational Area	Sex		Community head								Friends								Developmet partner								Farmers day							
				N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
				No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	5	50	2	20	3	30	0	0	1	10	4	40	5	50	0	0	8	80	1	10	1	10	0	0	10	100	0	0	0	0	0	0
		M	10	5	50	1	10	1	10	3	30	1	10	1	10	3	30	5	50	4	40	3	30	0	0	3	30	8	80	1	10	1	10	0	0
	Tom	F	9	6	67	3	33	0	0	0	0	4	44	1	11	4	44	0	0	7	78	2	22	0	0	0	0	8	89	0	0	0	0	1	11
		M	11	4	36	1	9	3	27	3	27	3	27	0	0	5	45	3	27	7	64	3	27	1	9	0	0	10	91	0	0	1	9	0	0
	Nandom	F	10	6	60	3	30	1	10	0	0	3	30	2	20	4	40	1	10	8	80	2	20	0	0	0	0	8	80	0	0	1	10	1	10
		M	10	7	70	0	0	1	10	2	20	3	30	0	0	5	50	2	20	6	60	3	30	1	10	0	0	10	100	0	0	0	0	0	0
Nadowli	Daffiama	F	10	7	70	1	10	1	10	1	10	6	60	2	20	2	20	0	0	6	60	2	20	2	20	0	0	10	100	0	0	0	0	0	0
		M	10	6	60	1	10	2	20	1	10	3	30	1	10	4	40	2	20	5	50	4	40	1	10	0	0	10	100	0	0	0	0	0	0
	Serekpere	F	10	8	80	1	10	1	10	0	0	0	0	2	20	7	70	1	10	7	70	3	30	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	6	60	2	20	0	0	2	20	2	20	3	30	3	30	2	20	4	40	3	30	1	10	2	20	9	90	0	0	0	0	1	10
	Takpoe	F	10	4	40	3	30	3	30	0	0	3	30	3	30	4	40	0	0	5	50	2	20	1	10	2	20	10	100	0	0	0	0	0	0
		M	10	5	50	1	10	2	20	2	20	4	40	1	10	3	30	2	20	6	60	1	10	2	20	1	10	10	100	0	0	0	0	0	0
Jirapa	Tuggo	F	10	6	60	2	20	1	10	1	10	4	40	0	0	5	50	1	10	5	50	2	20	3	30	0	0	9	90	0	0	1	10	0	0
		M	10	6	60	2	20	1	10	1	10	4	40	1	10	2	20	3	30	5	50	2	20	3	30	0	0	9	90	1	10	0	0	0	0
	Sigri	F	10	8	80	2	20	0	0	0	0	1	10	5	50	3	30	1	10	8	80	2	20	0	0	0	0	9	90	0	0	1	10	0	0
		M	10	6	60	1	10	3	30	0	0	1	10	2	20	5	50	2	20	6	60	4	40	0	0	0	0	10	100	0	0	0	0	0	0
Lambusie	Lambusie	F	10	3	30	1	10	4	40	2	20	1	10	1	10	6	60	2	20	3	30	3	30	2	20	2	20	7	70	2	20	0	0	1	10
		M	10	4	40	1	10	3	30	2	20	4	40	1	10	4	40	1	10	3	30	5	50	0	0	2	20	8	80	2	20	0	0	0	0

Means of receiving information on Agricultural Policy (District Level)

District	Sex		Community head								Friends								Developmet partner								Farmers day							
			N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	17	59	8	28	4	14	0	0	8	28	7	24	13	45	1	3	23	79	5	17	1	3	0	0	26	90	0	0	1	3	2	7
	M	31	16	52	2	6	5	16	8	26	7	23	1	3	13	42	10	32	17	55	9	29	2	6	3	10	28	90	1	3	2	6	0	0
Nadowli	F	30	19	63	5	17	5	17	1	3	9	30	7	23	13	43	1	3	18	60	7	23	3	10	2	7	30	100	0	0	0	0	0	0
	M	30	17	57	4	13	4	13	5	17	9	30	5	17	10	33	6	20	15	50	8	27	4	13	3	10	29	97	0	0	0	0	1	3
Jirapa	F	30	17	57	5	17	5	17	3	10	6	20	6	20	14	47	4	13	16	53	7	23	5	17	2	7	25	83	2	7	2	7	1	3
	M	30	16	53	4	13	7	23	3	10	9	30	4	13	11	37	6	20	14	47	11	37	3	10	2	7	27	90	3	10	0	0	0	0
Total	F	89	53	60	18	20	14	16	4	4	23	26	20	22	40	45	6	7	57	64	19	21	9	10	4	4	81	91	2	2	3	3	3	3
Survey	M	91	49	54	10	11	16	18	16	18	25	27	10	11	34	37	22	24	46	51	28	31	9	10	8	9	84	92	4	4	2	2	1	1
Area	All	180	102	57	28	16	30	17	20	11	48	27	30	17	74	41	28	16	103	57	47	26	18	10	12	7	165	92	6	3	5	3	4	2

3. Extention Agents

General Impression about extention agents

District	Operational Area	Sex		A						B						C						D					
				Y		N		CT		Y		N		CT		Y		N		CT		Y		N		CT	
				No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	9	90	0	0	1	10	9	90	0	0	1	10	9	90	0	0	1	10	7	70	2	20	1	10
		M	10	10	100	0	0	0	0	10	100	0	0	0	0	10	100	0	0	0	0	10	100	0	0	0	0
	Tom	F	9	9	100	0	0	0	0	7	78	0	0	2	22	7	78	0	0	2	22	5	56	0	0	4	44
		M	11	11	100	0	0	0	0	11	100	0	0	0	0	10	91	0	0	1	9	10	91	0	0	1	9
	Nandom	F	10	6	60	3	30	1	10	7	70	2	20	1	10	7	70	3	30	0	0	7	70	3	30	0	0
		M	10	6	60	2	20	2	20	7	70	2	20	1	10	7	70	2	20	1	10	6	60	3	30	1	10
Nadowli	Daffiama	F	10	5	50	2	20	3	30	4	40	2	20	4	40	6	60	2	20	2	20	5	50	1	10	4	40
		M	10	10	100	0	0	0	0	9	90	0	0	1	10	10	100	0	0	0	0	9	90	1	10	0	0
	Serekpere	F	10	10	100	0	0	0	0	10	100	0	0	0	0	10	100	0	0	0	0	9	90	0	0	1	10
		M	10	10	100	0	0	0	0	10	100	0	0	0	0	10	100	0	0	0	0	10	100	0	0	0	0
	Takpoe	F	10	7	70	1	10	2	20	7	70	1	10	2	20	7	70	1	10	2	20	5	50	2	20	3	30
		M	10	8	80	1	10	1	10	8	80	0	0	2	20	7	70	0	0	3	30	7	70	1	10	2	20
Jirapa	Tuggo	F	10	7	70	0	0	3	30	8	80	0	0	2	20	8	80	0	0	2	20	8	80	0	0	2	20
		M	10	8	80	0	0	2	20	9	90	0	0	1	10	9	90	0	0	1	10	8	80	1	10	1	10
	Sigri	F	10	6	60	2	20	2	20	5	50	0	0	5	50	5	50	0	0	5	50	4	40	0	0	6	60
		M	10	3	30	6	60	1	10	4	40	4	40	2	20	3	30	5	50	2	20	3	30	5	50	2	20
Lambussie	Lambussie	F	10	10	100	0	0	0	0	10	100	0	0	0	0	10	100	0	0	0	0	10	100	0	0	0	0
		M	10	10	100	0	0	0	0	9	90	0	0	1	10	10	100	0	0	0	0	8	80	1	10	1	10

General Impression about extention agents (District level)

District	Sex		A						B						C						D					
			Y		N		CT		Y		N		CT		Y		N		CT		Y		N		CT	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	24	83	3	10	2	7	23	79	2	7	4	14	23	79	3	10	3	10	19	66	5	17	5	17
	M	31	27	87	2	6	2	6	28	90	2	6	1	3	27	87	2	6	2	6	26	84	3	10	2	6
Nadowli	F	30	22	73	3	10	5	17	21	70	3	10	6	20	23	77	3	10	4	13	19	63	3	10	8	27
	M	30	28	93	1	3	1	3	27	90	0	0	3	10	27	90	0	0	3	10	26	87	2	7	2	7
Jirapa	F	30	23	77	2	7	5	17	23	77	0	0	7	23	23	77	0	0	7	23	22	73	0	0	8	27
	M	30	21	70	6	20	3	10	22	73	4	13	4	13	22	73	5	17	3	10	19	63	7	23	4	13
Total	F	89	69	78	8	9	12	13	67	75	5	6	17	19	69	78	6	7	14	16	60	67	8	9	21	24
Survey	M	91	76	84	9	10	6	7	77	85	6	7	8	9	76	84	7	8	8	9	71	78	12	13	8	9
Area	All	180	145	81	17	9	18	10	144	80	11	6	25	14	145	81	13	7	22	12	131	73	20	11	29	16

General Impression about extention agents

District	Operational Area	Sex		E						F						G					
				Y		N		CT		Y		N		CT		Y		N		CT	
				No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	9	90	0	0	1	10	8	80	0	0	2	20	7	70	1	10	2	20
		M	10	10	100	0	0	0	0	10	100	0	0	0	0	10	100	0	0	0	0
	Tom	F	9	7	78	0	0	2	22	7	78	0	0	2	22	7	78	0	0	2	22
		M	11	10	91	0	0	1	9	10	91	0	0	1	9	11	100	0	0	0	0
	Nandom	F	10	7	70	2	20	1	10	7	70	2	20	1	10	7	70	2	20	1	10
		M	10	6	60	3	30	1	10	7	70	2	20	1	10	7	70	2	20	1	10
Nadowli	Daffiama	F	10	5	50	3	30	2	20	7	70	1	10	2	20	8	80	1	10	1	10
		M	10	9	90	1	10	0	0	9	90	1	10	0	0	10	100	0	0	0	0
	Serekpere	F	10	8	80	2	20	0	0	10	100	0	0	0	0	10	100	0	0	0	0
		M	10	7	70	3	30	0	0	10	100	0	0	0	0	10	100	0	0	0	0
	Takpoe	F	10	4	40	4	40	2	20	7	70	1	10	2	20	7	70	1	10	2	20
		M	10	6	60	1	10	3	30	7	70	1	10	2	20	7	70	0	0	3	30
Jirapa	Tuggo	F	10	7	70	1	10	2	20	8	80	0	0	2	20	8	80	0	0	2	20
		M	10	9	90	0	0	1	10	9	90	0	0	1	10	9	90	0	0	1	10
	Sigri	F	10	3	30	1	10	6	60	4	40	1	10	5	50	4	40	1	10	5	50
		M	10	2	20	5	50	3	30	3	30	5	50	2	20	3	30	5	50	2	20
Lambusie	Lambusie	F	10	10	100	0	0	0	0	10	100	0	0	0	0	10	100	0	0	0	0
		M	10	9	90	0	0	1	10	10	100	0	0	0	0	10	100	0	0	0	0

General Impression about extention agents (District Level)

District	Sex		E						F						G					
			Y		N		CT		Y		N		CT		Y		N		CT	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	23	79	2	7	4	14	22	76	2	7	5	17	21	72	3	10	5	17
	M	31	26	84	3	10	2	6	27	87	2	6	2	6	28	90	2	6	1	3
Nadowli	F	30	17	57	9	30	4	13	24	80	2	7	4	13	25	83	2	7	3	10
	M	30	22	73	5	17	3	10	26	87	2	7	2	7	27	90	0	0	3	10
Jirapa	F	30	20	67	2	7	8	27	22	73	1	3	7	23	22	73	1	3	7	23
	M	30	20	67	5	17	5	17	22	73	5	17	3	10	22	73	5	17	3	10
Total	F	89	60	67	13	15	16	18	68	76	5	6	16	18	68	76	6	7	15	17
Survey	M	91	68	75	13	14	10	11	75	82	9	10	7	8	77	85	7	8	7	8
Area	All	180	128	71	26	14	26	14	143	79	14	8	23	13	145	81	13	7	22	12

4. Groups and Organisations one belongs

District	Operational Area	Sex		Do you belong to any org.				Organization you belong to															
				Yes		No		NR		A		B		C		D		E		F		G	
				No	%	No.	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	9	90	1	10	1	10	0	0	0	0	4	40	0	0	2	20	0	0	3	30
		M	10	9	90	1	10	1	10	3	30	0	0	6	60	0	0	0	0	0	0	0	0
	Tom	F	9	4	44	5	56	5	56	0	0	0	0	2	22	0	0	1	11	0	0	1	11
		M	11	1	9	10	91	10	91	0	0	0	0	1	9	0	0	0	0	0	0	0	0
	Nandom	F	10	6	60	4	40	4	40	1	10	2	20	1	10	1	10	0	0	0	0	1	10
		M	10	9	90	1	10	1	10	3	30	1	10	5	50	0	0	0	0	0	0	0	0
Nadowli	Daffiama	F	10	9	90	1	10	1	10	0	0	0	0	6	60	0	0	0	0	1	10	2	20
		M	10	7	70	3	30	3	30	0	0	2	20	4	40	0	0	0	0	0	0	1	10
	Serekpere	F	10	10	100	0	0	0	0	1	10	2	20	5	50	0	0	1	10	0	0	1	10
		M	10	9	90	1	10	1	10	2	20	1	10	4	40	0	0	0	0	0	0	2	20
	Takpoe	F	10	10	100	0	0	0	0	0	0	2	20	5	50	1	10	0	0	1	10	1	10
		M	10	9	90	1	10	1	10	2	20	2	20	4	40	0	0	0	0	0	0	1	10
Jirapa	Tuggo	F	10	6	60	4	40	4	40	1	10	1	10	2	20	1	10	0	0	0	0	1	10
		M	10	8	80	2	20	2	20	1	10	1	10	5	50	0	0	0	0	0	0	1	10
	Sigri	F	10	8	80	2	20	2	20	0	0	1	10	5	50	0	0	0	0	0	0	2	20
		M	10	4	40	6	60	6	60	0	0	1	10	3	30	0	0	0	0	0	0	0	0
Lambusie	Lambusie	F	10	7	70	3	30	3	30	2	20	0	0	4	40	0	0	1	10	0	0	0	0
		M	10	8	80	2	20	2	20	1	10	1	10	5	50	1	10	0	0	0	0	0	0

Groups and Organisations one belongs

District	Sex		Do you belong to any org.				Organization you belong to															
			Yes		No		NR		A		B		C		D		E		F		G	
			No	%	No.	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	19	66	10	34	10	34	1	3	2	7	7	24	1	3	3	10	0	0	5	17
	M	31	19	61	12	39	12	39	6	19	1	3	12	39	0	0	0	0	0	0	0	0
Nadowli	F	30	29	97	1	3	1	3	1	3	4	13	16	53	1	3	1	3	2	7	4	13
	M	30	25	83	5	17	5	17	4	13	5	17	12	40	0	0	0	0	0	0	4	13
Jirapa	F	30	21	70	9	30	9	30	3	10	2	7	11	37	1	3	1	3	0	0	3	10
	M	30	20	67	10	33	10	33	2	7	3	10	13	43	1	3	0	0	0	0	1	3
Total Survey Area	F	89	69	78	20	22	20	22	5	6	8	9	34	38	3	3	5	6	2	2	12	13
	M	91	64	70	27	30	27	30	12	13	9	10	37	41	1	1	0	0	0	0	5	5
	All	180	133	74	47	26	47	26	17	9	17	9	71	39	4	2	5	3	2	1	17	9

5. Reasons for joining the organisation

District	Operational Area	Sex		Acquire information								Gain govt. services								Receive subsidy								Encouraged by colleague							
				N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
				No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	6	60	0	0	3	30	1	10	8	80	1	10	1	10	0	0	5	50	0	0	3	30	2	20	9	90	1	10	0	0	0	0
		M	10	2	20	0	0	4	40	4	40	3	30	1	10	4	40	2	20	3	30	0	0	3	30	4	40	6	60	0	0	1	10	3	30
	Tom	F	9	7	78	0	0	2	22	0	0	9	100	0	0	0	0	0	0	8	89	0	0	1	11	0	0	9	100	0	0	0	0	0	0
		M	11	10	91	0	0	0	0	1	9	10	91	0	0	0	0	1	9	10	91	0	0	0	0	1	9	11	100	0	0	0	0	0	0
	Nandom	F	10	6	60	0	0	2	20	2	20	6	60	0	0	3	30	1	10	5	50	0	0	4	40	1	10	9	90	0	0	0	0	1	10
		M	10	4	40	0	0	2	20	4	40	5	50	0	0	2	20	3	30	3	30	1	10	4	40	2	20	5	50	0	0	3	30	2	20
Nadowli	Daffiama	F	10	4	40	0	0	2	20	4	40	8	80	0	0	2	20	0	0	4	40	2	20	1	10	3	30	10	100	0	0	0	0	0	0
		M	10	4	40	0	0	1	10	5	50	6	60	1	10	2	20	1	10	4	40	0	0	2	20	4	40	9	90	1	10	0	0	0	0
	Serekpere	F	10	4	40	0	0	2	20	4	40	5	50	0	0	2	20	3	30	2	20	0	0	3	30	5	50	7	70	0	0	1	10	2	20
		M	10	3	30	0	0	2	20	5	50	4	40	0	0	2	20	4	40	2	20	0	0	4	40	4	40	7	70	0	0	1	10	2	20
	Takpoe	F	10	3	30	0	0	4	40	3	30	2	20	0	0	5	50	3	30	1	10	0	0	5	50	4	40	7	70	0	0	1	10	2	20
		M	10	2	20	1	10	2	20	5	50	5	50	0	0	3	30	2	20	2	20	1	10	1	10	6	60	5	50	0	0	1	10	4	40
Jirapa	Tuggo	F	10	4	40	0	0	3	30	3	30	5	50	0	0	3	30	2	20	5	50	0	0	3	30	2	20	7	70	1	10	0	0	2	20
		M	10	4	40	2	20	1	10	3	30	7	70	0	0	3	30	0	0	7	70	1	10	1	10	1	10	6	60	1	10	2	20	1	10
	Sigri	F	10	5	50	0	0	4	40	1	10	6	60	0	0	3	30	1	10	3	30	0	0	4	40	3	30	9	90	0	0	1	10	0	0
		M	10	8	80	0	0	0	0	2	20	9	90	0	0	1	10	0	0	7	70	0	0	2	20	1	10	10	100	0	0	0	0	0	0
Lambussie	Lambussie	F	10	4	40	0	0	2	20	4	40	4	40	0	0	2	20	4	40	4	40	0	0	3	30	3	30	9	90	0	0	0	0	1	10
		M	10	3	30	0	0	3	30	4	40	6	60	0	0	2	20	2	20	6	60	0	0	3	30	1	10	8	80	1	10	1	10	0	0

Reasons for joining the organisation

District	Sex		Acquire information								Gain govt. services								Receive subsidy								Encouraged by colleague							
			N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	19	66	0	0	7	24	3	10	23	79	1	3	4	14	1	3	18	62	0	0	8	28	3	10	27	93	1	3	0	0	1	3
	M	31	16	52	0	0	6	19	9	29	18	58	1	3	6	19	6	19	16	52	1	3	7	23	7	23	22	71	0	0	4	13	5	16
Nadowli	F	30	11	37	0	0	8	27	11	37	15	50	0	0	9	30	6	20	7	23	2	7	9	30	12	40	24	80	0	0	2	7	4	13
	M	30	9	30	1	3	5	17	15	50	15	50	1	3	7	23	7	23	8	27	1	3	7	23	14	47	21	70	1	3	2	7	6	20
Jirapa	F	30	13	43	0	0	9	30	8	27	15	50	0	0	8	27	7	23	12	40	0	0	10	33	8	27	25	83	1	3	1	3	3	10
	M	30	15	50	2	7	4	13	9	30	22	73	0	0	6	20	2	7	20	67	1	3	6	20	3	10	24	80	2	7	3	10	1	3
Total	F	89	43	48	0	0	24	27	22	25	53	60	1	1	21	24	14	16	37	42	2	2	27	30	23	26	76	85	2	2	3	3	8	9
Survey	M	91	40	44	3	3	15	16	33	36	55	60	2	2	19	21	15	16	44	48	3	3	20	22	24	26	67	74	3	3	9	10	12	13
Area	All	180	83	46	3	2	39	22	55	31	108	60	3	2	40	22	29	16	81	45	5	3	47	26	47	26	143	79	5	3	12	7	20	11

Reasons for joining the organisation

District	Operational Area	Sex		Encouraged by AEAs								Friends do so								No reason								Other							
				N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
				No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	7	70	0	0	1	10	2	20	8	80	0	0	2	20	0	0	10	100	0	0	0	0	0	0	8	80	0	0	0	0	2	20
		M	10	4	40	0	0	0	0	6	60	5	50	0	0	2	20	3	30	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
	Tom	F	9	7	78	0	0	0	0	2	22	7	78	0	0	1	11	1	11	9	100	0	0	0	0	0	0	8	89	0	0	1	11	0	0
		M	11	10	91	0	0	0	0	1	9	11	100	0	0	0	0	0	0	11	100	0	0	0	0	0	0	10	91	0	0	0	0	1	9
	Nandom	F	10	8	80	2	20	0	0	0	0	8	80	0	0	1	10	1	10	9	90	0	0	1	10	0	0	10	100	0	0	0	0	0	0
		M	10	6	60	0	0	0	0	4	40	5	50	0	0	3	30	2	20	10	100	0	0	0	0	0	0	8	80	0	0	1	10	1	10
Nadowli	Dafiama	F	10	9	90	0	0	0	0	1	10	5	50	0	0	0	0	5	50	10	100	0	0	0	0	0	0	8	80	0	0	2	20	0	0
		M	10	7	70	0	0	0	0	3	30	7	70	0	0	1	10	2	20	8	80	0	0	0	0	2	20	9	90	0	0	1	10	0	0
	Serekpere	F	10	6	60	1	10	0	0	3	30	5	50	0	0	2	20	3	30	10	100	0	0	0	0	0	0	9	90	0	0	0	0	1	10
		M	10	3	30	0	0	0	0	7	70	4	40	0	0	4	40	2	20	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
	Takpoe	F	10	5	50	0	0	1	10	4	40	2	20	3	30	4	40	1	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	6	60	0	0	0	0	4	40	7	70	1	10	1	10	1	10	8	80	0	0	1	10	1	10	10	100	0	0	0	0	0	0
Jirapa	Tuggo	F	10	7	70	0	0	1	10	2	20	7	70	1	10	0	0	2	20	9	90	1	10	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	7	70	0	0	1	10	2	20	6	60	0	0	0	0	4	40	9	90	0	0	0	0	1	10	10	100	0	0	0	0	0	0
	Sigri	F	10	8	80	0	0	0	0	2	20	8	80	0	0	0	0	2	20	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	8	80	0	0	0	0	2	20	9	90	0	0	0	0	1	10	9	90	0	0	0	0	1	10	10	100	0	0	0	0	0	0
Lambussie	Lambussie	F	10	6	60	0	0	0	0	4	40	5	50	0	0	4	40	1	10	10	100	0	0	0	0	0	0	9	90	0	0	1	10	0	0
		M	10	7	70	0	0	1	10	2	20	9	90	0	0	0	0	1	10	9	90	0	0	1	10	0	0	9	90	0	0	0	0	1	10

Reasons for joining the organisation

District	Sex		Encouraged by AEAs								Friends do so								No reason								Other							
			N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	22	76	2	7	1	3	4	14	23	79	0	0	4	14	2	7	28	97	0	0	1	3	0	0	26	90	0	0	1	3	2	7
	M	31	20	65	0	0	0	0	11	35	21	68	0	0	5	16	5	16	31	100	0	0	0	0	0	0	28	90	0	0	1	3	2	6
Nadowli	F	30	20	67	1	3	1	3	8	27	12	40	3	10	6	20	9	30	30	100	0	0	0	0	0	0	27	90	0	0	2	7	1	3
	M	30	16	53	0	0	0	0	14	47	18	60	1	3	6	20	5	17	26	87	0	0	1	3	3	10	29	97	0	0	1	3	0	0
Jirapa	F	30	21	70	0	0	1	3	8	27	20	67	1	3	4	13	5	17	29	97	1	3	0	0	0	0	29	97	0	0	1	3	0	0
	M	30	22	73	0	0	2	7	6	20	24	80	0	0	0	0	6	20	27	90	0	0	1	3	2	7	29	97	0	0	0	0	1	3
Total	F	89	63	71	3	3	3	3	20	22	55	62	4	4	14	16	16	18	87	98	1	1	1	1	0	0	82	92	0	0	4	4	3	3
Survey	M	91	58	64	0	0	2	2	31	34	63	69	1	1	11	12	16	18	84	92	0	0	2	2	5	5	86	95	0	0	2	2	3	3
Area	All	180	121	67	3	2	5	3	51	28	118	66	5	3	25	14	32	18	171	95	1	1	3	2	5	3	168	93	0	0	6	3	6	3

6. Reason for not Joining any Organisation

District	Operational Area	Sex		Gain nothing								Payment of money								Not informed								No such group							
				N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
				No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	9	90	0	0	0	0	1	10	10	100	0	0	0	0	0	0
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	9	90	0	0	0	0	1	10
	Tom	F	9	9	100	0	0	0	0	0	0	7	78	1	11	0	0	1	11	8	89	1	11	0	0	0	0	5	56	0	0	1	11	3	33
		M	11	9	82	0	0	2	18	0	0	9	82	0	0	2	18	0	0	7	64	0	0	2	18	2	18	5	45	0	0	2	18	4	36
	Nandom	F	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	8	80	0	0	0	0	2	20
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	9	90	1	10	0	0	0	0	10	100	0	0	0	0	0	0
Nadowli	Dafiama	F	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	9	90	0	0	0	0	1	10
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	7	70	1	10	0	0	2	20	10	100	0	0	0	0	0	0
	Serekpere	F	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	9	90	0	0	0	0	1	10	10	100	0	0	0	0	0	0
	Takpoe	F	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	9	90	0	0	0	0	1	10
Jirapa	Tuggo	F	10	10	100	0	0	0	0	0	0	9	90	0	0	1	10	0	0	8	80	0	0	0	0	2	20	9	90	0	0	1	10	0	0
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	9	90	1	10	0	0	0	0	9	90	0	0	0	0	1	10
	Sigri	F	10	10	100	0	0	0	0	0	0	9	90	0	0	0	0	0	0	10	100	0	0	0	0	0	0	9	90	0	0	0	0	1	10
		M	10	8	80	2	20	0	0	0	0	8	80	2	20	0	0	0	0	6	60	2	20	0	0	2	20	9	90	0	0	0	0	1	10
Lambussie	Lambussie	F	10	9	90	1	10	0	0	0	0	9	90	1	10	0	0	0	0	8	80	0	0	1	10	1	10	9	90	0	0	0	0	1	10
		M	10	9	90	0	0	0	0	1	10	9	90	0	0	0	0	1	10	10	100	0	0	0	0	0	0	9	90	0	0	1	10	0	0

Reasons for not joining the organisation

District	Sex		Gain nothing								Payment of money								Not informed								No such group							
			N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	29	100	0	0	0	0	0	0	27	93	1	3	0	0	0	1	3	27	93	1	3	0	0	1	3	23	79	0	0	1	3	5	17
	M	31	29	94	0	0	2	6	0	0	29	94	0	0	2	6	0	0	26	84	1	3	2	6	2	6	24	77	0	0	2	6	5	16
Nadowli	F	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0	29	97	0	0	0	0	1	3
	M	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0	26	87	1	3	0	0	3	10	29	97	0	0	0	0	1	3
Jirapa	F	30	29	97	1	3	0	0	0	0	27	90	1	3	1	3	1	3	26	87	0	0	1	3	3	10	27	90	0	0	1	3	2	7
	M	30	27	90	2	7	0	0	1	3	27	90	2	7	0	0	1	3	25	83	3	10	0	0	2	7	27	90	0	0	1	3	2	7
Total	F	89	88	99	1	1	0	0	0	0	84	94	2	2	1	1	2	2	83	93	1	1	1	1	4	4	79	89	0	0	2	2	8	9
Survey	M	91	86	95	2	2	2	2	1	1	86	95	2	2	2	2	1	1	77	85	5	5	2	2	7	8	80	88	0	0	3	3	8	9
Area	All	180	174	97	3	2	2	1	1	1	170	94	4	2	3	2	3	2	160	89	6	3	3	2	11	6	159	88	0	0	5	3	16	9

7. Finance

7.1, Financial Situation/Status

District	Operational Area	Sex		Fin-status								Type of institution/people														Purpose							
				A		B		C		D		N-R		A		B		C		D		E		F		G		N-R		L		S		S-L	
				No	%	No	%	No	%	No	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	Babili	F	10	0	0	8	80	0	0	2	20	2	20	0	0	0	0	0	0	2	20	2	20	1	10	0	0	2	20	5	50	1	10	2	20
		M	10	3	30	7	70	0	0	0	0	4	40	1	10	0	0	0	0	0	0	1	10	1	10	1	10	4	40	4	40	0	0	2	20
	Tom	F	9	1	11	4	44	4	44	0	0	2	22	0	0	0	0	0	0	0	0	3	33	2	22	0	0	2	22	7	78	0	0	0	0
		M	11	4	36	5	45	2	18	0	0	2	18	1	9	1	9	0	0	0	0	3	27	1	9	1	9	2	18	6	55	1	9	2	18
	Nandom	F	10	2	20	6	60	0	0	2	20	3	30	1	10	0	0	0	0	1	10	1	10	2	20	2	20	4	40	5	50	0	0	1	10
		M	10	5	50	4	40	0	0	1	10	0	0	3	30	0	0	2	20	1	10	1	10	2	20	0	0	1	10	3	30	3	30	3	30
Nadowli	~~Dafflama~~	F	10	1	10	9	90	0	0	0	0	0	0	0	0	0	0	0	0	1	10	0	0	5	50	1	10	0	0	7	70	1	10	2	20
		M	10	4	40	6	60	0	0	0	0	1	10	2	20	0	0	0	0	2	20	0	0	1	10	1	10	1	10	4	40	3	30	2	20
	Serekpere	F	10	2	20	7	70	0	0	1	10	2	20	0	0	0	0	1	10	0	0	3	30	3	30	0	0	2	20	8	80	0	0	0	0
		M	10	2	20	8	80	0	0	0	0	0	0	0	0	0	0	2	20	1	10	1	10	3	30	1	10	0	0	8	80	2	20	0	0
	Takpoe	F	10	1	10	9	90	0	0	0	0	0	0	0	0	0	0	1	10	0	0	1	10	3	30	3	30	0	0	7	70	1	10	2	20
		M	10	4	40	6	60	0	0	0	0	2	20	1	10	1	10	1	10	0	0	0	0	4	40	0	0	2	20	5	50	3	30	0	0
Jirapa	Tuggo	F	10	1	10	8	80	1	10	0	0	0	0	0	0	0	0	0	0	0	0	2	20	3	30	4	40	0	0	8	80	1	10	1	10
		M	10	3	30	6	60	1	10	0	0	1	10	0	0	1	10	0	0	1	10	2	20	1	10	1	10	1	10	8	80	0	0	1	10
	Sigri	F	10	0	0	9	90	1	10	0	0	4	40	0	0	0	0	0	0	0	0	0	0	3	30	1	10	4	40	6	60	0	0	0	0
		M	10	5	50	2	20	3	30	0	0	3	30	0	0	0	0	1	10	1	10	0	0	1	10	1	10	3	30	4	40	3	30	0	0
~~Lambussie~~	Lambusie	F	10	6	60	3	30	1	10	0	0	3	30	0	0	0	0	2	20	1	10	1	10	0	0	1	10	3	30	2	20	3	30	2	20
		M	10	6	60	4	40	0	0	0	0	2	20	2	20	0	0	0	0	2	20	0	0	0	0	3	30	2	20	3	30	3	30	2	20

Financial Situation/Status (District level)

District	Sex		Fin-status								Type of institution/people														Purpose							
			A		B		C		D		N-R		A		B		C		D		E		F		G		N-R		L		S		S-L	
			No	%	No	%	No	%	No	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	F	29	3	10	18	62	4	14	4	14	7	24	1	3	0	0	0	0	3	10	6	21	5	17	2	7	8	28	17	59	1	3	3	10
	M	31	12	39	16	52	2	6	1	3	6	19	5	16	1	3	2	6	1	3	5	16	4	13	2	6	7	23	13	42	4	13	7	23
Nadowli	F	30	4	13	25	83	0	0	1	3	2	7	0	0	0	0	2	7	1	3	4	13	11	37	4	13	2	7	22	73	2	7	4	13
	M	30	10	33	20	67	0	0	0	0	3	10	3	10	1	3	3	10	3	10	1	3	8	27	2	7	3	10	17	57	8	27	2	7
Jirapa	F	30	7	23	20	67	3	10	0	0	7	23	0	0	0	0	2	7	1	3	3	10	6	20	6	20	7	23	16	53	4	13	3	10
	M	30	14	47	12	40	4	13	0	0	6	20	2	7	1	3	1	3	4	13	2	7	2	7	5	17	6	20	15	50	6	20	3	10
Total	F	89	14	16	63	71	7	8	5	6	16	18	1	1	0	0	4	4	5	6	13	15	22	25	12	13	17	19	55	62	7	8	10	11
Survey	M	91	36	40	48	53	6	7	1	1	15	16	10	11	3	3	6	7	8	9	8	9	14	15	9	10	16	18	45	49	18	20	12	13
Area	All	180	50	28	111	62	13	7	6	3	31	17	11	6	3	2	10	6	13	7	21	12	36	20	21	12	33	18	100	56	25	14	22	12

7.3, Reasons for Taking Loans

District	Operational Area	Sex		Buy equip.								Buy seed								Buy fert., & chem.								Buy food							
				N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
				No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	8	80	0	0	2	20	0	0	6	60	1	10	1	10	2	20	7	70	0	0	1	10	2	20	6	60	0	0	3	30	1	10
		M	10	5	50	0	0	3	30	2	20	5	50	1	10	2	20	2	20	5	50	0	0	1	10	4	40	5	50	0	0	3	30	2	20
	Tom	F	9	7	78	1	11	1	11	0	0	5	56	2	22	2	22	0	0	7	78	0	0	2	22	0	0	5	56	0	0	3	33	1	11
		M	11	7	64	2	18	2	18	0	0	8	73	3	27	0	0	0	0	9	82	1	9	1	9	0	0	6	55	1	9	3	27	1	9
	Nandom	F	10	8	80	0	0	2	20	0	0	7	70	3	30	0	0	0	0	6	60	2	20	2	20	0	0	4	40	3	30	2	20	1	10
		M	10	6	60	0	0	3	30	1	10	5	50	1	10	4	40	0	0	6	60	0	0	3	30	1	10	5	50	0	0	4	40	1	10
Nadowli	Dafflama	F	10	7	70	0	0	2	20	1	10	6	60	0	0	3	30	1	10	6	60	2	20	1	10	1	10	7	70	2	20	1	10	0	0
		M	10	6	60	0	0	3	30	1	10	6	60	0	0	3	30	1	10	5	50	0	0	2	20	3	30	6	60	2	20	2	20	0	0
	Serekpere	F	10	9	90	0	0	1	10	0	0	7	70	0	0	2	20	1	10	8	80	0	0	1	10	1	10	6	60	2	20	2	20	0	0
		M	10	8	80	1	10	1	10	0	0	7	70	2	20	1	10	0	0	6	60	2	20	2	20	0	0	4	40	4	40	2	20	0	0
	Takpoe	F	10	6	60	1	10	2	20	1	10	3	30	1	10	4	40	2	20	5	50	2	20	2	20	1	10	6	60	1	10	2	20	1	10
		M	10	8	80	1	10	1	10	0	0	8	80	2	20	0	0	0	0	4	40	1	10	4	40	1	10	7	70	3	30	0	0	0	0
Jirapa	Tuggo	F	10	7	70	1	10	1	10	1	10	5	50	5	50	0	0	0	0	4	40	1	10	2	20	3	30	6	60	1	10	2	20	1	10
		M	10	3	30	2	20	4	40	1	10	6	60	2	20	1	10	1	10	3	30	0	0	3	30	4	40	4	40	0	0	4	40	2	20
	Sigri	F	10	8	80	1	10	0	0	1	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	5	50	3	30	0	0	2	20
		M	10	8	80	0	0	0	0	2	20	9	90	0	0	1	10	0	0	9	90	0	0	1	10	0	0	6	60	0	0	2	20	2	20
~~Lambussie~~	~~Lambusie~~	F	10	8	80	1	10	1	10	0	0	7	70	2	20	1	10	0	0	7	70	0	0	1	10	2	20	7	70	1	10	2	20	0	0
		M	10	8	80	0	0	2	20	0	0	9	90	0	0	1	10	0	0	9	90	0	0	1	10	0	0	9	90	0	0	1	10	0	0

Reasons for Taking Loans

District	Sex		Buy equip.								Buy seed								Buy fert., & chem.								Buy food							
			N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	23	79	1	3	5	17	0	0	18	62	6	21	3	10	2	7	20	69	2	7	5	17	2	7	15	52	3	10	8	28	3	10
	M	31	18	58	2	6	8	26	3	10	18	58	5	16	6	19	2	6	20	65	1	3	5	16	5	16	16	52	1	3	10	32	4	13
Nadowli	F	30	22	73	1	3	5	17	2	7	16	53	1	3	9	30	4	13	19	63	4	13	4	13	3	10	19	63	5	17	5	17	1	3
	M	30	22	73	2	7	5	17	1	3	21	70	4	13	4	13	1	3	15	50	3	10	8	27	4	13	17	57	9	30	4	13	0	0
Jirapa	F	30	23	77	3	10	2	7	2	7	22	73	7	23	1	3	0	0	21	70	1	3	3	10	5	17	18	60	5	17	4	13	3	10
	M	30	19	63	2	7	6	20	3	10	24	80	2	7	3	10	1	3	21	70	0	0	5	17	4	13	19	63	0	0	7	23	4	13
Total Survey Area	F	89	68	76	5	6	12	13	4	4	56	63	14	16	13	15	6	7	60	67	7	8	12	13	10	11	52	58	13	15	17	19	7	8
	M	91	59	65	6	7	19	21	7	8	63	69	11	12	13	14	4	4	56	62	4	4	18	20	13	14	52	57	10	11	21	23	8	9
	All	180	127	71	11	6	31	17	11	6	119	66	25	14	26	14	10	6	116	64	11	6	30	17	23	13	104	58	23	13	38	21	15	8

Reasons for Taking Loans

District	Operational Area	Sex		Children education								Heath								Other							
				N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
				No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	5	50	0	0	3	30	2	20	4	40	1	10	4	40	1	10	8	80	0	0	1	10	1	10
		M	10	7	70	0	0	3	30	0	0	4	40	1	10	2	20	3	30	7	70	1	10	2	20	0	0
	Tom	F	9	4	44	0	0	3	33	2	22	2	22	1	11	5	56	1	11	4	44	3	33	2	22	0	0
		M	11	4	36	0	0	4	36	3	27	4	36	1	9	5	45	1	9	8	73	0	0	3	27	0	0
	Nandom	F	10	4	40	0	0	5	50	1	10	5	50	0	0	4	40	1	10	6	60	0	0	4	40	0	0
		M	10	2	20	1	10	3	30	4	40	3	30	1	10	4	40	2	20	5	50	1	10	3	30	1	10
Nadowli	Daffiama	F	10	4	40	1	10	4	40	1	10	5	50	2	20	3	30	0	0	6	60	0	0	2	20	2	20
		M	10	5	50	0	0	4	40	1	10	7	70	0	0	3	30	0	0	6	60	0	0	3	30	1	10
	Serekpere	F	10	5	50	1	10	4	40	0	0	6	60	0	0	3	30	1	10	7	70	1	10	0	0	2	20
		M	10	3	30	0	0	3	30	4	40	5	50	0	0	5	50	0	0	9	90	1	10	0	0	0	0
	Takpoe	F	10	2	20	2	20	4	40	2	20	4	40	0	0	6	60	0	0	7	70	1	10	2	20	0	0
		M	10	6	60	0	0	3	30	1	10	5	50	2	20	3	30	0	0	10	100	0	0	0	0	0	0
Jirapa	Tuggo	F	10	5	50	1	10	2	20	2	20	6	60	2	20	0	0	2	20	6	60	1	10	2	20	1	10
		M	10	3	30	0	0	6	60	1	10	3	30	1	10	4	40	2	20	7	70	0	0	3	30	0	0
	Sigri	F	10	6	60	1	10	2	20	1	10	7	70	1	10	1	10	1	10	9	90	0	0	0	0	1	10
		M	10	7	70	1	10	1	10	1	10	5	50	1	10	1	10	3	30	10	100	0	0	0	0	0	0
Lambussie	Lambussie	F	10	7	70	0	0	1	10	2	20	6	60	0	0	4	40	0	0	7	70	1	10	1	10	1	10
		M	10	7	70	1	10	2	20	0	0	7	70	0	0	2	20	1	10	8	80	0	0	2	20	0	0

Reasons for Taking Loans

District	Sex		Children education								Heath								Other							
			N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	13	45	0	0	11	38	5	17	11	38	2	7	13	45	3	10	18	62	3	10	7	24	1	3
	M	31	13	42	1	3	10	32	7	23	11	35	3	10	11	35	6	19	20	65	2	6	8	26	1	3
Nadowli	F	30	11	37	4	13	12	40	3	10	15	50	2	7	12	40	1	3	20	67	2	7	4	13	4	13
	M	30	14	47	0	0	10	33	6	20	17	57	2	7	11	37	0	0	25	83	1	3	3	10	1	3
Jirapa	F	30	18	60	2	7	5	17	5	17	19	63	3	10	5	17	3	10	22	73	2	7	3	10	3	10
	M	30	17	57	2	7	9	30	2	7	15	50	2	7	7	23	6	20	25	83	0	0	5	17	0	0
Total Survey Area	F	89	42	47	6	7	28	31	13	15	45	51	7	8	30	34	7	8	60	67	7	8	14	16	8	9
	M	91	44	48	3	3	29	32	15	16	43	47	7	8	29	32	12	13	70	77	3	3	16	18	2	2
	All	180	86	48	9	5	57	32	28	16	88	49	14	8	59	33	19	11	130	72	10	6	30	17	10	6

8. Processing

8.1 Means of processing Harvest (Threshing)

District	Operational Area	Sex	Sorghum (thrs)								Millet (thrs)								Maize (thrs)							
			N-R		1		2		3		N-R		1		2		3		N-R		1		2		3	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	1	10	9	90	0	0	0	0	1	10	9	90	0	0	0	0	1	10	9	90	0	0	0	0
		M	10	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0
	Tom	F	9	0	0	9	100	0	0	0	0	1	11	8	89	0	0	0	0	1	11	8	89	0	0	0	0
		M	11	0	0	11	100	0	0	0	0	0	0	10	91	1	9	0	0	0	0	11	100	0	0	0	0
	Nandom	F	10	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0
		M	10	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0
Nadowli	Daffiama	F	10	2	20	8	80	0	0	0	0	2	20	8	80	0	0	0	0	0	0	9	90	0	0	1	10
		M	10	1	10	9	90	0	0	0	0	2	20	8	80	0	0	0	0	0	0	10	100	0	0	0	0
	Serekpere	F	10	0	0	10	100	0	0	0	0	2	20	8	80	0	0	0	0	0	0	10	100	0	0	0	0
		M	10	1	10	9	90	0	0	0	0	3	30	7	70	0	0	0	0	1	10	9	90	0	0	0	0
	Takpoe	F	10	2	20	8	80	0	0	0	0	1	10	9	90	0	0	0	0	2	20	8	80	0	0	0	0
		M	10	0	0	10	100	0	0	0	0	1	10	9	90	0	0	0	0	0	0	10	100	0	0	0	0
Jirapa	Tuggo	F	10	2	20	8	80	0	0	0	0	1	10	9	90	0	0	0	0	0	0	10	100	0	0	0	0
		M	10	1	10	9	90	0	0	0	0	1	10	9	90	0	0	0	0	0	0	10	100	0	0	0	0
	Sigri	F	10	1	10	9	90	0	0	0	0	2	20	8	80	0	0	0	0	0	0	10	100	0	0	0	0
		M	10	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	3	30	7	70	0	0	0	0
Lambussie	Lambussie	F	10	2	20	8	80	0	0	0	0	3	30	7	70	0	0	0	0	1	10	9	90	0	0	0	0
		M	10	1	10	9	90	0	0	0	0	2	20	8	80	0	0	0	0	0	0	10	100	0	0	0	0

District	Operational Area	Sex	Cowpea (thrs)								G-nuts (dehk)							
			N-R		1		2		3		N-R		1		2		3	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	1	10	9	90	0	0	0	0	1	10	9	90	0	0	0	0
		M	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0
	Tom	F	2	22	7	78	0	0	0	0	1	11	8	89	0	0	0	0
		M	3	27	8	73	0	0	0	0	1	9	10	91	0	0	0	0
	Nandom	F	0	0	10	100	0	0	0	0	1	10	9	90	0	0	0	0
		M	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0
Nadowli	Daffiama	F	1	10	9	90	0	0	0	0	0	0	10	100	0	0	0	0
		M	1	10	9	90	0	0	0	0	0	0	10	100	0	0	0	0
	Serekpere	F	0	0	10	100	0	0	0	0	0	0	9	90	1	10	0	0
		M	0	0	10	100	0	0	0	0	0	0	9	90	1	10	0	0
	Takpoe	F	1	10	9	90	0	0	0	0	1	10	9	90	0	0	0	0
		M	0	0	10	100	0	0	0	0	0	0	7	70	3	30	0	0
Jirapa	Tuggo	F	2	20	8	80	0	0	0	0	0	0	10	100	0	0	0	0
		M	1	10	9	90	0	0	0	0	0	0	10	100	0	0	0	0
	Sigri	F	1	10	9	90	0	0	0	0	0	0	10	100	0	0	0	0
		M	0	0	10	100	0	0	0	0	0	0	8	80	2	20	0	0
Lambussie	Lambussie	F	1	10	9	90	0	0	0	0	0	0	8	80	1	10	1	10
		M	0	0	10	100	0	0	0	0	0	0	6	60	4	40	0	0

Means of processing Harvest (Threshing)

District	Sex		Sorghum (thrs)								Millet (thrs)							
			N-R		1		2		3		N-R		1		2		3	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	1	3	28	97	0	0	0	0	2	7	27	93	0	0	0	0
	M	31	0	0	31	100	0	0	0	0	0	0	30	97	1	3	0	0
Nadowli	F	30	4	13	26	87	0	0	0	0	5	17	25	83	0	0	0	0
	M	30	2	7	28	93	0	0	0	0	6	20	24	80	0	0	0	0
Jirapa	F	30	5	17	25	83	0	0	0	0	6	20	24	80	0	0	0	0
	M	30	2	7	28	93	0	0	0	0	3	10	27	90	0	0	0	0
Total	F	89	10	11	79	89	0	0	0	0	13	15	76	85	0	0	0	0
Survey	M	91	4	4	87	96	0	0	0	0	9	10	81	89	1	1	0	0
Area	All	180	14	8	166	92	0	0	0	0	22	12	157	87	1	1	0	0

District	Sex		Maize (thrs)								Cowpea (thrs)							
			N-R		1		2		3		N-R		1		2		3	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	2	7	27	93	0	0	0	0	3	10	26	90	0	0	0	0
	M	31	0	0	31	100	0	0	0	0	3	10	28	90	0	0	0	0
Nadowli	F	30	2	7	27	90	0	0	1	3	2	7	28	93	0	0	0	0
	M	30	1	3	29	97	0	0	0	0	1	3	29	97	0	0	0	0
Jirapa	F	30	1	3	29	97	0	0	0	0	4	13	26	87	0	0	0	0
	M	30	3	10	27	90	0	0	0	0	1	3	29	97	0	0	0	0
Total	F	89	5	6	83	93	0	0	1	1	9	10	80	90	0	0	0	0
Survey	M	91	4	4	87	96	0	0	0	0	5	5	86	95	0	0	0	0
Area	All	180	9	5	170	94	0	0	1	1	14	8	166	92	0	0	0	0

District	Sex		G-nuts (dehk)							
			N-R		1		2		3	
			No	%	No	%	No	%	No	%
Lawra	F	29	3	10	26	90	0	0	0	0
	M	31	1	3	30	97	0	0	0	0
Nadowli	F	30	1	3	28	93	1	3	0	0
	M	30	0	0	26	87	4	13	0	0
Jirapa	F	30	0	0	28	93	1	3	1	3
	M	30	0	0	24	80	6	20	0	0
Total	F	89	4	4	82	92	2	2	1	1
Survey	M	91	1	1	80	88	10	11	0	0
Area	All	180	5	3	162	90	12	7	1	1

8.1 Means of processing Harvest (Grinding)

District	Operational Area	Sex	Sorghum (grd)								Millet (grd)							
			N-R		1		2		3		N-R		1		2		3	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	Babili	F	10	1	10	0	0	5	50	4	40	1	10	0	0	5	50	4
		M	10	0	0	0	0	5	50	5	50	0	0	0	0	5	50	5
	Tom	F	9	0	0	0	0	1	11	8	89	1	11	0	0	1	11	7
		M	11	0	0	0	0	4	36	7	64	0	0	0	0	4	36	7
	Nandom	F	10	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10
		M	10	0	0	0	0	2	20	8	80	0	0	0	0	2	20	8
Nadowli	Daffiama	F	10	2	20	0	0	2	20	6	60	1	10	1	10	2	20	6
		M	10	1	10	0	0	1	10	8	80	2	20	0	0	1	10	7
	Serekpere	F	10	0	0	0	0	0	0	10	100	2	20	0	0	0	0	8
		M	10	1	10	0	0	0	0	9	90	3	30	0	0	0	0	7
	Takpoe	F	10	2	20	0	0	0	0	8	80	1	10	0	0	0	0	9
		M	10	0	0	0	0	0	0	10	100	1	10	0	0	0	0	9
Jirapa	Tuggo	F	10	2	20	1	10	1	10	6	60	2	20	1	10	1	10	6
		M	10	1	10	0	0	6	60	3	30	1	10	0	0	0	0	6
	Sigri	F	10	1	10	0	0	7	70	2	20	2	20	0	0	6	60	2
		M	10	0	0	0	0	9	90	1	10	0	0	0	0	10	100	0
Lambussie	Lambussie	F	10	2	20	0	0	3	30	5	50	3	30	0	0	3	30	4
		M	10	1	10	0	0	2	20	7	70	2	20	0	0	1	10	7

District	Sex		Maize (grd)								Cowpea (grd)							
			N-R		1		2		3		N-R		1		2		3	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	1	10	0	0	5	50	4	40	1	10	0	0	5	50	4	40
	M	10	0	0	0	0	5	50	5	50	0	0	0	0	5	50	5	50
	F	9	0	0	0	0	0	0	8	89	2	22	0	0	0	0	7	78
	M	11	0	0	0	0	4	36	7	64	3	27	0	0	3	27	5	45
	F	10	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100
	M	10	0	0	0	0	4	36	7	64	0	0	0	0	4	36	7	64
Nadowli	F	10	2	20	0	0	2	20	7	70	1	10	0	0	2	20	7	70
	M	10	0	0	0	0	2	20	8	80	0	0	0	0	2	20	8	80
	F	10	2	20	0	0	2	20	6	60	1	10	0	0	2	20	7	70
	M	10	0	0	0	0	0	0	8	80	0	0	0	0	0	0	8	80
	F	10	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100
	M	10	0	0	0	0	0	0	9	90	0	0	0	0	0	0	9	90
	F	10	2	20	0	0	0	0	8	80	1	10	0	0	0	0	9	90
	M	10	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100
Jirapa	F	10	2	20	1	10	1	10	6	60	2	20	1	10	1	10	6	60
	M	10	1	10	0	0	6	60	3	30	1	10	0	0	6	60	3	30
	F	10	1	10	0	0	7	70	2	20	1	10	0	0	7	70	2	20
	M	10	0	0	0	0	9	90	1	10	0	0	0	0	10	100	0	0
Lambussie	F	10	2	20	0	0	3	30	5	50	1	10	0	0	3	30	6	60
	M	10	1	10	0	0	2	20	7	70	1	10	0	0	1	10	8	80

District	Sex		G-nuts (grd)							
			N-R		1		2		3	
			No	%	No	%	No	%	No	%
Lawra	F	29	3	10	7	70	0	0	2	20
	M	31	0	0	6	60	2	20	2	20
	F	30	0	0	7	70	2	20	1	10
	M	30	1	10	9	90	0	0	0	0
	F	30	1	10	10	100	0	0	0	0
	M	30	0	0	10	100	0	0	0	0
Nadowli	F	30	0	0	7	70	2	20	1	10
	M	30	0	0	7	70	1	10	2	20
	F	30	0	0	9	90	1	10	0	0
	M	30	0	0	10	100	0	0	0	0
	F	30	0	0	9	90	1	10	0	0
	M	30	0	0	10	100	0	0	0	0
Jirapa	F	30	2	7	60	1	10	2	7	
	M	30	1	3	50	0	0	3	30	
	F	30	2	7	50	3	30	2	20	
	M	30	0	0	5	50	3	30	2	20
Total	F	89	6	7	63	71	8	9	12	13
Survey	M	91	2	2	73	80	8	9	8	9
Area	All	180	8	4	136	76	16	9	20	11

Means of processing Harvest (Grinding)

District	Sex		Sorghum (grd)								Millet (grd)							
			N-R		1		2		3		N-R		1		2		3	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	1	3	0	0	6	21	22	76	2	7	0	0	6	21	21	72
	M	31	0	0	0	0	11	35	20	65	0	0	0	0	11	35	20	65
Nadowli	F	30	4	13	0	0	2	7	24	80	4	13	1	3	2	7	23	77
	M	30	2	7	0	0	1	3	27	90	6	20	0	0	1	3	23	77
Jirapa	F	30	5	17	1	3	11	37	13	43	7	23	1	3	10	33	12	40
	M	30	2	7	0	0	17	57	11	37	3	10	0	0	17	57	10	33
Total	F	89	10	11	1	1	19	21	59	66	13	15	2	2	18	20	56	63
Survey	M	91	4	4	0	0	29	32	58	64	9	10	0	0	29	32	53	58
Area	All	180	14	8	1	1	48	27	117	65	22	12	2	1	47	26	109	61

District	Sex		Maize (grd)								Cowpea (grd)							
			N-R		1		2		3		N-R		1		2		3	
			No	%	No	%	No	%	No	%	No	%	No	%	No	%	No	%
Lawra	F	29	2	7	0	0	5	17	22	76	3	10	0	0	5	17	21	72
	M	31	0	0	0	0	11	35	20	65	3	10	0	0	10	32	18	58
Nadowli	F	30	2	7	0	0	2	7	25	83	2	7	0	0	2	7	26	87
	M	30	1	3	0	0	1	3	28	93	1	3	0	0	1	3	28	93
Jirapa	F	30	10	33	17	57	4	13	1	3	11	37	14	47	2	7	18	60
	M	30	3	10	0	0	14	47	13	43	2	7	0	0	17	57	11	37
Total	F	89	13	15	2	2	18	20	56	63	7	8	1	1	17	19	64	72
Survey	M	91	4	4	0	0	29	32	53	58	4	4	0	0	26	29	61	67
Area	All	180	22	12	2	1	47	26	109	61	11	6	1	1	43	24	125	69

District	Sex		G-nuts (grd)							
			N-R		1		2		3	
			No	%	No	%	No	%	No	%
Lawra	F	29	3	10	23	79	1	3	2	7
	M	31	1	3	25	81	3	10	2	6
Nadowli	F	30	1	3	22	73	4	13	3	10
	M	30	0	0	26	87	2	7	2	7
Jirapa	F	30	2	7	18	60	3	10	7	23
	M	30	1	3	22	73	3	10	4	13
Total	F	89	6	7	63	71	8	9	12	13
Survey	M	91	2	2	73	80	8	9	8	9
Area	All	180	8	4	136	76	16	9	20	11

8.2 Problem Encounterd in Processing

District	Operational Area	Sex		Threshing (traditional way) - ranking																											
				Takes time								Tiring								Poor quality								Other					
				N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	Babili	F	10	1	10	0	0	0	0	9	90	1	10	0	0	0	0	9	90	1	10	4	40	3	30	2	20	8	80	0	0	1	10	1	10
		M	10	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	2	20	4	40	2	20	2	20	4	40	2	20	1	10	3	30
	Tom	F	9	0	0	1	11	3	33	5	56	0	0	1	11	0	0	8	89	1	11	5	56	3	33	0	0	6	67	1	11	0	0	2	22
		M	11	0	0	0	0	1	9	10	91	0	0	0	0	0	0	11	100	1	9	5	45	3	27	2	18	9	82	0	0	0	0	2	18
	Nandom	F	10	0	0	0	0	2	20	8	80	0	0	0	0	1	10	9	90	1	10	7	70	2	20	0	0	7	70	0	0	0	0	3	30
		M	10	0	0	1	10	0	0	9	90	0	0	0	0	1	10	9	90	0	0	5	50	4	40	1	10	8	80	2	20	0	0	0	0
Nadowli	Daffiama	F	10	0	0	0	0	5	50	5	50	0	0	0	0	0	0	10	100	0	0	6	60	4	40	0	0	8	80	0	0	0	0	2	20
		M	10	0	0	0	0	1	10	9	90	0	0	0	0	0	0	10	100	0	0	5	50	4	40	1	10	9	90	0	0	0	0	1	10
	Serekpere	F	10	0	0	0	0	1	10	9	90	0	0	0	0	0	0	10	100	0	0	7	70	3	30	0	0	9	90	0	0	0	0	1	10
		M	10	0	0	0	0	1	10	9	90	0	0	0	0	0	0	9	90	2	20	6	60	2	20	0	0	8	80	1	10	1	10	0	0
	Takpoe	F	10	1	10	0	0	1	10	8	80	1	10	0	0	1	10	8	80	2	20	7	70	1	10	0	0	7	70	0	0	0	0	3	30
		M	10	0	0	0	0	3	30	7	70	0	0	0	0	0	0	10	100	0	0	6	60	3	30	1	10	9	90	0	0	0	0	1	10
Jirapa	Tuggo	F	10	0	0	1	10	2	20	7	70	0	0	0	0	1	10	9	90	0	0	2	20	6	60	2	20	7	70	0	0	0	0	3	30
		M	10	0	0	1	10	1	10	8	80	0	0	0	0	0	0	10	100	1	10	3	30	6	60	0	0	7	70	1	10	0	0	2	20
	Sigri	F	10	1	10	0	0	2	20	8	80	0	0	0	0	0	0	10	100	2	20	3	30	2	20	3	30	9	90	0	0	0	0	1	10
		M	10	1	10	0	0	0	0	9	90	1	10	0	0	0	0	9	90	3	30	6	60	0	0	1	10	8	80	1	10	1	10	0	0
	Lambussie	F	10	1	10	0	0	1	10	8	80	1	10	0	0	1	10	8	80	2	20	7	70	1	10	0	0	7	70	0	0	0	0	3	30
		M	10	1	10	1	10	2	20	6	60	0	0	1	10	0	0	9	90	1	10	6	60	3	30	0	0	8	80	0	0	0	0	2	20

District	Sex		Threshing (traditional way) - ranking																													
			Takes time								Tiring								Poor quality								Other					
			N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	F	29	1	3	1	3	5	17	22	76	1	3	1	3	1	3	26	90	3	10	16	55	8	28	2	7	21	72	1	3	1	3	6	21
	M	31	0	0	1	3	1	3	29	94	0	0	0	0	1	3	30	97	3	10	14	45	9	29	5	16	21	68	4	13	1	3	5	16
Nadowli	F	30	1	3	0	0	7	23	22	73	1	3	0	0	1	3	28	93	2	7	20	67	8	27	0	0	24	80	0	0	0	0	6	20
	M	30	0	0	0	0	5	17	25	83	1	3	0	0	0	0	29	97	2	7	17	57	9	30	2	7	26	87	1	3	1	3	2	7
Jirapa	F	30	1	3	1	3	4	13	24	80	0	0	0	0	1	3	29	97	2	7	12	40	10	33	6	20	21	70	1	3	0	0	8	27
	M	30	2	7	2	7	3	10	23	77	1	3	1	3	0	0	28	93	5	17	15	50	9	30	1	3	23	77	2	7	1	3	4	13
Total	F	89	3	3	2	2	16	18	68	76	2	2	1	1	3	3	83	93	7	8	48	54	26	29	8	9	66	74	2	2	1	1	20	22
Survey	M	91	2	2	3	3	9	10	77	85	2	2	1	1	1	1	87	96	10	11	46	51	27	30	8	9	70	77	7	8	3	3	11	12
Area	All	180	5	3	5	3	25	14	145	81	4	2	2	1	4	2	170	94	17	9	94	52	53	29	16	9	136	76	9	5	4	2	31	17

8.2 Problem Encounterd in Processing

District	Operational Area	Sex		Grinding (traditional way) - ranking																											
				Takes time								Tiring								Poor quality								Other					
				N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	Babili	F	10	3	30	0	0	2	20	5	50	3	30	0	0	0	0	7	70	4	40	2	20	4	40	0	0	10	100	0	0	0	0	0	0
		M	10	3	30	0	0	1	10	6	60	3	30	1	10	0	0	6	60	4	40	2	20	2	20	2	20	9	90	0	0	0	0	1	10
	Tom	F	9	3	33	1	11	2	22	3	33	4	44	0	0	1	11	4	44	5	56	0	0	4	44	0	0	8	89	1	11	0	0	0	0
		M	11	3	27	0	0	1	9	7	64	4	36	1	9	0	0	6	55	5	45	4	36	1	9	1	9	11	100	0	0	0	0	0	0
	Nandom	F	10	2	20	1	10	4	40	3	30	2	20	0	0	1	10	7	70	3	30	6	60	1	10	0	0	10	100	0	0	0	0	0	0
		M	10	1	10	0	0	2	20	7	70	1	10	0	0	1	10	8	80	3	30	5	50	2	20	0	0	10	100	0	0	0	0	0	0
Nadowli	Daffiama	F	10	4	40	0	0	2	20	4	40	4	40	0	0	1	10	5	50	5	50	3	30	2	20	0	0	10	100	0	0	0	0	0	0
		M	10	6	60	1	10	2	20	1	10	6	60	0	0	0	0	4	40	7	70	3	30	0	0	0	0	10	100	0	0	0	0	0	0
	Serekpere	F	10	2	20	0	0	6	60	2	20	2	20	0	0	1	10	7	70	2	20	6	60	1	10	1	10	10	100	0	0	0	0	0	0
		M	10	2	20	0	0	4	40	4	40	2	20	1	10	2	20	5	50	4	40	5	50	1	10	0	0	9	90	1	10	0	0	0	0
	Takpoe	F	10	5	50	0	0	4	40	1	10	5	50	0	0	0	0	5	50	5	50	5	50	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	3	30	0	0	6	60	1	10	3	30	1	10	2	20	4	40	3	30	4	40	3	30	0	0	10	100	0	0	0	0	0	0
Jirapa	Tuggo	F	10	6	60	0	0	2	20	2	20	6	60	0	0	1	10	3	30	7	70	1	10	1	10	1	10	10	100	0	0	0	0	0	0
		M	10	3	30	0	0	1	10	6	60	3	30	0	0	3	30	4	40	5	50	3	30	2	20	0	0	10	100	0	0	0	0	0	0
	Sigri	F	10	3	30	0	0	1	10	6	60	2	20	0	0	1	10	7	70	5	50	5	50	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	0	0	0	0	1	10	9	90	0	0	0	0	0	0	10	100	3	30	6	60	1	10	0	0	10	100	0	0	0	0	0	0
	Lambussie	F	10	5	50	0	0	2	20	3	30	5	50	0	0	0	0	5	50	5	50	4	40	1	10	0	0	10	100	0	0	0	0	0	0
		M	10	5	50	0	0	2	20	3	30	5	50	1	10	0	0	4	40	5	50	4	40	1	10	0	0	10	100	0	0	0	0	0	0

Problem Encounterd in Processing (District Level)

District	Sex		Grinding (traditional way) - ranking																													
			Takes time								Tiring								Poor quality								Other					
			N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
			No.	%	No.	%	No.		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	F	29	8	28	2	7	8	28	11	38	9	31	0	0	2	7	18	62	12	41	8	28	9	31	0	0	28	97	1	3	0	0	0	0
	M	31	7	23	0	0	4	13	20	65	8	26	2	6	1	3	20	65	12	39	11	35	5	16	3	10	30	97	0	0	0	0	1	3
Nadowli	F	30	11	37	0	0	12	40	7	23	11	37	0	0	2	7	17	57	12	40	14	47	3	10	1	3	30	100	0	0	0	0	0	0
	M	30	11	37	1	3	12	40	6	20	11	37	2	7	4	13	13	43	14	47	12	40	4	13	0	0	29	97	1	3	0	0	0	0
Jirapa	F	30	14	47	0	0	5	17	11	37	13	43	0	0	2	7	15	50	17	57	10	33	2	7	1	3	30	100	0	0	0	0	0	0
	M	30	8	27	0	0	4	13	18	60	8	27	1	3	3	10	18	60	13	43	13	43	4	13	0	0	30	100	0	0	0	0	0	0
Total	F	89	33	37	2	2	25	28	29	33	33	37	0	0	6	7	50	56	41	46	32	36	14	16	2	2	88	99	1	1	0	0	0	0
Survey	M	91	26	29	1	1	20	22	44	48	27	30	5	5	8	9	51	56	39	43	36	40	13	14	3	3	89	98	1	1	0	0	1	1
Area	All	180	59	33	3	2	45	25	73	41	60	33	5	3	14	8	101	56	80	44	68	38	27	15	5	3	177	98	2	1	0	0	1	1

8.2 Problem Encounterd in Processing

District	Operational Area	Sex		Threshing by machines - ranking																											
				Expensive								Wait so long								Machine breaks down								Other					
				N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	Babili	F	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
	Tom	F	9	9	100	0	0	0	0	0	0	9	100	0	0	0	0	0	0	9	100	0	0	0	0	0	0	9	100	0	0	0	0	0	0
		M	11	11	100	0	0	0	0	0	0	11	100	0	0	0	0	0	0	11	100	0	0	0	0	0	0	11	100	0	0	0	0	0	0
	Nandom	F	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
Nadowli	Daffiama	F	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
	Serekpere	F	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
	Takpoe	F	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	9	90	1	10	0	0	0	0	10	100	0	0	0	0	0	0
Jirapa	Tuggo	F	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	9	90	0	0	1	10	0	0	10	100	0	0	0	0	0	0
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
	Sigri	F	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
	Lambussie	F	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0
		M	10	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0	10	100	0	0	0	0	0	0

Problem Encounterd in Processing

District	Sex		Threshing by machines - ranking																												
			Expensive								Wait so long								Machine breaks down								Other					
			N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	F	29	29	100	0	0	0	0	0	0	29	100	0	0	0	0	0	0	29	100	0	0	0	0	0	0	29	100	0	0	0	0	0	0
	M	31	31	100	0	0	0	0	0	0	31	100	0	0	0	0	0	0	31	100	0	0	0	0	0	0	31	100	0	0	0	0	0	0
Nadowli	F	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
	M	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
Jirapa	F	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
	M	30	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0	30	100	0	0	0	0	0	0
Total	F	89	89	100	0	0	0	0	0	0	89	100	0	0	0	0	0	0	89	100	0	0	0	0	0	0	89	100	0	0	0	0	0	0
Survey	M	91	91	100	0	0	0	0	0	0	91	100	0	0	0	0	0	0	91	100	0	0	0	0	0	0	91	100	0	0	0	0	0	0
Area	All	180	180	100	0	0	0	0	0	0	180	100	0	0	0	0	0	0	180	100	0	0	0	0	0	0	180	100	0	0	0	0	0	0

Problem Encounterd in Processing

District	Operational Area	Sex		Grinding by machine - ranking																											
				Expensive								Wait so long								Machine breaks down								Diesel shortage					
				N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
				No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	Babili	F	10	1	10	0	0	2	20	7	70	1	10	1	10	5	50	3	30	3	30	3	30	3	30	1	10	8	80	1	10	1	10	0	0
		M	10	0	0	0	0	1	10	9	90	0	0	1	10	2	20	7	70	2	20	1	10	4	40	3	30	9	90	0	0	1	10	0	0
	Tom	F	9	0	0	0	0	0	0	9	100	0	0	1	11	5	56	3	33	2	22	2	22	4	44	1	11	6	67	0	0	3	33	0	0
		M	11	1	9	0	0	0	0	10	91	0	0	0	0	5	45	6	55	2	18	1	9	4	36	4	36	6	55	0	0	2	18	3	27
	Nandom	F	10	0	0	0	0	0	0	10	100	0	0	0	0	4	40	6	60	2	20	3	30	5	50	0	0	7	70	1	10	1	10	1	10
		M	10	0	0	0	0	0	0	10	100	0	0	0	0	5	50	5	50	3	30	2	20	3	30	2	20	7	70	1	10	0	0	2	20
Nadowli	Daffiama	F	10	0	0	0	0	0	0	10	100	0	0	3	30	2	20	5	50	0	0	4	40	6	60	0	0	7	70	1	10	2	20	0	0
		M	10	0	0	0	0	0	0	10	100	0	0	2	20	4	40	4	40	2	20	2	20	4	40	2	20	7	70	0	0	2	20	1	10
	Serekpere	F	10	0	0	0	0	0	0	10	100	0	0	0	0	5	50	5	50	1	10	3	30	5	50	1	10	8	80	0	0	1	10	1	10
		M	10	0	0	0	0	0	0	10	100	0	0	0	0	2	20	8	80	3	30	1	10	4	40	2	20	5	50	1	10	1	10	3	30
	Takpoe	F	10	2	20	0	0	0	0	8	80	2	20	0	0	3	30	5	50	4	40	2	20	4	40	0	0	8	80	1	10	0	0	1	10
		M	10	0	0	0	0	0	0	10	100	0	0	1	10	2	20	7	70	0	0	4	40	4	40	2	20	5	50	2	20	2	20	1	10
Jirapa	Tuggo	F	10	0	0	1	10	2	20	7	70	1	10	3	30	2	20	4	40	3	30	3	30	4	40	0	0	6	60	1	10	0	0	3	30
		M	10	0	0	0	0	0	0	10	100	0	0	1	10	4	40	5	50	0	0	3	30	5	50	2	20	8	80	1	10	0	0	1	10
	Sigri	F	10	0	0	0	0	0	0	10	100	0	0	2	20	2	20	6	60	4	40	4	40	2	20	0	0	8	80	2	20	0	0	0	0
		M	10	0	0	0	0	0	0	10	100	0	0	3	30	2	20	5	50	0	0	1	10	9	90	0	0	8	80	1	10	0	0	1	10
	Lambussie	F	10	0	0	0	0	0	0	10	100	0	0	3	30	2	20	5	50	0	0	2	20	6	60	2	20	7	70	2	20	1	10	0	0
		M	10	0	0	0	0	0	0	10	100	0	0	1	10	4	40	5	50	1	10	4	40	5	50	0	0	4	40	1	10	5	50	0	0

Problem Encounterd in Processing

District	Sex		Grinding by machine - ranking																												
			Expensive								Wait so long								Machine breaks down								Diesel shortage					
			N-R		1		3		5		N-R		1		3		5		N-R		1		3		5		N-R		1		3		5	
			No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Lawra	F	29	1	3	0	0	2	7	26	90	1	3	2	7	14	48	12	41	7	24	8	28	12	41	2	7	21	72	2	7	5	17	1	3
	M	31	1	3	0	0	1	3	29	94	0	0	1	3	12	39	18	58	7	23	4	13	11	35	9	29	22	71	1	3	3	10	5	16
Nadowli	F	30	2	7	0	0	0	0	28	93	2	7	3	10	10	33	15	50	5	17	9	30	15	50	1	3	23	77	2	7	3	10	2	7
	M	30	0	0	0	0	0	0	30	100	0	0	3	10	8	27	19	63	5	17	7	23	12	40	6	20	17	57	3	10	5	17	5	17
	F	30	0	0	1	3	2	7	27	90	1	3	8	27	6	20	15	50	7	23	9	30	12	40	2	7	21	70	5	17	1	3	3	10
Jirapa	M	30	0	0	0	0	0	0	30	100	0	0	5	17	10	33	15	50	1	3	8	27	19	63	2	7	20	67	3	10	5	17	2	7
Total	F	89	3	3	1	1	4	4	81	91	4	4	13	15	30	34	42	47	19	21	26	29	39	44	5	6	65	73	9	10	9	10	6	7
Survey	M	91	1	1	0	0	1	1	89	98	0	0	9	10	30	33	52	57	13	14	19	21	42	46	17	19	59	65	7	8	13	14	12	13
Area	All	180	4	2	1	1	5	3	170	94	4	2	22	12	60	33	94	52	32	18	45	25	81	45	22	12	124	69	16	9	22	12	18	10

8.3 Processed items

Items Processed

District	Op-Area	Village	Resp.	Processed item		
				Pitoh	Dawadawa	Other
Lawra	Babili	Tanchera	10	8	2	0
		Tongho	10	7	4	3
	Tom	Panyaan	10	4	0	0
		Kokodur	10	7	2	3
	Nandom	Kogle	10	8	0	3
		Puffien	10	8	0	7
Nadowli	Daffiama	Daffiama	10	10	0	0
		Guong	10	6	1	0
	Serekpere	Serekpere	10	3	0	5
		Guli	10	8	1	4
	Takpoe	Takpoe	10	9	0	1
		Gylli	10	8	0	4
Jirapa	Tuggo	Tuggo	10	7	0	0
		Wulling	10	6	1	0
	Sigri	Sigri	10	6	0	2
		Tigboro	10	8	1	4
Lambussie	Lambussie	Lambussie	10	6	2	4
		Sentu	10	9	0	0

District	Resp.	Processed item		
		Pitoh	Dawadawa	Other
Lawra	60	42	8	16
Nadowli	60	44	2	14
Jirapa	60	42	4	10
Total Survey Area	180	128	14	40

Volume Processed

District	Op-Area	Village	Resp.	Pitoh (gal.)							Dawadawa (kg)						
				N-R	<100	100-199	200-299	300-399	400-499	>499	N-R	<100	100-199	200-299	300-399	400-499	>499
Lawra	Babili	Tanchera	10	2	3	1	1	0	0	3	8	0	0	1	0	0	1
		Tongho	10	3	0	0	0	2	1	4	6	2	0	1	0	0	1
	Tom	Panyaan	9	5	0	0	0	2	0	2	9	0	0	0	0	0	0
		Kokodur	11	4	0	1	0	0	1	5	9	1	1	0	0	0	0
	Nandom	Kogle	10	2	1	1	0	1	0	5	10	0	0	0	0	0	0
		Puffien	10	2	1	0	0	1	0	6	10	0	0	0	0	0	0
Nadowli	Daffiama	Daffiama	10	0	0	0	0	0	0	10	10	0	0	0	0	0	0
		Guong	10	4	0	1	1	0	0	4	9	1	0	0	0	0	0
	Serekpere	Serekpere	10	7	0	0	0	1	0	2	10	0	0	0	0	0	0
		Guli	10	2	0	0	2	1	1	4	9	1	0	0	0	0	0
	Takpoe	Takpoe	10	1	0	0	1	1	0	7	10	0	0	0	0	0	0
		Gylli	10	2	1	1	1	1	1	3	10	0	0	0	0	0	0
Jirapa	Tuggo	Tuggo	10	3	2	1	0	1	0	3	10	0	0	0	0	0	0
		Wulling	10	4	2	1	0	0	0	3	9	1	0	0	0	0	0
	Sigri	Sigri	10	4	1	1	0	0	0	4	10	0	0	0	0	0	0
		Tigboro	10	2	1	3	0	2	0	2	9	1	0	0	0	0	0
Lambussie	Lambussie	Lambussie	10	4	0	1	0	1	0	4	8	1	1	0	0	0	0
		Sentu	10	1	0	1	0	1	0	7	10	0	0	0	0	0	0

District	Resp.	Pitoh (gal.)							Dawadawa (kg)						
		N-R	<100	100-199	200-299	300-399	400-499	>499	N-R	<100	100-199	200-299	300-399	400-499	>499
Lawra	60	18	5	3	1	6	2	25	52	3	1	2	0	0	2
Nadowli	60	16	1	2	5	4	2	30	58	2	0	0	0	0	0
Jirapa	60	18	6	8	0	5	0	23	56	3	1	0	0	0	0
Total Survey Area	180	52	12	13	6	15	4	78	166	8	2	2	0	0	2

Percentage Sold

District	Op-Area	Village	Resp.	Pitoh			Dawadawa		
				Percentage sold			Percentage sold		
				≤ 50	60 - 80	> 80	≤ 50	60 - 80	> 80
Lawra	Babili	Tanchera	10	0	5	1	0	2	0
		Tongho	10	0	7	0	2	2	0
	Tom	Panyaan	9	0	4	0	0	0	0
		Kokodur	11	0	6	1	1	1	0
	Nandom	Kogle	10	0	6	2	0	0	0
		Puffien	10	0	7	1	0	0	0
Nadowli	Daffiama	Daffiama	10	0	8	2	0	0	0
		Guong	10	0	5	1	1	0	0
	Serekpere	Serekpere	10	1	3	0	0	0	0
		Guli	10	0	7	1	1	0	0
	Takpoe	Takpoe	10	0	9	0	0	0	0
		Gylli	10	0	8	0	0	0	0
Jirapa	Tuggo	Tuggo	10	0	5	1	0	0	0
		Wulling	10	0	5	1	0	0	1
	Sigri	Sigri	10	1	7	0	0	0	0
		Tigboro	10	2	7	0	1	0	0
Lambussie	Lambussie	Lambussie	10	0	6	0	2	0	0
		Sentu	10	0	5	4	0	0	0

District	Resp.	Pitoh			Dawadawa		
		Percentage sold			Percentage sold		
		≤ 50	60 - 80	> 80	≤ 50	60 - 80	> 80
Lawra	60	0	35	5	3	5	0
Nadowli	60	1	40	4	2	0	0
Jirapa	60	1	40	4	2	0	0
Total	180	2	115	13	7	5	0

Village	No.	Name	Total family income	
			¢	GH ¢
Tanchera	1	Trenu Sore	8,530,000	853.0
	2	Yaaye Nibe	13,350,000	1,335.0
	3	Kuubar No Dere	1,995,000	199.5
	4	Touon Tingorokun	2,850,000	285.0
	5	Sielaar KpeniAnu	2,154,000	215.4
	6	Turikuu Maalee	3,780,000	378.0
	7	Steven Fitol	13,279,000	1,327.9
	8	James Zumenir	7,990,000	799.0
	9	Pogseri Tiere	700,000	70.0
	10	Kuudem Bontuo	1,550,000	155.0
Tongho	1	Kuuim Velee	11,600,000	1,160.0
	2	Kuumianaa Bagbieu	3,740,000	374.0
	3	Lanne Damsiri	3,880,000	388.0
	4	Paul Suuriwe	7,640,000	764.0
	5	Danbeta Bagnikuu	1,406,000	140.6
	6	Dery Kuuhhion	540,000	54.0
	7	Putuo Donyel	850,000	85.0
	8	Dongbebame Kyobre	50,000	5.0
	9	Nyinekaakone Donyal	1,340,000	134.0
	10	Proper Dongyel	8,360,000	836.0
Panyaan	1	Puorsop Dore	540,000	54.0
	2	Edward Yinbechaa	240,000	24.0
	3	Gyluase Yew	3,390,000	339.0
	4	Nowne Nakpe	7,920,000	792.0
	5	Lawrence Labour	530,000	53.0
	6	Ambile Nozagle	7,280,000	728.0
	7	Benedict Dawu	2,820,000	282.0
	8	John Kukede	3,650,000	365.0
	9	Cosmas Nasagzuing	4,200,000	420.0
	10	Bobtaari Bambaara	8,280,000	828.0
Kokodur	1	Grace Koskuu	5,972,000	597.2
	2	Victor Bakyogre	8,942,000	894.2
	3	Jacob Kobkuu	6,286,000	628.6
	4	Francis Kuunongme	4,540,000	454.0
	5	Robert Kobkuu	1,014,000	101.4
	6	Anthony Nikpen	2,240,000	224.0
	7	Francis Kobkuu	1,510,000	151.0
	8	Vitalis Kuunome	390,000	39.0
	9	Remigious Kobkuu	1,150,000	115.0
	10	Marcel Kobkuu	560,000	56.0
Kogle	1	John Bigra	1,670,000	167.0
	2	Didas Baalayel	7,954,000	795.4
	3	John Bosro Kuupoli	8,620,000	862.0
	4	Katherine Dery	36,100,000	3,610.0
	5	Isaac Kumpor	3,250,000	325.0
	6	Martin Bigra	5,380,000	538.0
	7	Valentine Tumeh	-	-
	8	Sabian Kombili	200,000	20.0
	9	Mathee Tugun	6,240,000	624.0
	10	Kasmin Komili	880,000	88.0
Puffen	1	Cecilia Kuusoore	9,349,000	934.9
	2	Deri Kuutagchen	4,470,000	447.0
	3	Daga Maalifaa	7,400,000	740.0
	4	Anchaasukang Naamwintuo	10,748,000	1,074.8
	5	Muonuo Tantuo	8,940,000	894.0
	6	Amastus K Dery	3,390,000	339.0
	7	Saali Domekuu	1,320,000	132.0
	8	Bagrviel Bul	900,000	90.0
	9	Kaazaare Tuobeseur	5,410,000	541.0
	10	Lawrence Tantuo	4,510,000	451.0

Daffiama	1	Paul Sugloy	7,920,000	792.0
	2	Matthew Dakura	3,320,000	332.0
	3	Emilio Domortiere	6,250,000	625.0
	4	Peter Paul Kazare	12,300,000	1,230.0
	5	J O Imoro	-	-
	6	Baalapuo Burenaah	2,600,000	260.0
	7	Lawrence Puozaah	17,640,000	1,764.0
	8	Tiibo Camillus	13,762,000	1,376.2
	9	P C Naah	36,720,000	3,672.0
	10	Alice Gbandala	1,480,000	148.0
Duong	1	Suglo Lieyeme	12,980,000	1,298.0
	2	Angsinan Tie	3,300,000	330.0
	3	Felix Donlyong	14,650,000	1,465.0
	4	Seidu Maabo	5,060,000	506.0
	5	Sangmeni Delo	5,800,000	580.0
	6	Stephen Nyukurung	2,140,000	214.0
	7	Dakurah Naa Deme	9,785,000	978.5
	8	Dasaah Bayor	2,480,000	248.0
	9	Florence Yuomi	8,000,000	800.0
	10	Mary Yeribu	5,260,000	526.0
Serekpere	1	Bertha Yirnabuo	3,920,000	392.0
	2	Mwinmiban Whitol	8,680,000	868.0
	3	Gaazienye Abuo	1,440,000	144.0
	4	Ata Salifu	26,425,000	2,642.5
	5	Yaw Abule	4,712,000	471.2
	6	Nuhu Chegone	1,450,000	145.0
	7	Tongye Bawa	1,610,000	161.0
	8	Malbo Igero	960,000	96.0
	9	Atta Sulley	6,220,000	622.0
	10	DaanaaDago	4,495,000	449.5
Guli	1	Datuah Godfred	56,400,000	5,640.0
	2	John Bosco Datuah	13,430,000	1,343.0
	3	Maalikuuri Dunkow	7,240,000	724.0
	4	Bambazii Banga	8,560,000	856.0
	5	Gandis Saadaar	2,680,000	268.0
	6	Kwame Tuoyele	7,610,000	761.0
	7	Hasumuun Dunkwa	2,466,000	246.6
	8	Kwesi Bawa	10,978,000	1,097.8
	9	Habiba Kusani	17,200,000	1,720.0
	10	Samwini Bernard	14,847,000	1,484.7
Takpoe	1	Doodi Yeme	3,410,000	341.0
	2	Philip Nabile	11,960,000	1,196.0
	3	Albert Bombaa	3,060,000	306.0
	4	Andrews Domiyom	19,810,000	1,981.0
	5	Kwabena Sabogu	2,250,000	225.0
	6	Hon. Salia Mohamed	300,000	30.0
	7	Edward Badiwyela	6,710,000	671.0
	8	Dari Topie	12,730,000	1,273.0
	9	Sarfo Dakwa	7,750,000	775.0
	10	Kofi Adams	8,010,000	801.0
	1	Kwaku Domantiere	16,240,000	1,624.0
	2	Philip Banienuba	16,750,000	1,675.0
	3	Mamadu Damatiada	2,940,000	294.0
Gylli	4	Aziz Piansube	3,460,000	346.0
	5	Richard Donmee	3,680,000	368.0
	6	Stephen Bangyiine	10,670,000	1,067.0
	7	Jonathan Saayelle	14,850,000	1,485.0
	8	Naa Saayelle	21,028,000	2,102.8
	9	Zac Salia	12,524,000	1,252.4
	10	Richmond K. Suglo	10,700,000	1,070.0

Tuggo	1	Dasaa Dari	1,750,000	175.0
	2	Albert kayaani	598,928,000	59,892.8
	3	Baadebo Biere	11,430,000	1,143.0
	4	Doozoolah Framers Gelle	10,700,000	1,070.0
	5	Timothy Dapilah	56,300,000	5,630.0
	6	Naa Daniel Tambah	1,400,000	140.0
	7	Benett Derry Duo	1,715,000	171.5
	8	Soodong Boorteru	2,120,000	212.0
	9	Tamba Ali	1,340,000	134.0
	10	Tampila Richard Dortuo	3,380,000	338.0
Wulling	1	Naamwinyel Koor	10,800,000	1,080.0
	2	Celment Domoh	7,400,000	740.0
	3	Gyra Dooh	6,320,000	632.0
	4	Nimbo Gyenuka	14,550,000	1,455.0
	5	Nyohwa Dondoyuo	7,160,000	716.0
	6	Maasutuo Faazie	7,920,000	792.0
	7	Dassah Tegnikuu	6,505,000	650.5
	8	Nangbol Nyuori	3,280,000	328.0
	9	Guoroh Kyeteu	2,312,000	231.2
	10	Diebuma Dafaa	3,120,000	312.0
Sigiri	1	Norbet Mwinyele	7,800,000	780.0
	2	Eric Bayor	8,320,000	832.0
	3	Boniface Tankpaa	10,350,000	1,035.0
	4	Dona Ali	10,180,000	1,018.0
	5	Timothy Ali	10,160,000	1,016.0
	6	Mwitoba Kodwo	1,410,000	141.0
	7	Guoror Jabila	4,320,000	432.0
	8	Tawiah Boyor	3,395,000	339.5
	9	Bede Doolee	4,295,000	429.5
	10	Mwinnanbuoro Bayor	2,800,000	280.0
Tigboro	1	Wiele Doodaa	7,600,000	760.0
	2	Wiele Laadi	1,970,000	197.0
	3	Daniel Bayoo	300,000	30.0
	4	Timothy Wiele	2,150,000	215.0
	5	Samuel K Bayoo	900,000	90.0
	6	Yirinoma Yizagla	1,920,000	192.0
	7	Jefiiri Tingan	1,280,000	128.0
	8	Bagberi Bayoo	6,900,000	690.0
	9	Rose Kafirungta	-	-
	10	Abraham Yelvieli	348,000	34.8
Lambussie	1	Ibrahim Mamatha	3,340,000	334.0
	2	Victor B. Damiano	36,040,000	3,604.0
	3	Kankyo Thomas	63,000,000	6,300.0
	4	Amakyie Basing	5,470,000	547.0
	5	Yusi Menphis	31,000,000	3,100.0
	6	Towerelam Musah	4,735,000	473.5
	7	Laadi Moryoh	1,180,000	118.0
	8	Amadu Suglo	1,990,000	199.0
	9	Baloro Baamoyoh	29,800,000	2,980.0
	10	Jalia Sulemani	1,900,000	190.0
	1	Boo Fulgencio	4,400,000	440.0
Sentu	2	Muryi Dekumwin	28,930,000	2,893.0
	3	Mathias Dery	3,114,000	311.4
	4	Hipolite Dapillah	16,290,000	1,629.0
	5	Kukuridong Bayor	4,600,000	460.0
	6	Anthony Kog	5,730,000	573.0
	7	Ralio Treawer	7,310,000	731.0
	8	Gervase Dapilah	4,480,000	448.0
	9	Christiantus Beayou	4,884,000	488.4
	10	James Bogdeme	8,220,000	822.0